

APPENDIX A

AMEC Geotechnical Report #TY1230281

APPENDIX B

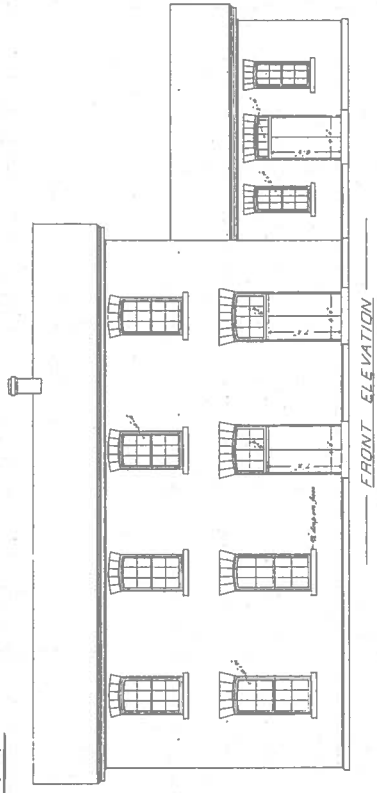
CEEA Environmental Screening

APPENDIX C

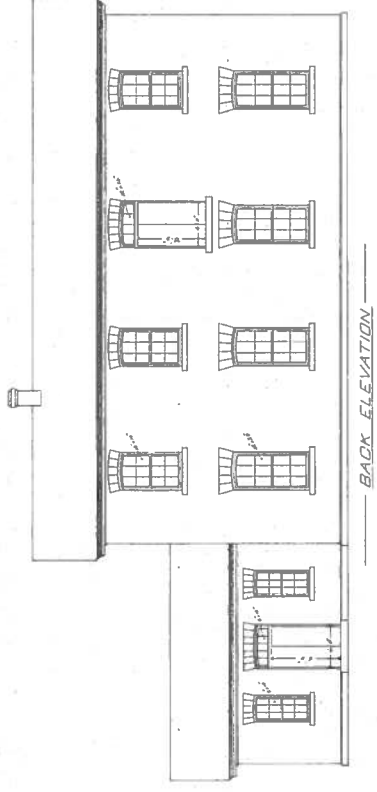
Historic Building Plans and Specifications

- DWG #IA 00352 – 1895 Building Plan
- DWG #IA 00348 – 1895 Truss Plan
- DWG #IA 00501 – 1962 Floor Plans
- Historic Specifications – 1895
- Part Plan DWG #50585-1973

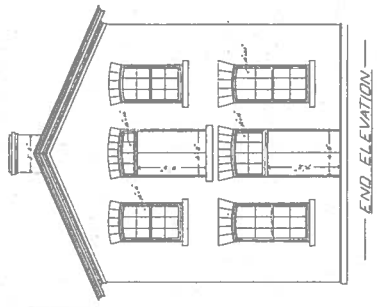
N.P. 1



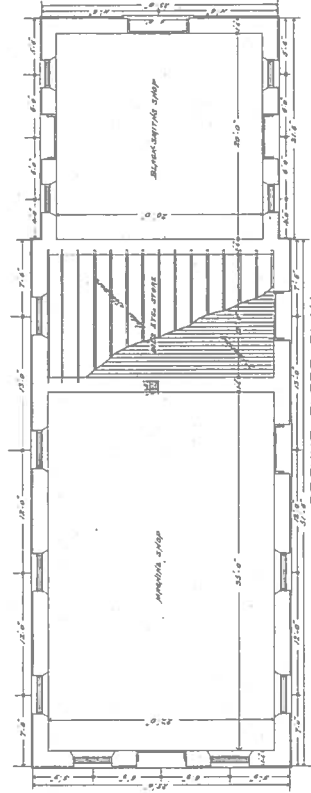
FRONT ELEVATION



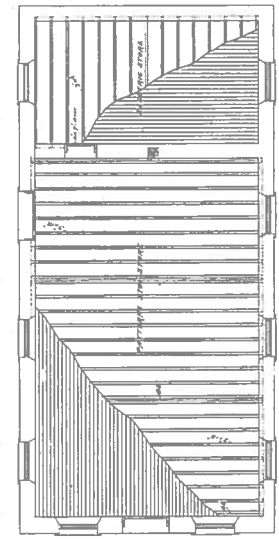
BACK ELEVATION



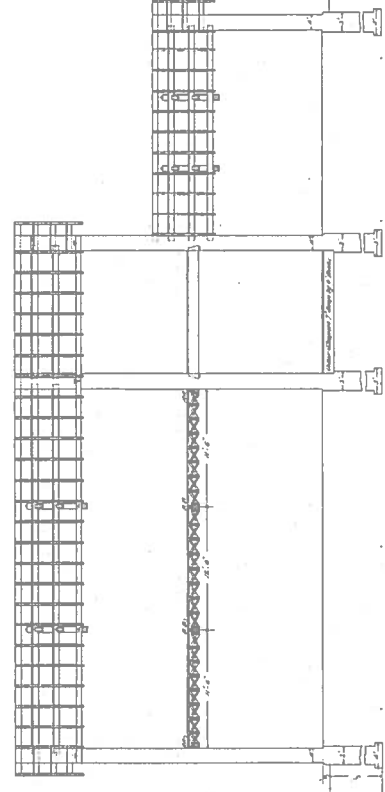
END ELEVATION



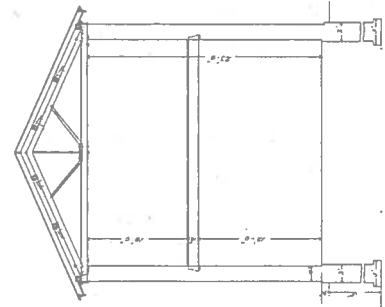
GROUND FLOOR PLAN



FIRST FLOOR PLAN



LONGITUDINAL SECTION WITH SIDE VIEW OF ROOF FRAMING



TRANSVERSE SECTION

SAULI SIE MARIE CANAL
PLAN OF WORKSHOPS AND STOREHOUSE

SCALE 1/8" = 1'-0"

City of St. Louis
Office of the Engineer
1705-1710
1905-1910

Approved by the Board of Public Works
City of St. Louis
1905-1910

NO. 1
OFFICE OF THE ENGINEER
CITY OF ST. LOUIS

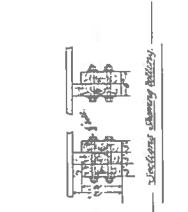
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NO. 2

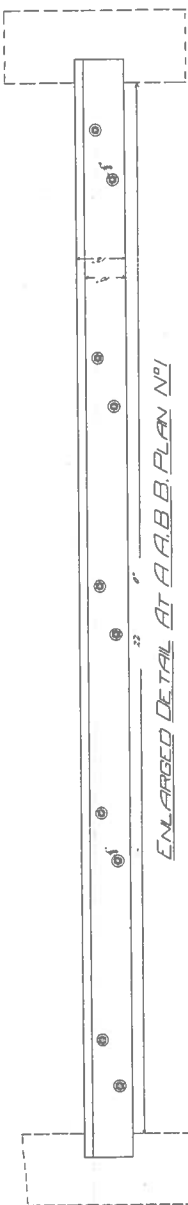
SAULI SIE MARIE CANAL
WORKSHOPS AND STOREHOUSE.

Contracted by
City of - S.M.C.
Marian
Project No. 100
Contract No. 17-100
S. Richardson
C.E.

