HALIFAX
REGIONAL MUNICIPALITY

P.O. Box 1749
Halifax, Nova Scotia
B3J 3A5 Canada

Item No. 1
Halifax Regional Council
January 11, 2011

TO: Mayor Kelly and Members of Halifax Regional Council

SUBMITTED BY: Original Signed by Director

Ken Reashor, P. Eng., Director, Transportation & Public Works

DATE: November 29, 2010

SUBJECT: Waste Stabilization Facility (WSF) –
Roof Replacement & Structural Project

INFORMATION REPORT

ORIGIN

September 24, 2009 meeting of the Solid Waste Resource Advisory Committee.

Motions approved by Regional Council on October 20, 2009 and November 17, 2009 related to the WSF Roof Replacement & Structural Project.

Regional Council approval of the 2010/11 Project Budget on May 25, 2010 – Project # CWU01062, Waste Stabilization Facility Otter Lake, in total amount of $3,640,712 (including amounts approved for this project in previous fiscal years).

BACKGROUND

In October and November of 2009, Regional Council approved the initial funding and a project plan for the Waste Stabilization Facility Roof Replacement and Structural Project. The approved project plan was to proceed with the assessment of and undertake any required priority structural work, and then in the spring of 2010, cease operations for five to six months in order to commence demolition and new construction of the Waste Stabilization Facility roof.

Pursuant to Section 16, "Capital Improvements" of the 1997 multi-year "HRM - MIRROR NS Agreement for the Design, Construction and Operation of Components of HRM's Solid Waste Facilities", MIRROR NS would coordinate the construction of this project, subject to preparation of final design, receipt of regulatory approvals and details to be negotiated and finalized with HRM. As Stantec completed the original WSF structural review and assessment report for HRM in July and August 2009 (as per Director's Award Report dated March 9, 2009 with cost of $40,712 inc. net HST), they were also engaged by HRM as "owner's engineer" for design review and verification of quantities and unit costs based on the specifications and detail drawings prepared by MIRROR NS's design engineers (BMR Structural Engineering). See page 4 of the SWRAC Report dated September 24, 2009 (attached) that outlines this approach and these roles for MIRROR NS and Stantec on this project.

DISCUSSION

A work plan was prepared for a detailed roof inspection of six strategic locations on the roof, and this was undertaken with the assistance of a roofing subcontractor in early January 2010. The detailed inspection assessment report prepared by Stantec, dated January 18, 2010, re-confirmed the deteriorated and corroded condition of the roof and supports but that no temporary structural work (i.e. twinning of structural "purlins") was necessary at that time. Rather, the report advised of a requirement of monitoring for any build-up of snow loads through the winter months, and that detailed design be expedited for replacement of the roof purlins and roof system, reinforcement of the main frames as necessary, and rehabilitation of the building envelope system, commencing in Spring of 2010.

Based on the results of the above assessment report, MIRROR NS was requested on January 21, 2010, to expedite and undertake detailed design, project cost estimates, cost substantiation, cost proposal, project coordination and scheduling for this WSF project. HRM received a project cost estimate and proposed project schedule from MIRROR NS on March 11, 2010, and preliminary drawings on April 8, 2010. NS Environment issued approval on May 5, 2010, for a variance to the site Operating Approval, to allow emptying of the WSF for this demolition and construction project. HRM had Stantec perform a design, cost and quantity review of the MIRROR NS submission, and followed up with questions regarding drawings and specifications during April and May 2010. MIRROR NS provided answers to follow-up questions over this period and issued revised drawings (from BMR Engineering), along with a more detailed costing on May 21, 2010. MIRROR NS finalized tendering in June and July for some project components including the "Stayflex" rigid foam insulation coating that will help protect the building's metal structure from corrosive conditions.

As outlined on page 6 of the SWRAC Report dated September 24, 2009 (see attached), the design of the roof, building envelope, and structure for this project, incorporates a foam insulation and coating system that will be highly resistant to moisture, heat and corrosive conditions in the WSF (this improved design will provide additional corrosion protection to the metal surfaces). Final details, specifications, regulatory approval, tendering and costing for this component of the project were worked out by early August, 2010.

Stantec, in conjunction with HRM, completed the design and cost review of MIRROR NS's submission(s) and finalized project scope, design, drawings, specifications and construction cost details with MIRROR NS for a project cost of $3,451,887.50 (including net HST). This is the total cost for MIRROR NS's completion of the project coordination, design, demolition and new construction in the WSF. Stantec's work on detailed roof assessment, regulatory liaison, work plan, design, cost and quantity review (i.e. "owner's engineer" services, additional work and WSF Structural Report 2008/09) is for a maximum amount of $67,631 (including net HST). The total gross project cost for Project # CWU01062, Waste Stabilization Facility Otter Lake is in the amount of $3,519,518 (including net HST).

The preliminary estimated cost for this project, including fees for owner's engineer, margin and contingency, was $3,550,000 as identified on page 4 of the SWRAC Report dated September 24, 2009 (see attached).

Concurrently with this project and while the WSF facility was shutdown and items were accessible, MIRROR NS was requested to assess the condition of any other areas of the WSF that may require attention or capital maintenance due to corrosion, etc. This assessment identified work to be done on a number of equipment items, namely, the agitator rails, louvres, some supports and electrical tray replacements, thermocouples as well as some aeration piping work. MIRROR NS was requested to complete these items as additional items within the Otter Lake Equipment project budget for this year.

Under the Infrastructure Stimulus Funds program, there is a requirement to complete this project by March 31, 2011. As of late November, 2010, the project is estimated at greater than 90% completion with substantial completion expected within the next two weeks.

BUDGET IMPLICATIONS

There are no budget implications with this report.

Gross budget for the project is $3,640,712. The WSF Roof Replacement and Structural Project was submitted and approved by the Federal and Provincial Governments through the Infrastructure Stimulus funds program, with total funding contribution in the amount of $2,000,000. The remaining $1,640,712 is to be funded by Q137 Regional Capital Cost Charges Reserve.

Budget Summary: **Project No. CWU01062, WSF Roof Replacement and Structural Project**

Gross Project Budget (Fiscals 2008/09, 2009/10, 2010/11)	$3,640,712
Less: Stantec WSF Structural Report (2008/09)	$40,712
Less: MIRROR NS Roof/Structural Project (2009/10, 2010/11)	$3,451,887
Less: Stantec WSF Structural Report (additional work)	$8,677
Less: Stantec "owner's engineer" services (2009/10, 2010/11)	$18,242
Balance of Gross Budget	$121,194

FINANCIAL MANAGEMENT POLICIES/BUSINESS PLAN

This report complies with the Municipality's Multi-Year Financial Strategy, the approved Operating, Project and Reserve budgets, policies and procedures regarding withdrawals from the utilization of Project and Operating reserves, as well as any relevant legislation.

COMMUNITY ENGAGEMENT

It is noted that the Community Monitoring Committee for the Otter Lake Facilities was consulted on the design and schedule aspects of this project in conjunction with the Solid Waste Resources Advisory Committee.

ATTACHMENTS

Solid Waste Resources Advisory Committee Report to Council dated November 2, 2009, and all attachments (including SWRAC Report to Council dated October 6, 2009, and Staff Report to SWRAC dated September 14, 2009).

A copy of this report can be obtained online at http://www.halifax.ca/council/agendasc/cagenda.html then choose the appropriate meeting date, or by contacting the Office of the Municipal Clerk at 490-4210, or Fax 490-4208.

Report Prepared by: Robert Orr, P. Eng., Coordinator, Collection & Processing, ph. 490-6698
Gord Helm, MPA, Manager, Solid Waste Resources, ph. 490-6606

Report Approved by: Original Signed
Gord Helm, MPS, Manager, Solid Waste Resources, ph. 490-6606

HALIFAX
REGIONAL MUNICIPALITY

PO Box 1749
Halifax, Nova Scotia
B3J 3A5 Canada

Item No. 10.3.1

Halifax Regional Council
November 17, 2009

TO: Mayor Kelly and Members of Halifax Regional Council

SUBMITTED BY: Councillor Bill Karsten, Chair
Solid Waste Resource Advisory Committee

DATE: November 2, 2009

SUBJECT: **Replacement of Roof - Waste Stabilization Facility, Otter Lake**

ORIGIN

Motion of Council from October 20, 2009:
That Regional Council:

1. *Approve a gross budget increase to Capital Project No. CWU01062 Structural Assessment WSF Otter Lake, Phase I "Reinforcement" in the amount of $754,310.30 (including net HST). Two-thirds of the funding, $502,873.53, will come from Federal and Provincial governments as part of the Infrastructure Stimulus funds program. One-third, in the amount of $251,436.76, will be withdrawn from Q137, Regional Capital Cost Contribution Reserve. There will be no net increase to the Capital Budget.*

2. *Approve an unscheduled reserve withdrawal from Q137, Regional Capital Cost contribution, in the amount of $251,436.76.*

3. *With respect to options 1 or 2, that a joint meeting of the Solid Waste Resource Advisory Committee and the Community Monitoring Committee be arranged within the next week to come back to Regional Council with a recommendation.*

RECOMMENDATION

The Solid Waste Resource Advisory Committee recommends that Halifax Regional Council approve Option # 2, i.e. demolition and new construction of the WSF roof with the ceasing of operations for five to six months, as contained in the Staff report dated September 24, 2009.

