Fisheries and Oceans Canada | Pêches et Océans Canada

Canadian Coast Guard | Garde côtière canadienne

SOW – MARINE RAILWAY REPAIRS

CCG BASE KENORA

KENORA, ON

MARITIME AND CIVIL INFRASTRUCTURE
Prepared by: DJ
Approved by: BY
Revision: 0
File: xxxxx
Rev Date: 16 AUG 16

TABLE OF CONTENTS

SECTION: 011100 GENERAL INSTRUCTIONS

PART 1 - GENERAL

1.1 Minimum Standards

.1 Perform work in accordance with National Building Code of Canada (NBC) and any other code of provincial or local application. In the case of any conflict or discrepancy, the more stringent requirements shall apply.

.1 Meet or exceed requirements of:

.1 Contract documents;

.2 Specified standards, codes and referenced documents.

1.2 Description of Work

.1 Work under this Contract includes but is not limited to the provision of all labour, materials, and equipment required to:

.1 Mobilize to site with a plant of suitable size and certification;

.2 Place and grade clear stone ballast to support end of track;

.3 Adjust horizontal alignment to ensure uniform offset between east and west rail;

.4 Remove existing tie rods (four (4) locations) and install new rods connecting east and west rails (13 locations);

.5 Supply and install new tie plates (approximately 150) and secure with lags;

.6 Tighten all remaining loose fasteners (spikes/lags);

.7 Grade existing ballast as necessary to ensure trolley clearance is maintained and rails are free of obstruction;

.8 Complete post construction underwater inspection and provide photos and video of completed works; and,

.9 Demobilize.

1.3 Submittals

.1 Mandatory submittals and schedule for submission are detailed below and in Appendix B2. The following identifies general requirements only. The relevant sections must be consulted for a complete listing of mandatory content.

.2 Detailed Schedule:

.1 Deadline:

.1 No later than ten (10) working days following award.

.2 Deliverables:

.1 The contractor shall furnish a high level schedule outlining the major construction milestones. Schedule shall clearly define the anticipated start and finish of the project.

.3 Proof of Qualifications:

.1 Deadline:

.1 No later than ten [10] working days following award.

.2 Deliverables:

.1 Contractor shall furnish proof of vessel registration.

.2 Contractor shall furnish listing of all subcontractors.

.4 Construction Plan:

.1 Deadline:

.1 No less than ten [10] working days prior to mobilization.

.2 Deliverables:

.1 A Construction Plan of sufficient detail to demonstrate that the Contractor has considered all the challenges of the project and is prepared to undertake the works in a competent and professional manner in accordance with all legislation, including:

.1 Project specific safety program (Section 013530);

.2 Project environmental protection plan (Section 013543);

.3 Detailed underwater installation plan (Section 0350000);

1.4 Contractor Qualifications

.1 The work shall be carried out under the supervision and responsibility of a sole specialized Contractor

.2 The Contractor shall designate a project manager or main point of contact for the contract.

.3 The Contractor shall provide a detailed list of all subcontractors being used to complete the work described herein.

1.5 Site Location

.1 The location of the site is as follows:

.1 CCG Base – Kenora, 1100 Third Ave. South, Kenora, Ontario P9N 4H4.

.2 Facility is located within Kenora, Ontario.

1.6 Existing Conditions

.1 Bidders must make their own estimate of the difficulties associated with all phases of the works.

.2 The contractor must include in their costs all expenses related to the difficulties of working at the sites.

.3 Photographs of the existing site are included in Appendix B1.

.4 A copy of the recent underwater inspection (Dominion Divers, Winnipeg, MB, June 2016) is included in Appendix B5

.5 Bidders to note that existing railway timber sleepers transition from transverse to longitudinal at approximately a distance of 8.0m from the shore line.

1.7 Contractor's Access to Site

.1 Contractor is responsible for transportation of all labour, materials, and equipment to and from the sites, including any and all material furnished or itemized for salvage by Coast Guard.