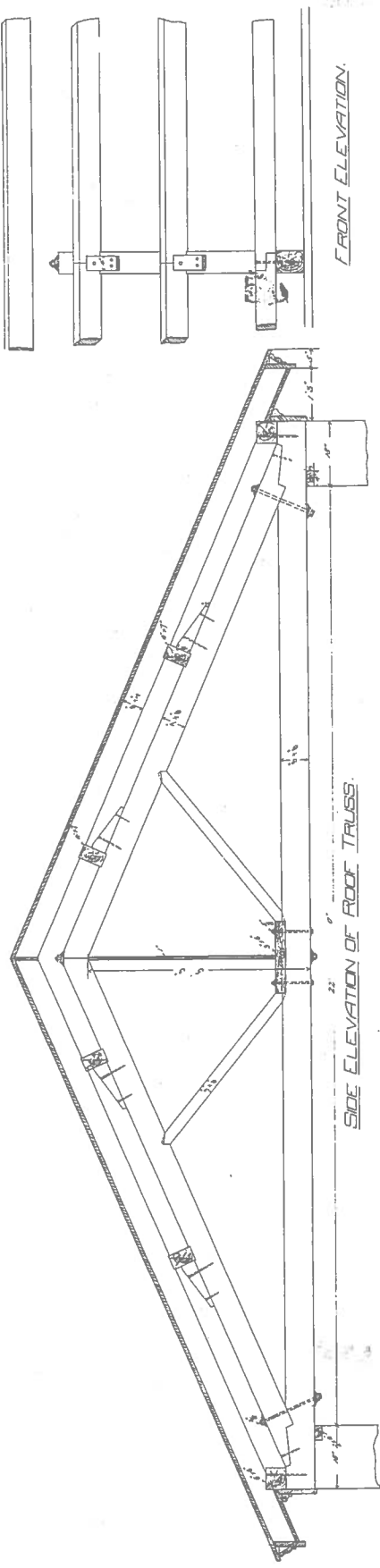
Scale: 1/8" = 1'-0"



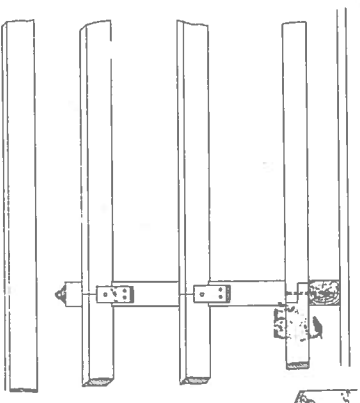
SECTION THROUGH WINDOW



ENLARGED DETAIL AT A.A.B.B. PLAN NO. 1



SIDE ELEVATION OF ROOF TRUSS



FRONT ELEVATION

SHEET NO. 2		PART NO. 1	
THE S. RICHARDSON ARCHITECTS			
CONSTRUCTORS & ENGINEERS			
Project No. 100		Date of Issue	
S. Richardson		C.E.	

DA 00 348

Original Pre-Construction Guidelines

Collingwood Schreifer, chief Engineer Railways and Canals

Ottawa, August 15th, 1895

DEPARTMENT OF CANALS, CANADA

SAULT STE MARIE CANAL

Specification of the several works and material required in the erection and completion of a building for Workshops and Storehouse etc., for the Sault Ste Marie Canal, Ont., according to the accompanying drawings prepared by the Department of Railways and Canals. Front of building to be in line with east front of Power House and buildings to be forty feet apart "Ground line" is level of Lock coping of lower reach.

Generally

The works to be comprised in this Contract are shown on the drawings numbered one and two, together with such other working and detail drawings as will be furnished to the Contractor from time to time during the progress of the work.

Character of the Work

All the various works are to be executed in a substantial and workmanlike manner, and of the best materials of their several kinds, in accordance with the drawings, specification, and instructions given from time to time; and all of the said works, are to be carried out and completed under the inspection of the Officer in charge or clerk of the works to the full and entire satisfaction of the Chief Engineer of Canals, or any person delegated by him.

No Deviations

No deviations are to be made from the drawings and specification without written authority from the Chief Engineer of Canals, and should any part of the works be altered without that authority, or should any part of the work be executed in an unsatisfactory manner, the same shall have to be taken down and rebuilt at the expense of the Contractor.

No Defective Materials

No defective, unsound or improper materials worked or otherwise, shall be brought to the premises or used in the building, and should the Contractor in case such materials are brought, refuse to remove such materials, and replace the same with fit and proper materials, the Chief Engineer or any person appointed may cause the same to be removed and replaced with fit and proper materials at the cost and charges of the Contractor and deduct the expense from the amount due or accruing due.

Protecting the Work

The Contractor shall provide for effectually securing and protecting the works from injury either from the inclemency of the weather, fire, accident, design or otherwise until acceptance of the works, and should any damage arise the same shall be made good by the Contractor to the satisfaction of the Department of Railways and Canals.

Care of the Works

From the commencement to the actual completion of the works the care of the same and whatever appertains thereto is to be with the Contractor as the Department of Railways and Canals will not be accountable for anything injured, incorrect, stolen or lost. Specifications and drawings are intended to co-operate so that any works exhibited in the drawings and not mentioned in the specifications "or vice versa" are to be executed the same as if they were mentioned in the specification and set forth in the drawings.

Figured Dimensions

In all cases figured dimensions are to be followed in preference to those ascertained by scale.

Examining the Site

Contractor to examine the site on which the new building is to stand prior to sending in tender and make himself thoroughly acquainted with the ground and the nature thereof, in as much as no after claim will be allowed entertained, for extra works required to remove any obstructions or make good any inequalities in order to obtain a solid foundation.

Temporary Buildings

Contractor will be required to erect any temporary buildings or workshops that may be required for workmen, or for storing materials.
All the above to be removed as may be directed, or at the completion of the contract.

Setting Out Work

The setting out of all work shall rest solely with the Contractor, who will be responsible for the same, and if any discrepancies should be found, he will have to alter and make good the same at his own expense.

Work Outside of Contract

If at any time during the progress of the works the Minister of Railways and Canals should consider it advisable to have other works that included in this Contract executed by other parties during the construction and completion of the building and before it is formally accepted he reserves the right to employ such person or persons as he may deem

necessary, and the party or parties to this contract must allow such employee or employees to work on the building or deposit on the site any materials or plant necessary for the execution of his or their work, and the Contractor must allow him or them free access to and from the building at all times, and also allow him or them the use of their scaffolding ladders or other plant, etc., etc.

Access to Building

The Contractor shall also allow any Officer or Officers of the Department free access to the building or other works in connection with it at any time until the building is formally accepted.

Tender

Each tender must be accompanied by an accepted Bank cheque made payable to the order of the Honorable the Minister of Railways and Canals equal to five per cent of the amount of the tender, which will be forfeited if the party or parties declines to enter into a Contract when called upon to do so, or is he or they fail to complete the work contracted for. If the tender is not accepted the cheque will be returned. All works and materials mentioned in this specification are to be taken as coming within the scope of the Contract and are to be executed and supplied by the Contractor.

All works to be carried out in strict conformity to the drawings and specification and in compliance to the clauses of Contract.

Any misunderstanding that may arise relative to materials workmanship or the interpretation to be put upon this specification it is to be clearly and distinctly understood shall be brought under the notice and referred to the Chief Engineer of Canals and that his decision in all such matters shall be final and binding on all parties.

It is further to be distinctly understood that advances of payments made to Contractors during progress are not to be looked on or in any way considered as an acceptance of the work although inspection of materials may have been made.

All responsibility of providing proper materials and for the full and satisfactory completion of the works connected with the building in every case rests with the Contractor until the whole of the works are completed and accepted by the Chief Engineer of Canals as fully meeting the conditions of the Contract.

Security

For the fulfilment of the Contract satisfactory security will be required by deposit of money to the amount of five per cent on the bulk sum of the Contract.

Condition of Payment

Ninety per cent only of the progress estimates will be paid until the completion and acceptance of the work.

Contractors should bear in mind that no advances or payments will be made upon materials until they are on the Sault Ste. Marie Canal property or in the work.

EXCAVATION

Excavation

Excavate in earth or rock as may be found for foundation walls to the depths shown or as may be required to ensure a solid foundation. The excavation to be got out to a sufficient width to allow of masons and others working properly. Any storing that may be required is to be done by the Contractor.

The earth etc., resulting from excavation to be removed to spoil ground to be pointed out by the Officer in charge and levelled off to the grades to be given and as may be required except the amount required in refilling and grading around the walls and building as may be directed by the Officer in charge.