BACKGROUND/DISCUSSION

At the September 24, 2009 meeting of the Solid Waste Resource Advisory Committee, Mr. Jim Bauld, Manager of the Solid Waste Resources, presented the attached staff report dated September 14, 2009. At that time, the Solid Waste Resource Advisory Committee moved the staff recommendation as presented.

At the October 20, 2009, Halifax Regional Council, as part of their recommendation, approved that a joint meeting of the Solid Waste Resource Advisory Committee and the Community Monitoring Committee be arranged within the next week to come back to Regional Council with a recommendation with respect to options 1 or 2.

On October 22, 2009, a joint Meeting of the Solid Waste Resource Advisory Committee and the Community Monitoring Committee was held at the direction of Council to discuss the variance of opinion between the consultant's report and the Community Monitoring Committee (CMC) recommendation. The Community Monitoring Committee (CMC) outlined its reasoning for selecting Option #2. No decision was made at this time.

On October 30, 2009, a meeting of the Solid Waste Resource Advisory Committee was held to discuss their recommendation to Council. Mr. Bauld reviewed the two options presented to the Committee. After a lengthy discussion, the Solid Waste Resource Advisory Committee voted unanimously to recommend Option #2 as laid out in the staff report dated September 14, 2009.

BUDGET IMPLICATIONS

Please see the staff report dated September 14, 2009 (Attachment A)

FINANCIAL MANAGEMENT POLICIES / BUSINESS PLAN

This report complies with the Municipality's Multi-Year Financial Strategy, the approved Operating, Capital and Reserve budgets, policies and procedures regarding withdrawals from the utilization of Capital and Operating reserves, as well as any relevant legislation.

ATTACHMENTS

1) Memo from Community Monitoring Committee - Solid Waste Strategy dated October 13, 2009

2) Solid Waste Resource Advisory Committee Report dated October 6, 2009.

Additional copies of this report, and information on its status, can be obtained by contacting the office of the Municipal Clerk at 490-4210, or Fax 490-4208.

Report Prepared by: Barbara Coleman, Legislative Assistant

Re: Item No. 11.3.2

COPY

COMMUNITY MONITORING COMMITTEE

SOLID WASTE STRATEGY OCT.13/09

To: HRM Council committee clerk

We are pleased to provide our advice /recommendation on the proposed works for the replacement of the roof structure for the WSF facility at the landfill .

We have met with representatives of HRM solid waste staff and the consultants (Stantec) retained by HRM to design and oversee the project .

The information presented to CMC has identified (2)options being :

A. Three phase approach to structural upgrade & roof replacement

-time frame estimate from 365 to 468 days .WSF under modified operations, partial shutdown of bays from 65 to 90 days

B. Demolition and new construction

-time estimate from 135 up to 180 days ,WSF shutdown for this period .

During the presentation by HRM staff and consultants it became clear that under both options there will be a by-pass of organic material to the landfill. This issue is our primary focus given the CMC mandate to protect the interests of the community and adherence to the solid waste strategy.

However we know that the strategy is designed to provide safety and protection to the community population and the environment . The protective covenants on the operation of the landfill is at the core of CMC'S monitoring and accountablity responsibilities ; and indeed ,is the very basis of our contract between HRM and CMC .

The collateral issue with this proposal represents safety and health issues to the employees operating the WSF and also to the contractor,s employees . We heard from mirror , the facility operator who have expressed serious concerns with option A as they would continue to partially operate the WSF during construction .Their advice based on the operating environment of the WSF indicates a major risk to employees in the facility which will be difficult to manage during certain points in the construction schedule .

The discussion with your consultants and staff confirmed these risks and additionally there is no guarantee that the modified process during construction in option A could be achieved .The contractor

ATTACHMENT 2

HALIFAX
REGIONAL MUNICIPALITY

PO Box 1749
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Item No. 11.3.2

Halifax Regional Council
October 20, 2009

TO: Mayor Kelly and Members of Halifax Regional Council

SUBMITTED BY: Bill Karsten
Councillor Bill Karsten, Chair, ~~Solid Waste~~ Resource Advisory Committee

DATE: October 6, 2009

SUBJECT: **Replacement of Roof - Waste Stabilization Facility, Otter Lake - Advanced Approval 2010/11 Capital Budget**

ORIGIN

September 24, 2009 meeting of the Solid Waste Resource Advisory Committee.

RECOMMENDATION

The Solid Waste Resource Advisory Committee, pending signing of the Federal/Provincial funding agreement, recommends that Halifax Regional Council:

1. Approve a gross budget increase to Capital Project No. CWU01062 Structural Assessment WSF Otter Lake, Phase I "Reinforcement" in the amount of $754,310.30 (including net HST). Two-thirds of the funding, $502,873.53, will come from Federal and Provincial governments as part of the Infrastructure Stimulus funds program. One third, in the amount of $251,436.76, will be withdrawn from Q137, Regional Capital Cost Contribution Reserve. There will be no net increase to the Capital Budget.

2. Approve an unscheduled reserve withdrawal from Q137, Regional Capital Cost Contribution, in the amount of $251,436.76.

BACKGROUND/DISCUSSION

At the September 24, 2009 meeting of the Solid Waste Resource Advisory Committee, Mr. Jim Bauld, Manager of Solid Waste Resources, presented the attached staff report dated September 14, 2009. He advised that the structure of the Waste Stabilization Facility at the Otter Lake site was corroded and that the structure and roof require work; noting that this had not been included in the Capital Budget as the cost was unknown at the time it was tabled.

Mr. Bauld briefed the committee on the contents of a consultant report prepared for HRM by Stantec on the WSF Structure. He indicated that staff was recommending a three phased approach for the structural upgrade and roof replacement for the WSF. He noted that the phased approached allowed for the least disruption/modification to the operations in the WSF and for the shortest period of time. However, the alternative approach, which was preferred by Mirror, would be to shut the facility down for five to six months and bypass the WSF by disposing directly into the landfill.

Mr. Bauld noted that Stantec had reviewed the project and reported back that the alternative approach would have a cost savings of approximately $315,000, and would result in a shorter time frame for completion of the overall project. He stated, however, that HRM staff was recommending the three phased approach which did not require a lengthy closure of the facility, and continues stabilization of the organic portion of waste in the WSF. He advised that for either the phased or alternative approach, the priority structural work of assessment and twinning of necessary roof structural elements will occur this fall.

Mr. Bauld advised that time was of the essence, as the total project had to be completed by March 31, 2011 in order to qualify for Federal infrastructure funding.

The Solid Waste Resource Advisory Committee moved the staff recommendation as presented.

BUDGET IMPLICATIONS

Please see the staff report dated September 14, 2009 (Attachment A).

FINANCIAL MANAGEMENT POLICIES / BUSINESS PLAN

This report complies with the Municipality's Multi-Year Financial Strategy, the approved Operating, Capital and Reserve budgets, policies and procedures regarding withdrawals from the utilization of Capital and Operating reserves, as well as any relevant legislation.

ALTERNATIVES

The Solid Waste Resource Advisory Committee has not provided any alternatives. Staff have provided alternatives in the attached staff report dated September 14, 2009.

ATTACHMENTS

Attachment A: Staff report dated September 14, 2009
Attachment B: Community Monitoring Committee Memorandum on the Waste Stabilization Facility

A copy of this report can be obtained online at http://www.halifax.ca/council/agendasc/cagenda.html then choose the appropriate meeting date, or by contacting the Office of the Municipal Clerk at 490-4210, or Fax 490-4208.

