## Deloitte.

### Request for Proposals Demolition and Scrap Processing Services

(for Renova Scotia Bioenergy Inc. located in Brooklyn, Nova Scotia)



Request for Proposals Issue Date: October 31, 2013

Responses must be received no later than November 28, 2013 at the office of:

Deloitte Restructuring Inc. Purdy's Wharf Tower II 1969 Upper Water Street, Suite 1500 Halifax, Nova Scotia B3J 3R7 Canada

Facsimile bids will not be accepted for the Request for Proposals.

### Title and Disclaimer

The purpose of this Request for Proposals ("RFP") is to provide a description of demolition and scrap processing services required by Renova Scotia Bioenergy Inc. ("Renova"). Deloitte Restructuring Inc. ("Deloitte") is engaged as Agent of Renova and the Province of Nova Scotia (the "Province").

The information contained in this RFP is based upon information provided by Renova and is intended solely for use by prospective bidders for demolition and scrap processing services described herein.

This RFP is not all-inclusive and does not contain all the information that prospective bidders may require. While the information contained herein is believed to be accurate and reliable, Deloitte does not make any representations or warranties, expressed or implied, as to the accuracy or completeness of such information or any other written or oral communication by Renova, Deloitte or any of Renova's other advisors or agents. Prospective bidders should, in accordance with the procedures set forth under this RFP, conduct their own investigation and analysis and form their own judgment of the information and service requirements described herein.

Deloitte, at its sole discretion, reserves the right at any time to withdraw any or all of the services from the RFP, terminate the RFP or alter, add or waive terms and conditions as it deems necessary.

All inquiries should be made to:

#### **Deloitte Restructuring Inc.**

Purdy's Wharf Tower II 1969 Upper Water Street, Suite 1500 Halifax, Nova Scotia B3J 3R7 Canada

#### Neil Jones, CA, CIRP

Vice President Telephone: (902) 721-5597 Email: neiljones@deloitte.ca

#### James Foran, CA, CIRP

Vice President Telephone: (902) 721-5614 Email: jforan@deloitte.ca

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### 1. Introduction

### 1.1 Terminology

The following terms are used throughout this Request for Proposals ("RFP"):

"Agreement" or "Contract" is the agreement to be entered into between Renova and the successful Bidder(s) in the Form of Agreement and in reference to the demolition of redundant buildings and structures, and processing of resulting scrap metals and other materials.

"Assignment" is the provision of the demolition and scrap processing services requested in this RFP and all work related thereto.

"Bidder" is a service provider, or a consortium of service providers, responding to this RFP.

"Contractor" is the Bidder that enters into a Contract with Renova to carry out the Assignment.

"Day", unless otherwise specified, means a calendar day.

"Deloitte Restructuring Inc." ("Deloitte") is the agent to Renova and the Province and does not act in its personal capacity.

"Nova Scotia Lands Inc." ("NSLI") is a Crown Corporation of the Province with the mandate to remediate, redevelop and manage properties owned by the Province. NSLI is a contractor of Renova with respect to the Project Site.

"Project Site" refers to former site of Bowater Mersey Paper Mill in Brooklyn, Queens Municipality in Nova Scotia, south of Trunk Highway No. 3.

"Province" is the Province of Nova Scotia.

"Renova" or the "Owner" refers to Renova Scotia Bioenergy Inc., formerly Bowater Mersey Paper Company Limited, which was purchased by the Province on December 10, 2012.

Any capitalized term used in this RFP that is not defined in this RFP, but which is defined in the Agreement, shall have the meaning ascribed to it in the Agreement.

### 1.2 RFP

This RFP provides Bidders with information to enable them to prepare and submit proposals for consideration by Deloitte on behalf of Renova.

Attachments to this RFP contain supporting information are as follows:

- Appendix A Building Drawings and Other Information
- Appendix B Iron and Steel Scrap General Specifications
- Appendix C Form of Agreement
- Appendix D Health and Safety Program

### 1.3 **Pre-Proposal Meeting**

A mandatory pre-proposal meeting will be held at Renova's premises at 3691 Highway Trunk 3, Brooklyn, Nova Scotia on November 13, 2013 at 10:00 am Atlantic Standard Time. Security at the main gate will provide direction to the meeting room. The pre-proposal meeting will consist of a presentation by Deloitte and NSLI.

Bidders will have the opportunity to ask questions (See Section 2.7) at the end of the presentation. Questions will be recorded and may be responded to at the pre-proposal meeting, at a later date in the form of an addendum to this RFP, or may not be responded to if deemed not relevant to the RFP process. Deloitte and NSLI have procedures in place for RFP document tracking and query handling.

### 1.4 Background

Renova (at the time known as Bowater Mersey Paper Company Limited) operated as a forestry company in the Province from 1929 until June 2012. Its primary operations were the production of newsprint through a pulp and paper mill located in Brooklyn, Nova Scotia. Annual production in 2011 was approximately 253,000 tons of newsprint.

Since December 10, 2012, Renova has been owned by the Province, which is in the process of decommissioning assets at the Project Site. Deloitte is an agent of Renova and the Province and oversees this asset transition process.

### 1.5 NSLI

As a contractor of Renova, NSLI will be overseeing the execution of the Assignment within its role of oversight of the Project Site, managing remediation, rehabilitation and redevelopment activities.

### **1.6 Summary of Significant Dates**

Deloitte and NSLI intend to evaluate proposals and award the Assignment to the Contractor on or about December 5, 2013 and demolition activity is expected to commence on or about December 16, 2013. In the event of any delay in awarding the Assignment, submitted prices are to remain valid for a minimum of sixty (60) days from proposal submissions due date. The Contractor will be expected to agree to a warranty on the Assignment against defects in workmanship for a period of not less than twelve (12) months from the date of substantial completion of the Assignment.

### **1.7 Existing Reference Documents**

For the information of Bidders, Deloitte and NSLI have supplied industrial building drawings, an industrial building condition survey and other related information as per Appendix A, scrap processing general specifications as per Appendix B, the form of Agreement as per Appendix C, and the Health and Safety Program as per Appendix D. These documents should be reviewed by the Bidder as they are integral to the development of a work plan for completion of the Assignment.

### **1.8 Concurrent Invitation for Offers to Purchase Assets**

Deloitte also issued an invitation for offers for the sale of Renova's assets on October 31, 2013. For purpose of clarity, Deloitte will consider consolidated bids for the sale of Renova's assets and the demolition and scrap processing services described herein.

#### 1.9 Contacts

Renova's primary contacts for this Assignment are as follows:

Deloitte: Neil Jones, CA, CIRP Vice President Deloitte Restructuring Inc. c/o Renova Scotia Bioenergy Inc. Purdy's Wharf Tower II 1969 Upper Water Street, Suite 1500 Halifax, Nova Scotia B3J 3R7 Canada Email: neiljones@deloitte.ca Telephone: (902) 721-5597

> James Foran, CA, CIRP Vice President Deloitte Restructuring Inc. c/o Renova Scotia Bioenergy Inc. Purdy's Wharf Tower II 1969 Upper Water Street, Suite 1500 Halifax, Nova Scotia B3J 3R7 Canada Email: jforan@deloitte.ca Telephone: (902) 721-5614

NSLI: Timothy Crowe Site Coordinator Nova Scotia Lands Inc. c/o Renova Scotia Bioenergy Inc. 3691 Highway Trunk 3 Brooklyn, Nova Scotia B0J 1H0 Canada Email: tim.crowe@merseymill.ca Telephone: (902) 354-8614

> Joel MacLean Chief Operating Officer Nova Scotia Lands Inc. c/o Renova Scotia Bioenergy Inc. P.O. Box 430, Station A Sydney, Nova Scotia B1P 6H2 Canada Email:macleajp@gov.ns.ca Telephone: (902) 564-7959

### 2. Proposal Submission Details

### 2.1 Signature Pages

The Bidder will sign the proposal and indicate that any or all addenda have been received. The form of the signature page is given in Appendix C, as part of the Form of Agreement.

### 2.2 Date and Time

Proposals will be received by Deloitte at the address below up until 16:00 hours Atlantic Standard Time, November 28, 2013.

#### 2.3 Address

Proposals must be delivered to:

Deloitte:	Deloitte Restructuring Inc.
	c/o Renova Scotia Bioenergy Inc.
	Purdy's Wharf Tower II
	1969 Upper Water Street, Suite 1500
	Halifax, Nova Scotia B3J 3R7 Canada
	Attention: Neil Jones, CA, CIRP

### 2.4 Packaging

Proposals must be submitted in two envelopes:

- 1. Envelope A will contain the Technical Submittal and shall not be more than twenty (20) pages.
- 2. Envelope B will contain the Cost of Services Submittal.

Under no circumstances is the Cost of Services Submittal to be contained in any part of Envelope A – the Technical Submittal.

All envelopes should be clearly marked as to their contents. A Bidder shall submit five (5) copies of the Technical Submittal, and five (5) copies of the Cost of Services Submittal. Each submittal in Envelope A and Envelope B must be bound and one (1) copy of each Submittal in each of the envelopes must be clearly marked as being the "Original".

### 2.4.1 The Envelopes

The proposal must be submitted in two (2) sealed envelopes. All envelopes must bear the name and address of the Bidder, labeled "Confidential", and identified as follows:

Envelope A: "Technical Submittal, Request for Proposals, SERVICES OF A CONTRACTOR TO DEMOLISH REDUNDANT BUILDINGS AND PROCESS SCRAP, Brooklyn, Nova Scotia."

Envelope B: "Cost of Services Submittal, Request for Proposals, SERVICES OF A CONTRACTOR TO DEMOLISH REDUNDANT BUILDINGS AND PROCESS SCRAP, Brooklyn, Nova Scotia."

### 2.4.2 Validity

The proposal must be signed by an official authorized to bind the Bidder to its provisions. The proposal should remain valid and open to acceptance for sixty (60) days from the date of submission.

### 2.5 Disqualification of Proposals

Under no circumstances will proposals be considered that:

- 1. Are received later than the date and time stipulated
- 2. Are not submitted in separate, sealed and properly marked envelopes
- 3. Contain, in Envelope A, a reference to the Cost of Services
- 4. Are not submitted in accordance with the rating factor headings
- 5. Are not signed (Appendix C) by the authorized company official
- 6. Are not signed to acknowledge receipt of Addenda (Appendix C)
- 7. Have substantial inconsistencies within the Cost of Services Submittal
- 8. Have not prepared Cost of Services Submittal in the requested detail

### 2.6 Examination of Site

Bidders shall satisfy themselves, by personal examination or otherwise, as to the conditions of the Project Site and its surroundings, access to the Project Site and the general and local conditions relating to labour, law, regulations, transportation, communications, utilities, weather and all other matters that may affect their work. This shall include examination of the quantity and condition of i) redundant buildings and structures to be demolished and/or ii) metals and other materials to be processed as scrap.

No plea for ignorance of conditions that exist or that may have been reasonably expected to exist, or of conditions or difficulties that may be encountered in the execution of the Assignment, will be accepted as an excuse for any failure or omission on the part of the Contractor to fulfill in every detail all the requirements of the Assignment, nor will be accepted as a basis for any claims whatsoever for extra compensation or an extension of time.

### 2.6.1 Access

Upon request, NSLI will arrange access to the Project Site for such examinations, inspections, investigations, explorations, studies, etc., as a Bidder deems necessary for proposal preparation. Arrangements to make such visits may be made by contacting:

Timothy Crowe Site Coordinator Nova Scotia Lands Inc. c/o Renova Scotia Bioenergy Inc. 3691 Highway Trunk 3 Brooklyn, Nova Scotia B0J 1H0 Canada Email: tim.crowe@merseymill.ca Telephone: (902) 354-8614

Joel MacLean Chief Operating Officer Nova Scotia Lands Inc. c/o Renova Scotia Bioenergy Inc. P.O. Box 430, Station A Sydney, Nova Scotia B1P 6H2 Canada Email:macleajp@gov.ns.ca Telephone: (902) 564-7959

### 2.6.2 Health and Safety

NSLI and Renova have in place a Health and Safety Program, (Appendix D) which outlines the requirements and responsibilities for ensuring and maintaining safe working conditions on the Project Site. The successful Bidder will be required to prepare an Assignment Health and Safety Plan as required under Health and Safety Program. Failure to coordinate access with NSLI or failure to obey the direction of NSLI while on the Project Site will result in immediate removal from the Project Site and may result in disqualification from the proposal process. Workers who disregard the Health and Safety Program, the Assignment Health and Safety Plan or other established health and safety policies, plans, procedures or protocols will be removed from the Project Site.

Included with their submissions, proponents are requested to provide a letter of Good Standing from the Nova Scotia Construction Safety Association (or equivalent) and the Workers' Compensation Board of Nova Scotia.

### 2.7 Questions, Interpretations, Addenda and Discussion

Questions on the RFP must be submitted to Deloitte, in writing or email only. They should be received at least seven (7) business days prior to the submission deadline. Questions received after that time may not be answered prior to the submission time. Deloitte will determine if questions require a response and such response will be only in the form of an addendum to this RFP.

Only addenda will modify the RFP. No oral interpretation made to Bidders as to the meaning of the RFP documents will be effective to modify any RFP provisions. Addenda will form an integral part of the RFP and Bidders are required to confirm in the proposal that they received each addendum and included its provisions in their proposal.

All inquiries and other communications significant to this RFP are to be directed, in writing or email only, to:

Neil Jones, CA, CIRP Vice President Deloitte Restructuring Inc. c/o Renova Scotia Bioenergy Inc. Purdy's Wharf Tower II 1969 Upper Water Street, Suite 1500 Halifax, Nova Scotia B3J 3R7 Canada Email: neiljones@deloitte.ca Telephone: (902) 721-5597

James Foran, CA, CIRP Vice President Deloitte Restructuring Inc. c/o Renova Scotia Bioenergy Inc. Purdy's Wharf Tower II 1969 Upper Water Street, Suite 1500 Halifax, Nova Scotia B3J 3R7 Canada Email: jforan@deloitte.ca Telephone: (902) 721-5614

Failure to comply with the provisions of this subsection may constitute grounds for disqualification of a proposal.

### 2.8 Agreement

This RFP presents the minimum requirements for the Assignment that cannot be reduced by the proposal. Submission of a proposal indicates the Bidder's willingness to enter into a formal agreement with Renova, in the form attached as Appendix C – Form of Agreement, to act as the Contractor and carry out the Assignment on the terms contained in the Agreement. Moreover, the terms and conditions of

this RFP and of the proposal of the selected Bidder which are not superseded by or otherwise, in conflict with the Agreement, will become part of the terms and conditions of the Agreement.

### 2.9 Subcontractors and Joint Ventures

The Bidder shall identify all subcontractors, special contractors and other individuals/businesses that form part of the Bidder's consulting team and the portion of the Assignment in which they will participate. The successful Bidder will not be permitted to substitute one subcontractor, special contractor, individual or business for another, without prior written approval from Deloitte.

The selected Bidder will be required to assume responsibility for all services offered under its proposal, whether or not it (or a subcontractor) produces them directly itself. Further, Deloitte will consider the selected Bidder to be the sole point of contact, with regard to contractual matters.

#### 2.10 Insurance

Renova, the Province and Deloitte have placed in force for the duration of the demolition, remediation, decommissioning and redevelopment of lands located at or near 3691 Highway Trunk 3, Brooklyn, Nova Scotia, an Owner Controlled Insurance Program in respect to Contractor's Pollution Liability (CPO) and General Operational liability.

Renova, the Province and Deloitte shall add as named insured's the successful respondents and provide the Contractors Pollution Liability (CPO) and General Liability Protection programs subject to the term conditions and limits of liability defined in the insurance documents.

Renova, the Province and Deloitte ensure the issuance of such insurance protection programs by financially sound insurers licensed to carry on business in Canada and are subject to approval by the Province of Nova Scotia. All policies are non-cancellable, except for termination or indefinitely postponement of the assignment or violation of statutory law which places the insurer in violation of the law or its place of domicile or threaten solvency.

Certificate of insurance or other forms of documentation acceptable in form and content shall be supplied to the contractors who become named insured's within the protection programs once established as the successful respondent.

All insurances shall provide coverage and shall protect the Province, Renova, NSLI, Deloitte, the successful respondents, and their successor and assigns their respective officers, employees, agents and servants involved in the demolition of property, remediation, decommissioning and redevelopment of the property.

Contactor's Pollution Liability (CPO) is underwritten by AIG. General Operational Liability is underwritten by Northbridge Financial Corporation.

Certified copies of all Assignment insurance policies, or other forms of documentation acceptable in form and content to the Province, Renova, NSLI, and Deloitte, shall be delivered to the Province, Renova, NSLI, and Deloitte prior to signing of the contract. Insurances to be maintained during the Assignment are as follows:

### 2.10.1 Contactors Equipment Insurance

Contractors Equipment Insurance insuring the machinery, equipment and other property of the Contractor and its subcontractors while at the Project Site. Coverage shall be at replacement cost value and no co-insurance will be permitted. This insurance policy will include the following provisions:

- Policy limit of liability of \$5 million per occurrence
- Annual aggregate limits permitted for earthquake coverage and flood coverage, separately; no other policy aggregates permitted
- Maximum deductible of \$10,000 per occurrence and/or 2% of equipment value

- 90 days prior written notice of cancellation or material change from insurer to the Province
- Waiver of insurer's rights of subrogation against the Province
- Breach of any of the terms or conditions of the policy, or any negligence or willful act or omission or false representation by an insured or any other person, shall not invalidate the insurance with respect to the Province

### 2.10.2 Automobile Liability Insurance

Automobile Liability Insurance insuring all licensed vehicles owned, leased or operated by the Contractor. The Contractor must ensure that evidence of comparable coverage is provided by all subcontractors and workmen or tradesmen working at the site. This insurance policy will include the following provision:

• Policy limit of Liability - \$3 million per occurrence.

### 2.11 Proposal Costs

Deloitte, NSLI, Renova, and the Province are not liable for any costs incurred by Bidders, in preparation of their proposals or otherwise relating to the Assignment, prior to the execution of the Agreement.

Deloitte, NSLI, Renova, and the Province shall not be liable for, and each person responding to this RFP shall be solely and fully responsible for, all costs associated with the development, preparation, transmittal, and submission of any proposal or material in response to this RFP, including without limitation, the costs of any in-person presentation of proposals which Deloitte, NSLI, Renova, and/or the Province may require, any expenses relating to obtaining a bid bond, deposit, pre-qualification letter, surety's consent, or other required security, and all costs incurred during the selection process and any negotiations.

By submitting a submission, the Bidder expressly waives any claim(s) against Deloitte, NSLI, Renova, and the Province for any compensation of any kind whatsoever as a result of participating in this RFP process, including without limitation any claim for costs of proposal preparation or participation in negotiations, or for loss of anticipated profits, whether based in contract including fundamental breach, tort, breach of any duty, including, but not limited to breach of the duty of fairness, breach of the obligation to only accept non-compliant proposals, or any other cause of action whatsoever.

Deloitte, NSLI, Renova, and the Province shall not at any time be held responsible if the estimated volume of work is found to be inaccurate. No person shall claim damages or loss of profits because of any difference between the volume of work estimated and actual volume of work in the progress of the Assignment.

By submitting a submission, the Bidder indemnifies and saves Deloitte, NSLI, Renova, and the Province and its employees, agents, and affiliates harmless from any breach of the RFP by any supplier, by its proposed subcontractors or by any other person for whom the Bidder is responsible or over whom the Bidder may exercise control.