Any additional earth that may be required to make up from settlement or otherwise to be provided by the Contractor.

Building or Pumping

The Contractor shall remove all water from the foundation by bailing, pumping or otherwise as well as all soil etc., that may come into or upon the same by reason of rain, springs, drains, or otherwise, all foundations to be kept dry.

When foundations and basement walls are built up to ground level then the space around the same to be carefully filled in and thoroughly rammed at every nine inches in height up to finish surface. Any filling up outside of building not to be done before the mortar is dry.

Masonry

The Contractor to provide all haulage, scaffolding, plant, tools, templates, centres, cranes, derricks, ladders, moulds, and every article required to carry out the works.

No scaffolding will be struck until authority be given the officer in charge.

Concrete

Any irregularities in foundations on rock or earth to be levelled up with concrete so as to receive the stone footings.

The filling in shall be of concrete, composed of hydraulic cement mixed with clear gravel sharp grit sand, and clean broken stones, broken to pass through a two inch ring, to be mixed dry on boarded floor and afterwards thoroughly mixed with pure water. The proportion of cement to other materials will be fixed by the Officer in charge after due trial, and all materials must be mixed by measure.

Before the concreting or stone footings are laid the foundation shall be approved by the Officer in charge.

All foundations to be down to the solid clay or rock.

Foundation and Rubble Work

The lower or footing courses to be of the several required widths and depths. No footing course must be more than two stones in width of wall and each course must have through stones in proportion of at least one third. All closely set and jointed. All foundation walls above footings up to plinth course, all internal walls and backing to external stone walls to be of the best class of rubble work in large flat bedded stones. Closely set and jointed with at least 5" through bond stones. No excessive filling with spalls being allowed. All angles to be in extra large stones in and out bond, face of walls to present an even surface and neatly pointed with mortar.

Cut Stone

All outside doors and window sills shall be of white or gray lime stone from Pelee Island, Amberstburg or from any other quarries producing similar quality but must be approved of by the Chief Engineer of Railways and Canals.

They shall be selected of sound and durable quality free from iron or other spots, seams, shakes, sand-holes, dries of every kind and all other defects and of the full dimensions, required for their respective positions they are to occupy in the work and generally herein stated.

Door Sills

Door sills for lower floor of main slopes to be 5'4" inches long 1' 9" inches in width by 9" inches in depth.

Door sills for second floor to be 5'4" inches long 1' 8" inches in width by 6 ½ " inches in depth.

Two door sills in blacksmith shop 4'8" inches long 1'9" inches in width by 9" inches in depth. One sill 3' 8" inches long by 1'9" inches in width by 9" inches deep.

Window Sills

All the window sills to be 3" inches longer than the respective width between stone jambs 12" inches in width, breast of sill to be 5 ½" inches deep weathered ½" inch to suit frames making the sill 6" inches in depth at back, drip threaded, doors and window-sills to be tooled draughted and bush hammered, and level bedded.

Plinth or Base

The plinth or base course, all quoins, window jambs arch stones, and all random course work forming the facing of all external stonewalls to be of the Potsdam sand stone such as can be found or quarried on the Government Canal property.

The plinth or base course to be nine (9) inches in height, rock faced, chamfer on top to be point dressed horizontal beds and vertical joints to be square and cut so as to lay 3/8ths inch joints. The quoins to have a plumbing chisel drought on the arris head of the quoins well bedded and vertically jointed.

The door and window jambs to be in and out bond, to have a plumbing draught on face and close pointed reveals back sufficient to receive frames.

The aron stones for both doors and windows to be cut as represented on the drawings having close and true worked beds and joints not to exceed $\frac{1}{4}$ of an inch, chisel draughted on lower arris soffits to be pointed back sufficiently to receive frames.

The external faces of the outer walls from plinth to roof cornice to be random course work.

The horizontal beds shall be level and end joints vertical leaving an average breadth of bed of not less than nine (9) inches having a sufficient number of bond or through stones. They shall have well worked beds and joints and shall lay that o be or joints shall exceed $\frac{3}{8}$ ths of an inch. No stone shall be less than three (3) inches in height and that only in extreme cases. No stone to be less in length than twice its height, the whole of the face work shall be well bonded, no lap being less than four inches and that only in extreme cases they shall be carefully cut and fitted against quoins, jambs, arch stones etc., to be laid with an open joint in front, say nearly $\frac{3}{4}$ ths of an inch back from the face, so that there will be room for future pointing.

Beam Filling

After the roof timbers are in place all the external caves shall be beam filled up to the sheet boarding of the roof in a sloping back form.

Mortar

All the foundation walls up to the top of plinth shall be built of Canadian Hydraulic Cement Mortar and well flushed up with the same and in proportions of one (1) of cement to one and a half ($1\frac{1}{2}$) of clean sharp grain sand or such proportions as may be approved, the cement and sand must be first thoroughly mixed dry on a boarded floor, then enough of pure water added and well mixed up to form a proper working mortar, no larger quantity of mortar to be made at one time than required for immediate use retempering of mortar that has been partly set will not be permitted. All the walls above the plinth, shall be set in and well flushed up with mortar composed of fresh burnt stone lime and clean grit sand mixed in approved proportions with pure water in a mill or on a boarded floor. The lime is to be kept under cover, and properly protected from the weather.

Brick Work

The bricks to be used must be of good quality to be approved, free from saline matter and truc in shape, they must be hard and well burned, no soft bricks will be allowed to be used and they must be thoroughly wetted if required with water before laying.

Turn inside brick arches over all doors and windows 8" inches vertical depths, and to the width required. The smoke flues to be formed of brick well bonded into the stone work also the chimney through and above the roof, the whole of brick work, to be neatly laid in neat and well filled joints of first class mortar, joints to be struck and smooth, including those inside of flues.

Provide and set proper iron soot doors where required, iron pipe rings and stoppers. The outside faces of the external walls above ground level after the building is roofed in to have joints raked out, carefully cleaned and wetted and pointed with mortar made with washed and screened sand, fresh burned lime of proportion to be approved, both horizontal and vertical joints to be square fillet or bead joint or such other style of pointing or quality of material as may be approved. Clean out flues from top to bottom when building is completed and make good any defects.

Walls to be properly protected during the prosecution of work, do all necessary jobbing, make good and finish work after other tradesmen and give necessary attendance on and to other trades as directed. Walls to be built level true and perpendicular, and should damage occur to the stone or brickwork by accident, settlement or otherwise before completion of building, Contractor to make good the same at his own expense. Build in all bond timber, lintels, joist and wall plates, and other timbers, build in bed and point and hair mortar all door and window frames. Leave holes for drain pipes or any other purpose as may be directed and build up around same as may be required.

Carpenter Work

The Contractor to provide all requisite materials and fix all carpenter and joiners work of every kind complete with all proper nails, spikes, screws, rods, bolts, and other ironmongery, and iron work which may be requisite or required for carrying with effect and completing the buildings and works according to the drawings, details, etc., etc. By Carpenters work is meant all sawn stuff and by joiners work all planed stuff including floor boards.

The lumber used in the building when not otherwise specified shall be of the best quality of pine for carpenters work, and the best white pine for joiners work, free from sap, shakes, larger loose and dead knots, sawn, die square.

All stuff for joining to be kiln dried, and for carpenters work must be well seasoned and dry, all dimensions to hold when finished.

Provide and fix with wedges, ease and finally remove when directed all centring, struts and supports for mason and bricklayer.

Lintels

Provide and fix over openings if required, lintels the full width required 12" inches larger than opening and 1½ inches in depth for every foot in width of opening.

Beams

Where the double and triple joists act as beams in support shaft hangings they shall be neatly bolted as per detail drawing and of the dimension shown.

Joists

Provide and fix joists of the number and dimensions shown on the drawings resting at least, six (6) inches on the walls properly levelled.

All trimmer and trimming joists to be double as may be required, well bolted together if necessary.