.2 CCG Base Kenora is accessible by road; however, marine access is anticipated to complete the necessary works on the railway facility which extends approximately 36m (110 ft offshore)..

.3 The Contractor is responsible for sourcing appropriate marine access to support all construction work. Contractors are also responsible for ensuring that all the requirements of Appendix B4 – Marine Access Requirements are met.

.1 Contractor shall provide proof of vessel registration in the 'proof of qualifications' submittal.

1.8 Completion, Scheduling and Planning of the Works

.1 Work may commence as early as practical following coast guards acceptance and approval of mandatory submissions.

.2 Site work shall not commence without written authorization of Coast Guard Project Authority.

.1 Advise Project Authority at least two (2) weeks in advance of proposed installation date

.3 Work shall be completed no later than 31 OCT 16 unless otherwise negotiated and approved in writing.

1.9 Coast Guard Staging Location

.1 The delivery and storage of materials at CCG Base Kenora will be subject to ongoing operations and the approval of the local CCG contact identified by the Project Authority.

.2 The Contractor is responsible for all transportation costs between the project site and the identified staging location. Material drop off or access to stored goods outside of regular operating hours shall be at the discretion of Coast Guard.

.1 Staging location: CCG Base – Kenora, 1100 Third Ave. South, Kenora, Ontario P9N 4H4.

.2 Contractor to advise local Coast Guard representative at least three (3) working days prior to pick-up/delivery

.1 Shipping/Receiving hours: Monday through Friday, 9:00AM to 3:00PM.

1.10 Temporary Facilities

.1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.

.2 Arrange, pay for, and maintain temporary electrical power supply as required for construction, and water supply as required, in accordance with governing regulations and ordinances.

.3 Maintain emergency spills kit on-site at all times.

1.11 Fees, Permits, Certificates and Information

.1 Contractor shall provide authorities having jurisdiction with all information requested.

.1 Contractor shall provide copies to Coast Guard of any documentation submitted to other authorities related to the work described in this document.

.2 Contractor shall pay fees and obtain certificates and permits required.

.3 Contractor shall furnish certificates and permits when requested.

1.12 Reference Documents

.1 The most recent publication or edition of any document referenced in this specification should be used unless the referencing clause states that this clause does not apply.

1.13 Required Submissions

.1 A summary of the minimum mandatory submissions required can be found in Appendix B2. This summary is not an exhaustive list of all submissions required for the duration of the project. Additional submissions may be required after award.

PART 2 - PRODUCTS

2.1 Not Used

PART 3 - EXECUTION

3.2 Not Used

SECTION: 013300 SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 General

.1 This section specifies general requirements and procedures for the Contractor's submissions of documents to Coast Guard for review.

.2 Do not proceed with the work until submitted documents or samples have been reviewed by Coast Guard.

.3 Where items or information is not produced in SI Metric units, converted values are acceptable.

.4 Contractor's responsibility for errors and omissions in submission is not relieved by Coast Guard's review of the submitted documents.

.5 Notify Coast Guard, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.

.6 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Coast Guard's review of submission, unless Coast Guard gives written acceptance of specific deviations.

.7 Make any changes to submissions that Coast Guard may require consistent with Contract Documents and resubmit as directed by Coast Guard.

.8 Provide Coast Guard with a written notice, when resubmitting, of any revisions other than those requested Coast Guard.

1.2 Submission Requirements

.1 Coordinate each submission with requirements of work and Contract Documents. Individual submissions will not be reviewed until all related information is available.

.2 Allow three (3) working days, or as stipulated in the specifications, for Coast Guard to review the submission.

SECTION: 013530 HEALTH AND SAFETY REQUIREMENTS

PART 1 - GENERAL

1.1 Scope

.1 The Contractor shall be responsible to develop, implement and enforce a safety program which addresses all elements of the work.