### 2.12 Form of Agreement

Bidders are referred to the Form of Agreement in Appendix C for additional information concerning Renova and the Contractor, including responsibilities, payments, administration, dispute settlement and the like. In order to provide the Contractor with maximum flexibility in structuring their proposal, the Contractor is encouraged to draft an appendix to the Form of Agreement detailing the rate structure for each proposed service including the demolition of redundant buildings and processing of scrap metals and other materials. Any suggested amendments to the Form of Agreement must also be in the form of an appendix to the Form of Agreement.

### 3. Proposal Content

### 3.1 General

Bidders' proposals must be submitted in the exact format, including heading descriptions, of the Evaluation Ratings Table presented below. The proposal must be presented in a clear and concise manner and respond to all requirements in this RFP. The explanations of rating items provided in this section include, but are not limited to, the subjects that will be evaluated in each proposal. Any other information thought to be relevant, but not applicable to the enumerated categories, should be provided as an appendix to the proposal. Each proposal must consist of two (2) separately sealed submittals — Envelope A: Technical Submittal covering Headings I through IV of the Evaluation Ratings Table; and Envelope B: Cost of Services Submittal covering Heading V. To be clear, an appendix to the Form of Agreement outlining the rate structure proposed by the Contractor should be included in Envelope B only.

Deloitte or NSLI may request additional information that, in its opinion, is necessary to assure that the Bidder's competence, number of qualified employees, business organization and financial resources are adequate to carry out the Assignment. The Bidder shall provide Deloitte and NSLI with all information for this purpose that Deloitte or NSLI may request. Deloitte and/or NSLI may investigate further to determine the ability of the Bidder to perform the work.

Deloitte and NSLI reserves the right to reject a proposal if the evidence submitted by, or investigation of, a Bidder fails to satisfy Deloitte that the Bidder is properly qualified to carry out the Assignment.

### 3.2 Evaluation Ratings Table

The following rating items and weight factors will be used in evaluating proposals:

Technical Submittal:		
I Understanding of the Assignment		
Definition and Consideration of Special Issues and Constraints	5	
II Work Plan, Schedule and Quality Assurance/Quality Control		
Work Plan	. 15	
Schedule	.10	
Quality Control Program	5	
Project Management System	5*	
III Contractor Team	20*	
IV Corporate Experience	10*	
Subtotal Score		

Note: The Technical Submittal subtotal score must be not less than 56 for the proposal evaluation committee to open the Cost of Services Submittal (Envelope B).

Failure to do so means that the Cost of Services Submittal shall not be opened and the Bidder's proposal shall be removed from further consideration.

V	Cost of Services Submittal	30
тот	TAL SCORE10	00

\* Submittal must score not less than 80% (that is 4, 16 and 8, respectively) on the individual scores indicated.

### 3.2.1 Understanding of the Assignment (5 points)

### a) Understanding and Approach

The proposal must include an introduction that clearly and succinctly shows the Bidder understands the objectives of and the reasons for the Assignment. It should describe the specific Assignment goals and technical requirements, highlighting those that are of particular significance or present challenges to the Assignment and the delivery of services.

The proposal must demonstrate that the Bidder understands the technical requirements, the required resources, and any special technical considerations associated with the Assignment, as well as any constraints or local conditions that would affect the likelihood of the objectives being met.

Further, the proposal should detail the approach the Bidder will use to overcome such challenges and to ensure the Assignment goals and objectives are achieved.

### b) Special Issues

The Bidder shall demonstrate to Deloitte's satisfaction a good understanding of the issues identified below, as well as any other issues that the Bidder may deem significant:

- Socioeconomic conditions of the area
- Public and Project Site-specific health and safety concerns
- History of the Project Site
- Historic work completed on the Project Site
- Applicable legislation; and
- Regulatory management requirements

Prior to commencing work on the Assignment, the Contractor shall be responsible for meeting all requirements under the Worker's Compensation Act, Chapter 10 of the Revised Statutes of Nova Scotia 1994 - 1995, for example: obtaining and producing for Deloitte, the company's valid and current Workers Compensation Board clearance letter.

### 3.2.2 Work Plan, Schedule and Quality Assurance/Quality Control (35 points)

### a) Work Plan (15 points)

The Bidder shall describe the scope and details of services offered to meet the objectives of this Assignment. The explanation must include a detailed work plan based on the Scope of Work, Section 4.

The work plan must incorporate all requirements of this RFP, showing the methods proposed, how the work will be conducted, and all individuals responsible for each component of the Assignment and the potential challenges of the Assignment and how these challenges will be overcome.

### b) Assignment Schedule (10 points)

The Bidder shall provide a schedule for the proposed Assignment within their proposal. The Assignment schedule will be sufficiently detailed so Deloitte and NSLI may fully understand the schedule for field work, significant delivery dates, meeting times and comment periods allocated for Deloitte. This schedule will form part of Appendix C of the Form of Agreement.

Proposed start milestones which will help determine proposed schedule are as follows:

Assignment Mobilization:	December 16, 2013
Assignment Completion:	April 30, 2014 or June 30, 2014 (processing scrap off Project Site vs. on Project Site, respectively)

### c) Assignment Quality Assurance/Quality Control (5 points)

The Bidder shall submit its own quality assurance plan providing a description of the strategies proposed to ensure that the proposed Assignment work plan provides meaningful, technically sound results that will meet the objective of the Assignment in an efficient manner.

### d) Assignment Project Management System (5 points – must score 4 or better)

The proposal must contain a detailed description of the Bidder's project management system that will provide quality service within the acceptable time frame. It should cover all requirements of the RFP and explain the organizational, human resource, technical, financial, management and business practices to be applied to supply project management and reporting services.

### 3.2.3 Contractor Team (20 points – must score 16 or better)

The proposal must present the complete team that the Bidder is proposing to carry out the Assignment, describing in detail its capabilities and capacity to provide the required services. The Contractor's team must include expertise in industrial demolition and scrap processing services.

The Technical Submittal must include a manning table that shows all manpower contribution in days for each task — the breakdown of the anticipated time commitment per team member and support person per work component. Manpower must be presented in separated levels of engineers, other professionals and technicians. The manning table will be presented using the same task identification as the Bidder's Assignment schedule so the level of effort required for each individual on each task is identified.

Bidders are advised that the Contractor will be required to use the personnel identified in the Technical Submittal for the duration of the work unless Deloitte or NSLI gives written permission for substitution. Substitutes must possess equal or greater qualifications than the individual in the accepted proposal; and, a substitution will not be the cause of additional cost to Renova or change in the work schedule. Resumes of all personnel shall be included in the proposal.

All professionals will be in good standing with the applicable professional association.

### 3.2.4 Corporate Experience (10 points – must score 8 or better)

Corporate experience and past performance are measures of the extent to which a Bidder has recently performed the same or similar work and are important in assessing the probability of future successful performance. The Bidder shall include in their proposal evidence of past performance; and, in particular, demonstrate the extent, depth and quality of recent corporate experience in the same or similar work.

**3.2.4.1 Describe the experience and performance** of key personnel to be assigned to the Assignment regardless of their past association with the current proponent firm. This is the opportunity to emphasize the strengths of the individuals on the team, to recognize their past responsibilities, commitments and achievements.

### 3.2.5 Cost of Services Submittal (30 points)

The Cost of Services Submittal must be submitted in the format provided in Appendix C. Failure to provide all pricing information requested in Appendix C and as outlined below, may result in the Bidder's proposal being rejected.

Furthermore, Deloitte and NSLI will evaluate Bidder's Cost of Services Submittal for any inconsistencies including, mathematical errors, qualification or proposals that are unbalanced. Should Deloitte and/or NSLI identify any substantial issues with the Cost of Services Submittal, Deloitte or NSLI may choose to reject the Bidder's proposal. Should the fees for basic services (Cost of Services Submittal Envelope B) contain any mathematical error in any extensions of prices or calculation of totals, the quantity and the unit rate provided by Bidder will govern.

### a) Fees for Basic Services

The prices quoted in Appendix C – Form of Agreement as fees for basic services must include the furnishing of all labour, materials, equipment, travel and other requirements necessary to provide the basic services specified within this document and that are, in the Bidder's opinion, required to meet the Assignment objective.

All hourly rates or unit rates must include the cost of all incidental services supplied by the Contractor, such as but not limited to, administration, management, overhead, salaries, vacation and statutory holidays, payroll burden, office supplies, communications, CAD and GIS hardware and software, meals, travel, office and personnel accommodations, overtime and any other expense associated with provision of the basic services. No payment will be made for basic services except by the prices offered in Appendix C – Form of Agreement as fees for basic services.

### b) Fees for Additional Services

Bidders will include, within their cost proposal, a unit priced rate table of all individuals on the Assignment project team and others the Contractor may believe it would be advantageous to include. This table will be used for the costing of additional services including technical advice that Deloitte and/or NSLI may require the Contractor to complete from time to time.

Unit prices quoted for additional services will be hourly rates for the Contractor's personnel. The hourly rates will include administration and management, overhead, salaries, vacation and statutory holidays, payroll burden, office supplies, communications, CAD and GIS hardware and software, office accommodations, overtime and any other expense associated with the provision of engineering services on an hourly rate basis.

### 4. Scope of Work

The services defined in this section are those required to achieve the stated objectives of the Assignment. The proposal will be accepted on this basis notwithstanding that all tasks and task details are not necessarily identified in the descriptions that follow. The submission of a proposal shall be the Contractor's warranty of its having applied special skill and experience in determination of the labour, equipment, and materials necessary to complete the Assignment and that this is reflected in the prices tendered.

### 4.1 Scope of Work

Proposals for the Assignment will include the supply, transport and installation of all materials at the Project Site including, but not limited to, all labour, machinery, equipment and all miscellaneous materials, means and measures, required for completion of the Assignment. As noted above, Deloitte is soliciting proposals from a qualified contractor, or a consortium of contractors, with demolition and scrap processing experience to decommission assets at the Project Site. The general scope of work will involve demolishing redundant buildings and processing scrap metals and other materials resulting from these processes. Although the Assignment may be awarded as separate work scopes, due to work being interrelated with respect to timing of execution and location, a single bidder or a consortium bid may receive higher evaluation ratings during the bid selection process.

### 4.1.1 Demolition Services

Renova has identified industrial buildings and structures on the Project Site to be demolished. The buildings and structures to be demolished include the Saveall Building and extensions, Roll Finishing Department, Train Shed, Conveyor to Terminal 2, Paper Machine Building and Extensions, Paper Machine Clothing Room, Core Room, Chipper Building, Burner Room/Acid Plant, Turbine Room/Old Boiler Plant, Steam Plant, Acid Storage Tank, Caustic Storage Tank, White Water Storage Tanks (1&2), Broke Storage Tank, and Thickened Broke Storage Tank. Refer to Appendix A for engineering drawings, an industrial building condition survey and other information on buildings and structures to be demolished.

The Contractor shall prepare, engineer and undertake the complete demolition of all buildings and structures and above grade utilities as set out below. Upon completion, the site will be safe, level, with no ponding and clear of all above-grade facility environmental issues. The Contractor agrees to undertake the work in a manner which shall maximize the recovery of scrap metal.

The Contractor will provide a schedule of the work, from Contract signing to completion, including all Project Site leveling and grading required. Work must begin no later than ten (10) days from the signing of the Contract, on or about December 16, 2013. Within one week of awarding the Assignment, the Contractor shall submit a schedule to Renova for review and approval showing the order of work, significant Contract dates and methodologies. The schedule shall include Project Site leveling and grading in areas segregated for demolition activity.

The Contractor will prepare clean debris for fill, and remove unsuitable debris from the Project Site.

The Contractor will pay for all labor, tools, fuel, machinery and equipment and other necessary services to complete the Assignment.

Each building and structure will be decommissioned for environmental hazards, water, gas supply and power supply by Renova and its consultants prior to being made available to the Contractor for demolition activities.

The warranty period for the Assignment will be twelve (12) months from the date of substantial completion.

Manual building separations will be required in two locations:

- 1. Between the Chipper Building and Grinding Room approximately one bay east of construction line Aa (see attached engineering drawing E10692 per Appendix A).
- 2. Between the Paper Machine Building and the Mixer Room approximately one bay south of construction line 30 (see attached engineering drawing E10692 per Appendix A).

The successful proponent shall engage the service of a qualified demolition/structural engineer to provide direction as to how to complete these separations while minimizing impact to structures that will remain.

Refer to Appendix A for structural engineering drawings on buildings, an industrial building condition survey and other information detailing the dimensions of redundant buildings and structures to be demolished at the Project Site.

### 4.1.2 Scrap Sales Services

Scrap metals and other materials currently on the Project Site and resulting from demolition activities are to be processed for sale. Renova has yet to determine whether scrap materials will be removed and processed off the Project Site, or whether scrap materials will be processed on the Project Site. Proposals should provide a schedule of work and pricing for both scrap processing options.

For scrap processing off the Project Site, steel and copper scrap recovery from the demolition zone will be the responsibility of the Contractor and for his account. Consideration of the value of steel and copper scrap should be reflected in the Bidder's proposal. Scrap will be processed on the Project Site only to the extent required to allow removal by transport truck.

For scrap processing on the Project Site, the work will include the preparation of all shearable and nonshearable steel and copper scrap for resale in accordance with the specifications of NSLI. Please refer to Appendix B for scrap processing specifications for more details.

### 4.2 Inspection and Testing

Inspection upon completion of the Assignment shall be coordinated by the NSLI. The Contractor shall assist in whatever way is required to support and expedite the inspection and testing process. Rejected workmanship or material is to be promptly replaced at no additional cost to Renova or the Province.

### 5. Evaluation of proposals

### 5.1 Evaluation Committee

Proposals will be reviewed and evaluated by a committee of qualified personnel selected by Deloitte and NSLI. This committee will recommend the proposal(s) that it determines is the most advantageous to Renova, after considering all of the evaluation factors.

### 5.1.1 Technical Submittal (Envelope A)

The first step in the evaluation process will be the review of the Technical Submittal. Each proposal will be assessed on the basis of the rating items in the evaluation ratings table in subsection 3.2. While the explanations of the rating items describe in general terms the intent of and the information to be included under, each item, they are not necessarily exhaustive. They are presented as a guide to minimum requirements. Bidders are expected to elaborate clearly and succinctly explain how they will meet those and any other necessary requirements.

Bidders are solely and fully responsible for presenting their proposals. They should note, however, that the presentation of matters and information deemed by Deloitte and NSLI to be extraneous or superfluous will not score additional rating points and may, in fact, be to the Bidder's detriment.

Technical Submittals that do not receive a score of 80 percent — i.e. 56 out of the possible 70 points — will be deemed unacceptable and the Cost of Services Submittal shall be removed from further consideration.

Note that Deloitte is using a two envelope system, as such there shall be no presentation of cost information in Envelope A (Technical Submittal).

### 5.1.2 Cost of Services Submittal (Envelope B)

The final step in the proposal evaluation process will be opening of the Cost of Services Submittal. The Cost of Services Submittal will be rated as follows:

- 1. The lowest price will be awarded a rating of 30 cost points.
- 2. All other Costs of Services Submittals will be prorated against the low bidder. As an example:

Price	Rating Points		
\$100.00	30		
\$125.00 (1)	24		
\$140.00 (2)	21.4		

NOTES:

- 1. CALCULATION OF POINTS FOR SECOND BIDDER \$100/\$125 \* 30 PTS = 24.0 PTS
- 2. CALCULATION OF POINTS FOR SECOND BIDDER \$100/\$140 \* 30 PTS = 21.4 PTS

### 5.1.3 Total Score

The total score will be established by adding scores of:

- The Technical Submittal out of 70 possible points
- The Cost for Services Submittal price rating points out of the 30 possible points for a total score out of a possible 100 points

### 5.2 **Reservations**

In addition to above noted regarding evaluation of proposals, Deloitte and NSLI reserves the right to accept or reject any or all proposal submissions. Deloitte and NSLI, representing Renova, may but are not required to consider some or all of the following criteria in evaluating a proposal:

- Demonstrated skill, ability, knowledge, capabilities, integrity, and experience of the Bidder and its proposed Subcontractors, if any, to perform the work
- The price(s) stipulated in a submission (Deloitte and NSLI reserves the right to select any submission, including but not limited to the lowest price submission, or not to select any submission at all)
- The completeness of information submitted
- The financial health and creditworthiness of the supplier and its proposed subcontractors
- Any other factors or criteria that Deloitte and NSLI may deem in its discretion to be relevant or pertinent for its evaluation of the submission or any other submission.

Deloitte and NSLI, representing Renova, shall have absolute discretion to:

- Supplement, modify or amend the RFP, including without limitation, the schedule for the RFP process, the deadline, the RFP documents, RFP requirements, or any other terms, whether material or not
- Suspend or cancel this RFP at any time
- Reject any or all submissions submitted in response to this RFP and, in that event, at its option, to call for additional submissions
- Select, reject or accept any or all submissions, including the lowest price submission. If only one submission is received, it may be selected, accepted or rejected at Deloitte's and NSLI's discretion
- Accept any submission which in any manner, whether substantially or in a non-substantial or minor way, fails to conform to or comply with any of the requirements of this RFP, whether or not such requirements are expressed in mandatory terms, or reject any submission for any such non-conformity or non-compliance
- Enter into post-submission negotiations and discussions with any one or more suppliers regarding price, work scope, or any other term of a supplier's submission, and such other terms as Deloitte and NSLI may require, and to request additional information and clarification regarding any submission
- Enter into simultaneous competitive negotiations with some or all suppliers or negotiate with individual suppliers
- Modify the scope of the work or any component thereof subsequent to the proposal deadline, whether in the context of negotiations or otherwise
- Approve or disapprove of particular proposed subcontractors, joint venture partners or other proposed team members of any supplier
- Discontinue any negotiations or discussions at any time
- Issue additional or subsequent requests for proposals or invitations
- Solicit new submissions from firms that did not respond to this RFP and enter into negotiations with any such firm including but not limited to negotiations or submissions for components of the work, if any, that are not included in the scope of any contract negotiated and executed with any supplier as a result of this RFP
- Assess any proposal on the basis of any one or more of the selection criteria set forth in the RFP, if any, which criteria are not intended to be exhaustive, and/or any other criteria or factors considered appropriate by Deloitte's and NSLI's discretion
- Undertake a comparative evaluation of any submissions received and evaluate such submissions based on considerations which, in the opinion of Deloitte and NSLI, would yield the best value to Renova

• Select any submission considered by Deloitte and NSLI to be in its best interests or the most satisfactory, including without limitation the lowest or any price submission

This is an invitation for proposals and not a tender call. Deloitte, Renova, NSLI or the Province do not intend to and do not assume or owe any contractual or other duties or obligations as a result of the issuance of this RFP, the preparation or submission of a submission by any person, the receipt, opening and consideration of a submission, the evaluation of submissions, provision of additional information or conduct of presentations, any person's participation in any discussions or negotiations, or on any other basis whatsoever arising out of this RFP. Without limiting the generality of the foregoing and for certainty, no Contract is formed by the submission of a response to this RFP.

### 5.3 Discussions with Top Ranked Bidder

Discussions will be based entirely on the submitted proposal. Typically they will include points of clarification on cost, details of the Agreement, or items of detail that could not be addressed prior to the existence of the proposal.

The designation of a top ranked Bidder does not commit Deloitte to awarding a Contract for services of a Contractor to that firm. Contract award is contingent upon the completion of discussions to the satisfaction of both Deloitte and the Bidder and on securing the necessary final government approvals to award a Contract.