Trim for stairway, flues, and whatever required. No joist or other timber to go within nine (9) inches of inside flue.

Joists to have herringbone bridging where shown, 3 inches by 2 inches well fitted and thoroughly nailed.

Lower floor of Storehouse in place of joists to have flattened cedars seven (7) inches deep by not less than six (6) inches of flattened face, to be laid not exceeding twenty (20) inches from centre to centre.

Roof

The roof principles to be constructed with timbers of the several sixes shown on drawings, framed and bolted in the best possible manner, as per drawing. All timbers to be sawn true and square provide any additional timber found necessary to ensure a strong roof.

The wall plates shall be half checked and thoroughly secured to the tie beams, and at the stone gables they shall be tied in by a 2 x 8" inch scantling built into the centre of the walls, extending back for a distance of eight (8) feet from the wall plate, and thoroughly secured to the same. Wall plates to be solidly bedded in mortar. The roof to be covered with 1 ½ inch tongued and grooved pine boarding not more than 6 inches wide breaking joint, and well nailed to the rafters.

Provide and fix two (2) inch dressed rolls for roofs for galvanized iron, eaves, cornice etc., to be bracketed out and made ready to receive 1 ¼ inch fascia, soffits, etc., as shown on drawing.

Floors

The Storehouse on ground floor shall be floored with two (2) inch first class planking sized by planer and close jointed and thoroughly nailed. The whole of the second floor shall be laid with one and ¼ inch (1 ¼) tongued and grooved of best quality of white pine flooring not exceeding four (4) inches in width, to be blind nailed and laid folding and all heading joints to rest on joists.

The flooring not to be laid until after the roof is completed all floors to be cleaned off perfectly smooth at finish.

Provide and fix in place a skeleton stair not exceeding 3 feet wide having strings, and wall supported.

The stair to be outside the building and be enclosed in, so as to be protected from the weather.

Also if required a skeleton stair inside between the two store rooms, not exceeding 2 feet 10 inches wide, having good stringers and head railing and trim joists for the same if required.

Windows

The windows on the first and second stories not otherwise directed to be of the shape shown, to have two (2) inch moulded white pine sashes double sliding in solid frames of 2 inch stuff having proper sash fasteners.

Frames grooved for outside and parting beads, inside steps, and inside sills.

All frames in main building not including blacksmith shop to have blind stiles on the outside, so as to receive (if required) winter or double sash 1 ½ inches deep.

Doors

External doors to be of pine two and a half inch (2 ½") framed sheeted or filled in with one inch (1) tongued grooved and beaded boards hung with 6 inch butts to solid rabbeted and moulded 2 inch by 12 inch frames, doors to have moulded transoms and two (2) inch fixed fanlight over, put three quarter round one inch bead around all door frames.

All outside doors to have first class stock locks having duplicate keys and all necessary substantial bolts.

Inside door for upper store room to be a two (2), 3 feet by 7 feet panel door, hung by 3 ½ inch butts and good stock lock having duplicate keys.

Jib Beam

Provide and fix a jib beam and book over upper doorway in south gable of sufficient size to lift three (3) tons to details as may be directed, and thoroughly secured inside.

Iron

All wrought iron used in bolts, truss-rods etc., to be of the best double refined quality.

Galvanized Iron

The whole of the external surface of roofs to be covered with galvanized iron No.28 gauge. More woods or other approved brand laid on rolls, to suit the width of the iron. Iron to be the full length wherever practicable and neatly turned over rolls, the heading joints to be riveted every one and one quarter (1 ¼) inches and soldered on both sides, and when the lap on top of rolls, the sheets will be nailed with zinc nails not more than one and one quarter inches apart the same to apply to all outer edges and well soldered. The whole finished in a workmanlike manner, turned well up against the chimneys etc., and having top and step flashings of similar material, those flashings to be about 12 inches broad let into the joints of the brick work wedged and neatly pointed up with cement the iron will be laid on top of two ply of approved tar paper, supplied and laid by the Contractor and every care to be taken not to tear or injure such felting and in the

event of any damage being done to same by carelessness or otherwise the Contractor will be required to make good the same.

Painting and Glazing

Properly prepare the whole of the work requiring painting, viz: -All wood work exposed both outside and inside of doors and windows, eaves, cornice of both side walls and gables, inside door and frame of Storehouse. Sand, pumice, knot stop and then paint the whole of the above stated work three coats of the best white lead and the best boiled linseed oil and colour mixed together.

Galvanized iron not to be painted, the whole finished in such tints as directed.

All frames to be primed before they are fixed and all sashed before glazing.

All work to be well puttied after priming coat is put on, to be stopped and well rubbed down with sand paper between each coat, and to be of the shades as may be directed.

The whole of the windows and fan lights to doors, to be glazed with the best 16 oz. Sheet glass, glass to be well bedded in, puttied, braded and back puttied, and all glass to be left clean and perfect at the end of the work.

None but the best quality of materials will allowed to be used, make good all defects, remove any broken or cracked glass, and leave the whole of the painters and glaziers work perfect at completion

Progress & Completion

All the works in the Contract must be proceeded with and conducted in such a manner as to fully satisfy the Minister of Railways and Canals that the whole of the works described in the foregoing specification and embraced in the Contract will be fully completed on or before 30th November 1895.