.1 Due to the specific requirements of the project the Contractor is required to include the following as minimum mandatory requirements of their submitted safety program.

.1 Diving and underwater operations

1.3 References

.1 Work under this section shall be undertaken in strict conformance with all listed references, In the case of any conflict or discrepancy the more stringent requirements shall apply.

.1 Canada Labour Code Part II

.2 NRC-CNRC National Building Code of Canada

.3 Ontario Occupational Health and Safety Act and Regulations

.4 Any and all other Provincial/Territorial Regulations and Policies; Worker's Compensation Board Policies; Local municipal regulations; pertaining to safety of the contractors workers

1.4 Submittals

.1 Project Specific Safety Program

.1 Deadline:

.1 With Construction Plan

.2 Deliverables:

.1 Safety Program Document, include:

.1 A listing of all activities specific to this phase of the project and their Health & Safety risks or hazards.

.2 Detailed descriptions of how the activities are to be carried out as well as methods for mitigating hazards and risks.

.3 A listing of personnel responsible for health and safety measures, and Emergency procedures.

.4 Material Safety Data Sheets for hazardous products to be utilized in the execution of the works.

SECTION: 013543 ENVIRONMENTAL PROCEDURES

PART 1 - GENERAL

1.1 Scope of Work

.1 The Contractor must implement and enforce the following procedures throughout the duration of the work to mitigate potential negative impacts on the surrounding environment.

1.5 References

.1 Work under this section shall be undertaken in strict conformance with all listed references, In the case of any conflict or discrepancy the more stringent requirements shall apply.

.1 Canadian Environmental Protection Act

1.6 Related Sections

.1 Not used.

1.7 Submittals

.1 Contractor shall submit and environmental protection plan

.1 Deadline:

.1 With Construction Plan

.2 Deliverables:

.1 Submit a plan addressing procedures to be implemented to mitigate any negative impact on the environment. Detail:

.1 Equipment features (age, spill containment);

.2 Staging, refueling, and cleaning areas;

.3 Clean-up and/or containment procedures (including concrete/grout);

.4 Waste disposal methods and sites;

.5 Sedimentation control measures.

PART 2 - PRODUCTS

2.1 General

.1 Avoid use of hazardous products. Use environmentally friendly products where practical.

PART 3 - EXECUTION

3.1 Construction Area

.1 Confine construction activities to as small an area as practical.

.2 Establish material storage, cleaning, and refueling areas where impacts to the surrounding environment will be negligible or readily mitigated.

3.2 Stockpiling of materials

.1 Materials must be stockpiled as far from the shoreline as practical. Tarps must be used to control dust and run-off.

.2 Stockpiled excavated materials shall be skirted using filter fabric to control run-off of fines during rain.

3.3 Disposal of Wastes

.1 Clean-up the site at the end of each working day.

.2 All waste material to be disposed of in a legal manner at a site approved by local authorities. Transporter/hauler must be appropriately licensed.

.1 Recycle or reuse materials where possible.

.3 Fires and burning of rubbish on site not permitted.

.4 Do not bury rubbish and waste materials on site.

3.4 Clearing and Grubbing

.1 Only clear vegetation that interferes with construction.

3.5 Drainage

.1 Provide temporary drainage and pumping as necessary to keep excavations and site free from water.

.1 Suspend works during periods of heavy rainfall and add temporary covers to discourage run-off.

.2 Water pumped from excavation shall be adequately treated to ensure that water returning to the watercourse contains minimal fines. Procedures anticipated for preventing the pumping of fines shall be identified in the environmental protection plan, and may include the following:

.1 The use of filter bags;

.2 Straw bale check dams or silt fence;

.3 Discharge through naturally occurring vegetation.

.3 The means for controlling silt run-off shall be dependent on the site and the quantity of water pumped, and shall be to the discretion of the CCG site staff.

.4 Sediment control measures shall be inspected and improved/cleaned/replaced as necessary.