Deloitte reserves the right to reject any or all proposals. The Bidder with the highest total point score may not necessarily be accepted.

### 5.4 Notification of Results

Following selection of a Contractor to complete the Assignment, Deloitte will advise all other Bidders in writing of the decision. Upon award, Deloitte will make itself available for debriefings to unsuccessful Bidders.

# Appendix A – Building Drawings and Other Information






























Nova Scotia Lands Inc.

# Industrial Building Condition Survey Brooklyn Nova Scotia

## Prepared by:

AECOM AECOM 300 Water Street Whitby, ON, Canada L1N 9J2 www.aecom.com

905 668 9363 tel 905 668 0221 fax

Project Number: 60304987

Date: August 21, 2013

# **Statement of Qualifications and Limitations**

The attached Report (the "Report") has been prepared by AECOM Canada Ltd. ("Consultant") for the benefit of the client ("Client") in accordance with the agreement between Consultant and Client, including the scope of work detailed therein (the "Agreement").

The information, data, recommendations and conclusions contained in the Report (collectively, the "Information"):

- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the "Limitations");
- represents Consultant's professional judgement in light of the Limitations and industry standards for the preparation
  of similar reports;
- may be based on information provided to Consultant which has not been independently verified;
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued;
- must be read as a whole and sections thereof should not be read out of such context;
- was prepared for the specific purposes described in the Report and the Agreement; and
- in the case of subsurface, environmental or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time.

Consultant shall be entitled to rely upon the accuracy and completeness of information that was provided to it and has no obligation to update such information. Consultant accepts no responsibility for any events or circumstances that may have occurred since the date on which the Report was prepared and, in the case of subsurface, environmental or geotechnical conditions, is not responsible for any variability in such conditions, geographically or over time.

Consultant agrees that the Report represents its professional judgement as described above and that the Information has been prepared for the specific purpose and use described in the Report and the Agreement, but Consultant makes no other representations, or any guarantees or warranties whatsoever, whether express or implied, with respect to the Report, the Information or any part thereof.

Without in any way limiting the generality of the foregoing, any estimates or opinions regarding probable construction costs or construction schedule provided by Consultant represent Consultant's professional judgement in light of its experience and the knowledge and information available to it at the time of preparation. Since Consultant has no control over market or economic conditions, prices for construction labour, equipment or materials or bidding procedures, Consultant, its directors, officers and employees are not able to, nor do they, make any representations, warranties or guarantees whatsoever, whether express or implied, with respect to such estimates or opinions, or their variance from actual construction costs or schedules, and accept no responsibility for any loss or damage arising therefrom or in any way related thereto. Persons relying on such estimates or opinions do so at their own risk.

Except (1) as agreed to in writing by Consultant and Client; (2) as required by-law; or (3) to the extent used by governmental reviewing agencies for the purpose of obtaining permits or approvals, the Report and the Information may be used and relied upon only by Client.

Consultant accepts no responsibility, and denies any liability whatsoever, to parties other than Client who may obtain access to the Report or the Information for any injury, loss or damage suffered by such parties arising from their use of, reliance upon, or decisions or actions based on the Report or any of the Information ("improper use of the Report"), except to the extent those parties have obtained the prior written consent of Consultant to use and rely upon the Report and the Information. Any injury, loss or damages arising from improper use of the Report shall be borne by the party making such use.

This Statement of Qualifications and Limitations is attached to and forms part of the Report and any use of the Report is subject to the terms hereof.



AECOM 2B – 164 Charlotte Street Sydney, NS, Canada B1P 1C3 www.aecom.com

902 595 6000 tel 902 595 6020 fax

August 21, 2013

Mr. Wilfred Kaiser, P.Eng. Manager of Environmental Services Nova Scotia Lands Inc. 45 Wabana Court Sydney, NS B1P 6J7

Dear Mr. Kaiser:

#### Project No: 60304987

### Regarding: Industrial Building Condition Survey, Brooklyn Nova Scotia Final Report

We are pleased to submit our Condition Survey Report in accordance with the terms of RFP ID No. NSLANDS55.

The purpose of this report is to assess the structural condition and structural stability of the buildings in the vicinity of the proposed demolition lines and to confirm that the location of the demolition lines proposed by NS Lands Inc. is acceptable. The report summarizes observations made during our site investigations and presents the results of our structural analysis. The report also includes recommendations for repairs and modifications to the buildings.

We trust the attached report meets your immediate requirements.

Sincerely, **AECOM Canada Ltd.** 

Num Mll.

Bruce Noble, P. Eng. East District Manager, Environment

Encl. cc: Randy Pointkoski, P. Eng. AECOM

# **Distribution List**

# of Hard Copies	PDF Required	Association / Company Name	
3	Yes	Mr. Wilfred Kaiser, P. Eng., Nova Scotia Lands Inc	
			100

# **Revision Log**

Revision #	Revised By	Date	Issue / Revision Description	
0	RG	August 9, 2013	Draft Report for Client Review	
1	RG	August 22, 2013	Final Report	

# **AECOM Signatures**

**Report Prepared By:** 

espic

Ross Gillespie, P. Eng. ' Senior Structural Engineer

Report Reviewed By:

Johnson Jin, P. Eng. Senior Structural Engineer

page

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# Appendices

Appendix A - Sketches

Appendix B - Photographs

Appendix C - Structural Reinforcement Drawings and Specifications

Appendix D - Structural Reinforcement Construction Cost Estimate

# 1. Introduction

The Bowater Paper Company Building located in Brooklyn Nova Scotia, formerly the Mersey Paper Company Ltd, was originally constructed in 1929 with additions, alterations, and partial demolitions occurring over the life of the facility. In 2012 the Government of Nova Scotia purchased the facility with the intent of developing portions of the buildings and demolishing other portions. The purpose of this investigation is to assess the structural condition and structural integrity of the portions of the buildings that are not slated for demolition at this time and to confirm that the location of the demolition lines proposed by NS Lands Inc is acceptable. The first phase of demolitions is scheduled for late 2013. The demolition scope is shown on attached drawing SK1 in Appendix A. It is noted that our investigation is limited to the assessment of structural elements in the vicinity of the proposed demolition lines only.

This investigation includes the following scope of work:

- 1. Review the all existing drawings provided to AECOM by NS Lands for this investigation.
- 2. Site investigation carried out on July 31, 2013 and August 1, 2013 by Ross Gillespie, P. Eng. of our Whitby Ontario Office and Randy Pointkoski, P. Eng. of our Sidney Nova Scotia Office. The purpose of the site investigation was to establish the condition of the portions of the structure that are to remain in the vicinity of the portions of the structure that are to be demolished. It is noted that not all areas of the structures were assessable for close up inspection. We have assumed that the condition of the inaccessible portions of the structure are similar to those that were accessible for inspection.
- 3. Structural analysis of the portions of the structure to remain that are adjacent to the portions of the structure slated for demolition. The purpose of the structural analysis is to determine whether the portions of the structures that are not scheduled for demolition at this time will remain stable after demolition of the adjacent structures. The stability of the structures during demolition will be the responsibility of the demolition Contractor.
- 4. Design of reinforcing and modifications to the structure to ensure structural stability of the portions of the structure that are not to be demolished at this time, if required, based on the outcome of our structural analysis and our observations at the site.

# 2. Review of Existing Drawings

Drawings provided to us during our site investigation did provide some additional information related to the existing structures in the vicinity of the structures that are to be demolished. Although not all structural information related to the portions of the structures to remain are available on the drawings provided, it is our opinion that the information shown on the drawings and the information that we obtained during our investigation is sufficient for the purposes of this investigation.

# 3. Description of Structural System

Following is a general description of the structural system utilized for the majority of the structures at the facility.

# 3.1 Roof Construction

Roof construction consists primarily of metal deck on steel purlins supported by long span steel trusses that are supported by steel columns. At some locations, the roof framing consists of concrete slabs supported by concrete encased steel beams that are supported on steel columns.

# 3.2 Floor Construction

Floor construction consists primarily of cast-in-place reinforced concrete slabs supported by concrete encased steel beams which are support by steel columns. The slabs are typically 150 mm thick. The size of the beams varies depending on the spans and loading conditions.

# 3.3 Wall Construction

The walls are constructed of masonry, clay tile or concrete block, that are grouted into the sides of the steel columns to provide lateral support to the columns. The walls also provide overall lateral support to the structures and are the main lateral load supporting system to resist wind and earthquake loads.

# 3.4 Foundation Construction

Based on information shown on the drawings, the foundations for the columns were founded on bedrock. The exterior wall footings appear to be founded on bedrock, however the interior wall footings appear to be located immediately beneath the basement floor slab-on-grade.

# 4. Observations

Following are observations related to the portions of the structure adjacent to the proposed demolition lines noted during our site investigation on July 30, 2013 and August 1, 2013:

In general, the structure adjacent to the demolition lines is in fair condition, with the following exceptions. The location of the deficiencies noted below are identified on Sketch SK2 in Appendix A. A typical cross section through the wall on Line 20 is shown on Sketch SK3 in Appendix A.

1. Concrete Floor and Roof Structures

Deterioration of the underside of the concrete floor structure and concrete roof structure was noted at the following locations.

- Underside of ground floor structure at elevation 124 ft. between Lines 30 to 28 and Lines Ka to Qa. Significant loss of surface cement with exposed and corroded reinforcing steel noted. Minor corrosion of the bottom flange of the steel beams was noted as well. See Photograph No. 1 in Appendix B.
- Underside of mezzanine floor structure at elevation 136 ft between Lines 30 to 28 and Lines Ka to Qa. Significant loss of surface cement with exposed and corroded reinforcing steel noted. Minor corrosion of the bottom flange of the steel beams was noted as well. See Photograph No. 2 in Appendix B.

c. Underside of roof slab between Lines Aa to Da and Lines 30 to 28. Moderate loss of surface cement with exposed and corroded reinforcing steel noted. Minor corrosion of the bottom flange of the steel beams was noted as well. See Photograph No. 3 in Appendix B.

## 2. Structural Steel Columns

- a. Corrosion of the steel column located at intersection of Lines Aa and 25 was noted at the top of the column. Significant cracking of the concrete encasement at the roof beam connected to the east side of the column was also noted inferring that the connection between the beam and the column may be compromised. See Photograph No. 4 in Appendix B.
- b. Significant deterioration of steel columns was observed above the mezzanine floor at Elevation 136 ft. on Line 28 at Lines Ma, Qa and Sa. The thickness of the column flanges has been reduced significantly likely to due exposure to corrosive chemicals over a long period of time. The original thickness of the column flanges was approximately 9 mm. The current thickness of the flanges at the above noted column locations is as small as 3 mm. See Photograph No. 5 in Appendix B.
- 3. Masonry Walls

The masonry walls located on the proposed demolition lines are in fair to good condition with no significant signs of structural deterioration or distress.

# 5. Structural Analysis

The structural analysis has been carried out in accordance with the following codes and standards:

- 1. National Building Code of Canada 2010
- 2. CSA S16.1 Limit States Design of Steel Structures
- 3. CSA S304.1 Masonry Design for Buildings (Limit States Design)

As noted in Section 3 of this report, the existing masonry walls provide overall lateral support the structure. It is our understanding that the proposed demolition work does not include removal of any of the masonry walls at the remaining portions of the buildings, therefore the overall lateral stability of the structures that are to remain after demolition will not be affected by the proposed extent of the demolition. It is also our understanding that the demolition will not include removal of any of the load bearing components.

The main structural concern regarding the proposed demolition is that the existing interior walls and columns on Line 30 and Line Aa that are not currently exposed to wind loads will be exposed to wind loads after the adjacent structures have been demolished. We have therefore analysed the walls and columns at the above noted locations for additional wind loads in accordance with the National Building Code of Canada.

# 5.1 Design Loads

- Roof Design Loads (Unfactored): Dead Load (including self weight of structure): 1.7 kPa Snow Load: 2.0 kPa (Ref. National Building Code of Canada)
- Floor Design Loads (Unfactored): Dead Load (including self weight of structure): 4.6 kPa Live Load: 12.0 kPa (Ref. National Building Code of Canada)
- Wind Design Loads (Unfactored): External wind pressure acting on walls: 0.9 kPa Internal wind pressure/suction acting on walls: 0.6 kPa Total design wind pressure acting on walls: 1.5 kPa

## 5.2 Material Properties

- Structural Steel: Yield Strength (Fy): 210 MPa (Ref. CSA S16.1) Ultimate Strength (Fu): 380 MPa (Ref. CSA S16.1)
- Masonry Walls: Allowable Flexural Tensile Strength Ft: 0.7 MPa (Ref. CSA S304.1)

# 5.3 Results of Structural Analysis

1. Structural Steel Columns Located on Lines 30 and Aa:

The ratio of factored applied stresses to factored resistance for the structural steel columns when subjected to combined wind and gravity loads is 0.70. The maximum ratio allowed by CSA S16.1 is 1.0. Therefore the steel columns located on the proposed demolition lines are structurally adequate.

2. Masonry Walls Located on Demolition Lines:

The ratio of applied stresses to allowable stresses for the masonry walls when subjected to design wind loads is 0.80. The maximum ratio allowed by CSA S304.1 is 1.0. Therefore the masonry walls located at the proposed demolition lines are structurally adequate.

# 6. Recommendations and Conclusions

Based on the findings of our condition survey and the results of our structural analysis, we recommend the following remedial work be performed:

- 1. We recommend that all deteriorated concrete be repaired within the next 3 years. In general, repairs would consist of removing all loose and deteriorated concrete with a chipping hammer; replacing deteriorated reinforcing steel with new reinforcing steel having equivalent size and spacing to the existing steel; restoring the concrete surfaces with a suitable repair mortar or forming an pouring new concrete depending on the depth of the repairs. The underside of corroded steel beams would be abrasive blast cleaned and painted at the same time that the concrete repairs are carried out. The above noted repairs do not have to be carried out prior to demolition.
- 2. Deteriorated steel columns identified in Section 4 of this report are to be reinforced as shown on Drawings S04 to S08 in Appendix C. The reinforcing steel is to be bolted to the existing column flanges. Welding to the existing steel columns is not recommended due to the potentially low carbon content of steel manufactured at the time that the building was constructed.
- 3. All penetrations through exterior walls adjacent to the demolished buildings should be sealed with metal flashing or metal siding to prevent moisture infiltration into the building envelope and to minimize the potential for deterioration of the structure. Metal Flashing Details are shown on Drawings S02 and S03 in Appendix C.
- 4. The existing drawings indicate that the interior wall footings are located immediately beneath the basement floor slab. After demolition, the footings will be exposed to freezing. If the footings are founded on bedrock, exposure of the footings to freezing is not an issue. However, if the wall footings are founded on soil the soil beneath the footings may heave if allowed to freeze. We recommend that the founding material beneath the wall footings on Line 30 and Line Aa that will be exposed to the exterior after demolition be investigated during demolition. If the footings are founded on soil, frost protection in the form of rigid insulation should be installed at the exterior of the footings. Details for insulating the footings, if required, are shown on Drawing S09 in Appendix C.

Item 2 is to be carried out prior to demolition. Items 3 and 4 are to be carried out at the completion of demolition. The approximate construction cost estimate for the above noted work is included in Appendix D.

Based on our observations at the site and our structural analysis, we have no objections to the locations of the demolition lines proposed by NS Lands Inc.

We trust the foregoing meets your immediate requirements.

Sincerely, AECOM Canada Ltd.

R. Gillespie

Ross Gillespie, P. Eng. Senior Structural Engineer

# APPENDIX A SKETCHES







APPENDIX B PHOTOGRAPHS



Photograph 1 – Concrete deterioration at underside of floor slab at elevation 124 ft.



Photograph 2 – Concrete deterioration at underside of floor slab at elevation 136 ft.



Photograph 3 – Concrete Deterioration at underside of roof slab.



Photograph 4 – Corrosion at top of steel column above mezzanine on Line Aa.



Photograph 5 – Severely corroded steel column above mezzanine at Col. 28-Sa.

APPENDIX C STRUCTURAL REINFORCEMENT DRAWINGS & SPECIFICATIONS





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ROUGH CARPENTRY

Page 1

## PART 1 - GENERAL

#### 1.1 <u>GENERAL</u>

All conditions of the contract apply to the work of this Section.

#### 1.2 SCOPE OF WORK

This Section of the contract includes supply and installation of all rough carpentry with exception of forms for concrete called for or implied by drawings and specifications, together with all necessary incidentals whether referred to or not, as will be required to complete the work to full intent and meaning of drawings and specifications. Work includes but is not limited to the following:

- Rough hardware.
- Plywood
- Nailing blocks, lagging, blocking, wood plugs.
- Rough bucks and frames.

### 1.3 <u>RELATED WORK SPECIFIED ELSEWHERE</u>

Structural Steel Sheet Metal Cap flashing Sealants Section 05120 Section 07311 Section 07900

#### 1.4 SOURCE QUALITY CONTROL

Lumber shall bear grade stamp of an agency certified by Canadian Lumber Standards Administration Board.

#### 1.5 PRODUCT HANDLING

Store all materials in such a manner as to ensure proper ventilation and drainage and to protect against damage and the weather.

Installation of damaged or otherwise non-complying material will not be permitted.

In the event of damage, immediately make all repairs and replacements necessary to the approval of the Engineer and at no additional cost to the Owner.

#### 1.6 <u>CO-ORDINATION</u>

Co-ordinate the work of this Section with Metal Flashing shop drawings. Ensure that all material not called for are covered under this Section.

## ROUGH CARPENTRY

## PART 2 - PRODUCTS

### 2.1 <u>LUMBER MATERIAL</u>

Softwood, S4S, moisture content (MC) not greater than 19% at time of installation, in accordance with following standards except as shown or specified otherwise:

- CSA 0141
- NLGA Standard Grading Rules for Canadian Lumber

Well seasoned, kiln dried, free from sap, large loose or resinous knots, knot holes, dry rot or any other defects affecting strength or durability.

Glued end-jointed lumber is not acceptable.

Framing and board lumber: in accordance with the Nova Scotia Building Code except as shown or specified otherwise.

Furring, Blocking, Nailing Strips, Grounds, Rough Bucks:

- Use S4S material.
- Board sizes: as shown Spruce, Pine or Fir species, NLGA No. 2 grade.
- Dimension sizes: as shown Spruce, Pine or Fir species, NLGA No. 2 grade.

Plywood: Plywood, CSP (to CSA 0151) square edge in thickness indicated on drawing.

Damp proof Membrane: Polyethylene film to CAN/CGSB-51.33-M, 0.15 mm thick.

#### 2.2 FASTENINGS AND HARDWARE

In accordance with Part 9 of the Nova Scotia Building Code as supplemented by following requirements except where specific type is shown.

Nails, spikes and staples to the Nova Scotia Building Code requirements and CSA B111.

- Use common spiral nails and spiral spikes except where indicated otherwise.
- Use hot galvanized finish steel for exterior work, interior highly humid areas and for pressure-preservative treated lumber except where indicated otherwise.

Bolt, nut, washer, screw and pin type fasteners: with hot-dip galvanized finish to CSA Gl64 for exterior work, interior highly humid areas and for pressure-preservative treated lumber, elsewhere with primer paint finish where installed on sight-exposed surfaces.

Use surface fastenings of following types, except where specific type is indicated.