Ottawa, August 15th, 1895

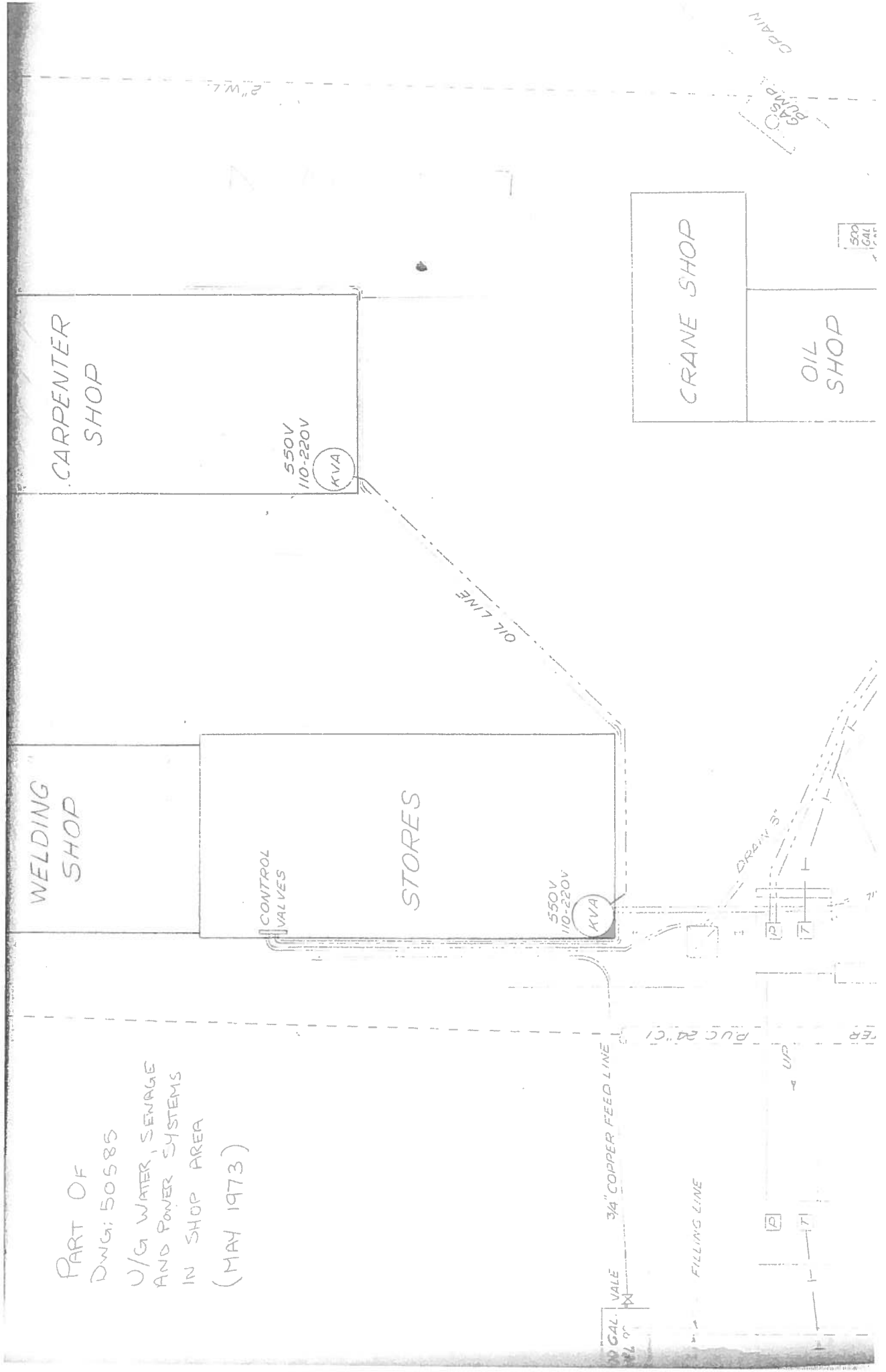
(Sgd) J. B. Spence, C. R.,

C. D.

Collingwood Schreiber,

Chief Engineer Railways and Canals.

PART OF
 DWG: 50585
 U/G WATER, SEWAGE
 AND POWER SYSTEMS
 IN SHOP AREA
 (MAY 1973)



APPENDIX D

Reference DWG #COSSM 97/HR24 (Sheet H1)

APPENDIX E

Sample Masonry Data Sheets

- SK-1 West Wall Elevation
- Stone Dimensional Summary

Stone Dimensional Summary

West Wall

Stone ID*	Weight (lbs)	Face (in)	Top (in)**	Middle (in)**	Bottom (in)*
HI19-01	490	17" x 24"	5", 7", 8"	11", 12", 13"	17", 20", 15"
HI19-02	525	27" x 17 1/2"	15", 11", 9"	17", 14", 13"	14", 10", 9"
HI19-04	525	26 1/2" x 23 1/2"	9", 11", 12"	8", 9", 11"	4", 10", 11"
HI19-03	390	24 1/2" x 14 1/2"	5", 6", 3"	9", 13", 3"	6", 13", 3"
HI18-01	525	33" x 14 1/2"	13", 13", 13"	13", 12", 13"	13", 12", 13"
HI19-06	700	30" x 14 1/2"	13", 13", 14"	19", 17", 16"	20", 17", 15"
HI19-05	400	24 1/2" x 14 1/2"	0", 14", 6"	17", 17", 5"	14", 14", 11"
HI19-07	380	17 1/2" x 20 1/2"	5", 6", 7"	11", 13", 12"	9", 9", 10"
HI18-02	300	14 3/4" x 20 1/2"	5", 6", 3"	9", 11", 10"	4", 8", 11"
HI18-05	500	15" x 20 1/2"	12", 12", 12"	16", 16", 14"	12", 19", 14"
HI18-03	775	26" x 20 1/2"	3", 9", 8"	12", 19", 17"	9", 13", 10"
HI19-09	250	15 1/2" x 20 1/2"	3", 7", 3"	6", 7", 6"	3", 7", 3"
HI19-10	650	27" x 20 1/2"	5", 13", 6"	13", 14", 6"	11", 12", 6"
HI19-11	490	18" x 20 1/2"	6", 9", 11"	13", 14", 16"	7", 15", 15"
HI19-12	580	32" x 20"	2", 8", 3"	2", 10", 3"	2", 11", 3"
HI19-13	680	28" x 20"	10", 12", 10"	11", 12", 11"	12", 14", 8"
HI19-14	480	26" x 20"	6", 6", 3"	8", 11", 3"	6", 12", 4"
HI19-15	325	26.5" x 18"	3", 6", 2"	4", 8", 1"	2", 8", 3"
HI19-16	725	44" x 17"	1", 6", 1.5"	1", 9", 11"	2", 12", 2"
HI19-17	490	17" x 24"	5", 7", 8"	11", 12", 13"	17", 20", 15"
HI19-18	525	27" x 17 1/2"	15", 11", 9"	17", 14", 13"	14", 10", 9"
HI19-19	525	26 1/2" x 23 1/2"	9", 11", 12"	8", 9", 11"	4", 10", 11"
HI19-20	390	24 1/2" x 14 1/2"	5", 6", 3"	9", 13", 3"	6", 13", 3"
HI19-08	390	24 1/2" x 14 1/2"	5", 6", 3"	9", 13", 3"	6", 13", 3"
HI18-06	525	33" x 14 1/2"	13", 13", 13"	13", 12", 13"	13", 12", 13"

* in order of removal

** left side, middle, right side of stone unit

EXAMPLE ONLY

APPENDIX F

Potential Hazards Information/Attestation Sheets

- CRA-Asbestos Air Sampling Report
- Potential Hazards Identification
- Potential Hazards Awareness
- Fire Zone 2 – Powerhouse Complex - Sketch
- Health & Safety – Attestation Forms



**CONESTOGA-ROVERS
& ASSOCIATES**

96 White Oak Drive East, Sault Ste. Marie, ON P6B 4J8
Telephone : 705-254-2438 Facsimile : 705-254-2430
www.CRAworld.com

February 16, 2011

Reference No. 71648-01

Mr. Dennis Boston
Algoma Industrial Ltd.
59 Yates Avenue
Sault Ste. Marie, ON
P6C 1G1

Dear Mr. Boston;

Re: Asbestos Air Sampling Activities- January 28, 2011 & February 4, 2011
Sault Ste. Marie Canal National Historic Site - Stores Building
Sault Ste. Marie, Ontario

1.0 INTRODUCTION

Conestoga-Rovers & Associates (CRA) was retained by Algoma Industrial Ltd. (Algoma) to provide clearance and occupational health and safety air sampling services within the Stores Building located at 1 Canal Street within the Sault Ste. Marie Canal National Historic Site in Sault Ste. Marie, Ontario (Building/Site).

The air sampling activities conducted on January 28, 2011, were to identify the presence, if any, of asbestos fibres within the Type 3 asbestos abatement enclosure on the second floor of the Site after Type 3 Asbestos remedial activities were completed. CRA understands that clearance sampling was necessary prior to dismantling the enclosure, in accordance with Ontario Regulation (O. Reg.) 278/05, which was erected as part of the abatement activities completed by Algoma Industrial Ltd. (AIL) to remove asbestos containing insulation within the attic space of the Building. The Type 3 enclosure spanned the entire second floor of the Building and was maintained under negative pressure according to AIL Personnel during all remedial activities and was in operation during clearance sampling.

Subsequent, air sampling activities were conducted on February 4, 2011 to identify the presence, if any, of asbestos fibres within the first floor of the Site to be protective of the health and safety of the Site's occupants.

2.0 CLEARANCE AIR SAMPLING

Clearance air sampling was conducted in accordance with Ontario Regulation (O. Reg. 278/05) and the National Institute for Occupational Safety and Health (NIOSH) Method 7400 for Asbestos and other fibres by PCM. Samples were collected utilizing an air sampling train



consisting of an air sampling pump equipped with a cellulose ester filter and using aggressive sampling methods (i.e., airflow inside the enclosure was generated using a battery-operated leaf blower to dislodge settled dust before and during sample collection). Pumps were calibrated to a flow rate of 15 litres per minute with a collection time of 160 minutes per sample and a total sample volume of 2400 litres as required by O. Reg. 278/05. The samples were submitted under Chain-of-Custody procedures to EMSL Analytical Inc., in Mississauga, Ontario, and analyzed by phase contrast microscopy (PCM) for fiber content.