Report Prepared by: Shawnee Gregory, Legislative Assistant, 490-6521

Attachment A

HALIFAX
REGIONAL MUNICIPALITY

PO Box 1749
Halifax, Nova Scotia
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Solid Waste Resource Advisory Committee
September 24, 2009

TO: Bill Karsten, Chairman and Members of the Solid Waste/Resource Advisory Committee

SUBMITTED BY: Mike Labrecque, P.Eng., Director, T&PW

Jim Bauld, Manager, Solid Waste Resources

DATE: September 14, 2009

SUBJECT: **Replacement of Roof - Waste Stabilization Facility (WSF), Otter Lake - Advanced Approval 2010/11 Capital Budget**

ORIGIN

- MIRROR Nova Scotia, operator of the HRM Otter Lake mixed waste processing and disposal facility;
- National Building Code.

RECOMMENDATION

It is recommended that the Solid Waste Resource Advisory Committee, pending signing of the Federal/Provincial funding agreement, recommend that Regional Council:

1. Approve gross budget increase to Capital Project No. CWU01062 Structural Assessment WSF Otter Lake, Phase I "Reinforcement" in the amount of $754,310.30 (including net HST). Two-Thirds of the funding, $502,873.53, will come from Federal and Provincial governments as part of the Infrastructure Stimulus funds program. One third, in the amount of $251,436.76, will be withdrawn from Q137, Regional Capital Cost Contribution Reserve. There will be no net increase to the Capital Budget.

2. Approve an unscheduled reserve withdrawal from Q137, Regional Capital Cost Contribution, in the amount of $251,436.76.

BACKGROUND

Community Stakeholder Strategy/ HRM Integrated Solid Waste /Resource Management System

In 1996 Regional Council approved the Community Stakeholder Committee (CSC) Integrated Solid Waste/Resources Management Strategy as the basis of the new waste management system for the Region. The CSC developed HRM ISW/RMS contains seven principles.

Principle # 4 specifies that "Stable and Inert Material Only will be Disposed in the Landfill".

Function of the Otter Lake Waste Stabilization Facility:

The Waste Stabilization Facility (WSF) is a key component of the HRM Integrated Solid Waste/Resource Management System. The WSF was constructed in 1998/99 at the same time as the Front End Processor (FEP) and the Residual Disposal Facility (RDF), i.e. landfill, at the Otter Lake site. The function of the WSF is to decompose putrescible matter, i.e. food and/or leaf and yard waste, over a three-week period under controlled conditions (i.e. temperature and moisture) for stabilization prior to disposal in the landfill.

The WSF is the physical embodiment of the commitment to residents of the local community, approved by Regional Council, that no raw putrescible organic matter is permitted in the landfill. The processing of all organic matter hidden in the waste received at the Otter Lake facility prior to disposal (plus the removal of all hazardous materials from the waste stream in the FEP, for off-site disposal), are two key conditions upon which the siting of the Otter Lake facility was approved by Regional Council in 1997.

In the early years (1999/00 and 2000/01) of operation, the amount of organics mixed with refuse received at the Otter Lake site was more substantive than in later years, as residents of HRM became accustomed and more familiar with the requirement for separating their organic material at source (i.e. at home and at work) for composting at one of the two HRM sponsored compost facilities. For the calendar year 2001, approximately 34,500 tonnes of organic material (and small pieces of glass, metal and plastic which passes through the trommels sieves) was processed in the WSF, with approximately 26,850 tonnes exiting the WSF. The approximate 7,650 tonne (22%) reduction in weight in 2001 was the decomposition of organic material. For the calendar year 2008, approximately 31,850 tonnes entered the WSF, with 25,300 tonnes exiting, for a 6,550 tonne (20%) weight reduction.

Based on a population in HRM in 2001 of 359,100, approximately 21.3 kg/per capita/year of organic matter was received and processed at the WSF. This compares to 16.5 kg per capita/year in 2008, for a 22% reduction of organic matter received at the WSF.

Condition of the Waste Stabilization Facility:

In 2008, MIRROR Nova Scotia advised that the roof of the WSF is severely corroded and the structural integrity of the entire roof system may be at risk as corrosion progresses. Project CWU01062 "Structural Assessment WSF, Otter Lake", was approved in the 2008/09 Capital Budget in the amount of $25,000, for a structural engineer to complete an assessment of the wall and roof system to determine the scope and scale of repairs required. The 2008/09 Capital Budget identified $1,000,000 in FY 2010/11 for completion of the repairs to the WSF roof.

In FY 2008/09, Stantec Consulting Ltd. was contracted by the HRM to review past assessment data and reports completed by MIRROR NS to date and to complete a thorough assessment of the WSF facility structure, roofing system and roof. Stantec has recently confirmed that the main structural components of the WSF roof are not compliant with the National Building Code, and that major remedial measures are required. Attachment # 1 is the Executive Summary of the Stant ec report, accompanied with pages 5.3 and 5.4 "Sequence of Construction" (three phases are recommended), and page 5.8 "Cost, Phase I - Reinforcement", cost of which is $663,365.27 (including net HST). Total cost for Phase I is $754,310.30 which includes margin for MIRROR NS and Phase I payment to Stantec as HRM's owner engineer.

DISCUSSION

Phased Replacement of the WSF Roofing System - Continued Operation of WSF:

The report provided by Stantec identified a three-phased approach for the structural upgrade and replacement of the WSF roof, with "Phase I - Reinforcement" proceeding in the fall of 2009, with completion late this FY.

Subject to approval by SWRAC and Regional Council, the three-phases will be comprised of:

- Phase I - Reinforcement - Building Frame/Columns - proposed for fall/winter 2009/10;
  (Note: Phase I includes "Priority Structural Work", including assessment and twinning of necessary roof structural elements this fall, is applicable to both the staff recommendation and Alternate # 2, which is preferred by MIRROR Nova Scotia. (The safety of MIRROR staff and that of the contractors is of paramount importance and can be accomplished by either approach.);
- Phase II - New Construction - Roofing System/Sprinkler - proposed for spring 2010;
- Phase III - Demolition/Coating of Walls - proposed to be completed in spring/summer 2010.

The total preliminary project cost estimates of the three-phased approach, as provided by Stantec, is $3,003,261.95, which includes a 15% contingency of $346,530.23, (excluding applicable taxes).

Although Project # CWU01062 "Structural Assessment WSF Otter Lake" (total project cost of $2,750,000) was submitted for approval in the 09/10 Capital Budget (the Approved 2008/09 Capital Budget identified $1,000,000 total project cost for completion in FY 2009/10), due to the unavailability of information regarding the WSF roof replacement scope and cost prior to the approval process, this project was not included in this FY's Capital Budget.

Including the fee for Stantec, as HRM's owner engineer, and estimated margin for MIRROR plus a contingency, the total project cost is approximately $3,550,000.

Funding Source:

The replacement of the WSF roof has been submitted and approved in the Federal Infrastructure program.

Funding in the amount of $900,000 is available in Q137 - Regional Capital Cost Charges Reserve (GL 5512) for Solid Waste Resources. Annual funding in the same amount of $900,000 is expected to be available for future Solid Waste Resources capital projects (e.g. new landfill cells, closing of cells, landfill gas systems, recapitalization of buildings, etc.) at the Otter Lake mixed waste processing and disposal facility. Another potential funding source is Q123 - Waste Resources Capital Reserve.

Project Coordinator:

Pursuant to Section 16 'Capital Improvements' of the 1997 (25-year) Contract Agreement, MIRROR NS, as the facility operator-who has indemnified the HRM from all environmental liabilities for the Otter Lake site for twenty-five years of operation and thirty years after the site is closed, is prepared to coordinate/administer the project. Attachment # 2 is a letter of September 16, 2009, from MIRROR NS confirming the same.

MIRROR NS has advised that for reasons relating to a shorter total project length, less interruption in the normal operations of the WSF, and potentially a less hazardous work place for demolition contract staff inside the WSF (as compared to the three-phase approach), that they prefer Alternate # 2, not the staff recommended three-phase approach.

In 2000/01, Regional Council approved a $2,000,000 expansion of the FEP at Otter Lake, which was administered by MIRROR NS and their consultant Dillon Engineering. In 2001, CBCL Engineering Ltd., HRM's owner engineer, was engaged to provide third party verification of the design and costs of the expansion of the FEP. A similar approach, to be negotiated and finalized with MIRROR NS, is proposed for the Phased Replacement of the WSF Roof.

Demolition and Removal of Existing Roof:

The structural upgrade, construction and demolition and removal of the existing roof/roof system will be in compliance with the applicable regulatory, i.e. NS Department of Labour, NS Environment and HRM permit requirements. The phasing of the project is intended to isolate construction and demolition contractors' staff from the atmospheric conditions of high heat and moisture and acidity within the WSF. The phased approach is also designed for the continued operation of the WSF, although at a reduced capacity (during demolition and some structural work) under negative air pressure with the release of air through the biofilter.