- To hollow masonry, plaster and panel surfaces use toggle bolt.
- To solid masonry and concrete use expansion shield with lag screw, or lead plug with wood screw or Tapcon concrete screws.
- To structural steel use bolts through drilled hole, or welded stud-bolts or power driven self-drilling, self-tapping screws, or welded stud-bolts.

### 2.3 WOOD PRESERVATIVE

Pressure Treated Wood Preservative:

C-50 CCA-Wolmanized Timber Specialties Koppers Company Inc.

Surface-applied Wood Preservative:

Pentox-Green Pentox Inc. Osmose Woodlife Coloured

All wood on roof parapets and roof supports are to be pressure treated.

### PART 3 - EXECUTION

**ROUGH CARPENTRY** 

#### 3.1 <u>CONSTRUCTION</u>

Comply with requirements of Part 9 of the Nova Scotia Building Code supplemented by the following paragraphs.

#### 3.2 ERECTION OF FRAMING MEMBERS

Install members true to line, levels and elevations. Construct continuous members from pieces of longest practical length. Install spanning members with "crown-edge" up.

#### 3.3 FURRING AND BLOCKING

Install furring and blocking as required.

Align and plumb faces of furring and blocking to tolerance of I:600.

#### 3.4 ROUGH BUCKS, NAILERS

Install wood bucks and nailers as indicated.

Except where shown otherwise use material at least 38 mm thick secured with 9 mm bolts located within 300 mm from ends of members and uniformly spaced at 600 mm between.

Countersink bolts where necessary to provide clearance for other work.

### 3.5 WOOD PRESERVATIVE

Pressure treat and surface apply surfaces of material with wood preservative, before installation. Use of non-pressure treated materials shall be kept to a minimum. To all cuts apply 2 coats of preservative after materials have been cut and fit to size.

Apply preservative by dipping, or by brush or spray to completely saturate and maintain wet film on surface for minimum 3 minute soak on lumber, and one minute soak on plywood.

ROUGH CARPENTRY

Page 4

Re-treat surfaces of surface applied and pressure treated material exposed by cutting, trimming or boring with liberal brush application of preservative before installation.

# 3.6 PLYWOOD

Install roof ply in longest possible lengths in the horizontal direction, Butt joints and attach with "H"  $\,$ 

clips.

END OF SECTION

Page 1

## <u>PART 1 - GENERAL</u>

### 1.1 <u>GENERAL</u>

All conditions of the Contract apply to the work of this Section.

### 1.2 SCOPE OF WORK

This Section of the contract includes supply and installation of all sheet metal called for or implied by the drawings and specifications, together with all necessary incidentals whether referred to or not, as will be required to complete the work to the full intent and meaning of the drawings and specifications. The work includes but is not limited to the following:

- Sheet Metal Cap Flashings
- Sheet Metal Drip Flashing

#### 1.3 RELATED WORK

Structural Steel Rough Carpentry Sealants

### 07900

### 1.2 <u>REFERENCES</u>

Section 9.26, Roofing, O.B.C.

1.3 <u>SAMPLES</u>

Submit samples in accordance with Division 1.

Submit 300 x 300 mm samples of each sheet metal material.

#### 1.4 <u>SHOP DRAWINGS</u>

Submit shop drawings in accordance with Division 1.

Indicate arrangements of sheets and joints, types and locations of fasteners and special shapes and relationship of panels to structural wood frame.

Field verify all dimensions and details prior to fabrication.

Shop drawings to include details for corners, elevation changes, intersections, etc. as required to suit field conditions.

### PART 2 - PRODUCTS

### 2.1 <u>SHEET METAL MATERIALS</u>

Zinc coated steel sheet: to ASTM A526M, commercial quality, with Z275 coating 0.76 mm minimum base metal thickness.

Section 05120 Section 06100 Section

### SHEET METAL CAP FLASHING

## 2.2 PREFINISHED STEEL SHEET

Conforming to ASTM A446, Grade "A", with a minimum base steel thickness as specified herein. Prepainted sheets shall be finished with Z275 zinc coating in accordance with CSSBI Standards, factory finished with 8,000 series. Sheets designated to be "wiped" coated only shall be finished with ZF075 zinc coating.

Type 'B' Fasteners: Standard concealed fasteners compatible with preformed siding used.

Exposed Caulking: High quality sealant conforming to CGSB 19-GP-24M, Type 1 or 2, Class 'B', colour to match flashing as approved by the Engineer.

Corner Stiffeners: Steel sheet in required thickness, finished with Z275 zinc coating, and if exposed shall match adjacent material.

Sheet Metal Flashing, Closures and Miscellaneous Trim: Prepainted sheet steel in 0.9 mm base thickness conforming to ASTM A446, Grade 'A', finished with Z275 zinc coating, prepainted with paint colour selected by the owner.

Provide enough prepainted sheet steel to form and install metal cap flashing at top of walls and exterior column locations.

Thickness specified for prefinished steel sheet applies to base metal thickness.

#### 2.3 <u>ACCESSORIES</u>

Isolation coating: alkali resistant bituminous paint.

Plastic cement: to CGSB 37-GP-5Ma.

Sealants: Section 07900.

Touch-up paint: as recommended by roofing manufacture.

### PART 3 - EXECUTION

## 3.1 EXECUTION

General

Install steel flashing in accordance with the reviewed Shop Drawings and procedures.

Install sheet metal work in accordance with CRCA FL series details, and as detailed.

Use concealed fastenings except where approved before installation.

Provide underlay under sheet metal. Secure in place and lap joints 100 mm.

Page 3

Flash joints using S-lock and as detailed.

Lock end joints and caulk with sealant.

Fasten sheets at a maximum of 300 mm centres to intermediate supports.

Caulk side lips and end laps of sheets to provide a continuous seal. Seal joints as recommended by the manufacturer.

Cut and flash all openings indicated on Drawings.

Bed all flashings, closures and corner pieces in sealant to provide a weather tight installation.

Back Painting: Paint all steel coming in contact with aluminum, apply one coat of bituminous paint.

Install flashings, starter strips, and other flashings, to details shown on drawings.

Install as per manufacturers instructions.

Sizes and profiles as indicated on the shop drawings.

END OF SECTION
### <u>PART 1 - GENERAL</u>

### 1.1 <u>GENERAL</u>

All conditions of the contract apply to the work of this Section.

### 1.2 <u>SCOPE OF WORK</u>

This Section of the Contract includes supply and installation of all sealants and firestopping called for or implied by the drawings and specifications. This Contractor shall provide all labour, materials, plant, tools, equipment and supervision, together with all necessary incidentals whether referred to or not, as will be required to complete the work to the full intent and meaning of the drawings and specifications. The work includes but is not limited to the following:

- General sealing of joints between dissimilar materials.

### 1.3 RELATED WORK

Structural Steel Rough Carpentry Sheet Metal Cap Flashing Section 05120 Section 06100 Section 07311

### 1.4 ENVIRONMENTAL CONDITIONS

Sealant and substrate materials to be minimum 5°C.

Should it become necessary to apply sealants below 5°C, consult sealant manufacturer and follow their recommendations and review with Engineer.

### 1.5 <u>WARRANTY</u>

Warrant that caulking work will not leak, crack, crumble, melt, shrink, run, lose adhesion or stain adjacent surfaces in accordance with Division 1, but for two years.

### 1.6 QUALITY ASSURANCE

Installation of sealants materials shall be performed only by workmen thoroughly skilled and specially trained in the techniques for application.

Caulking work shall be carried out in strict accordance with manufacturer's printed directions.

### 1.7 DELIVERY, HANDLING AND STORAGE

Use all means necessary to protect caulking materials before, during and after installation and to protect the installed work and materials of all other trades.

In the event of damage, immediately make all repairs and replacements necessary to the approval of the Engineer and at no additional cost to the Owner.

Store all caulking materials and equipment under conditions recommended by its manufacturer.

Do not use materials stored for a period of timing exceeding the maximum recommended shelf-life of

the material.

Materials shall be delivered to the job in their original containers or wrapping with the manufacturer's seal and labels intact.

### PART 2 - PRODUCTS

### 2.1 <u>MATERIALS</u>

Primers: Type recommended by sealant manufacturer.

Joint Fillers: Compatible with primers and sealants, outsized 30 to 50%.

<u>Sealant Type A</u>: Epoxidized, polyurethane, terpolymer type confirming to CAN-CGSB-19.24. Tremco "Dymeric". Colour mixed to match colour of adjacent surfaces. Provide samples of mix to Engineer for approval prior to starting work.

Daming and Backup Materials, Support and Anchoring Devices: Non-combustible in accordance with tested assembly and as recommended by manufacturer.

### PART 3 - EXECUTION

### 3.1 INSPECTION

Inspect conditions and substrates upon which work of this Section is dependent. Report to Engineer in writing any defects that may jeopardize the performance of this work. Commencement of work implies acceptance of conditions.

### 3.2 PREPARATION

Remove dust, paint, loose mortar and other foreign matter. Dry joint surfaces.

Remove rust, mill scale and coatings from ferrous metals by wire brush, grinding or sandblasting.

Remove oil, grease and other coatings from non-ferrous metals with joint cleaner.

Prepare concrete, masonry, glazed and vitreous surfaces to sealant manufacturer's instructions.

Examine joint sizes and correct to achieve depth ratio I/2 of joint width with minimum width and depth of 6 mm, maximum width 25 mm.

Install joint filler to achieve correct joint depth.

Where necessary to prevent staining, mask adjacent surface prior to priming and caulking.

Apply bond breaker tape where required to ensure performance of sealant.

Prime sides of joints when required to ensure performance of sealant immediately prior to caulking.

### 3.3 APPLICATION

Apply sealants to provide watertight joint. Apply sealant using gun with proper size nozzle. Use sufficient pressure to fill voids and joints solid. Superficial pointing with skin bead is not acceptable.

Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities. Neatly tool surface to a slight concave joint.

Clean adjacent surfaces immediately and leave work neat and clean. Remove excess sealant and droppings using recommended cleaners as work progresses. Remove masking after tooling of joints.

Caulk joints in surfaces to be painted before surfaces are painted. Where surfaces to be caulked are primed in shop before caulking, check to make sure prime paint and caulking are compatible. If they are incompatible inform Consultant and change caulking to compatible type approved by Engineer.

Joints in exterior pre-fabricated wall panel are to be double sealed and vented to provide rain screen principles of joint design.

<u>Sealant Locations Type A</u>: Joints between metal frames, concrete and masonry; other locations where caulking is shown on the drawings.

END OF SECTION

### STRUCTURAL STEEL

Page 1

### <u> PART 1 – GENERAL</u>

### 1.1 <u>GENERAL REQUIREMENTS</u>

This Section of the contract includes supply and installation of all structural steel called for or implied by the drawings and specifications, together with all necessary incidentals whether referred to or not, as will be required to complete the work to the full intent and meaning of the drawings and specifications. The work includes but is not limited to the following:

### 1.2 RELATED WORK

1.3

-	Rough Carpentry	Section 06100
-	Sheet Metal Cap Flashing	Section 07311
-	Sealants	Section 07900
REF	ERENCED STANDARDS	

ASTM A325M-92a-Specification for High-Strength Bolts for Structural Steel Joints Metric

CISC/CPMA 2.75-A Quick-drying Primer for Use on Structural Steel

CAN/CSA-G40.20-General Requirements for Rolled or welded Structural Quality Steel

CAN/CSA-G40.21-Structural Quality Steels

CSA S16.1-Limit States Design of Steel Structures

CAN/CSA-G164-Hot Dip Galvanizing of Irregularly Shaped Articles

CSA W59-Welded Steel Construction (Metal Arc Welding)

CSA W59-M89 SSPC-Steel Structures Painting Council, "Steel Structures Painting Manual, Vol. 2"

### 1.4 SOURCE QUALITY CONTROL

Submit three certified copies of mill reports covering chemical and physical properties of steel used in this work, when requested.

Submit copies of welding qualification certificates and identification cards for welders and welding operators. Submit documents showing that the Contractor is certified in compliance with CSA W47.1.

### 1.5 DESIGN OF DETAILS AND CONNECTIONS

Design details and connections in accordance with requirements of CSA S16.1M to resist forces, moments and shears indicated.

### 1.6 <u>SHOP DRAWINGS</u>

Submit shop drawings in accordance with Division 1.

Each drawing submitted for connection details shall bear signature and stamp of qualified professional Engineer registered in Province of Nova Scotia.

Indicate shop and erection details including cuts, copes, connections, holes, threaded fasteners,

rivets and welds. Indicate welds by AWS welding symbols.

Coordinate with requirements of other trades for number, location and size of all openings through structural steel members. Indicate openings on erection and shop drawings.

Indicate beam and column bearing and anchoring details, framed openings, accessories, schedule of materials and loading.

### PART 2 - PRODUCTS

### 2.1 <u>MATERIALS</u>

Structural Steel: CAN3-G40.21-M Grade 300W and Grade 350 for 'W' Sections.

Hollow Structural Sections: CAN3-G40.21-M Grade 350W, Class 'C'.

Bolts, Nuts and Washers: ASTM A325M.

Welding Materials: CSA W59.

Shop Paint Primer: CISC/CPMA Standard 2-75 in all areas, colour grey.

Galvanizing: Hot dipped galvanizing with minimum zinc coating of 600 g/m2 to CSA G164.

### 2.2 FABRICATION

Do structural steel work indicated on drawings and specified. Supply angles, channels, plates and bolts and other detail fittings needed to complete structural steel work. Include applicable items listed in CISC Code of Standard Practice for Structural Steel for Buildings and other items as specified.

### 2.3 SHOP PAINTING

Paint steel in shop under cover. Protect painted members until paint has fully dried.

Steel preparation in all areas: Clean and prepare surfaces in accordance with CISC/CPMA, Standard 2-75. Use power tool cleaning in accordance with SSPC-SP-3. Primer: Dry film thickness 1.0 mils mm.

### PART 3 - EXECUTION

### 3.1 STRUCTURAL STEEL ERECTION

Do structural steel work indicated on drawings and specified. Supply angles, channels, plates and bolts and other detail fittings needed to complete structural steel work. Include applicable items listed in CISC Code of Standard Practice for Structural Steel.

Erect structural steel as indicated in accordance with CAN 3-S16M; S136 and in accordance with shop drawings.

Obtain written permission of Owner's Representative prior to field cutting or altering of structural members not shown on drawings.

Touch up shop primer to bolts, rivets, welds and burned or scratched surfaces at completion of erection. Clean up steel to satisfaction of Consultant.

# 3.2 FIELD QUALITY CONTROL

Inspection and testing of materials and workmanship will be carried out by testing laboratory designated by the Owner's representative..

Costs of tests shall be paid out of Cash Allowances,

END OF SECTION

# Appendix B – Iron and Steel Scrap General Specifications

- (a) All grades shall be free of dirt, non-ferrous metals, foreign material of any kind, such as refractory, wood, rubber, slag, plastics and/or concrete and excessive oil, rust and corrosion. As well, all grades shall be properly prepared to allow for efficient handling by magnets and efficient furnace charging. Shipments must not contain badly tangled material or material that would tend to become tangled. All coils must be securely bound to withstand magnet handling.
- (b) All grades must be free of munitions.
- (c) All grades must be free of copper wound motors.
- (d) All grades shall be free of materials that are deemed or designated hazardous as defined by the Nova Scotia Department of Environment, Environment Canada or any other Government empowered body.
- (e) Grades shall be free of drums, barrels or closed containers of any sort, including but not limited to:

Drums and/or gasoline tanks	Acetylene/Oxygen Tanks
Barrels	Shock Absorbers and/or Auto Drive Shafts
Ordnance	Closed Pipes, etc.
Propane Tanks of any size	Hydraulic Cylinders
Paint and paint thinner cans	Fire Extinguishers

- (f) All grades shall be free of electrical transformers and/or other components that are suspected of having contained PCB's.
- (g) All grades shall not contain galvanized, painted or coated materials in excess of 5% by weight.
- (h) Alloy free scrap will be rejected if it contains high manganese steel, silicon steel, rephosphorized steel, copper bearing steel, tin plate, detinned material, terne plate, stainless steel, vitreous enamel coated steel, tool, die or mould steel or cast iron. Scrap steel will be considered free of alloys when the residue alloying elements do not exceed the following percentages:

Nickel	0.20%	Manganese	1.65%
Chromium	0.20%	Copper	0.20%
Lead	0.02%	Silicon	0.35%
Phosphorous	0.05%	Sulphur	0.05%
Tin	0.015%	Molybdenum	0.05%
Carbon	1.10%	-	

The combined residuals other than manganese and silicon shall not exceed a total of 0.60 percent.

- (i) Grades are not to be mixed.
- (j) <u>Deviation</u> Any deviations from the general classifications of Iron & Steel Scrap must be consummated in writing by NSLI.

### SCRAP CLASSIFICATION AND SPECIFICATION PLATE & STRUCTURAL (P & S)

Cut PLATE & STRUCTURAL scrap, obsolete and new not over 24" wide and maximum 60" long. Scrap must be 1/4" thick or over. Pieces must be free of attachments and so cut as to lay flat in the charging container.

### DENSITY - MINIMUM OF 55 POUNDS PER CUBIC FOOT

### May not include:

Incinerated scrap of any kind Reinforcing bar Automobile parts Engine blocks Grate bars Railway brake shoes Cast or malleable iron Sheet scrap Light scrap of any kind Coated material, unwieldy pieces, annealing pots, pit scrap Cable Non-ferrous material Non-conductive material such as cement, wood, stone ... Alloy scrap Turnings/borings Manganese in a free state i.e. railway frogs, etc. Badly rusted or corroded stock

### May contain:

Split pipe 4" in diameter or greater and ¼" thick or greater

### SCRAP CLASSIFICATION AND SPECIFICATION #1 HEAVY MELTING SCRAP (#1 HMS)

Alloy free carbon steel scrap, obsolete and new,1/4" and over in thickness not over 24" in width and not over 60" in length. Individual pieces must be free from attachments and so cut as to lay flat in the charging container.

### DENSITY - MINIMUM OF 55 POUNDS PER CUBIC FOOT

### May not include:

Incinerated scrap of any kind Reinforcing bar Automobile parts Engine blocks Grate bars Railway brake shoes Cast or malleable iron Sheet scrap Light scrap of any kind Coated material, unwieldy pieces, annealing pots, pit scrap Cable Non-ferrous material Non-conductive material such as cement, wood, stone ... Alloy scrap Turnings/boring Manganese in a free state i.e. railway frogs, etc. Badly rusted or corroded stock

### May contain:

Flattened pipe 4" in diameter or greater and  $\frac{1}{4}$ " thick or greater Heavy-duty truck rims

### SCRAP CLASSIFICATION AND SPECIFICATION #2 HEAVY MELTING SCRAP (#2 HMS)

Wrought iron and steel scrap. Not over 24" wide and not over 60" long. Individual pieces must be free from attachments and so cut as to lay flat in the charging container.

#### May not include:

Incinerated scrap of any kind Shock absorbers, body or fender stock, catalytic converters, gas tanks Engine blocks Railway brake shoes Cast or malleable iron Sheet scrap Light scrap of any kind Coated material, unwieldy pieces, annealing pots, pit scrap Non-ferrous material Non-conductive material such as cement, wood, stone ... Alloy scrap Turnings/borings Manganese in a free state i.e. railway frogs, etc. Badly rusted or corroded stock

#### May contain:

Clean pipe 4" diameter and under, less than ¼" thick, minimum 1/8" thick. Steel cable "" greater than 1" in diameter, not greater than 36" in length."" Automotive scrap, properly prepared Automotive wheel rims with lead weights removed Coated or galvanized material up to 5% by weight Reinforcing bar not greater than 36" in length

# Appendix C – Form of Agreement

# Form of Agreement

This Agreement made on the \_\_\_\_\_ day of \_\_\_\_\_ in the year 2013.