3.0 OCCUPATIONAL HEALTH AND SAFETY AIR SAMPLING

Occupational health and safety air sampling was conducted by CRA within the first floor of the Site in accordance with the NIOSH Method 7400 for Asbestos and other fibres by PCM. Samples were collected utilizing an air sampling train consisting of an air sampling pump equipped with a cellulose ester filter. Pumps were calibrated to a flow rate of 15 litres per minute with a collection time of 27 minutes per sample and a total sample volume of 405 litres as required by NIOSH 7400. The samples were submitted under Chain-of-Custody procedures to EMSL Analytical Inc., in Mississauga, Ontario and analyzed by phase contrast microscopy (PCM) for fiber content.

4.0 RESULTS

Asbestos fibre results from all clearance and occupational health and safety samples were below the 0.01 fibres per cubic centimeter (f/cc) Type 3 asbestos abatement clearance criteria as detailed in O.Reg 278/05 and well below the occupational exposure limit of 0.1 f/cc set forth within Ontario Regulation 833/90 "Control of Exposure to Biological or Chemical Agents". A summary of the air sampling results is provided in Table 1. The analytical laboratory reports are attached as Attachment A.

5.0 CONCLUSIONS & RECOMMENDATIONS

The purpose of air sampling was to determine if the areas surrounding the asbestos removal project were contaminated with asbestos fibres when the asbestos was removed. Based on the analytical results, all samples collected were below the clearance criteria of 0.01 f/cc and exposure criteria of 0.1 f/cc.



**CONESTOGA-ROVERS
& ASSOCIATES**

February 16, 2011

3

Reference No. 71648-01

Should you have any questions or require additional information, please do not hesitate to contact the undersigned at (705) 254-2438.

Yours truly,

CONESTOGA-ROVERS & ASSOCIATES

Kyle Malo, A.Sc.T.
KM/lb /1
Encl.

TABLE 1
ASBESTOS AIR SAMPLING RESULTS
SAULT STE. MARIE CANAL NATIONAL HISTORIC SITE - STORES BUILDING
SAULT STE. MARIE ONTARIO

Ontario Regulation 2789/05 Clearance Results						CLEARANCE CRITERIA ⁽¹⁾		PCM RESULTS
SAMPLE ID	TIME RUN (minutes)	PUMP RATE (L/min)	TOTAL VOLUME (Litres)	SAMPLE LOCATION	(f/cm ³)	(f/cm ³)	(f/cm ³)	
AS-71648-012811-KM-001	160	15	2400	South Second Floor	0.01	0.003	0.003	
AS-71648-012811-KM-002	160	15	2400	Middle Second Floor	0.01	0.004	0.004	
AS-71648-012811-KM-003	160	15	2400	North Second Floor	0.01	0.002	0.002	
Ontario Regulation 833/90 Occupational Health and Safety Results						EXPOSURE LIMITS ⁽²⁾		PCM RESULTS
SAMPLE ID	TIME RUN (minutes)	PUMP RATE (L/min)	TOTAL VOLUME (Litres)	SAMPLE LOCATION	(f/cm ³)	(f/cm ³)	(f/cm ³)	
AS-71648-020411-KM-001	27	15	405	North First Floor	0.1	<0.007	<0.007	
AS-71648-020411-KM-002	27	15	405	East Room First Floor	0.1	<0.007	<0.007	

Notes:

- 1) Clearance Criteria is based on Ontario Regulation 278/05 "Designated Substances - Asbestos on Construction Projects and in Buildings and Repair Operations".
- 2) Exposur Limits are based on Ontario Regulation 833/90 "Control of Exposure to Biological or Chemical Agents".

ATTACHMENT A
ANALYTICAL DATA



EMSL Canada Inc.

10 Falconer Drive, Unit #3, Mississauga, ON L5N 3L8

Phone: 289-997-4602 Fax: (289) 997-4607 Email: torontolab@emsl.com

Attn: **Katherine Pritchard**
Conestoga-Rovers & Associates, Ltd.
651 Colby Drive
Waterloo, ON N2V 1C2

Fax: Project: **71648-01** Phone: (519) 884-0510

Customer ID: 55CRAC22
Customer PO:
Received: 01/31/11 10:49 AM
EMSL Canada Or 551100244
EMSL Canada Pr
Analysis Date: 1/31/2011


Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (liters)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
1 551100244-0001	AS-71648-012811-KM-01	1/28/2011	2400.00	16	100	0.001	20.4	0.003	
2 551100244-0002	AS-71648-012811-KM-02	1/28/2011	2400.00	19.5	100	0.001	24.8	0.004	
3 551100244-0003	AS-71648-012811-KM-03	1/28/2011	2400.00	12	100	0.001	15.3	0.002	

No discernable field blanks submitted with this sample set.

Initial report from 01/31/2011 18:52:21

Analyst(s)
Kevin Pang (3)



Kevin Pang
or other approved signatory

Limit of detection is 7 fibers/mm². Interlaboratory Sr values: 5-20 fibers = 0.35, 21-50 fibers = 0.30, 51-100 fibers = 0.20. The laboratory is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears not responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Canada Inc. 10 Falconer Drive, Unit #3, Mississauga ON



EMSL Canada Inc.

10 Falconer Drive, Unit #3, Mississauga, ON L5N 3L8

Phone: 289-997-4602 Fax: (289) 997-4607 Email: torontolab@emsl.com

Attn: **Katherine Pritchard**
Conestoga-Rovers & Associates, Ltd.
651 Colby Drive
Waterloo, ON N2V 1C2

Fax: Project: **071648** Phone: (519) 884-0510

Customer ID: 55CRAC22
Customer PO:
Received: 02/07/11 12:15 PM
EMSL Canada Or 551100315
EMSL Canada Pr
Analysis Date: 2/7/2011


Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (liters)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
AS-71648-020411-KM-01		2/4/2011	405.00	<5.5	100	0.007	<7.01	<0.007	
551100315-0001									
AS-71648-020411-KM-02		2/4/2011	405.00	<5.5	100	0.007	<7.01	<0.007	
551100315-0002									

No discernable field blanks submitted with this sample set.

Report Amended: 02/08/2011 11:25:20 Replaces the Inital Report 02/08/2011 09:01:35. Reason Code: Client-Other (see report comment)

Analyst(s)
Kevin Pang (2)


Kevin Pang
or other approved signatory

Limit of detection is 7 fibers/mm². Interlaboratory Sr values: 5-20 fibers = 0.35, 21-50 fibers = 0.30, 51-100 fibers = 0.20. The laboratory is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears not responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Canada Inc. 10 Falconer Drive, Unit #3, Mississauga ON

Potential Hazards Identification:

Stores Building

Foundation Stabilization

Building Restoration 2014

Sault Ste. Marie Canal

National Historic Site of Canada

Parks Canada wants to stress the importance of the following potential hazards related to the work that will take place in conjunction with the above noted project. These are the most obvious potential hazards identified but aren't necessary a comprehensive list. The contractor has to be vigilant of other hazards and will be required to provide their site specific Hazard Assessment for the project.

- Work being done during all seasons throughout construction period, including the winter. The area is open to; sun, rain, wind, and cold, therefore there is a risk of every weather related stress including sunstroke, heat exhaustion, through hypothermia and frostbite.
- Precautions for working conditions including, but not limited to:
 - Demolition
 - Shoring unstable structures
 - Removal of unstable structures, sub assemblies, and or wall sections
 - Working with unstable and heavy stones
 - Working at heights
 - Working from specialized scaffold
 - Working in water
 - Working in trenches
 - Working near unstable structures
 - Working on uneven surfaces
 - Hot work for metals: welding cutting grinding shaping
 - Working with concrete, cement, mortars and mixes dry and wet
 - Working with compressed air and or gases
 - Working with hot water heating system components
 - Working around electrical services
- Slippery surfaces might result from the surrounding condition.
- Working with electric powered tools around water needs special attention and measures to prevent electrocution.
- Hazards to workers present in the vicinity of mobile equipment such as: backhoe, Bobcat, Mini Excavators, Jack Hammers, Pneumatic tools and trucks.
- Hazards associated with hoisting and material handling machinery, lifting equipment, mechanical pulling devices, wenchers, and block and tackle will need to be assessed.
- Parks Canada employees might have to come on site from time to time for various monitoring purposes. Those employees will be submitted to the same safety measures required on the construction site, nevertheless their presence will have to be considered in the contractors H&S plan.