For Phase I "Reinforcement - Building Frame/Columns", the work will be completed from the outside on the top of the existing roof, and from along the inside of the external walls which will be physically separated by a temporary plastic curtain wall from the active composting area, for the protection of the contractors. All contractors' personnel will be provided with full personal protection devices, i.e. goggles, gloves, and air respirators, as necessary. The "Priority Structural Work", including assessment and twinning of necessary roof structural elements, will occur inside in select areas with all appropriate protective measures.

For Phase II "New Construction-Roof System/ Sprinkler", the work will be completed above and exterior of the old roof - thereby not exposing the contractor's staff to the atmospheric conditions within the WSF, again for the safety of the contractors' workers, and continued operations of the WSF.

For Phase III - "Demolition-Coating of the Walls" - the removal of the old roof/roofing system will be completed as follows:

- where possible, removal of sections of the old roof from the exterior of the building;
- cordoning off interior sections of the facility, the emptying of likely three of the fourteen bays/bunkers at a time, the installation of plastic wall sheeting and scaffolding in the empty bays/bunkers to access the removal of the old roof. The physical separation through the use of a floor ceiling plastic curtain is designed to help protect contractors' staff from the atmospheric conditions, while the organic matter in the other bays/bunkers continues to be processed; and
- painting and insulating interior framing and structural elements to ensure corrosion protection

Infrastructure and Asset Management is aware of this project. Staff does not anticipate that other major buildings and components at the Otter Lake facility will require replacement, as the WSF is the only building structure that is subject to harsh conditions causing corrosion from the rapid decomposition of organic material. A similar replacement and methodology of roof/roofing systems has been successfully completed at private compost and industrial food processing facilities locally and in the USA.

New Roof/Roofing System:

The new roof/roofing system will include a rigid foam insulation coating that is impenetrable to the corrosive conditions inside the WSF. The "Stay Flex" product has a proven track record performing successfully in composting and major food processing facilities in Rhode Island and other locales in North America, for more than 20 years. The rigid foam outer coating is impenetrable to moisture, heat and high acidic conditions; while the inner softer foam coating is flexible to withstand the contraction and expansion of metal building roof frame and sheeting, without suffering failure, i.e. cracking.

Community Protection:

The replacement of the WSF roof in three phases is consistent with and maintains Regional Council's approval in 1996/97 (and commitment to the local community, which was a paramount condition of the approval of the Otter Lake site for the new regional waste disposal facility), that organic material is composted prior to disposal in the RDF (landfill). The operating approval for the Otter Lake mixed waste processing and disposal facility issued by NS Environment in 1998/99, specifies that organics are to be composted in the WSF for a period of eighteen days prior to being disposed in the landfill.

The three phase approach minimizes the risk of release of odours into the adjacent community, as the WSF will continue (at a reduced processing capacity with likely three of the fourteen bays empty while the old roof is removed overhead) to operate under negative air pressure, with the odour from the organic material in the bays/bunkers exhausted through the biofilters.

BUDGET IMPLICATIONS

The WSF Roof Replacement has been submitted and approved in principle by the Federal Government as a Federal Infrastructure project.

Funding for Phase I is available through approval of Capital Project No. CWU01062 "Structural Assessment WSF Otter Lake - Phase I - Reinforcement", in the amount of $754,310.30 (including net HST), with funding from Capital Cost Charges Reserve (Q137) for one third of the Phase I cost. The budget availability has been confirmed by Financial Services.

Budget Summary: Capital Project No. CWU01062, WSF Structural Assessment - Otter Lake - Phase I Reinforcement

Increase Gross Capital Budget	$754,310.30
Less: Federal/Provincial Infrastructure Stimulus Funds	$502,873.53
Less: Reserve withdrawal Q137	$251,436.77
Increase to Net Budget	0.00

Summary: Q137 - Capital Cost Contribution Reserve

Cumulative Unspent- Reserve Q137	$1,079,404.00
Less: Withdrawal for CWU01062	$ 251,436.77
Balance	$ 827,967.23

Funding requirements for Phase 2 and 3 will be submitted in the Proposed 2010/11 Capital Budget.

FINANCIAL MANAGEMENT POLICIES / BUSINESS PLAN

This report complies with the Municipality's Multi-Year Financial Strategy, the approved Operating, Capital and Reserve budgets, policies and procedures regarding withdrawals from the utilization of Capital and Operating reserves, as well as any relevant legislation. If approved, there will be an increase to the gross capital budget but not the net and an increase to reserve withdrawals.

ALTERNATIVES

1. **Delay Phase I "Reinforcement - Building Frame/Columns":**

   One alternative is to delay Phase I, to be combined with Phase II and Phase III in the Proposed 2010/11 Capital Budget. The delaying of Phase I, including "Priority Structural Work", is not recommended for reasons relating to due diligence, safety and the structural integrity of the building.

   The completion of Phase I in the fall/winter of 2009/10, will enable the completion of the remaining two phases in FY 2010/11, subject to approvals.

2. **Replacement of WSF Roof:**

   Shut Down/Cease Operations of WSF - Six Month Suspension of Principle # 4:
   Another alternative, which MIRROR prefers, is to cease the operation of the WSF with all organic matter, for a period of approximately five to six months, going directly from the FEP to the landfill, while the old roof is totally removed (at one time) and the new roof installed. MIRROR NS has advised that the risk of odours from the unprocessed organic matter being disposed in the landfill is minimal and can be effectively managed.

   MIRROR NS has advised that they will indemnify the HRM from all risk, including odour, and that the unprocessed organics will be placed in a designated section within Cell 5 where the landfill gas and leachate will be monitored, pursuant to NS Environment operating approval requirements.

As the disposal of unprocessed organic matter in the landfill would be a variance of the approval in 1996 by Regional Council of the CSC Strategy for the establishment of a new regional landfill at the Otter Lake site, and from the operating approval from NS Environment for the Otter Lake Facilities, NS Environment approval will be required. Concurrence by the Community Monitoring Committee (CMC), who has public oversight of the operations of the Otter Lake facility, is also required to maintain HRM's contract obligations with the CMC.

Preliminary discussion with NS Environment on September 11, 2009, indicates that a variance of the operating approval for the closure of the WSF for a period of six months can be expected, subject to approval by Regional Council.

Stantec's letter of August 24, 2009 (Attachment # 3), advised that this approach will reduce by several months the schedule for the replacement of the roof, with an estimated savings of $315,314.16 (before taxes), which is approximately 9% of the cost of the recommended Phased methodology.

Prior to the September 24th meeting of SWRAC, the CMC will be advised of the recommended and alternate approaches for the structural upgrade and replacement of the WSF roof/roofing system, and the preliminary discussion with NS Environment.

If it is the determination by SWRAC that Alternative # 2 is favoured, it is suggested that it be approved by Regional Council prior to staff submitting an application to NS Environment to modify the operating approval for the Otter Lake site. NS Environment's amendment to the operating approval during the WSF shut down for Otter Lake, could contain conditions that are prohibitively expensive or impractical. NS Environment could approve an amendment to the operating approval that there be no reports of odour, which may not be possible. The NS Environment could also require that the project immediately cease upon reports of odour in the adjacent community, i.e. after the total removal of the roof. Specific conditions of the variance of the operating approval for the WSF will not be known until NS Environment has issued approval.

As contained in the 1997 Agreement for the operation of the Otter Lake facilities, MIRROR NS has indemnified the HRM from all environmental liabilities, including nuisance from odour.

Should Alternative # 2 be approved by Regional Council, staff will request MIRROR NS to provide documentation indemnifying the HRM from risk of off-site odour, including mitigation costs, and any costs resulting from an order issued by NS Environment to take immediate corrective action.

As the total removal of the WSF roof with the shut down of the facility and unprocessed organic material being directly disposed in the RDF, is a significant variance from the operating approval issued by the Province in 1998/99 (which specifies that organic material

is to be composted for a period of eighteen days, attaining a temperature of 55 Celsius for forty-eight continuous hours), staff will also request MIRROR NS to warrant that the $315,314.16 savings will not be offset by additional expenditure as ordered by NS Environment, or through any resultant costs related to the management of the unprocessed organics in the landfill in the future.