### BY AND BETWEEN

Renova Scotia Bioenergy Inc.

hereinafter called the "Owner"

and

hereinafter called the "Contractor"

The Owner and the Contractor agree as follows:

### **ARTICLE A1 – THE ASSIGNMENT**

The Contractor shall:

A1.1 Perform the Assignment required by the Contract Documents to

### **Demolish Redundant Buildings and Process Scrap**

As per Section 4 – Scope of Work of the Deloitte Request for Proposals on the Project Site, located in Brooklyn, Nova Scotia, for which the Agreement has been signed by the parties, and for which

is acting as and is hereafter called the "Contractor";

- A1.2 do and fulfill everything indicated by this Agreement; and
- A1.3 commence the work by the 16<sup>th</sup> day of December in the year 2013 and attain substantial completion of the work by the 30<sup>th</sup> day of April in the year 2014 if the Assignment does not include processing of scrap on the Project Site, or by the 30<sup>th</sup> day of June in the year 2014 if the Assignment includes processing of scrap on the Project Site.

### **ARTICLE A2 – AGREEMENTS AND AMENDMENTS**

The Contract supersedes all prior negotiations, representations or agreements, either written or oral, relating in any manner to the work, including the bidding documents that are not expressly listed in Article A3 of the Agreement.

### **ARTICLE A3 – CONTRACT DOCUMENTS**

The following is an exact list of the Contract Documents referred to in subsection A1.1 of this Agreement. This list is subject to subsequent amendments in accordance with the provisions of the Contract Documents. By signing this Agreement, the Contractor acknowledges receipt of all Addenda to the Request for Proposals, including Addenda to the Contract Documents.

- A3.1 Project Documents
  - A3.1.1 Form of Agreement;
  - A3.1.2 Iron and Steel Scrap General Specifications
  - A3.1.3 Building Drawings, Industrial Building Condition Survey, and Other Information; and
  - A3.1.4 Contractor Suggested Rate Structure
  - A3.1.5 Health and Safety Program

### **ARTICLE A4 – CONTRACT RATE STRUCTURE**

- A4.1 The Estimated Contract Rate Structure to complete the Assignment as outlined in Section 4 – Scope of Work of the Deloitte Restructuring Inc. Request for Proposals, excluding the amount of Harmonized Sales Tax, is outlined in Appendix \_\_\_, attached to this Form of Agreement;
- A4.2 All rates shall be in Canadian funds and exclude value added taxes; and
- A4.3 The rate shall be subject to adjustment as provided in the Contract Documents.

### **ARTICLE A5 – PAYMENT**

- A5.1 The Owner shall pay the Contractor in Canadian funds for the performance of the Contract;
- A5.2 The Owner shall make monthly payments on account to the Contractor for the Work performed, as certified by the Engineer, subject to a 10% holdback;
- A5.3 The last day of the payment period shall be the last working day of the month; and
- A5.4 Upon substantial performance of the Work as certified by the Engineer the Owner shall pay to the Contractor the holdback monies then due.

### **ARTICLE A6 – RECEIPT OF AND ADDRESSES FOR NOTICES**

A6.1 Notices in writing between the parties shall be considered to have been received by the addressee on the date of delivery if delivered to the individual, or to a member of the firm, or to an officer of the corporation for whom they are intended by hand or by registered post; or if sent by regular post, to have been delivered within five working days of the date of the mailing when addressed as follows:

A6.1.1 The Owner at Deloitte Restructuring Inc., c/o Renova Scotia Bioenergy Inc., 1969 Upper Water Street, Suite 1500, Halifax, Nova Scotia, B3J 3R7, Attention: Neil Jones.

A6.1.2 The Contractor at \_\_\_\_\_

### **ARTICLE A7 – SUCCESSION**

The aforesaid Contract Documents are to be read into and form part of the Agreement and the whole shall constitute the Contract between the parties and subject to law and the provisions of the Contract Documents shall endure to the benefit of and be binding upon the parties hereto, their respective heirs, legal representatives, successors and assigns.

### **ARTICLE A8 – RIGHTS AND REMEDIES**

No action or failure to act by the Owner or Contractor shall constitute a waiver of any right or duty afforded either of them under the Contract, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach there under, except as may be specifically agreed in writing.

### **ARTICLE A9 – DISPUTE RESOLUTION**

- A9.1 In accordance with the latest edition of the Rules for Mediation of Construction Disputes as provided in Canadian Construction Documents Committee (CCDC 40), the parties shall appoint a Project Mediator within 30 days after the Contract was awarded, or, if the parties neglected to make an appointment within the 30 day period, within 15 days after either party by notice in writing requests that the Project Mediator be appointed.
- A9.2 The parties shall make all reasonable efforts to resolve their disputes by amicable negotiations and agree to provide, without prejudice, frank, candid, and timely disclosure of relevant facts, information, and documents to facilitate these negotiations.
- A9.3 If the dispute has not been resolved within 10 days after the Project Mediator was requested by either party or within such further period agreed by the parties, the Project Mediator shall terminate the mediated negotiations by giving notice in writing to both parties. The parties may refer the unresolved dispute to the courts or to any other form of dispute resolution, including arbitration, which they have agreed to use.

### ARTICLE A10 - TIME

Time shall be construed as being of the essence of the Contract.

### SIGNATURES

**IN WITNESS WHEREOF** the parties hereto have executed this Agreement under their respective corporate seals and by the hands of their proper officers there unto duly authorized.

CONTRACTOR [Seal]OWNER [Seal]Company NameRenova Scotia Bioenergy Inc.Signature of Signing OfficerSignature of Signing OfficerName and Title (printed)Name and Title (printed)Signature of Signing OfficerSignature of Signing OfficerName and Title (printed)Signature of Signing OfficerName and Title (printed)Name and Title (printed)Name and Title (printed)Name and Title (printed)

SIGNED AND SEALED AND DELIVERED in the presence of:

Witness

Name and Title of Person Signing

Witness

Name and Title of Person Signing

(Where legal jurisdiction, local practice or Owner or Contractor requirements calls for (a) proof of authority to execute this document, attach such proof of authority in the form of a certified copy of a resolution naming the representative(s) authorized to sign the Agreement for and on behalf of the corporation or partnership; or (b) the affixing of a corporate seal, this Agreement should be properly sealed.)

### \*\*\* End of section \*\*\*

# Appendix D – Health and Safety Program



# MASTER HEALTH AND SAFETY PLAN

# ReNova Scotia Bioenergy Inc. And Nova Scotia Lands Inc. Bowater Site, Liverpool Nova Scotia

Nova Scotia Lands Inc. P.O. Box 430, Station 'A' Sydney, Nova Scotia B1P 6H2 Telephone (902) 564-7937 Fax (902) 564-7903 ReNova Scotia Bioenergy Inc. P.O. Box 1150 Liverpool, Nova Scotia B0T 1K0 Telephone (902) 354-3411 Fax (902) 354-2271

Prepared by Sheldon Andrews **Revised December, 2012 Revised Jan. / Feb./ June/July/Aug./ 2013** 

# Site Safety Plan Outline

# 1.0 Introduction

- 1.1 General Policy
- 1.2 Master Health & Safety Plan Responsibilities
- 1.3 Safe Work Permit
- 1.4 Hazard Assessment and Management
- 1.5 Potential Physical Hazards On-Site
- 1.6 Site Control and Contaminant Management
- 1.7 Decontamination

# 2.0 Regulatory Compliance

- 2.1 Canadian Standards
- 2.1.1 Workplace Hazardous Materials Information Standard (WHMIS)
- 2.1.2 Canadian Standards Association (CSA)
- 2.2 Recommended Guidelines

# 3.0 Safety Program/Prevention Procedures

- 3.1 Safety Hazards
- 3.2 Chemical Hazards
- 3.3 Electrical Hazards
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# **1.0 INTRODUCTION**

The Province of Nova Scotia acquired Bowater Mersey Paper Company Limited in December 2012 and renamed it ReNova Scotia Bioenergy Inc. (ReNova). ReNova has secured the services of Nova Scotia Lands, a provincial Crown Corporation to manage the Bowater Site/former Bowater Mersey Paper Company Limited, including with respect to Health and Safety and the associated requirements, plans, processes and procedures.

Nova Scotia Lands Inc. and ReNova Scotia Bienergy Inc.are committed to providing a healthy and safe work environment for its employees by working with and co-operating with workers in preventing and controlling all undesired losses involving occupational injury and illness, equipment and materials.

As an employer, the Companies have the obligation to ensure that the measures and procedures prescribed by the Occupational Health and Safety Act and Regulations are complied to.

The Master Health and Safety Plan was developed using a reasonable and practical approach to implementing standard hygiene and safety practices which protect a worker or visitor and the public from identified hazards. This MHASP will be used as a basis for establishing minimum project-specific requirements, however, project-specific work will warrant more stringent health and safety requirements due to potential exposure to project-specific hazards and varying site conditions. As such, Project-Specific Health and Safety Plans are required to be prepared that recognize this MHASP at a minimum.

# This MHASP is designed to ensure:

- that personnel working on various sites are not exposed to physical and chemical hazards which could adversely affect their health and safety;
- that the health and safety of the general public and the environment is not compromised by off-site migration of contaminated materials; and
- compliance is achieved with the Nova Scotia Occupational Health and Safety Act; Nova Scotia Department of Transportation and Infrastructure Renewal Occupational Health and Safety Policy; Labour Canada; CCME Guidelines for Decommissioning Industrial Sites and other applicable regulations and guidelines.

All site operations will be conducted at a minimum in accordance with the provisions of MHASP, as well as any accepted Project-Specific Health and Safety Plans. Cost and scheduling considerations will not be regarded as justification for reducing the requirements of the MHASP.

# 1.1 General Policy

It is the responsibility of all employers with individuals or visitors entering work sites to ensure that:

- the requirement of this Master Health and Safety Plan are implemented such that activities are completed in accordance with applicable legislation and standards;
- all activities are performed using standard operating procedures, protocols or work practices which are in compliance with provincial and federal legislation and acceptable to governing authorities; and
  - All reasonable and practical precautions, including implementation of appropriate work practices and engineering controls, have been taken to ensure that the health and safety of any person or the public is not impaired by completion of an activity.

# 1.2 Master Health and Safety Plan Responsibilities

# **Responsibility for Safety**

# 1) <u>Policy</u>

The responsibility for a safe and healthy workplace lies with every employee and at each level in the organization. Each employee has a personal and legal responsibility to work safely and to ensure that a safe work environment is maintained.

# 2) <u>Purpose</u>

The purpose of this policy and procedure is to identify and clearly define individual responsibilities for safety.

# 3) <u>Scope</u>

This policy and procedure applies to all employees of ReNova Scotia Bioenergy Inc. and Nova Scotia Lands Inc.

# 4) <u>Responsibility</u>

# Management

In general, the primary responsibility of ReNova Scotia Bioenergy Inc. and Nova Scotia Lands Inc. is to provide means and methods for a safe and healthy environment. This is accomplished by ensuring that:

- Equipment, materials and protective devices provided are in good condition, and used as prescribed.
- The measures and procedures required by law are carried out in the workplace.
- The protection of worker health and safety is maintained through information, instructions, training and supervision.
- Every reasonable precaution has been taken to ensure the protection of a worker.
- All accidents are fully investigated and corrective action taken to prevent a recurrence.

# Supervisor

- Ensures that workers work in the manner and with protective devices, measures and procedures required by The Act and Regulations.
- Ensures that workers use or wear the equipment, protective devices or clothing that ReNova Scotia Bioenergy Inc. and Nova Scotia Lands Inc. requires to be used or worn.
- Ensures that workers work in compliance with the applicable laws, regulations and the Occupational Health and Safety Policy.
- Advises workers of any potential or actual danger to their health and safety.
- Provides information and training as required to protect the worker's safety.
- Ensures that all workers work in a manner that will not endanger themselves or fellow workers.
- Document all minutes in writing with regard to safety meeting or issues related to health and safety.
- Take every reasonable precaution to protect workers from injury.
- Report to the Health & Safety Coordinator any problems or suggestions related to health and safety in the workplace.
- Completes a ReNova Scotia Bioenergy Inc. and Nova Scotia Lands Inc. Safe Work Permit prior to the start of each project. This permit becomes the basis for a Weekly "Tool Box Meeting" used to inform all workers of the hazards of the job.

# Workers

- The workers must work in compliance with the provisions of the applicable laws and regulations.
- Work in compliance with the ReNova Scotia Bioenergy Inc. and Nova Scotia Lands inc. Occupational Health and Safety Policy.
- Use or wear the equipment, protective devices or clothing that the employer requires to be used or worn.
- Report to the supervisor any problems with equipment that may endanger the worker or other workers.
- Report to the supervisor any contravention of any applicable laws or regulations and any hazard on the project.
- Work in a manner that will not endanger themselves or other workers.
- The worker must not engage in any prank, contest, feat of strength, unnecessary running or rough and boisterous conduct.
- If necessary, the worker may exercise their "right to refuse" or to stop work in "dangerous circumstances" in which:
  - A provision of any applicable acts or regulations are being contravened.
  - The contravention poses a danger or hazard to the worker.
  - The danger or hazard is such that any delay in controlling it may seriously endanger a worker.

By exercising the "Right to Refuse", a worker is acting in a safe and responsible manner. Any safety concern must be brought to the attention of the Site Supervisor and the Health & Safety Coordinator.

# 1.3 <u>Safe Work Permit</u>

A safe work permit form must be completed by the Project Supervisors for any activity that contains a site investigation or remediation/work tasks.

Task specific details, suspected physical, chemical and biological hazards, are to be documented on the Safe Work Permit form for each task to be completed. Details provided will contain sufficient information regarding proper Personal Protection Equipment required for each task.

The Safe Work Permit form must be submitted to the site Health & Safety Coordinator prior to commencing the activity. The activity will not be initiated until formal acceptance has been granted by the Health & Safety Coordinator.

# 1.4 Hazard Assessment and Management

A hazard assessment must be completed for each work site and included in any Project-Specific Health and Safety Plan. The results of the hazard assessment must be communicated to employees during Safe Work Permit Meetings, Tool Box Meetings and prior to commencing a project.

# 1.5 <u>Potential Physical Hazards On Work Sites</u>

The following is a list of physical hazards that may be encountered during site activities:

<u>Slip, Trip, Falls</u> - Good housekeeping will be maintained at all work sites. Trip hazards will be removed, marked, or guarded. Extreme caution must be used when working on or around slippery surfaces, and fall protection will be worn at elevations greater than three (3) meters. All necessary precautions will be taken to prevent personnel from injuries caused by slick surfaces.

**Back Strain** - Proper lifting techniques must be used when handling heavy or bulky loads. Personnel must lift with legs; keeping backs straight, and loads close to their bodies. Avoid twisting at the waist during lifting. Personnel must receive help from others when loads appear to be too heavy. Mechanical means of lifting is the preferred method and will be used whenever possible.

**Buried Utilities** - All buried utilities must be identified by the contractor in conjunction with ReNova Scotia Bioenergy inc. and Nova Scotia Lands Inc. personnel prior to any intrusive work in the area. Buried utilities will never be located by mechanically powered excavating

equipment. Instead, buried utilities will be located by use of engineered drawings, hand excavation and/or electronic sensing techniques.

**Electrical** - Only qualified personnel are authorized to work on electrical circuits. Appropriate Lock Out/Tag Out procedures must be followed before any maintenance on electrical circuits or equipment is to take place. Extension cords will be inspected daily. Damage extension cords will be taken out of service immediately. Electrical cords not specifically made for water submersion will be kept out of wet areas. Ground fault circuit interrupters (GFCI) will be used on all temporary electrical circuits (including generators) unless an assured ground fault inspection program has been conducted and properly recorded.

<u>Small Quantity Flammable/Combustible Materials</u> - Small quantities of flammable/combustible materials must be stored in "safety" cans with appropriate flame arrestors, self-closing lids, and labeled according to their contents.

<u>Confined Space</u> - In the event that there are confined spaces present at the job site to be entered, Standard Operating Procedures (SOP) covering air monitoring, training, permitting, rescue, and personal protective equipment must be reviewed and followed. At no time will any personnel be allowed to enter a confined space until all criteria of the SOP are met.

<u>**Overhead Hazards</u></u> - Investigation of a work area must be conducted before any work is to begin. Proper clearances must be maintained at all times. Equipment must not deviate from established roadways or work areas where clearances are unknown or insufficient. Hard hats are to be worn on all construction sites, especially where there is any potential of overhead hazard or if heavy machinery is in use.</u>** 

<u>Heat/Cold Stress</u> - Personnel have the potential to be exposed to climatic extremes of both heat and cold. Because of these conditions, Standard Operating Procedures for heat and cold Stress must be developed so that the hazards associated with these temperature extremes on the body can be recognized and avoided.

<u>Animal/Insect/Vegetation</u> - Rodents, snakes, stray animals, stinging insects, and poison ivy, sumac and oak are all environmental hazards that maybe encountered during daily site operations. Site investigation to identify the hazards, prior to work related activities is essential. The information obtained will then be passed on to site personnel. Project-specific procedures must be instituted should there be a reasonable potential for these hazards.

<u>**Obscured Subsurface Opening/Collapsed Utilities</u></u> - Caution must be exercised when conducting fieldwork in unfamiliar areas where obscured subsurface openings and collapsed utilities may be present. The location of these hazards must be clearly marked and guarded when</u>** 

found, and immediately communicated to ReNova Scotia Bioenergy Inc. / Nova Scotia Lands Inc. Health and Safety Coordinator and other personnel to avoid potential accidents and injuries. Temporary or permanent actions to eliminate the hazard or decrease the risk of injury will be conducted upon consultation with ReNova Scotia Bioenergy Inc. and Nova Scotia Lands Inc.

<u>**Risk of Drowning and Water Hazards</u></u> - Standard Operating Procedures for working around bodies of water must be developed and implemented. The SOP must include precautions taken when working around water and ice, guidelines associated with boating safety, and measures taken to prevent, recognize, and treat hypothermia. Personal flotation devices will be provided in compliance with the Canadian General Standards Board, CAN/CGSB-65.11-M88, "Personal Flotation Devices".</u>** 

<u>Chemical Hazards</u> - Each site will present its own challenges with regard to hazardous chemicals. It is for this reason that various means will be used to determine what chemicals are present. Site history, test pitting and core sampling are some of the means available to make this determination. Regardless, the CCME guidelines for decommissioning of industrial sites will be followed. Most industrial sites are contaminated with hydrocarbons. Solvents, cleaners and paints that are commonly used contain volatile organic compounds. Compounds that are of most concern are Benzene, Toluene, Ethylbenzene and Xylene because they are suspected carcinogens. Material Safety Data Sheets, proper respiratory protection and personal protective equipment will be used to protect workers.

**Excavations/Trenching** – During the course of testing and remediation, workers are to keep a safe distance from any open holes. Fencing, barricades and caution tape are to be used to identify these areas. If workers are required to work within these areas, the Nova Scotia Occupational Safety General Regulations referencing excavations and trenching are to be followed.