June 10, 2014

Barry Guzzo
Technical Services Coordinator NOFU
Parks Canada

Potential Hazardous Material Identification:

Stores Building

Foundation Stabilization

Building Restoration 2014

Sault Ste. Marie Canal

National Historic Site of Canada

Please find some suggestions regarding Designated Substance Risks for inclusion of the Tender Package for the Rehabilitation project regarding the Stores Foundation Stabilisation.

Asbestos

Here is the report which indicates the results of air sampling actually carried out in the stores building.

Please be conscious of the content and intent of the letter contained herein.

This information is valid as stated in the letter and is the appropriate information to the best of my knowledge.



Asbestos air sampling result_Algonia Industrial Ltd_Post Abatement.pdf

Lead Paint

Lead paint will be present through many of the painted surfaces of this building.

Evidence can easily be detected with local testing, and will exceed acceptable limits where OSH is concerned. Please proceed accordingly.

Our experience on site is that where lead is present it is also well above the Ministry of labour guideline levels and must be treated accordingly.

Testing and observations to date regarding ground testing was not specific to hazardous materials to my knowledge.

Having said that, there was no specific Hazardous Material suspicious material found during any drilling or excavating to date.

Silica

This project will be affected by MOL regulations regarding control of Silica on this construction project.

Polychlorinated Biphenyls (PCB's)

To the best of our knowledge, PCB's were removed from the building.

The highest risk areas for any potential remaining PCB's would be in the remaining electrical transform equipment.

The lights had the ballasts replaced some time ago, but care and caution will be required during such removals in case any units were overlooked.

Urea Formaldehyde Foam Insulation

This has been identified in the overhead steel culvert supported between the Stores Building and the Powerhouse Building.

A suspect location would also be between the Stores Building and the Carpentry Shop where these same services extend in a culvert underground.

Work in this area will require some minor investigations and confirmation of existence of the material in the underground culvert.

Petroleum Hydrocarbons

There were formerly in ground Petroleum heating fuel storage in the area just west of the Stores Building at the site which now has the Public Washroom above.

Such Tank was removed and testing plus subsequent test reveal no petroleum hydrocarbons present in this area.

Distribution supply lines may well remain sub terrain and will require compliant care and caution as such lines may be exposed through construction requirements.

Benzene

Potential sources of benzene could be sourced outside of the building in the form of ventilation of the Above Ground Storage Tanks located South and East of the Stores Building. Mills, industries, and vehicular emissions in close proximity to the site may also impact on such exposures. The extent of such risks are unknown.

Coke Oven Emissions

While a risk of exposure pending prevailing winds exists, the extent is unknown.

Other Hazardous Materials

Other items containing such contents would be stored supplies in the welding shop or storage cabinets in the building.

Examples of such items, but, not limited to would be:

- Paints and Primers
- Paint Thinners
- Silicone spray lubricants
- Contact cement and cleaner
- Lubricants
- Roofing Cement
- Various bonding agents
- Plastic glazing compounds
- Cleaning supplies

Purpose for basic maintenance supplies

This information is provided to the best of my knowledge.

The actual work risk hazard analysis for the project would need to be developed by the Contractor.