Based upon:

- Federal and Provincial funds available for two-thirds of the total project cost, the resulting HRM's share of the $315,314.16 cost variance is reduced to $105,104.72;
- the possibility of off-site odours during the five to six months the WSF is not operating when unprocessed organic material is disposed in the landfill; and
- Regional Council's adoption of the CSC Strategy as the basis from the HRM Solid Waste/Resource Management System;

It is staff's opinion that the benefits of Alternate # 2 do not outweigh the risk for the adjacent community. Alternate # 2 would be a major variance from Principle # 4 of the CSC Strategy Regional Council approved in 1996 as the basis of HRM's ISW/RMS. Staff does not recommend this alternate approach for the replacement of the WSF roof.

ATTACHMENTS

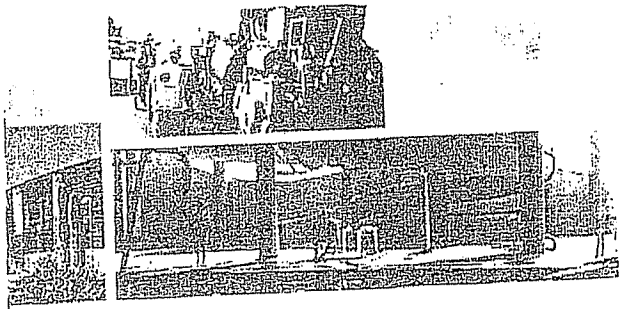
1. Stantec report "Otter Lake Waste Stabilization Facility Structural Assessment", Executive Summary and pages 5.3, 5.4 and 5.8;
2. September 16, 2009 letter from MIRROR Nova Scotia,
3. August 25, 2009 letter from Stantec.

A copy of this report can be obtained online at http://www.halifax.ca/council/agendasc/cagenda.html then choose the appropriate meeting date, or by contacting the Office of the Municipal Clerk at 490-4210, or Fax 490-4208.

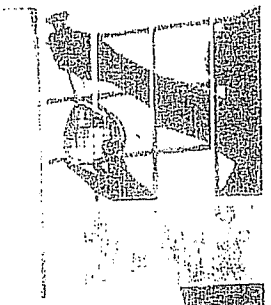
Report Prepared by: Jim Bauld, Manager, Solid Waste Resources 490-6606

Financial Approval by: Cathie O'Toole, Director of Finance

Attachment #1



Otter Lake
Waste Stabilization Facility
Structural Study and Assessment



Stantec

Executive Summary

The Halifax Regional Municipality processes and disposes of mixed waste material at the Otter Lake Waste Management Facility located at 600 Otter Lake Drive, Lakeside, NS. The Facility contains a landfill site and office, maintenance, and processing buildings. The Facility is operated by Mirror Nova Scotia, belonging to Municipal Group of Companies. The Facility has been in operation since 1999.

The Waste Stabilization Facility (WSF) building houses the final stage of a multiple step waste preparation process. The WSF building receives sorted and shredded waste via conveyor from the adjacent front end processor building. The organic laden material is placed in troughs and moved by agitators resulting in decomposition in 18 to 21 days. The process reduces the toxicity of the waste leachate and concentration of organic material entering the landfill.

An aggressive environment exists within the WSF building. The interior environment is directly related to the decomposition process. The combination of high humidity, various compost gases, and heat produces an environment in which zinc coatings are consumed at a very high rate.

The primary protective coating system used for the structural components in the original construction of the WSF building is a zinc coating applied by the process of galvanization. This coating system has been consumed to a point where very little to no protection is provided to the structural steel. Severe corrosion of the structural elements in the building has occurred over a relatively short period of time.

Structural assessments of the WSF building have been conducted in the past by other consultants. The assessments have included on site review of the main structural frames, purlins, and wall framing. Recommendations for the rehabilitation of the structure have been made by the consultants. The assessments and recommendations have been reviewed by Stantec Consulting Ltd. (Stantec).

Site visits were carried out by Stantec Consulting Ltd., Jacques Whitford Stantec Limited, and EM&I Jacques Limited during the month of April, 2009. The purposes of the site visits were to investigate the current condition of the building and to compare the findings with those of the other consultants.

In general, the findings indicated in the other consultant's reports have been verified on site. Testing of the environment inside the building reveals a very humid, warm and corrosive atmosphere. Extensive corrosion was observed on the main building frames, lateral load resisting systems, and roof purlins.

As a result of the extensive corrosion, the main structural components of the building no longer meet the requirements of the National Building Code of Canada (NBCC). Major remedial measures are recommended to bring the structural components of the building up to the requirements of the NBCC.

Stantec Consulting Ltd. recommends installing a new roof system over the top of the existing roof structure. The adoption of this approach enables the rehabilitation of the WSF to occur in a phased construction sequence.

The first phase would involve the reinforcement of the existing structural components. The main building frames, open web steel joists and foundation systems can be reinforced and accentuated to handle the additional loads imposed by a new roof. The existing roof purlins can be temporarily reinforced during this phase. The interior columns may be replaced in kind if this is a more economical approach instead of reinforcing. The new column and stub extensions would accommodate the new Phase 2 roof system.

The second phase would involve the construction of the new roof system. Using the existing roof as a platform, the new roof system can be constructed complete with a new corrosion protection system, new sprinkler and lighting systems.

Phase three would include the demolition and removal of the existing roof system. The interior wall and ceiling panels, purlins, insulation and vapour barrier would be removed during this final phase. The existing interior structural elements, reinforced in phase one, would receive a new corrosion protection system. The wall system would be reinforced and protected during this phase.

By utilizing this phased construction sequence, the new roof components are effectively separated from the aggressive environment inside the WSF during installation. Less aggressive isolation methods are required prior to the installation of any corrosion protection system enabling greater quality control. Interior work is minimized, resulting in less impact on building operations.

This approach also minimizes the escape of offensive odors into the surrounding environment by eliminating the presence of large temporary roof openings. The phasing approach would also help with budgeting aspects of the construction.

replaced with a polyurethane foam coating system. We recommend that all exposed steel girts be painted with a chemical resistant paint. Additional lateral support of the wall girts may be required once the interior liner panel is removed. This can be provided by sag rods or vertical channels along the back face of the horizontal girts.

5.5 SPRINKLER AND LIGHTING SYSTEM

A new sprinkler system would be installed within the new roof assembly and be coated with a similar coating system as the existing roof structural steel. The new sprinkler system would also be coated with a polyurethane foam coating system in order to increase durability and minimize future replacement. The existing system could be maintained during the construction of the new roof.

New energy efficient lighting would also be installed within the new roof assembly interstitial space in Phase 2.

All existing lighting and sprinkler systems would be removed during dismantling of the existing roof assembly in Phase 3.

5.6 SEQUENCE OF CONSTRUCTION

A detailed preliminary schedule of Stantec recommendations with three phase approach is shown in Appendix B and is summarized as follows:

Phase 1

1. Detailed design and drawings for new roofing system and reinforcing of existing building structure. (8 weeks)
2. Award contract and start structural steel fabrication and paint coating system. (6 weeks)
3. Site preparation and mobilization of contractor. (1 week)
4. Install new concrete foundations tied into existing foundations for new columns at grade level. (2 weeks)
5. Cut section of roof in order to install new column stubs welded to existing columns for support of new roofing system. Provide temporary waterproofing to stub openings. (2 weeks)
6. Reinforce existing lateral bracing system. Replace steel rods or cables with tubular or angle bracing. (2 weeks)
7. Reinforce existing moment frames as required to resist lateral forces. (2 weeks)

8 Install new additional columns and bracing supported on new concrete foundations (2 days)

Phase 2

9. Install new structural steel girders and purlins supported on new stubs and additional columns (3 weeks)

10 Install new standing seaming or EPDM roofing system, insulation, and architectural finishes for roof transition and new columns (3 weeks)

11 Install temporary ventilation system (2 weeks)

12. Installation of roof drainage system and removal of existing drainage system. (2 weeks)

13. Installation of new sprinkler system. (3 weeks)

14. Installation of new lighting system. (3 weeks)

15. Installation of polyurethane foam coating system. (4 weeks)

Phase 3

16 Demolition of existing roof system in sections (6 weeks)

17 Removal of exterior liner, painting of existing girts and any localized reinforcing, and placement of polyurethane foam coating system (4 weeks)

18. Final paint and polyurethane foam coating system placement on existing columns and structure. This would include preparation time. The coating system should be done after complete demolition to avoid any damage to coating system (4 weeks)

5.7 OPINION OF PROBABLE COST

Stantec Consulting Ltd. has prepared the following opinions of probable cost based on recommendations contained in reports prepared by SNC Lavalin and BMR Structural Engineering.

The opinion of probable cost based on Stantec's recommendations has been formatted to correspond to a phased construction approach.