3.6 Pollution Control

.1 Provide methods, means, and facilities to prevent the contamination of soil, water, and atmosphere from the discharge of pollutants produced by construction operations.

.2 Vehicles, machinery, and equipment shall be in good repair, equipped with emission controls as applicable and operated within regulatory requirements.

.3 Abide by local noise by-laws.

.4 Avoid unnecessary idling of vehicles or heavy machinery.

.5 Limit use of equipment around the shoreline where possible.

.6 Implement and maintain dust and particulate control measures in accordance with provincial requirements:

.1 All bulk material haul equipment shall be appropriately tarped. Watertight vehicles shall be used to haul wet materials

.7 Designate a cleaning area for tools to limit water use and runoff. Do not allow deleterious materials to enter waterways. Ensure emptied containers are sealed and stored safely for disposal.

.8 The contractor shall take all necessary precautions to guard against the release of any noxious substance or pollutant to the environment. In the event of any spill the Contractor shall take immediate action to contain the release and mitigate any impact.

.1 Materials and equipment to intercept contain, and clean-up any spill or other release shall be maintained on site throughout the construction period and must be readily accessible at all times.

.2 Any uncontrolled release of a known contaminant (spills, fire/smoke) shall be reported to appropriate Provincial Authority and Coast Guard. Spills of deleterious substances to be immediately contained and cleaned up in accordance with provincial regulatory requirements.

.3 Provincial Authority: Ontario Spills Action Centre 1-800-268-6060

3.7 Traffic

.1 Minimize soil compaction by driving, parking vehicles, and walking, etc. on existing paved roadways/laneways. If soil is impacted by compaction, compensate by restoring areas with new soil, as required.

SECTION: 014500 QUALITY CONTROL

PART 1 - GENERAL

1.1 Inspection

.1 Canadian Coast Guard or its representative shall have access to the work at all times. If parts of the work are prepared off-site or in a shop, access shall be given to such work throughout the duration of the project.

.2 In the event the work must be submitted to special testing, inspection or approvals prescribed by Canadian Coast Guard in these specifications or provided for in work-site regulations, the request for inspection must be made without unreasonable delay.

1.2 Procedures

.1 Provide Canadian Coast Guard with advance notice whenever testing is required in accordance with these specifications, so that all parties involved can be present.

.2 Provide necessary manpower and installations for obtaining and handling samples and material on site.

.3 Provide access to site if the site is of remote nature whereby the contractor is responsible for providing access to the site

1.3 Rejected Work

.1 Remove defective work, whether incorporated into the work or not, which has been rejected by Canadian Coast Guard as failing to comply with the contract documents. Replace or re-execute in accordance with the Contract Documents.

1.4 Tests and Mixture Formulas

.1 Supply test reports and required mixture formulas.

1.5 Factory Tests

.1 Submit test certificates as prescribed in the relevant section of the specifications.

1.6 Acceptance of Work

.1 Canadian Coast Guard will make acceptance visits of work executed by the Contractor at critical milestones identified in the following sections.

.2 The Contractor shall inform Canadian Coast Guard at least three (3) working days before these inspection visits.

.3 All work shall be completed in compliance with the specifications before requesting the visit for inspection. If the work is not completed or deemed non-compliant, the Contractor shall be responsible for all costs incurred for subsequent inspections.

SECTION: 016100 COMMON PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 General

.1 Secure Coast Guard approval of all products to be incorporated into the works. Work shall not commence until product data and/or samples have received Coast Guard approval.

.2 Supply and/or fabricate material and equipment of prescribed quality, with performance conforming to established standards.

.3 Use new material and equipment unless otherwise specified.

.4 Ensure replacements parts may be readily procured.

.5 Use products from one manufacturer for material and equipment of same type or classification, unless otherwise specified.

1.2 Manufacturer's Instructions

.1 Unless otherwise specified, comply with manufacturer's latest printed instructions for materials and installation methods.