June 10, 2014

Barry Guzzo
Technical Services Coordinator NOFU
Parks Canada

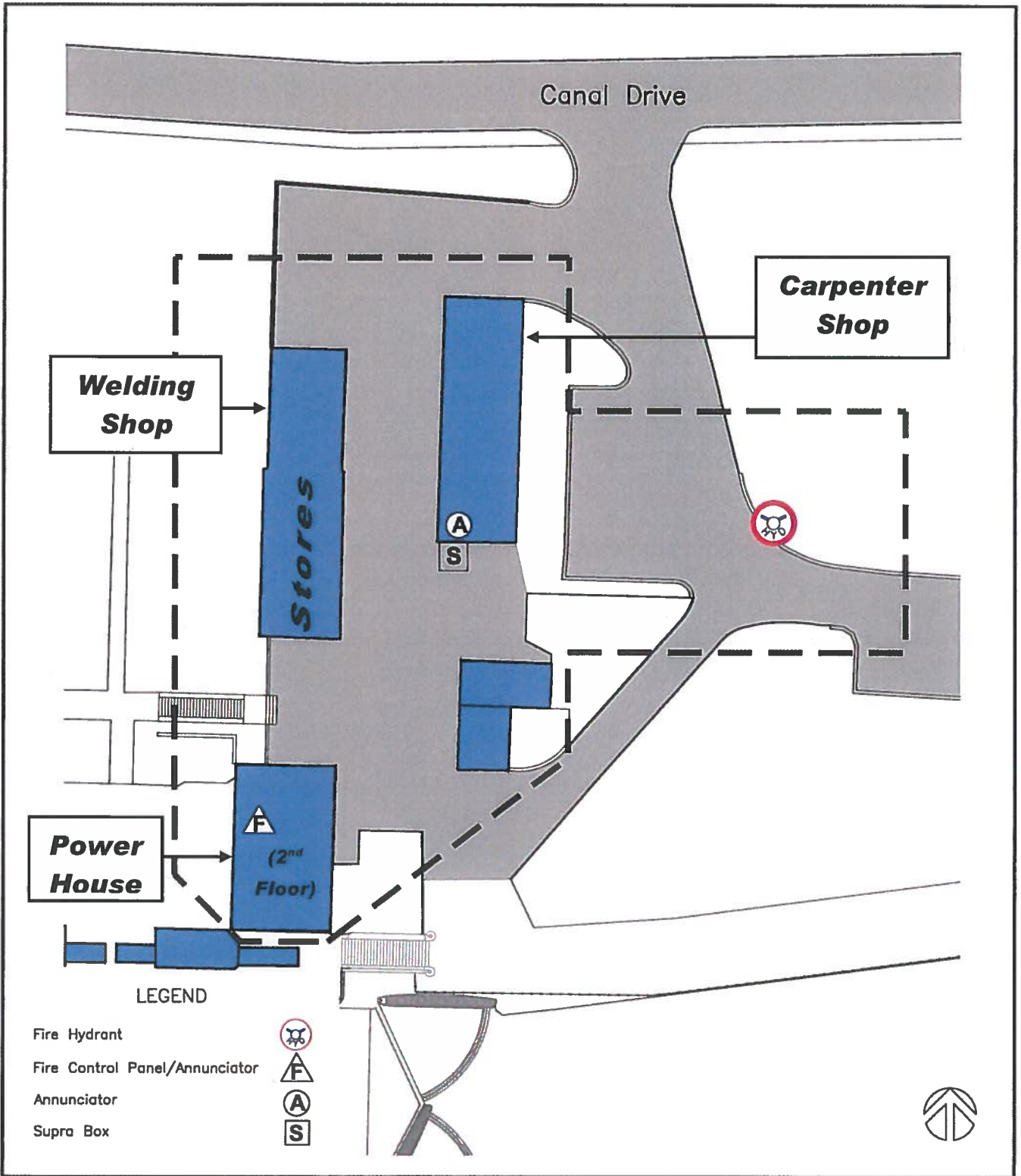
Hazard Potentials

Hazard	Description
Exposure (cold)	<p>The site is located in a natural open area with little to no barriers to block wind and snow. During cold weather periods, high winds will generate high wind chill factors. These winds and wind chill will produce surface ice unexpectedly.</p> <p>These conditions increase probability that individuals working in the outdoors could be susceptible to cold weather injuries such as frost bite or exposure related health issues.</p> <p>High wind and snow conditions can also generate snow drifts which may cover or conceal trip or fall hazards.</p>
Exposure (heat)	<p>During summer months high humidity can increase probability of heat exposure related injury or ailment.</p> <p>Due to the lack of shade or direct or indirect shelter from sun and heat there is an increased risk to individuals working outdoors.</p> <p>Lack of readily available potable water on the site, and areas which provide little relief from summer heat and humidity increase the possibility to heat related health issues when working outdoors.</p>
Trip or fall	<p>Uneven terrain increases possibility of fall or trip related injuries.</p> <p>The presence of wood decking and ramps located within the worksite and along scaffolding set up on the interior and exterior of the work site are normally slippery or snow covered.</p>
Access	<p>The construction worksite(s) will have formal human access points, and the contractor will provide safe and regular access to the work site(s). This situation means that there is a possibility of injury to individuals on foot or in vehicles entering or leaving the worksite site.</p> <p>The road width will only allow one way traffic flow. Vehicles using the established or existing roadways should show caution when moving inside the site to ensure safe passage and movement within the site boundaries.</p> <p>The Parks Canada site has a lot of inherent public traffic and activity. This will need to be a consideration of all assessments and controls as developed by the contractor.</p> <p>The contractor shall maintain Project workplace barriers so long as the project is active and until Completion of the project is signed off.</p>
Fire or Open Flames	<p>The nature of the material used means that any open flame could potentially cause damage to buildings and structures. Care shall be taken to ensure sparks or open flames are kept at a safe distance from material which could cause a fire.</p>
Fire Hydrants	<p>Water supply/hydrants for the purpose of fire fighting are located throughout the site. They are identified as regular fire hydrants, and during the winter they may be equipped with metal flags to identify their location and to prevent them from being buried in snow.</p> <p>The hydrants should be kept clear and should be avoided to reduce the possibility of damage which could affect the ability for the fire department to access an adequate supply of water.</p>


Parks Canada
 Sault Ste. Marie Canal National Historic Sites of Canada
 Stores Building Foundation Stabilization Project 2014

Public access	During the site operating season the site is visited by large numbers of the public. This condition could create a potential for incident or injury. During this visiting period caution should be used as the site contains numerous blind spots and hidden areas where public could emerge unexpectedly into the path of a vehicle or equipment.
Explosives	The national historic site prohibits the use of explosives. Authority for storage and or use of any explosives must be documents and approved in advance of any such activities.
Excavations and River Water Level Elevation Above Work Site Level Elevation	While working in situations of below grade excavations, the work site is below the surrounding river water levels. In this state, the work area may be deemed as a confined workspace. Also air stratification factors may be required to be monitored. Care must be taken to ensure appropriate systems are implemented to protect all workers at this location.
Hazard Potentials	See the section on Potential Hazards Identification. The contractor will need to assess these examples and identify their own concerns accordingly. As such, the contractor will ensure the Site Specific Health and Safety Plan will also reflect and address these identified issues.
Hazardous Material	Parks Canada at the Sault Ste. Marie Canal, has supplied information to the best of our knowledge to aid the contractor in the development of their required Site Specific Health and Safety Plan. Please refer to this information as required.
Site Specific Hazard Assessment	The contents as provided by Parks Canada Agency cannot be used as a complete and comprehensive list by the contractor. The contractor shall apply applicable Health and Safety legislation as necessary as part of their work, including monitoring and reporting.

Fire Zone 2, Powerhouse Complex



FILE NAME: Fire Plan.dwg

 <p>Public Works and Government Services Canada Travaux publics et Services gouvernementaux Canada</p> <p>Client Service Team for Parks Canada Ontario Region Équipe des services à la clientèle pour Parcs Canada Région de l'Ontario</p> <p>Canada</p>	<p>Title/Titre Fire Zone 2, Powerhouse Complex</p>		<p>Scale/Échelle 1 : 500</p>
	<p>Project/Projet Sault Ste. Marie Canal National Historic Site of Canada</p>		<p>Project No/No De Projet 306155</p>
	<p>Drawn By/Tracé Par D. Ryan</p>	<p>Date/Date 17.12.04</p>	<p>Dwg Ref No/No De Dessin COSSM 04/R56</p>
	<p>Designed By/à Dessain Ryan/Guzzo</p>	<p>Checked By/Vérifié Par B. Guzzo</p>	<p>Sheet No/No de Feuille 3</p>

Attestation and Proof of Compliance with Occupational Health and Safety (OHS)

Submission of this completed form, satisfactory to Parks Canada, is a condition of gaining access to the work place.

Instructions:

Prime contractor must sign this form for all projects undertaken at Parks Canada work places.

This form is to be administered by the Project Manager and completed by the Prime Contractor **AFTER** contract award.

Parks Canada recognizes that federal OHS legislation places certain specific responsibilities upon Parks Canada as owner of the work place. In order to meet those responsibilities, Parks Canada is implementing a contractor safety regime that will ensure that roles and responsibilities assigned under Part II of the *Canada Labour Code* and the *Canada Occupational Health and Safety Regulations* are implemented and observed when involving contractor(s) to undertake works in Parks Canada work places.

Project Title Stores Building Structural Stabilization 2014

Project Location Sault Ste. Marie Canal
National Historic Site of Canada
Parks Canada
1 Canal Drive
Sault Ste. Marie Ontario
P6A 6W4

Person / Role	Contact Information / Address	Phone / Email
Parks Canada Project Lead Barry Guzzo	Technical Services Coordinator Coordonnateur des services techniques Parks Canada Agency/Agence Parcs Canada Sault Ste. Marie Canal/Fort St. Joseph National Historic Sites of Canada LHNC du Canal-de-Sault Ste. Marie/Fort St. Joseph 1 Canal Dr/1 promenade du Canal Sault Ste. Marie ON P6A 6W4	705-941-6216 (tel) 705-206-4602 (cell) 705-941-6206 (fax) barry.guzzo@pc.gc.ca
Prime Contractor		
Subcontractor(1)		

Subcontractor(2)		
Subcontractor(3)		
Subcontractor(4) (add additional fields as required)		

General Description of Work to be Completed – (See attachment if applicable)

Mark "Yes" where applicable.

	A meeting has been held to discuss hazards and access to the work place and all known and foreseeable hazards have been identified to the contractor and/or subcontractor(s)
	The contractor and/or its subcontractor(s) will comply with all federal and provincial/territorial legislation and Parks Canada's policies and procedures, regarding occupational health and safety.
	The contractor and/or its subcontractor(s) will provide all prescribed safety materials, equipment, devices and clothing.
	The contractor and/or its subcontractor(s) will ensure that its employees are familiar with and use all prescribed safety materials, equipment, devices and clothing at all times.
	The contractor and/or its subcontractor(s) will ensure that its activities do not endanger the health and safety of Parks Canada employees.
	The contractor and/or its subcontractor(s) has inspected the site and has carried out a hazard assessment and has put in place a health and safety plan and informed its employees accordingly, prior to the commencement of the work.
	Where a contractor and/or its subcontractor(s) will be storing, handling or using hazardous substances in the work place, it will place warning signs at access points warning persons of the presence of the substances and any precautions to be taken to prevent or reduce any hazard of injury or death.
	The contractor and/or its subcontractor(s) will ensure that its employees are instructed in respect of any emergency procedures applicable to the site.

I, _____ (contractor), certify that I have read, understood and attest that my firm, employees and all sub-contractors will comply with the requirements set out in this document and the terms and conditions of the contract.

President – General Contractor

Name (Print) _____ Signature _____ Date / /
DD / MM / Year

I, _____ (sub contractor), certify that I have read, understood and attest that my firm, employees will comply with the requirements set out in this document as per the terms and conditions of the contract and submit all requirements as per the requirements of the contract and the general contractor's Health and Safety Plan requirements.

President – Sub Contractor (1)

Name (Print) _____ Signature _____ Date / /
DD / MM / Year

I, _____ (sub contractor), certify that I have read, understood and attest that my firm, employees will comply with the requirements set out in this document as per the terms and conditions of the contract and submit all requirements as per the requirements of the contract and the general contractor's Health and Safety Plan requirements.

President – Sub Contractor (2)

Name (Print) _____ Signature _____ Date / /
DD / MM / Year