5.7.4 Stantec Consulting Recommendations - Opinion of Probable Cost

	WASTE STABILIZATION FACILITY OTTER LAKE NS	Stantec			
		Quantity	Units	Cost per Unit	Cost
	PHASE ONE - REINFORCEMENT				
1	Additional Column/Bracing Footings	75 000	Lump Sum	$ 1.00	$ 75 000 [illegible]
2	Snowbuildup Reinforcing	15.000	sq ft	$ 1.25	$ 18 [illegible]
3	Frame Repair	10.520	sq ft	$ 20.00	$ [illegible] 520.00
4	Painting Steel Frames	10 256	sq ft	$ [illegible]	$ [illegible]
5	Temporary Purlin Reinforcement	10 300	sq ft	$ 5.00	$ 51 500.00
				Subtotal	$ [illegible]
	ENGINEERING				
					$ [illegible]
6	Engineering and Architectural	15	%	Subtotal	$ [illegible]
	CONTINGENCY				
					$ [illegible]
7	Contingency	15	%		
				Total	$ 641,072.61
	PHASE TWO - NEW CONSTRUCTION				
1	New Roof Framing	28 000	KG	$ 6.50	$ [illegible]
3	Purlins [illegible]	28,120	sq ft	$ 2.00	$ [illegible]
5	Sprinkler	55.276	sq ft	$ 4.00	$ [illegible]
6	Lighting	55 276	sq ft	$ 2.50	$ 1[illegible]0 190.00
				Subtotal	$ 1 [illegible]
	ENGINEERING				
					$ [illegible]
7	Engineering and Architectural	15	%	Subtotal	$ 1 [illegible]
	CONTINGENCY				
					$ [illegible]
8	Contingency	15			
				Total	$ 1,527,092.06
	PHASE THREE - DEMOLITION				
1	Roof Area	41 222	sq ft	$ [illegible]	$ [illegible]
2	Purlins	2 750	L Meters	$ [illegible]	$ [illegible]
3	Roof Insulation	11 [illegible]	sq ft	$ 1.25	$ [illegible]
4	Interior Roof Liner	41 [illegible]	sq ft	$ 1.25	$ [illegible]
5	Interior Cross Bracing	478	L Meters	$ 10.00	$ [illegible]
6	Interior Sag Angles	3 161	L Meters	$ [illegible]	$ [illegible]
7	Exterior Liner Demolition	20 079	sq ft	$ 0.50	$ [illegible]
8	Environmental Hazards	20.000	Lump Sum	$ 1.00	$ 20 000.00
9	Painting Steel Frames	10 256	sq ft	$ [illegible]	$ [illegible]
10	Polyurethane Coating System Wall	20.079	sq ft	$ 10.00	$ [illegible]
				Subtotal	$ [illegible]
	ENGINEERING				
					$ [illegible]
11	Engineering and Architectural	15	%	Subtotal	$ 650 254.06
	CONTINGENCY				
					$ [illegible]
12	Contingency	15	%		
				Total	$ 734.797 28
				Total	$ 3,003,261.95

Attachment #2

MIRROR Nova Scotia
Reflecting Comm
MUNICIPAL INTEGRATED RESOURCE
RECOVERY OPPORTUNITY REALIZATION

September 16th, 2009

Mr. Jim Bauld
Solid Waste Resources
40 Alderney Dr., Suite 102
Dartmouth, NS
B3J 3A5

Re: WSF Facility -- Structural Study and Assessment/Rehabilitation Options

Dear Jim:

As requested, MIRROR has reviewed the two rehabilitation options of the WSF roof system presented by Stantec in their initial Structural Study and Assessment Report dated July 13th, 2009 and their follow-up letter dated August 25th, 2009.

MIRROR Nova Scotia
600 Otter Lake Drive
P.O. Box 209
Lakeside, Nova Scotia
B3T 1M6

Tel: (902) 453-3490
Fax: (902) 453-3489

Our comments are as follows:

Option #1 – Remedial Measures in Concert with Facility Operations (up to 468 days)

Description

The July 13th, 2009 report proposes a 3-phase construction/demolition approach whereby,

- the existing roof would be stabilized by the reinforcement of existing structural components;
- construction and installation of a new roof system over the top of the existing roof structure;
- demolition and removal of the existing roof structure.

Beginning in the last quarter of 2009, this project will be completed over Stantec's estimated period of 468 days and the phased approach will attempt to minimize interruptions thereby allowing for the ongoing operation of the Waste Stabilization Facility.

Phase 1 – Priority Structural Repairs/Snow Load Reinforcement (91 days)

During this phase the WSF would continue to operate. It is anticipated that 30% WSF capacity (3-4 bays) would be shut down in stages, as areas of rehabilitation are isolated for repair. However, depending on the detailed assessment of the structural reinforcement required for the stabilization of the existing structure and the structural upgrades required for the loads of the new roof, it is possible that a greater area of the facility may need to be closed for this period of time, significantly limiting the operation and effectiveness of the WSF.

While additional agitations would be carried out as much as possible to stabilize the incoming materials, a contingency for any overage of waste should be secured and approval received from Nova Scotia Environment (NSE) to relax the processing time requirement for material within the WSF. Alternatively, and subject to HRM and NSE approval, an unused section of Cell #5 could be utilized to receive excesses of unprocessed waste.

Phase 2 - New Construction (122 days)

The construction of the new roof above the existing structure by the contractor should have a minimal impact upon the operation of the WSF for the duration of this phase. Subject to completion of a detailed assessment a temporary membrane may be required to isolate the construction employees from the WSF atmosphere.

Phase 3 – Demolition (95 days)

The demolition and removal of the existing roof structure is expected to be conducted from the inside of the facility and it is anticipated that sections of the WSF would again need to be shut down for significant periods throughout this process. Up to 50% of the WSF would need to be shut down to isolate the demolition workers from the active areas of the WSF requiring a contingency plan similar to that described in Phase 1 above.

Option #2 - Remedial Measures with Facility Operations Suspended (150 days)

Description

In response to a request from HRM, Stantec's August 25, 2009 letter provides for a scope of work similar to that in Option #1, however in this scenario the WSF operation would be shut down for a period of 95-120 days. During this period, material designated for WSF processing would be re-directed via trailer directly to an approved empty quadrant within Cell #5. This isolated area would be clay-covered to mitigate odor and control leachate production. This is a simplified approach with a significantly shorter project period. Operational delays and health and safety concerns related to the phased approach identified in Option #1 would be mitigated under this scenario.

MIRROR Assessment/Recommendations

Our immediate concern relates to the structural integrity of the building/roof structure in anticipation of the upcoming winter season. Regardless of which option is selected by HRM, it is imperative that all priority structural reinforcement work be completed prior to the end of this calendar year.

Under Option #1, each construction/rehabilitation area will need to be isolated from the ongoing operation of the WSF. As these areas are identified, MIRROR will empty several bays at a time, a process that is estimated to require 3 weeks per isolation zone. During the demolition phase, the area to be shut down could approximate 50% of the WSF capacity and require a contingency plan as identified above. In all phases, the logistics involved in isolating construction work could result in delays in the total project timeline.

While every effort will be made to properly isolate each work zone and to provide personal protective equipment to all workers, the active nature of the WSF raises the possibility of health and safety issues resulting from the concurrent rehabilitation construction and WSF operations, including,

1. Air quality – the atmosphere is very aggressive – odor plus concentrations of ammonia, mold and dust exceed regulations and require mandatory respirator usage with appropriate cartridges will make work more difficult.
2. Visibility – during processing, the amount of steam generated by agitating could present visibility hazards.
3. Heat Stress – during the summer months, temperatures exceed 40°C routinely above the stabilizing material.
4. Hygiene – current labor inspections may institute clean rooms, control of clothing exposed to the WSF and limited access/egress of employees due to mold concentrations and the potential to track these materials outside of the WSF, limitations on employee movement once exposed to the mold.
5. Physical hazards – operating the WSF underneath a construction project could endanger employees from falling material whether localized failures, debris or from construction activities.
6. Inclimate weather – integrity of the construction site would need to be maintained for over a year.

It is our opinion that Option #2 represents an alternative that mitigates health and safety issues, and according to Stantec, "....will likely result in significant time and cost savings for the project." In our opinion there exists a strong likelihood that during the demolition phase of Option #1, the capacity of the WSF facility will be significantly affected and, in fact, may need to be shutdown for a period of time approximating the total project shutdown timeline for Option #2. The ability to isolate and control the interim material within an empty quadrant in Cell #5, will ensure that this material is responsibly managed.