<u>Asbestos</u> – Workers must always be aware that on any given industrial site, the potential exists that asbestos containing material may be present. Asbestos has been used as an insulating material on building walls and ceilings, pipe insulation, electrical insulation and gaskets. Whenever asbestos is suspected, work in that area is to stop immediately and a sample will be sent for testing. If confirmed, procedures for asbestos abatement are to be followed.

<u>Mobile Equipment</u> – Heavy mobile equipment is required to perform most of the work during remediation. As a result, workers and operators are required to be aware of the personnel working in their area. All workers are to wear high visible reflective vests/jackets while on the site. Never approach heavy equipment unless you have eye contact with the operator. All heavy mobile equipment on site are required to have working, audible back up alarms.

**Overhead Power Lines** – During the course of the site hazard assessment, if overhead power lines have been identified, proper procedures are to be followed. Always maintain a 20 ft. clearance from power lines unless you have a safe clearance report from Nova Scotia Power. A spotter may be required at times or the lines may have to be protected.

**Polychlorinated Biphenyls** – PCB's can be found in a wide variety of uses. The most common use has been in the electrical field, where they are found in transformers, capacitors and ballasts. If testing confirms the presence of PCB's, proper procedures must be followed for the removal and disposal.

# 1.6 <u>Site Control and Contaminant Management</u>

All reasonable and practical removal, handling, transportation, storage and disposal procedures must be used to:

- minimize raising of dust;
- minimize the mobilization of hazardous substances contained within equipment and materials;
- minimize the release of hazardous materials (liquid, solid or gas) into the environment;
- minimize the migration of subsurface contaminants as a result of an activity having a physical (i.e., vibration) or chemical (i.e., increased rainwater infiltration) influence or subsurface materials;
- contain all hazardous materials mobilized on the ground surface for proper treatment or disposal; and
- minimize personal exposures to hazardous materials.

In areas that are accessible to the public, active work areas must be enclosed with caution tape providing safe separation from the work activity. A minimum separation distance of 10 meters will be provided.

Site control procedures must be developed for all activities involving hazardous materials. Exclusion, Contaminant Reduction and Support Zones will be established as outlined in the national Institute for Occupational Safety and Health (NIOSH) Publication No. 85-115, "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities".

Contamination control zones are maintained to prevent the spread of contamination and to prevent unauthorized people from entering hazardous areas. The required contamination control zones are as follows:

- **Exclusion Zone (EZ)** the EZ consists of the specific work, or may be the entire area of suspected contamination. All employees entering the EZ must use the required PPE, and must have the appropriate training and medical clearance for hazardous waste work. The EZ is the defined area where there is a possible respiratory and/or contact health hazard. The location of each EZ will be identified by cones, caution tape or other appropriate means.
- **Contamination Reduction Zone** (**CRZ**) The CRZ or transition area will be established, if necessary, to perform decontamination of personnel and equipment. All personnel entering or leaving the EZ will pass through this area to prevent any cross-contamination. Tools, equipment, and machinery will be decontaminated in

a specific location. The decontamination of all personnel will be performed onsite adjacent to the EZ. Personal protective outer garments and respiratory protection will be removed in the CRZ and prepared for cleaning or disposal. This zone is the only appropriate corridor between the EZ and SZ.

• **Support Zone (SZ)** – The SZ is a clean area outside the CRZ located to prevent employee exposure to hazardous substances. Eating and drinking will be permitted in support area only after proper decontamination.

# 1.7 Decontamination

Equipment and vehicles used on the Site will be properly decontaminated prior to being removed from the site. Vehicles remaining on gravel-covered access roads do not require decontamination. Standard Operating Procedures for Decontamination must be developed to minimize the spread of contamination within different areas of the site. Appropriate Personal Protective Equipment (PPE) will be used when conducting decontamination involving chemical solvents. Material Safety Data Sheets (MSDS) for these contractor-supplied solvents must be included in the Project-Specific Health and Safety Plan as an attachment.

The Consultants/Contractors will provide, as a minimum, the following:

- Suitable containers for storage and disposal of used disposable PPE;
- Potable water and a suitable sanitation facility; and
- Shower and locker facility for all on-site personnel.

The Consultants/Contractors must enforce the following provisions:

- On site personnel must wear appropriate PPE at all times when entering or working in the Exclusion or Contaminant Reduction Zones;
- Used disposable PPE must not be reused, and when removed, will be placed inside appropriate containers provided for that purpose;
- Soiled disposable outerwear must be removed prior to entering the lunch area, and prior to cleansing hands;
- On site personnel must thoroughly cleanse their hands and other exposed areas before entering the lunch area and before leaving the site;
- All personnel in Level A or B PPE, or Level C depending on work conditions, will shower and change to fresh clothing after each working period or shift, prior to leaving the Site;
- Water generated from washing and showering must be stored or disposed of in accordance with applicable regulations and standard practices; and
- Work boots will be left at the site at the end of each workday, or cleaned/brushed to remove visible dirt before leaving the site. Grossly contaminated boots must be left at the work site.

# 2.0 **REGULATORY COMPLIANCE**

# 2.1 Canadian Standards

# 2.1.1 <u>Workplace Hazardous Materials Information Standard (WHMIS)</u>

This text is designed to meet the requirements of Nova Scotia's WHMIS regulation, which has been issued under the Canadian Occupational Health and Safety Act of 1985.

# 2.1.2 Canadian Standards Association (CSA)

Standards published by the CSA (i.e.: respiratory protection, and electrical) have been utilized in this document. They serve as a strong baseline for procedures developed for the PSHSP.

# 2.2 <u>Recommended Guidelines</u>

# **Canadian Council of Ministers of the Environment**

This document referencing the National Guidelines for Decommissioning Industrial Sites will be followed for all projects falling under these guidelines.

# American Conference of Governmental Industrial Hygienists (ACGIH)

The threshold limit values (TLVs) and Biological Exposure indices (BEIs) addressed in text are used as guidelines to assist in the control of health hazards at cleanup sites. They are used for the sole purpose of industrial hygiene practices, to be interpreted and applied only by persons trained in this discipline. In addition, ACGIH guidelines for chemical protective clothing and air sampling equipment were utilized when researching appropriate levels of protection required for employees and formulating sampling strategies, respectively.

### National Institute for Occupational Safety and Health (NIOSH)

The US Occupational Safety and Health Act of 1970 emphasizes the need to protect the health and safety of workers occupationally exposed to an ever-increasing number of potential hazards. Consequently, NIOSH has implemented a program to evaluate the adverse health effects of chemicals and physical agents and industrial processes. This text applies pertinent NIOSH criteria documents regarding chemicals found at industrial sites, as well as sampling and analytical methodologies currently recommended for good standards of industrial hygiene practice.

# 3.0 SAFETY PROGRAM/PREVENTION PROCEDURES

# Safety General

Activity conducted at facilities which handle hazardous materials pose a multitude of health and safety concerns, any one of which could result in serious injury or death. These hazards are a function of the nature of the facility as well as a consequence of the work being performed. They include:

- 3.1 Physical Hazards
- 3.2 Chemical Hazards
- 3.3 Electrical Hazards
- **3.4 Explosion and Fire Hazards**
- 3.5 Heat Stress
- 3.6 Cold Exposure
- 3.7 Noise

# 3.1.1 Physical Hazards

Hazardous materials handling operations and facilities may present numerous safety hazards such as:

- Holes, ditches, excavations and trenches
- Precariously positioned objects, such as drums or boards that may fall
- Sharp objects, such as nails, metal, broken glass and overhead ice
- Slippery or icy surfaces
- Steep grades/uneven terrain
- Unstable surfaces, such as walls that may cave in or flooring that may give away

Accidents involving physical hazards can directly injure workers and can create additional hazards, for example, increased chemical exposure due to damaged protective equipment, or danger of explosion caused by the mixing of chemicals.

Some safety hazards are a function of the work itself. For example, heavy equipment creates an additional hazard for workers in the vicinity of the operating equipment. Protective equipment can impair a worker's agility, hearing, and vision, which can result in an increased risk of an accident.

# 3.1.2 Safety Procedures

The following safety practices should be observed in any area where hazardous material(s) are being handled.

1. All work areas must be kept free of physical hazards such as unnecessary tools and equipment, debris, containers, sharp objects, and any other potential physical hazards not necessary for operations currently being performed.

- 2. Smoking, and the use of lighted matches or open flames are strictly prohibited in any area where flammable materials may be present.
- 3. Eating, drinking, chewing gum or tobacco, smoking, or other practices that increase the probability of hand-to-mouth transfer of materials will be prohibited in areas where hazardous materials are handled.
- 4. Whenever hazardous materials are being handled and full decontamination procedures are not in use, individuals must wash face and hands thoroughly after leaving the area.
- 5. Contact with chemicals or contaminated surfaces must be avoided. Employees must not kneel, sit, or place tools or other articles on contaminated surfaces. If contact with hazardous materials cannot be avoided, chemical protective equipment will be worn, and appropriate decontamination and/or disposal procedures followed.
- 6. Non-essential personnel must not be allowed in areas where chemicals are being handled or potentially hazardous operations are being conducted.
- 7. Medicine and alcohol can potentate the effects of exposure to chemicals. Personnel taking prescription drugs must be cleared by the administering physician before conducting work involving hazardous materials.
- 8. Consumption of alcoholic beverages, use of drugs, or intoxication are strictly prohibited where the handling of hazardous materials or work involving machinery is involved.
- 9. All personnel working with chemicals must be adequately trained on company health and safety policy, anticipated hazards, safety practices, and emergency procedures. Training will, at a minimum, satisfy the requirements of the WHMIS regulation.
- 10. Entry into confined spaces must be conducted by utilizing the safe work permit system only.
- 11. All work practices must be conducted in compliance with applicable provincial and federal provisions, and any other applicable regulations.
- 12. Personal protective equipment must be worn by an employee conducting operations, which may reasonably be expected to result in exposures to chemicals at levels at or above the Threshold Limit Values for materials being handled.
- 13. Limit values for materials being handled.
- 14. Personnel handling hazardous materials will constantly watch for potential safety hazards, and must immediately inform their supervisors of any new hazards identified so that mitigative action can be taken.

# 3.2 <u>Chemical Hazards</u>

# 3.2.1 General

Preventing exposure to hazardous chemicals is a primary concern during any operation involving the use of hazardous materials. Various remediation projects may contain a variety of chemical substances in gaseous, liquid, or solid form. These substances can enter the unprotected body by inhalation, skin absorption, ingestion, or through a puncture wound (injection). A contaminant may cause damage at the point of contact or can act systemically, causing a toxic effect at a part of the body distant from the point of initial contact.

# 3.2.2 <u>Chemical Exposures</u>

Chemical exposures are generally divided into two categories:

- 1) Acute: Symptoms resulting from acute exposure usually occur during or shortly after exposure to sufficiently high concentration of a contaminant. The concentration required to produce such effects varies widely from chemical to chemical.
- 2) Chronic: Generally refers to exposures to "low" concentrations of a contaminant over an extended period of time. The "low" concentrations required to produce symptoms of chronic exposure depend upon the chemical, the duration of each exposure, and the number of exposures.

# 3.2.3 <u>Effects of Exposure</u>

For either chronic or acute exposure, the toxic effect may be temporary and reversible, or may be permanent (disability or death). Some chemicals may cause obvious acute symptoms such as:

- burning,
- coughing,
- nausea,
- tearing eyes, or
- rashes.

For a given contaminant, the symptoms of an acute exposure may be completely different from those resulting from chronic exposure. Other chemicals, such as PAH's may cause health damage with little or no warning signs (this is a particular concern for chronic exposures to low concentrations). Health effects such as cancer or respiratory disease may not manifest for several years or decades after exposure.

In addition, some toxic chemicals may be colorless and/or odorless (CO), may dull the sense of smell (H2S), or may not produce any immediate or obvious physiological sensations. Thus, a worker's senses or feelings cannot be relied upon in all cases to warn of potential toxic exposure.

Some chemicals are heavier than air and will settle close to the ground such as Propane or Chlorine. Chlorine also reacts with water to form hydrochloric and hypochlorous acid.

The effects of exposure not only depend on the chemical, its concentration, route of entry and duration of exposure, but may also be influenced by personal factors such as the individual's smoking habits, alcohol consumption, medication use, nutrition, age, and gender.

# 3.2.4 <u>Routes of exposure</u>

# 1) Inhalation

The primary exposure route of concern during any work involving hazardous materials is inhalation. The lungs are extremely vulnerable to chemical agents. Even substances that do not directly affect the lungs may pass through lung tissue into the bloodstream, where they are transported to other vulnerable areas of the body. The following guidelines can help protect against inhalation hazards:

Wearing an appropriate respirator when working in areas at or above the TLV's for that particular chemical compound. Conducting qualitative fit testing procedures prior to donning a respirator and continuing these fit testing procedures on at least an annual basis thereafter implementing a written respiratory protection program which institutes procedures for selection, use, inspection, maintenance, and storage prior to utilizing respiratory protection.

# 2) Absorption

Direct contact of the skin and eyes by hazardous substances is another important route of exposure at the site. Some chemicals directly injure the skin through contact dermatitis or from corrosive materials (lime) causing redness and irritation and burning to the exposed area. Some pass through the skin into the bloodstream where they are transported to vulnerable organs. Skin absorption is enhanced by abrasions, cuts, heat, and moisture. The eye is particularly vulnerable because airborne chemicals can dissolve in its moist surface and be carried to the rest of the body through the bloodstream (capillaries are very close to the surface of the eye). The following guidelines can help protect against skin and eye contact:

- Wearing protective equipment
- Not using contact lenses in contaminated atmospheres
- Keeping hands away from the face
- Minimizing contact with liquid and solid chemicals.

# 3) Ingestion

Although ingestion should be the least significant route of chemical exposure, it is important to be aware of how this type of exposure can occur. Deliberate ingestion of chemicals is unlikely. Personal habits such as the following may provide a route of entry of chemicals:

- Chewing gum or tobacco
- Drinking, eating, and/or smoking cigarettes in a potentially or known contaminated area.

# 4) Injection

The last primary route of chemical exposure is injection, whereby chemicals are introduced into the body through puncture wounds (for example, by stepping on or tripping and falling onto contaminated sharp objects). The following are important protective measures against the potential for injection:

- Wearing safety shoes
- Removing or avoiding physical hazards
- Taking common sense precautions

# 3.3 <u>Electrical Hazards</u>

# 3.3.1 General

Electrically powered equipment, overhead power lines, downed electrical wires, and buried cables all pose a danger of shock or electrocution if workers contact or sever them. To help minimize this hazard, workers in the vicinity of electrically powered equipment must be trained as how to properly operate equipment, which poses a possible electric shock hazard without contacting electrical sources or conduits. In the case of electrocution, it is the electric current that kills the victim, which is measured in amperes (amps). The flow of electricity, or potential to do work is measured in terms of voltage (volts). The relationship between voltage and current is:

V = IR, whereas;

V = the voltage (in volts), I = the current (in amps), and R = the resistance (in ohms).

Electric potential in electric circuits is divided into three categories based on total voltage of the circuit. The three categories are;

Safety Voltage = less than 25 volts Low Voltage = 25 to 600 volts High Voltage = more than 600 volts The maximum current which can be carried by a circuit with a voltage of less than 25 volts will not usually cause death or serious injury, and is therefore called Safety Voltage. Low and High Voltage conductors can both cause death by electrocution. Only a few thousandths of an amp (milliamps) are required to kill a human being. The average person can detect a current of about 2 milliamps. Between 5 and 25 milliamps pain is experienced, and the victim may not be able to let go of the conductor because of muscle contraction caused by the electricity. An electric shock from a conductor carrying a current as low as 50 to 200 milliamps can result in death or serious injury.

# 3.3.2 <u>Pathway</u>

The pathway the current takes through the body is also an important factor in determining the seriousness of the resulting injury.

- If the current takes a path through the body, which causes it to pass through vital organs (brain, lungs, or heart), however, the injury may be life threatening.
- An electric current which enters the body through one hand and exits through the other for instance, will follow a pathway through the lungs and heart, resulting in possible respiratory arrest and/or ventricular fibrillation, both potentially fatal injuries.
- If a current enters the body through the left hand and exits through the left foot, for example, critical organs are not affected.
- Electricity can also damage blood vessels throughout the body, resulting in massive hemorrhaging, which may cause death due to shock and blood loss.

# 3.3.3 <u>Safety Precautions</u>

- 1) The following safety precautions and safety practices are recommended for all work involving potential electric shock hazard:
- 2) When it is determined that an electrical hazard exists, only a qualified individual will be assigned to the work, and the site supervisor must be notified before any work begins that may affect the utility concerned.
- 3) All wires or cables will be considered as energized with potentially fatal voltages (including electric, fire alarm, telephone, street light, cable television cables, etc.) until verified otherwise by a qualified individual.
- 4) Conductors that have a protective coating must not be considered to be insulated or safe; in many cases the coating is only a weatherproofing with little, if any, insulation value.
- 5) Under no circumstances will any person contact an energized electrical conductor, electrical apparatus such as a transformer, or any conductive object in contact with an energized electrical conductor. Electrical capacitors may retain a charge. All such items will be properly grounded before handling.
- 6) When use of temporary electrically powered equipment is necessary, low-voltage equipment with ground-fault interrupters and watertight, corrosion-resistant connecting cables will be chosen whenever possible.
- 7) All electrical equipment must be maintained free from recognized hazards that are likely to cause death or serious physical harm to personnel.
- 8) All electrical equipment must be suitable for the intended use. Suitability for an intended purpose is evidenced by appropriate listing or labeling by a recognized testing and certification body, such as Canadian Standards Association (CSA) certification of quality and acceptability of a product for use. Electrical equipment must be installed and/or used in accordance with that listing or labeling.
- 9) Motors and appliances must have an identifiable means of disconnection. Each disconnecting means must be clearly and legibly marked to indicate its purpose, unless located and arranged so the purpose is evident.
- 10) Before working on any energized equipment, the source of electric power must by CSA regulations be locked-out and tagged-out. You must lock-out the power source using your own lock, have a written lock-out program identifying lock-out and tag-out procedures, and test the de-energized equipment prior to beginning work. All personnel in the vicinity must be informed of the lockout and the work being done.
- 11) When working in close proximity to energized conductors, special attention must be paid to tools and equipment. Tools that are normally considered non-conductive may become conductive if not maintained properly. If defective tools are brought into contact with an energized conductor, a shock could occur.
- 12) Non-conductive tools and ladders must be kept clean and dry to ensure their safety for use. Only non-conductive ladders will be used where electrical shock hazard exists. When ropes and wooden tools become soiled or damp, they may conduct electricity.
- 13) A clean, non-conductive, hard hat must be worn when working near electrical conductors. Hard hats must be inspected periodically for defects that would lower their protective qualities. However, it must never be relied upon as effective protection from energized conductors.
- 14) Rubber gloves or rubber soled boots are not to be used or relied upon as insulation protective equipment.
- 15) Employees will not do work on or about electrical lines or equipment for which they are not qualified, unless they are under direct supervision of an experienced and properly qualified employees.