As requested, MIRROR is prepared to assume the role of Project Coordinator as per Section 16 – Capital Improvements of the 1997 Main Agreement and will work with HRM to develop the design, methodology and contract value for each option. In the case of Option #2, we would propose a lump-sum contract value based on the cost estimate provided by Stantec. In that Option #1 is more complex and spans a significantly longer period of time, we would propose that our role as Project Coordinator be compensated on a "cost-substantiation" basis after agreement on detailed design.

Upon acceptance of MIRROR as Project Coordinator, and subject to contract terms, MIRROR will prepare a detailed plan of the measures to be undertaken to prepare the facility for rehabilitation and to return the facility to operational use upon its completion.

As noted above, both Option #1 and Option #2 will require HRM and NSE approval for alternate operational requirements for storage and retention time as well as contingency storage of excess material.

Pertaining to MIRROR's contractual obligations, we are confident that Option #2 will allow MIRROR to maintain our covenants on odor and environmental impacts from the WSF facility throughout the construction period. To ensure a similar commitment for Option #1, it will be imperative that both the detailed design and Work Plan focus special attention to mitigate odor and environmental impacts that will be acceptable to both HRM and MIRROR. In both Option #1 and Option #2 approvals will be required from NS Environment and HRM for appropriate contingencies in the case of reduced operations and/or shut down of the WSF.

Please advise if we can be of any further assistance.

Sincerely,

Kurt Jacobs

Attachment #3

Stantec Consulting Ltd
#1 South 130 Eileen Stubbs Avenue
Dartmouth NS B3B 2C4
Tel (902) 434-7331
Fax (902) 462-1660

Stantec

August 25, 2009
File: 134730113

Solid Waste Resources 40
Alderney Dr., Suite 102
Dartmouth, NS
B3J 3A5

Attention: Barry Nickerson, P Eng

Dear Mr. Nickerson:

Reference. Otter Lake Waste Stabilization Facility - Structural Study and Assessment

Thank you for your recent correspondence regarding the Waste Stabilization Facility. Please find below our responses to your questions.

1. What are the work methods for demolition of the roof system in the WSF? (e.g. how will it be done, from inside building mostly or through side cladding, etc. .)

As outlined in our report, demolition will occur in Phase 3 of the proposed project schedule. The demolition will most likely occur inside the building. A phased approach to the demolition can be undertaken to least impact the operations of the building. An area of roof comprised of up to three composting troughs wide would be removed at a time to limit the reduction in production capacity to less than 25%.

The composting troughs can be emptied prior to beginning the demolition of a selected roof area. The empty troughs will enable scaffolding to be erected and the operation of man-lift equipment in the areas where demolition is to be undertaken. The emptying of the troughs will also eliminate offensive odors escaping from the facility during construction. The scaffolding would be supported on the gravel floor of the troughs. Removal of the section of existing roof structure directly above the empty troughs can then occur.

The scaffolding system may also be supported upon the tops of the concrete walled troughs. A portable system of wood framed platforms could serve as structural support for the scaffolding. The lightweight wood platforms would be constructed on top of the concrete walled troughs and consist of wood joists covered by plywood. This support system reduces the height of the scaffolding and enables a greater variety of scaffolding layouts.

The ceiling liner, roof purlins, sprinkler pipes, and lighting system can be removed by the use of hand held cutting tools. The elements to be removed can be handled by hand due to their relatively light weight. Heavier elements may require portable lifting equipment. The installation of temporary interior isolation methods such as tarps and temporary plenums around the demolition areas will most likely not be required.

2. If the WSF were to shut down during the period of construction of structural upgrades, what are the estimated cost savings for the project (and related design changes)?

The engineering strategy used to achieve the rehabilitation of the structure would be significantly simplified by a shut down. The design of the new roof structure built over top of the existing roof would be eliminated. The

foundation work required to enable the structure to handle additional lateral loads from an extended roof would not be required. The elimination of the roof step would negate the need of the reinforcement of the existing open web steel joists in the roof above the loading aisle and in the truck-loading bay. The reinforcement of the existing frames and bracing systems to handle the additional lateral and vertical loads would not be required. In our opinion, the simplification and reduction in the structural analysis and design would lower project costs.

The reinforcement of the existing frames, demolition of the existing roof structure, and installation of new purlins could be completed in a more controlled and hospitable environment. The level of quality control of the application of new corrosion protection systems would also Increase. The work crews would have complete access to all areas of the facility. The requirement for the accommodation of an ongoing process inside the building would be eliminated. We believe the prices submitted by contractors bidding on the project would therefore be lower

Please find below our revised opinion of probable cost for the project based on the premise of having full access to the facility. We have adjusted the engineering and contingency percentages to reflect the reduction in complexity of the project. We have also eliminated the cOfts related to the new roof structure being built over top of the existing roof. From the attached opinion of probable cost, we anticipate a savings of $315,314.14 over the phased approach originally presented in our report.

3. Based on Question 2 scenario being possible, what ~re the estimated time savings on the project and what is the revised project schedule?

Prior to shut down and construction, the building can be pr~pared by emptying the composting troughs. As the troughs become empty the existing frames, ceiling and wall panels would be cleaned by power washing to remove excessive organic growth and rust scale debris. When the troughs are emptied and the inside of the building cleaned, the process of removing ceiling panels and insulation would begin.

The reinforcing of the frames and bracing in areas where ttie panels and insulation have been removed could

begin. The roof purl ins and standing seam metal roof (SSMR) would remain in place in theses areas until reinforcement is completed, By progressing in this manner, the reinforcement work will be done in a weather tight environment. Once an area of existing framing is reinf9rced the process of removing and replacing the SSMR and purlins will begin. As new sections of roof are completed, the underside of the structure can be sealed with spray on polyurethane foam.
We estimate significant time savings for the project when a complete shut down of building operations is incorporated into the rehabilitation scheme. Please find attached a revised version of our project schedule based on this premise. From the revised schedule, we anticipate the facility being shut down for approximately 5 months from the beginning of trough emptying at the beginning of March 2010 to the finish of the project in July 2010.

4. If the WSF were to be shut down after phase one, what are the expected time and cost savings?

A shut down after Phase 1 will enable demolition of elements of the existing wall system and ceiling panels to occur simultaneously with the installation of the new roof. The removal of the existing SSMR and roof purl ins would begin after sections of the new roof are installed an9 sealed with polyurethane foam. Phase 2 and Phase 3 could essentially become integrated. We anticipate that the period to complete the combined phases

to be approximately 5 months. The integration of Phase 1 and Phase 2 will likely result in some time savings when compared with completing the phases separately

The reinforcement of the existing building structure to receive the extended roof would still occur in Phase 1 as originally recommended. The engineering complexity of the project would not be reduced by the shut down. The shut d9wn would improve the working conditions and accessibility for demolition crews working inside the building but would not affect the installation of the new roof. We estimate that the shut down of the facility after Phase 1 will result in minimal cost savings.

Conclusions

Normal demolitio'n methods can be employed in the removal of materials from the inside of the facility. The use of scaffolding, booms and lifts can be undertaken to achieve the demolition. The scheduling of the demolition can be structured to allow the facility to continue operations at a reduced rate.

A complete shutdown of the building will likely result in significant time and cost savings for the project. The project will become less complex from an engineering perspective and eliminate the need for a new higher roof structure. With the improvements anticipated in the working conditions inside the building from a shut down, the projectwill also become more attractive to potential bidders. The ability for several tasks to be completed simultaneously will result in time savings.

A shut down of the facility after Phase 1 will likely result in some time savings for the project. The shut down will essentially enable the integration of Phase 2 and Phase 3. With the improvements anticipated in the working conditions and accessibility inside the building from a shut down, the project will also become more attractive to potential bidders. The more costly aspects of the project will still be required however, resulting in minimal cost sav~gs.

The logistics and cost of diverting and handling waste during a shut down period must be considered when contemplating the feasibility of the above rehabilitation schemes. These costs and scheduling issues have not been considered. in the preparation of the revised project schedule and opinion of probable cost.

We trust the responses we have provided address your concerns. Should you have any further questions regarding the Waste Stabilization Facility, feel free to contact the underSigned.

Sincerely,

ST ANTEC CONSULTING LTD.