- 16) Remotely controlled switches alone must not constitute an acceptable means of disconnection, but will be supplemented by a manually operated disconnecting means.
- 17) Unauthorized employees must not work in or around any place or structure in proximity to energized or live electrical wires or equipment which are not normally isolated by position or elevation unless such electrical lines or equipment are provided with guards which will effectively prevent contact by any person or by any electric current-conducting equipment being used.
- 18) Means of access to all switches must be clear of obstructions at all times.
- 19) Tunnels containing wires or appliances carrying electric current will be kept in a sanitary condition, free from stagnant water or seepage or other drainage, which may be offensive or dangerous to health of employees while at work in such tunnels.
- 20) Metal ladders or ladders having reinforcing wire or other conducting material will not be used near electrical wires or equipment. All ladders which may be used on or near electrical equipment operating at more than 750 volts line to line must be standard safety ladders.
- 21) Rubber, or equivalent, covered cord will be used for portable electrical tools, extension lamps, or for high voltage switching and must be checked periodically.
- 22) Working around electricity with wet or injured skin significantly reduces the body's resistance and therefore increases the potential for serious injury. Dry skin has a natural resistance to electric current flow of approximately 500,000 ohms, however when skin is wet its resistance may fall to as low as 500 ohms. Under these conditions, 500 times the current can flow through the victim's body at the same voltage, resulting in a much more serious injury.

### 3.4 Explosion and Fire

There are many potential causes of explosions and fires at facilities, which handle hazardous materials:

- Chemical reactions that produce explosion, fire, or heat.
- Ignition of explosive or flammable chemicals.
- Ignition of materials due to oxygen enrichment.
- Agitation of shock or friction sensitive compounds.
- Sudden release of materials under pressure.

Explosions and fires may arise spontaneously. However, more commonly they result from:

- Facility activities such as moving drums.
- Accidentally mixing incompatible chemicals

• Introducing an ignition source (such as a spark from equipment) into an explosive or flammable environment.

Explosions and fires not only pose the obvious hazards of intense heat, open flame, smoke inhalation, and flying objects, but may also cause the release of toxic chemicals into the environment. Such releases can threaten both personnel at the work site and members of the general public living or working nearby.

### 3.4.1 <u>Prevention</u>

To reduce potential of an explosive hazard:

- 1) Have a competent person monitor for explosive atmospheres and flammable vapors when potential is present;
- 2) Keep all potential ignition sources away from known or potentially explosive or flammable environments;
- 3) Use non-sparking, explosion-proof equipment for facility operations;
- 4) Follow safe work practices at all time; and
- 5) Properly maintain a means of egress or escape that is convenient and having easy passage with all areas likely to be used by any person.

### 3.5 <u>Heat Stress</u>

### 3.5.1 <u>General</u>

Heat stress is a major hazard, especially for workers wearing protective clothing. The same protective materials that shield the body from chemical exposure also limit the dissipation of body heat and moisture. Personal protective clothing can therefore create a hazardous condition. Depending on the ambient conditions and the work being performed, heat stress can occur very rapidly – within as little as 15 minutes. In its early stages, heat stress can cause rashes, cramps, discomfort and drowsiness, resulting in impaired functional ability that threatens the safety of both the individual and coworkers.

Continued heat stress can lead to heat stroke and death. The following procedures must be implemented to protect against this hazard.

- Avoiding overprotection
- Receiving training
- Performing frequent monitoring of personnel who wear PPE
- Judicious scheduling of work and rest periods

• Frequent replacement of fluids.

Heat stress is caused by a number of interacting factors, including environmental conditions, clothing, workload, and individual characteristics of the worker. Because heat stress is probably one of the most common (and potentially serious) illnesses at hazardous waste sites, regular monitoring and other preventive precautions are vital. Individuals vary in their susceptibility to heat stress. Factors that may predispose someone to heat stress include:

- \* Lack of Physical fitness
- \* Lack of acclimatization
- \* Age

\*

\* Dehydration

- Gender
- \* Chronic disease
- \* Diarrhea
- \* Sunburn

Obesity

- \* Infection
- \* Alcohol and drug use

The amount and type of personal protective equipment worn is directly related to reduced work tolerance and the risk of heat stress. Chemical protective clothing and equipment add weight and bulk, and diminish or prevent liquid and vapor exchange.

1) CPC severely reduces the body's normal heat exchange mechanisms (evaporation, convection, and radiation) and,

2) A bulky suit can increase by two to four times the energy ordinarily needed to perform a task.

Once protective equipment is selected, the length of a particular employees work period will have to be redefined based upon the following criteria:

- Work rate
- Ambient temperature and other environmental factors
- Type of protective ensemble
- Individual worker characteristics

### 3.5.2 Monitoring

Because the occurrence of heat stress depends on a variety of factors, all employees, even those not wearing protective equipment, must be monitored.

- 1) **Permeable clothing**: such as cotton or synthetic work clothes. Follow recommendations for monitoring requirements and suggested work/rest schedules in the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values for Heat Stress.
- 2) **Semi-permeable or impermeable clothing:** (encapsulating ensembles). Monitor when the ambient temperature is above 70 °F. It may also be necessary to monitor at lower temperatures if humidity is high.

Although no protective ensemble is completely impermeable, for practical purposes an outfit will be considered impermeable when calculating heat stress risk. To monitor the employee, measure:

- 1) Heart Rate Count the radial pulse during a 30-second period immediately following the end of a work period.
  - If the heart rate exceeds 140 beats per minute at the end of a work period and 100 beats per minute at the end of a rest period, shorten the next work cycle by one third or lengthen the rest period by one-third.
- 2) **Oral Temperature** Use a clinical thermometer (3 minutes under the tongue) or similar device.
  - If oral temperature exceeds 99.6 °F, shorten the next work cycle by one-third or lengthen the rest period by one-third.
  - Do **NOT** permit an employee to wear a semipermeable or impermeable garment when his/her oral temperature exceeds 100.6 °F.
- **3) Skin Temperature** Utilize visual signs and symptoms to measure if skin temperature is becoming:
  - Red
  - Hot
  - Profuse sweating
  - Cessation of sweating
- 4) Body Weight When feasible, measure at the beginning and end of each work day to see if enough fluids are being taken to prevent dehydration.

## 3.5.3 <u>Prevention</u>

Proper training and preventive measures will help avert serious illness and loss of work productivity. Preventing heat stress is particularly important because once someone suffers from heat stroke or heat exhaustion, that person is predisposed to additional heat injuries. To avoid heat stress, the following steps must be implemented:

- 1) Adjust work Schedules
- Modify work/rest schedules according to monitoring requirements.

- Mandate work slowdowns as needed.
- Rotate personnel; alternate job functions to minimize overexertion at one task.
- Perform work during cooler hours of the day, if possible.
  - 2) Provide shelter or shaded areas to protect personnel during rest periods.
  - 3) Maintain employees' body fluids at normal levels.

This is necessary to ensure that the cardiovascular system functions adequately. Daily fluid intake must approximately equal the amount of water lost in sweat, ( 8 ounces of water must be ingested for every 8 ounces of weight lost.) The normal thirst mechanism is not sensitive enough to ensure that enough water will be ingested to replace bodily fluids lost.

When heavy sweating occurs, one or more of the following guidelines must be implemented:

- 1) Maintain potable water temperature at 50  $^{\circ}$ F 60 $^{\circ}$ F.
- 2) Provide small disposable cups that hold four ounces.
- 3) Have employees drink two glasses (16 ounces) of fluid before beginning work.
- 4) Urge employees to drink a cup or two every 15 to 20 minutes, or at each monitoring break. A total of five or six glasses of water per day are recommended, but more may be necessary.
- 5) Acclimatize workers to site work conditions: temperature, protective clothing, and workload.
- 6) Provide cooling devices to aid natural body ventilation during prolonged work or sever heat exposure:
  - Field showers to reduce body temperature and/or cool off protective clothing.
  - Long cotton underwear to help absorb moisture and protect skin from direct contact with heat absorbing protective clothing.
- 7) Train workers to recognized and treat heat stress.

### 3.5.4 Progression of Heat Stress

1)	Heat Rash:	Results from continuous exposure to heat or humid air.
2)	Heat cramps:	Caused by heavy sweating with inadequate fluid intake.

Symptoms include:

- Muscle spasms
- Pain in the hands, feet and abdomen.
- 3) **Heat Exhaustion:** Occurs when body organs attempt to keep the body cool.

Symptoms include:

- Red, hot, dry skin
- Lack of perspiration
- Nausea
- Confusion and delirium
- Strong, rapid pulse
- Coma

### 3.6 Exposure to Cold

### 3.6.1 <u>General</u>

Cold injury and impaired ability to work are dangers at low temperatures and when the windchill factor is low. The ACGIH cold stress Threshold Limit Values (TLV's) are intended to protect workers from the severest effects of cold stress (hypothermia) and cold injury and to describe exposures to cold working conditions under which it is believed that nearly all workers can be repeatedly exposed without adverse health effects.

The main objective is to prevent the deep body temperature (the core temperature of the body) from falling below  $36^{\circ}$ C (96.8 °F) and to prevent cold injury to body extremities (frostbite). In addition, for a single, occasional exposure to a cold environment, a drop in core temperature to no lower than  $35^{\circ}$ C (95 °F) will be permitted.

### 3.6.2 Signs and Symptoms

Lower body temperatures will likely result in:

- Reduced mental alertness
- Reduction in rational decision making
- Loss of consciousness with the threat of fatal consequences
- Pain in the extremities (may be the first early warning of danger)
- Severe shivering (develops when the body temperature has fallen to 35°C.)

### 3.6.3 <u>Prevention</u>

To guard against cold stress:

3) Wear appropriate clothing

Adequate insulating dry clothing to maintain core temperatures above 36 °C must be worn by workers if work is performed in air temperatures below 4 °C. Wind chill cooling rate and the cooling power of air are critical factors. Wind chill cooling rate is defined as heat loss from a body, which is a function of the air temperature and wind velocity upon the exposed body. The higher the wind speed and the lower the temperature in the work area, the greater the insulation value of the protective clothing required.

- 4) Have warm shelter readily available
- 3) Carefully schedule work and rest periods
- 4) Monitor workers' physical conditions.

Unless there are unusual or extenuating circumstances, cold injury to other than hands, feet and head is not likely to occur without the development of the initial signs of hypothermia. Older workers or workers with circulatory problems require special precautionary protection against cold injury. The use of extra insulting clothing and/or a reduction in the duration of the exposure period are among the special precautions, which must be followed for those individuals.

### 3.6.4 <u>Evaluation and Control</u>

At air temperatures of 2 °C (35.6 °F) or less, it is imperative that workers who become immersed in water or whose clothing becomes wet be immediately provided a change of clothing and be treated for hypothermia. In addition, superficial or deep tissue freezing will occur only at temperatures below -1 °C (30.2 °F), regardless of wind speed.

With regard to respirator use, under cold temperature conditions, a number of problems can develop such as:

- Fogging of full-facepiece respirators
- Valve sticking
- Rubber stiffness

These occurrences may prevent a good facial seal, which in turn will reduce the efficiency of wearing the respirator. Fogging of full-face piece respirators is easily eliminated by installing a nosecup into the face piece. This device, which must be worn whenever wearing a full-facepiece respirator, deflects the exhalation breath away from the cold face piece lens and through the exhaust ventilation valve.

Special protection of the hands is required to maintain manual dexterity for the prevention of accidents.

- If fine work is to be performed with bare hands for more than 10 to 20 minutes in an environment below 16 °C (60.8 °F), special provisions must be established for keeping the workers hands warm. Metal handles of tools and control bars will be covered by thermal insulating material at temperatures below − 1 °C (30.2 °F).
- 2) Workers handling evaporative liquid (gasoline, alcohol or cleaning fluids) at air temperatures below 4 °C (39.2 °F) must take special precautions to avoid soaking of clothing or gloves with the liquids because of the added danger of cold injury due to evaporative cooling.
- 3) If exposed areas of the body cannot be protected sufficiently to prevent hypothermia or frostbite, protective items will be supplied in auxiliary heated versions.
- 4) If the air velocity at the job site is increased by wind, draft, or artificial ventilating equipment, the cooling effect of the wind must be reduced by shielding the work area or by personnel wearing an easily removable windbreak garment.

## 3.6.5 <u>Work-Warming Regimen</u>

If work is performed continuously in the cold at an equivalent chill temperature or below -7 °C (19.4 °F), heated warming shelters (trailers) must be available nearby. The onset of the following are indications for immediate return to the shelter:

- Heavy shivering
- Frostnip
- The feeling of excessive fatigue
- Drowsiness
- Irritability or euphoria

Dehydration, or the loss of body fluids, occurs without notice in the cold environment and may increase the susceptibility of the worker to cold injury due to a significant change in blood flow to the extremities. The intake of coffee must be limited because of the diuretic and circulatory effects, instead warm, sweet drinks and soups will be consumed at the work site to provide caloric intake and fluid volume.

For work practices at or below -12 °C (10.4 °F), the following must apply:

1) The worker will be under constant protective observation (buddy system or

supervision)

- 2) The work rate will not be so high as to cause heavy sweating that will result in wet clothing; if heavy work must be done, rest periods must be taken in heated shelters and opportunity for changing into dry clothing will be provided.
- 3) The work must be arranged in a way that sitting still or standing still for long periods is minimized. Unprotected metal chair seats will not be used. The worker must be protected from drafts to the greatest extent possible.
- 4) The worker will be instructed in safety and health procedures. The training program will include as a minimum instructions in:
  - Proper rewarming procedures and appropriate first aid treatment.
  - Proper clothing practices
  - Proper eating and drinking habits.
  - Recognition of impending frostbite.
  - Recognition of signs and symptoms of impending hypothermia or excessive cooling of the body even when shivering does not occur.
  - Safe work practices.

Eye protection for workers employed out-of-doors in a snow and/or ice-covered terrain will be supplied. Special safety goggles to protect against ultraviolet light and glare (which can produce temporary conjunctivitis and/or temporary loss of vision) and blowing ice crystals will be required when there is a potential eye exposure hazard.

Note: Employees will be excluded from work in cold at or below -1 °C (30.2 °F if they are suffering from diseases or taking medication which interferes with normal body temperature regulation or reduced tolerance to work in cold environments. In addition, trauma sustained in freezing or subzero conditions requires special attention because an injured worker is predisposed to cold injury.

### 3.7 <u>Noise Exposure</u>

### 3.7.1 <u>General</u>

Working around large equipment often creates excessive noise. The effects of noise can include:

- 1) Workers being startled, annoyed, or distracted.
- 2) Physical damage to the ear, pain, and temporary and/or permanent hearing loss.
- 3) Communication interference may increase potential hazards due to the inability to warn of danger and the proper safety precautions to be taken.

### 3.7.2 <u>Procedures</u>

In addition, whenever employee noise exposure equal or exceed a 9-hour, time-weighted average sound level of 85 dBA, employers must administer a continuing, effective hearing conservation program. Such controls include, but are not limited to:

- 1) Mandatory hearing protection areas, posted at the entry of each such work area
- 2) Mandatory wearing of hearing protection devices, in each posted area
- 3) Employees may choose to wear disposable hearing protection, but are still required to wear ear muffs that are mounted to workers hard hat, for those times that disposables are either not available or the employee has forgotten them.

If employees are subjected to noise exceeding an 8-hour, time-weighted average sound level of 90 dBA (decibels on the A-weighted scale), feasible administrative or engineering controls must be utilized.

Noise levels for compliance with occupational (above) as well as environmental exposure (per site permit) will be collected on a periodic basis.

## 4.0 TRAINING PROGRAM

### 4.1 <u>Objectives</u>

The objectives of any site specific training programs for personnel engaged in projects are:

- To ensure that workers are aware of the potential hazards they may encounter.
- To provide the knowledge and skills necessary to perform the work with minimal risk to worker health and safety.
- To ensure that workers can safely disengage themselves from actual hazardous situations, which may occur.
- To comply with applicable laws and regulations.

### 4.2 <u>General</u>

- 1) Employees are responsible for the proper on-the-job application of knowledge obtained through the training. Training is intended to reduce the incidence of occupational injury.
- 2) Employees will receive the necessary training so they can safely perform tasks that may be required on various work sites.

### 4.3 <u>Initial Training</u>

### 1) Supervisors:

Supervisors will have a 40-hour Hazardous Material Handling Course as well as any other training that is required depending on the project that is being worked on. It is understood that all employees will have had training in the Occupational Health and Safety Act and General Regulations, WHMIS and Due Diligence.

### 2) Employees:

Employees will be required to have site-specific orientation and training on potential hazards that may be encountered on any given site. It is understood that all employees will have had training in the Occupational Health and Safety Act and General Regulations, WHMIS and Due Diligence. Additional training will be given as required depending on the project that is being worked on.

### 3) Subcontractors

The training program will cover the following topics:

Safe work permit meeting Project and site information Responsibilities of on-site personnel Worker Protection Procedures Emergency Response/Evacuation Procedures

Length of training may vary slightly at the discretion of the SSC, on the basis of the individual's previous training and extent of possible chemical and physical hazards.

### 4.4 <u>Record Keeping</u>

A copy of all training records will be kept in the Site Safety Coordinator's file. These are separate records from personnel files and will have limited access and kept locked at all times.

Certificates of completion will be given to any employee who successfully completes a prescribed training session regardless of the time requirements of the course. The certificate will include the following information:

Name of participant Name of training course Company name Date of completion Unique certificate number Expiration date A copy of all training certificates will be kept on file. The originals can be given to the participants. Training that must be updated annually, need only be retained by the employer until the next required training has been complete, whereupon that record goes into the employees current health and safety file, replacing the expired certificate.

### 5.0 DECONTAMINATION PROGRAM

### 5.1 <u>General</u>

Decontamination is the process of removing or neutralizing contaminants that have accumulated on personnel and equipment. Decontamination protects workers from hazardous substances that may contaminate and eventually permeate the protective clothing, respiratory equipment, tools, vehicles, and other equipment they use on site; it protects all site personnel by minimizing the transfer of harmful materials into clean areas. Testing will determine if the following procedures are required.

### 5.2 <u>Worker Decontamination</u>

- 1) The Site Safety Coordinator will review the decontamination procedures with all personnel prior to them entering the exclusion zones.
- 2) All site personnel will be made aware of the importance of minimizing hazardous substance contact and of the necessity to enforce the appropriate practices and procedures throughout site operations.
- 3) All personnel leaving the exclusion zone will be required to dispose of tyvek clothing or decontaminate rain suits, by entering decontamination chamber in the contamination reduction zone prior to doffing protective clothing and equipment.
- 4) Note: Respiratory protection will remain on until decontamination of other protective gear is completed.
- 5) All personnel leaving the exclusion zone will discard disposable protective gear in the contamination reduction zone before leaving the site. This protective gear will be placed in appropriately marked containers for appropriate disposal.
- 6) All personnel will clean their individual equipment (tools, etc.) prior to removing and decontaminating their protective clothing.
- 7) All decontamination will occur in the contamination reduction zone, which is located at the perimeter of the exclusion zones. It is situated, whenever possible, so that individuals moving from the exclusion zone will be traveling in an upwind direction moving away from the exclusion zone.

- 8) The contamination reduction zone will be set up prior to any personnel or equipment entering areas where the potential for exposure to hazardous substances exists and will be used as the location for upgrading or downgrading of levels of protection.
- 9) Persons responsible for decontaminating respirators will be thoroughly trained in respirator maintenance.
- 10) If respirators become grossly contaminated, they may have to be discarded. The Site Safety Coordinator will make this decision on a case-to-case basis.
- 11) Respirators, reusable protective clothing, and other personal articles not only must be decontaminated before being reused, but must also be sanitized. The manufacturer's instructions will always be followed without exception.