9~~

Joshua Rose, CET
Structural Technologist
Tel: (902) 434-7331 Fax:
(902) 462-1660 josh.
rose@stantec.com
Attachments
jr v:\ 1347\active\134730113\report\memo to hrm augusL 1 B_09\wsUetter doc

Reference. Otter Lake Waste Stabilization Facility. Structural Study and Assessment

Opinion of Probable Cost

WASTE STABILIZATION FACILITY
OTTER LAKE NS

Stantec Consulting Ltd.
Revised Opinion of Probable Cost

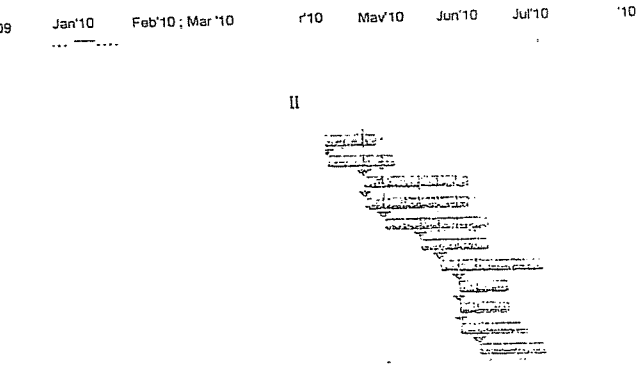
		Quantity	Units	Cost per Unit	Cost
DEMOLITION					
1	Roof Area	41,222	sq.ft	$ 3.50	$ 144,277.00
2	Purlins	2,750	L Meters	$ 3.50	$ 9,625.00
3	Roof Insulation	41,222	sq.ft	$ 1.25	$ 51,527.50
4	Interior Roof Liner	41,222	sq ft	$ 1.25	$ 51,527.50
5	Interior Cross Bracing	478	L Meters	$ 10.00	$ 4,780.00
6	Interior Sag Angles	3,164	L Meters	$ 6.25	$ 19,775.00
7	Exterior Liner, Demolition	20,079	sq.ft	$ 0.50	$ 10,039.50
8	Environmental Hazards	20,000	Lump Sum	$ 1.00	$ 20,000.00
				Subtotal	$ 311,551.50
NEW CONSTRUCTION					
1	EPDM Roofing System	41,222	sq.ft	$ 8.00	$ 329,776.00
2	Roof Purlins	28,000	KG	$ 6.50	$ 182,000.00
3	Polyurethane Foam Coating System Roof	41,222	sq.ft	$ 10.00	$ 412,220.00
3	Polyurethane Foam Coating System Wall	20,079	sq.ft	$ 10.00	$ 200,790.00
4	Purlins Barrier Coating	28,120	sq.ft	$ 2.00	$ 56,240.00
5	Painting Existing Steel Frames	20,513	sq.ft	$ 5.00	$ 102,565.00
6	Frame Repair	10,526	sq ft	$ 20.00	$ 210,520.00
7	Sprinkler	55,276	sq.ft	$ 4.00	$ 221,104.00
8	Lighting	55,276	sq.ft	$ 2.50	$ 138,190.00
9	Weather Tarping	50,000	Lump Sum	$ 1.00	$ 50,000.00
10	Water Infiltration	25,000	Lump Sum	$ 1.00	$ 25,000.00
				Subtotal	$ 1,928,405.00
				Subtotal Excluding Taxes	$ 2,239,956.50
ENGINEERING					
Engineering and Architectural		10	%		$ 223,995.65
				$subtotal	$ 2,463,952.15
CONTINGENCY					
Contingency		10	%		$ 223,995.65
				Total	$ 2,687,947.80

Stantec Consulting Ltd.
134730113

July 6, 2009

Otter lake Waste Stabilization Facility
Structural Study and Assesment
Schedule

ID	Task Name	Duration	Start	Finish	Predecessors	Dec '09 09
1	Otter lake	135 days	04 Jan '10	Jul '10		
2	Detailed Design	40 days	04 Jan '10	26 Feb '10		
3	Structural Steel & Paint Procurement	30 days	01 Mar '10	09 Apr '10	2	
4	Mobilization	5 days	05 Apr '10	09 Apr '10	5FS-5 days	
5	S-e Preparation - Trough Emptying	30 days	01 Mar '10	09 Apr '10	2	
6	Demolition of Ceiling Panels	20 days	12Apr'10	07 May '10	5	
7	Reinforce Frames & Bracing	20 days	19 Apr '10	14 May '10	5FS+5 days	
8	Demolition of Purlins & SSMR	30 days	03 May '10	11 Jun'10	5FS+15 days	
9	Install New Framing	30 days	03 May '10	11 Jun'10	5FS+15 days	
10	Install EDPM Roof	30 days	10 May '10	18 Jun '10	5FS+20 days	
11	Paint Reinforced Frames	20 days	24 May '10	18 Jun '10	5FS+30 days	
12	Foam Sray Roof	30 days	31 May '10	09 Jul'10	5FS+35 days	
13	Install Sprinkler	15 days	07 Jun '10	25 Jun '10	5FS+40 days	
14	Install Lighting	15 days	07 Jun '10	25 Jun '10	5FS+40 days	
15	Demolition of Wall Panels & Reinforce as	20 days	07 Jun '10	02 Jul'10	5FS+40 days	
16	Required Foam Spray Walls	20 days	14 Jun '10	09 Jul '10	5FS+45 days	



Task
Split
Progress

Milestone
Summary
Project Summary

External Tasks
External Milestone
Deadline ...

Stantec

Attachment B

HALIFAX
REGIONAL MUNICIPALITY

PO Box 1749
Halifax, Nova Scotia
B3J 3A5 Canada

MEMORANDUM

TO: Councillor Bill Karsten, Chairman & Members of SWRAC

CC: Mayor Peter Kelly & Members of Council
Jim Bauld, Manager, SWR
Mike Labrecque, P. Eng., Director, T&PW

FROM: Robert Orr, P. Eng., Collection and Processing Coordinator

DATE: October 16, 2009

SUBJECT: Community Monitoring Committee Memorandum on the Waste Stabilization Facility

On October 8th, the Community Monitoring Committee (CMC) met with Solid Waste Resources staff, MIRROR NS staff and the engineering consultant (Stantec) regarding the options for the structural upgrade and roof replacement in the Waste Stabilization Facility (WSF) at the Otter Lake Facilities. CMC was provided a brief outline of the work to-date and the elements and time frame of the two project options. CMC members asked questions of the consultant, Solid Waste Resources staff and the facility operator regarding the project. There was discussion of the two project options, including the overall project length and period during which the WSF is expected to be partially or fully shut down for each option.

A memo dated October 13, 2009, was submitted to HRM Council by CMC, with their advice and comments on the WSF structural work and roof replacement project.

In the recommendation (Option #1) contained in the staff report to SWRAC and Council, the phased replacement of the WSF roofing system occurs over an overall time frame estimated at 365 to 468 days with continued operations of the WSF, except during periods when interior structural or demolition work occurs. There is a partial shut down of some WSF bays for an estimated period of 65 to 90 days in this project option.

In alternative #2 (Option #2) contained in the staff report to SWRAC and Council, the WSF is shut down during the period of demolition and replacement of the roofing system, with a project time frame estimated at 135 to 180 days.

CMC appeared concerned about the overall longer project timeline in Option #1, as well as the potential for any delay that would increase the project timeline (and the time that the WSF is partially or fully shut down) for both Option #1 and Option #2.

CMC also considered the potential complications of having both a construction contractor or contractors working on the facility and the facility operators also operating the WSF at the same time. There was also discussion of potential visibility and air quality issues in the WSF during construction and demolition should the WSF continue operations.

CMC indicates support for alternative #2 (Option #2) for the WSF structural upgrade and roof replacement. They indicate that consideration should be given to a maximum 6 month project timeline, that particular attention be paid to use of appropriate soil or clay material for daily cover over this period and that planning occurs at the initiation of the project so that the full scope of work is known prior to implementation.

The facility operator has also indicated their preference for Option #2 and that the material from the WSF can be appropriately managed in the landfill during this shutdown. HRM staff can ensure that MIRROR NS uses appropriate cover material and will monitor landfilling activities and daily cover practices during this construction period. HRM staff will also work with the design consultant and MIRROR NS to fully scope the project prior to facility shutdown and to carry out the project within a six month time frame. With either Option #1 or Option #2, the priority structural work of reinforcing the roof will occur this fall.

Preliminary discussions with NS Environment indicate that a variance of the operating approval for the closure of the WSF during this project can be expected, subject to feedback from CMC and approval by Regional Council.

However, should the variance of the operating approval contain conditions that impact site operations, staff will request MIRROR NS to agree to these operational changes (and any costs) as part of their agreement to be project manager for this project. HRM staff will also be seeking indemnification from MIRROR NS for mitigation of any off-site odour, including the costs of any required corrective actions.

Should Regional Council approve Option #2, Solid Waste Resources staff will proceed on this basis with application to NS Environment, implementation of the priority structural work this fall and drafting of a work plan and agreement with MIRROR NS for this project.