### 5.3 <u>Personal Hygiene</u>

- 1) All personnel will practice good personal hygiene before leaving the CRZ (ie: wash hands using potable water).
- 2) All personnel will wash hands and face before and after eating, drinking, smoking and washroom use.
- 3) Showers are mandatory at the end of each work shift for those individuals required to wear personal protective equipment.
- 4) All personal belongings which could allow contaminants to enter one's system including: rings, glasses, chains, watchbands etc. must be removed by individuals required to wear PPE.
- 5) Coffee and lunch breaks must be treated as an exit protocol, (clothing removed, hands and face washed, shower not necessary) and once break is terminated, redress as in entrance protocol (ie:, don respirator, protective suit, boots, gloves, tools, etc.) for the particular job duty.
- 6) Smoking is not permitted in any buildings onsite.

### 5.4 <u>Equipment Decontamination</u>

- 1) The following decontamination equipment will be utilized:
  - 45 gallon drums
  - 6 ml polyethylene bags
  - 6 ml polyethylene sheeting
  - industrial strength duct tape
  - disposable rags
  - boot/wash tanks

- buckets and brushes
- labels, signs and barrier tape
- 2) All contaminated equipment will be decontaminated prior to being used at another location.
- 3) Any contaminated material, (other than soil samples collected for analyses), must be placed in metal drums and stored on-site until waste materials can be disposed of appropriately.
- 4) Wooden tools are difficult to decontaminate because they absorb chemicals. They must be kept onsite and handled only by protected workers. At the conclusion of the project, such tools will be disposed of.
- 5) Heavy equipment is difficult to decontaminate. Decontaminating the equipment when it becomes dirty will reduce a buildup of material, which will in turn reduce the levels of contaminants present in the air.
- 6) 6 ml polyethylene sheeting and duct tape are to be used whenever possible. The poly can be used as a drop cloth, which will contain any spilled material. The tape will allow an individual to roll up the sheeting securely to be place in a 45-gallon drum lined with a 6 ml poly bag, so that minimum contact with personnel is achieved.
- 7) All materials and equipment used for decontamination must be disposed of properly. Clothing, tools, buckets, brushes and all other equipment that is contaminated must be placed in drums, labeled and stored in a secured area until disposal is possible.

### 5.5 <u>Sample Decontamination</u>

- 1) Sampling devices require special decontamination; therefore the manufacturer's recommendations for cleaning must be adhered to.
- 2) Any delicate instrument which cannot be decontaminated easily will be protected while it is being used. It must be bagged, and the bag taped and secured around the instrument. Openings are made in the bag for sample intake.
- 3) After samples are collected, each container must be wiped clean of all debris prior to shipment to an accredited laboratory. This is especially true for bulk samples.

### 5.6 <u>Life-Threatening Situations</u>

- 1) At least one employee per shift will be trained per the requirements of St. Johns Ambulance.
- 2) If prompt life-saving first aid and medical treatment is required, decontamination procedures are to be omitted, unless exposure to highly toxic or corrosive materials would result.
- 3) Whenever possible, supervision will accompany contaminated victims to the medical facility to advise on matters involving decontamination.

- 4) When life-saving care is given, outside garments may be removed if they do not cause delays, interfere with treatment or aggravate the problem.
- 5) Respiratory protective devices and backpack assemblies must always be removed.
- 6) Heat stroke requires prompt treatment to prevent irreversible damage or death; therefore, protective clothing must be cut away from victim.

APPENDIX A

## **KEY CONTACT LIST**

# APPENDIX A RENOVA SCOTIA BIOENERGY INC. NOVA SCOTIA LANDS INC. / BOWATER SITE KEY CONTACT LIST

POSITION	NAME	PHONE NUMBER	FAX NUMBER	CELLULAR PHONE NUMBER
President CEO	Jeff Larsen	(902) 424-5926	(902) 424-0500	(902) 229-8230
Chief Opr. Officer	Joel MacLean	(902) 564-7959	(902) 564-7903	(902) 578-3856
General Supervisor	Rob Jessome	(902) 564-4936	(902) 564-7903	(902) 565-8086
Health & Safety	Sheldon Andrews	(902) 564-7937	(902) 564-7903	(902) 578-4745
Site Coordinator	Tim Crowe	(902) 354-8614	(902) 354-2271	(902) 354-8124
Site H&S Coordinator	Dan Oliver	(902) 354-8637	(902) 354-2271	(902) 354-8406
Deloitte	Josh Beaver	(902) 721-5678	(902) 354-2271	(902) 759-3197
Renova	Gary Keans	(902) 354-8612	(902) 354-2271	(902) 350-1455
Renova	Victor Harlow	(902) 354-8610	(902) 354-2271	(902) 354-8080
Renova	Glenda Murray	(902) 354-8617	(902) 354-2271	(902) 354-8638
Site Security	Security Officer	(902) 354-8611		(902) 350-0330

## **APPENDIX B**

## **GENERAL SAFETY RULES**

### **APPENDIX B**

### RENOVA SCOTIA BIOENERGY INC. NOVA SCOTIA LANDS INC. GENERAL SAFETY RULES

- No food, beverages, tobacco, or cosmetic products are to be used, consumed, or brought into any Exclusion or Contaminant Reduction Zones or any other potentially contaminated areas so designated by the Health and Safety Coordinator (HSC)
- Consuming or being in possession of illegal drugs or alcohol on the Site is prohibited. Violation of this rule will result in disciplinary action including dismissal.
- Smoking is not permitted in any building on-site.
- The "buddy system" is to be enforced at all times unless the HSC specifically exempts the work from this requirement based on the review of Site conditions and hazards. When working under the "buddy system", personnel are to
  - T provide their partner with assistance;
    T observe partner for signs of overexposure/temperature stress;
    T check integrity of partner's protective clothing; and
  - T notify others if emergency help is needed.
- No exception to the buddy system will be made when wearing respiratory protective equipment. Visual contact must be maintained between pairs on-site and safety personnel. Entry team members are to remain close together to assist each other during emergencies.
- A respirator will not be worn when beards or any other facial hair interferes with the face-to respirator seal. Individuals with such facial hair are not allowed to work in any level of protection that requires respiratory protection.
- Field personnel can upgrade the level of protection at any time but can downgrade only with the approval of the HSC for that specific task and condition.
- Field personnel are not to enter identified confined spaces such as pits, trenches, tanks, or manholes, unless confined space entry procedures are specifically included in the Project-Specific Health and Safety Plan and are fully implemented or other arrangements have been made with the HSC.
- Drums or tanks found on-Site are not to be opened or moved unless specific drum/tank remediation tasks are included in the Project-Specific Health and Safety Plan and are fully implemented.
- Site personnel are to notify the HSC of any unsafe acts or conditions.

- Fighting, horseplay, practical jokes or interference with other workers is prohibited.
- Theft, vandalism or abuse or misuse of property is prohibited.
- Site personnel are to notify the HSC at the first indication that they are experiencing temperature stress or any signs or symptoms that may be due to exposure to chemicals.
- First Air treatment must be obtained immediately for any injury.
- Contact lenses are prohibited on the Site.
- Only tools that are in good repair meeting industry standards, with all guards and safety devices, will be used.
- Hi visibility safety vests/jackets must be worn at all times in all work areas or in other areas if required by ReNova Scotia Bioenergy Inc. or Nova Scotia Lands Inc.
- All work crews will be equipped with two-way radios or cellular telephones.
- ReNova Scotia Bioenergy Inc. and Nova Scotia Lands Inc. require all vehicles to be backed in when being parked around any buildings.

## APPENDIX C

## PERSONAL PROTECTIVE EQUIPMENT

### APPENDIX C PERSONAL PROTECTIVE EQUIPMENT

### LEVEL A

Level A protection is designed to offer the greatest level of skin, respiratory, and eye protection. Level A is used when:

- concentrations of <u>unidentified</u> airborne contamination exceed 500 to 1000 ppm above background; or
- the materials are an extreme skin adsorption hazard.

### **<u>Required personal protective equipment (PPE):</u>**

- hand hat (under suit);
- positive-pressure, full-face piece, self-contained breathing apparatus;
- totally encapsulating chemical-protective suit;
- chemical-resistant outer gloves;
- chemical-resistant inner gloves;
- chemical-resistant boots with safety toe and steel shank; and
- chemical-resistant disposable protective suit.

### **Optional PPE Subject to Work Conditions:**

- hearing protection;
- cooling vest; or
- two-way radio.

### LEVEL B

Level B protection is designed to offer enhanced skin protection and supplied air respiratory protection in the form of a Self Contained Breathing Apparatus (SCBA) or air line respirator with a 5-minute escape bottle. Level B is used when:

- concentrations of <u>unidentified</u> airborne organic compounds in the breathing zone are greater than
  5 ppm for a period of 15 minutes; or
- concentrations of chemicals in the air are immediately dangerous to life and health (IDLH) or above maximum use limits of a full-face air purifying respirator (APR); or
- oxygen deficient or potentially oxygen deficient atmospheres (less than 19.5% 0<sub>2</sub>) are possible;
- handling, investigation and/or sampling of unknown drummed waste; or
- confined space entry requires Level B protection.

### **Required PPE:**

- hard hat;
- chemical-resistant or leather boots with safety toe and steel shank and overboots;
- chemical-resistant clothing;
- chemical-resistant inner gloves;
- chemical-resistant outer gloves; and
- positive-pressure/pressure-demand SCBA or airline respirator with escape bottle.

### **Optional PPE Subject to Work Conditions:**

- disposable boot covers;
- hearing protection;
- cooling vest; or
- two-way radio.

### LEVEL C

Level C protection is designed to offer air purifying respiratory protection in addition to body protection. Level C will be used when:

- the types of air contaminants have been identified, and APR that can remove the contaminants is available, the air contaminants have adequate warning properties and the criteria for the use of an APR have been met;
- concentrations of <u>unidentified</u> airborne organic compounds in the breathing zone are greater than background for a period of 15 minutes with a ceiling of 5 ppm above background; or
- concentrations of airborne particulates in the breathing zone (for 15 or more minutes) are greater than established action levels for particulates.

### **Required PPE:**

- hard hat;
- chemical-resistant or leather boots with safety toe and steel shank;
- chemical-resistant clothing;
- chemical-resistant outer gloves;
- APR with half or full-face piece and appropriate cartridge; and
- safety glasses with side shields if wearing a half mask respirator.

### **Optional PPE Subject to Work Conditions:**

- face shield;
- chemical-resistant inner gloves;
- disposable boot covers;
- hearing protection; or
- emergency escape mask.

### LEVEL D

Level D protection will be worn when a hazardous atmosphere is not present nor is expected to be present based on planned work activities. Level D protection is designed to offer basic skin and body protection. Level D does not provide protection from inhalation exposure to hazardous substances. Modifications to Level D adjust the level of skin and body protection to the appropriate site conditions.

### **Required PPE:**

- hard hat;
- chemical-resistant or leather boots with safety toe and steel shank;
- short or long sleeved shirt and pants or coveralls; and
- safety glasses with side shields or splash goggles.

### **Optional PPE Subject to Work Conditions**

- face shield; or
- hearing protection.

## **APPENDIX D**

## PROTECTIVE FACTORS FOR RESPIRATORS

### APPENDIX D PROTECTION FACTORS FOR RESPIRATORS

### NIOSH Guide Certified Under 42 CFR 84

TYPE OF RESPIRATOR	PROTECTION FACTOR
Air purifying respirator (half mask)	10
Air purifying respirator (full face)	100
Powered air purifying respirator (half mask)	50
Powered air purifying respirator (full mask)	1000
Powered air purifying respirator (helmet/hood)	1000
Supplied air respirator-pressure demand (half mask)	50
Supplied air respirator-pressure demand (full mask)	1000
Supplied air respirator-continuous flow (half mask)	50
Supplied air respirator-continuous flow (full mask)	1000
Supplied air respirator-continuous flow (helmet/hood)	1000
Self-contained breathing apparatus - positive pressure or open/closed circuit (full face)	10,000

## APPENDIX E

## **EMERGENCY CONTACT LIST**

ORGANIZATION	CONTACT NAME	PHONE NUMBER
Site Security	Security Officer Main Gate	354-8611 or 350-0330 (cell)
Fire Department	****	911
Ambulance	****	911
Hospital	Queens General Hospital	354-3436
Poison Control	****	1-800- 565-8161
CANUTEC (24-hour emergency)	****	Call Collect (613) 996-6666 Cell *666
Nova Scotia Labour and Workforce Development	***	521-8074 or 521-9622 Local 1-800- 952-2687
Department of Environment	****	Bridgewater 543-4685
Police	****	911
Region Of Queens Municipality	***	354-3453
Nova Scotia Department of Environment (24-hour environmental emergency)	***	1-800- 565-1633
EMO Coordinator Region of Queens Provincial EMO Officer	Grant Webber – Emergency Response (ER) Steve Mills (Lunenburg)	Cell- 350-3804 Home 354-2255 634-7590
Brooklyn Power	****	354-2299 Ext. 22 Cell – 350-3958

## APPENDIX E EMERGENCY CONTACT LIST

## **APPENDIX F**

## **HOSPITAL INFORMATION**

### APPENDIX F HOSPITAL INFORMATION

175 School Street Liverpool Nova Scotia B0T 1K0	(902)354-3436
Address:	Phone No:
Queens General Hospital	
Name of Hospital:	

### **Directions to Queens General Hospital From Bowater Site:**

Exit Main Security Gate turning left onto Highway #3, locally known as Brooklyn Road. Take note that this road name changes into Bristol Avenue and then Market Street. Continue on Bristol Avenue straight through traffic lights, over Mersey River Bridge onto Market Street then to Main Street. Turn left onto Main Street. Proceed on Main Street past Court Street turning right onto School Street. Proceed on School Street, Queens General Hospital is on the left.

**Travel time from site - 7 to 10 minutes** Distance to Hospital (km) - 4.5 km

## APPENDIX G

## LOCKOUT / TAGOUT PROCEDURE

# Lockout / Tagout

- 1. Locate the area and identify the equipment or machinery to be worked on.
- 2. Identify all power sources affecting the equipment or machinery, such as electrical, pneumatic, hydraulic, steam, gravity, or momentum.
- 3. Determine whether lockout is required to perform the work assignment.
- 4. Locate and identify all power source components on equipment or machinery.
- 5. Determine whether it is physically possible to lock out each power source.
- 6. If lockout is required, check with qualified operations personnel before proceeding.
- 7. Have qualified personnel shut down the equipment or machinery. Install your personal safety lock with tag indicating name, employer, time/date, and work location.
- 8. Any power or product remaining in the equipment or machinery must be discharged or disconnected by qualified personnel.
- 9. With extreme caution, try to start the equipment or machinery manually.
- 10. Look for any movement of functions.
- 11. If none observed, try to restart again.
- 12. Look for any movements or functions.
- 13. If none observed, confirm that all power sources are at a zero energy state.
- 14. Carry out work assignment.
- 15. When work is complete and area ready to resume operation, remove all locks, tags and lockout devices. Check that all personnel are clear of the equipment or machinery.
- 16. Have qualified personnel restart the equipment or machinery.

## **APPENDIX H**

## SAFE WORK PERMIT FORM



### SAFE WORK PERMIT

Date:_	WO:	Contractor:	Supervisor:
Scope	e of Work:		
Start I	Date & Time:	Est. Comp. Date:	
1.	Personal Protective Equipment ফিall Arrest System ফিearing Pr ফিhaps ফিhield ফিafety Vest ম	to be worn, Specify: <sup>1</sup> Hard otection <sup>1</sup> Respiratory Prote Others Specify	Hats Safety Boots Safety Glasses ction Chemical Goggles Gloves
2.	Equipment and/or work area to	be isolated: Yes ા No પ	If yes, Specify:
3.	Crane(s) Mobile Equipment Red	quired: Yes रा No रा	Type of Equip:
4.	<b>Confined Space Entry:</b> Wes location, contents or work activity, therei oxygen-deficient or oxygen-enriched atm Contractor to follow Confined Spa	<b>WNO</b> (a confined space means a sin, the accumulation of a hazardous nosphere may occur.) ace Entry Procedure: <b>Ussue</b>	space if which, because of its construction, s gas, vapor, dust or fume or the creation of an Procedure No
5.	Area Gas Check Required: 4	Specify Type	Contact:
6.	Purging of Pipelines: Vares Var	Io If <b>Yes</b> , procedure must b	e attached, Procedure No:
7.	Embedded Services Locate Requ	uest discussed: Yes 👁 No	l⊕
8.	Road/Rail Restrictions: Veres	VNo If Yes, Contact:	
9.	Additional Protection: vsafety veEye Wash Kit veOther	Watch Trie Watch Trie I	Ext. Ver pill Kit Ver First Aid Kit
10.	ERP Procedures discussed/issue	ed: Yes ≀® No □	
11.	Incident Tracking Form discuss related, an incident tracking form is to be submitted	ed: Yes □ No □ (in the dist of the Site H&S Coordinator)	the event of an incident, environmental or Health and Safety
Notes:_			
## **APPENDIX I**

### HAZARDOUS ASSESSMENT FORM

#### HAZARD ASSESSMENT CHECKLIST

Location:

#### INSPECTION ITEMS - CHECK APPROPRIATE ONES BELOW COMMENT ON SUBSTANDARD ITEMS

□ Safety program		9	Hand Tools
□ Safe Work Procee	dures	9	Power Tools
First Aid Training	т Э	9	Housekeeping
□ First Aid Supplies	3	9	Scaffolding
Personal Protective	ve Equipment	9	Fall Protection
□ WHMIS Training	, Labels, MSDS's	9	Ladders
□ Transportation of	Dangerous Goods	9	Fire Alarm
Lunch Room		9	Posting of Job Specifications, OH&S Act, Tool Box Meetings (minutes) Inspections, etc.
□ Washroom			
□ Fire Protection		9	Potential Hazards Posted
Exits, Alarms, En	nergency Lighting	9	Maintenance of Log Books
Aisles, Stairs Wal	lkways	9	Change rooms/Decontamination Facilities
□ Confined Space E	Entry	9	Potential Hazards:
□ Type 2 Asbestos I	Entry		Heat
□ Type 3 Asbestos 1	Entry		Falling Objects
Outdoor Asbestos	s Removal		Toxic, Gases, Vapors, Dust, etc. Working at Heights
□ Storage Areas			Noise
□ Electrical		9	Other (specify)
□ Lighting			
<b>Descript</b>	tion/Observations		Recommended Action
Signatur	e(s):		

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### **JOB PROCEDURE:**

<u> </u>	 	 
<u> </u>	 	 
	53	Julv., 2013

## **APPENDIX J**

## SITE INSPECTION FORM



#### **SAFETY INSPECTION**

DATE:		TIME:		
LOCATION:				
EMPLOYEES:				
WORK DESCRIPTION:				
PERSONAL PROTECTI	ON (PPE):	YES: 🛥	NO: C	
PERSONAL PROTECTI	ON EQUIPMENT:			
			<u> </u>	
OBSERVATIONS/CONC	<u>CERNS:</u>			
INSPECTORS:				

## APPENDIX K

### TOOL BOX MEETING FORM



#### TOOL BOX MEETING

	Date:
Project Name:	
Attending:	
Location:	
Review Last Meeting:	
Topic(s)Discussed:	
Suggestions offered:	
Action(s) to be Taken:	
Injuries/Accidents Reviewed:	
Foreman's Signature:	
Safety Supervisor Remarks:	
Signature:	Date:

## APPENDIX L

### **INCIDENT REPORT**



# INCIDENT REPORT

DATE	EMPLOYEE	_
TIME		
PLACE		
INCIDENT		
DETAILS		
RECOMMENDATIONS		
SUPERVISOR	REPORTED BY	

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