.2 Notify Canadian Coast Guard in writing of any conflict between these specifications and manufacturer's instructions; Canadian Coast Guard will designate which document is to be followed.

1.3 Compliance

.1 When material or equipment is specified by standard or performance specifications, upon request of Canadian Coast Guard, obtain an independent testing laboratory report from the manufacturer, stating that material or equipment meets or exceeds specified requirements.

1.4 Substitution

.1 Where specific products have been specified, proposals for substitution may only be submitted after award of contract. Such requests must include statements of respective costs of items originally specified and the proposed substitution.

.2 No substitutions will be permitted without prior written approval of Canadian Coast Guard. Substitutions will be considered by Canadian Coast Guard only when:

.1 Materials specified in Contract Documents, are not available; or,

.2 Delivery date of materials selected from those materials specified would unduly delay completion of contract; or,

.3 Alternative materials to those specified which are brought to the attention of and considered by Canadian Coast Guard as equivalent to the material specified will result in a credit to the Contract amount.

.3 Should the proposed substitution be accepted either in whole or in part, the Contractor must assume full responsibility and costs when such substitution affects other work on the project including any and all design or drawing changes required as a result of substitution.

1.5 Submittals

.1 Provide product specifications and/or samples upon request from Coast Guard.

SECTION: 024116 DEMOLITION OF STRUCTURES

PART 1 - GENERAL

1.1 Scope of Work

.1 Work under this section consists of the provision of all labour, materials, and equipment necessary to complete the removal of existing materials as necessary.

1.2 References

.1 Work under this section shall be undertaken in strict conformance with all listed references, In the case of any conflict or discrepancy the more stringent requirements shall apply.

.1 Canada Labour Code Part II - January 2008.

.2 NRC-CNRC National Building Code of Canada.

.3 Ontario Occupational Health and Safety Act and Regulations.

.4 CSA S350-[M1980(R1998)], Code of Practice for Safety in Demolition of Structures.

1.3 Existing Conditions

.1 Existing conditions are as detailed in recent underwater inspection Dominion Divers, Winnipeg, MB, June 2016, Appendix B5

PART 2 - PRODUCTS

1.1 Not used.

PART 3 - EXECUTION

1.1 Preparation

.1 Erect warning signs and barricades.

.2 Ensure all environmental protection/mitigation measures are in place.

3.4 Demolition

.1 Salvage the existing tower complete with all lighting equipment and related appurtenances,

.2 Ensure that demolition does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution.

3.5 Disposal

.1 All material is to be disposed of off-site and a licensed disposal/recycling facility.

SECTION: 350000 MARINE RAILWAY

PART 1 - GENERAL

1.1 Scope of Work

.1 Work under this Contract includes but is not limited to the provision of all labour, materials, and equipment required to:

.1 Place and grade clear stone ballast to support end of track;

.2 Adjust horizontal alignment to ensure uniform offset between east and west rail;

.3 Remove existing tie rods (four (4) locations) and install new rods connecting east and west rails (13 locations);

.4 Supply and install new tie plates (approximately 150) and secure with lags;

.5 Tighten all remaining loose fasteners (spikes/lags);

.6 Grade existing ballast as necessary to ensure trolley clearance is maintained and rails are free of obstruction;

.7 Complete post construction underwater inspection and provide photos and video of completed works; and,

.8 Demobilize.

.2 Work is to be completed underwater by qualified diver(s).

1.2 References

.1 Work under this section shall be undertaken in strict conformance with all listed references, In the case of any conflict or discrepancy the more stringent requirements shall apply.

.1 Canada Labour Code Part II - January 2008

.2 NRC-CNRC National Building Code of Canada 2010

.3 Ontario Occupational Health and Safety Act and Regulations

1.3 Submittals

.1 Submittals shall be forwarded to Coast Guard in accordance with the provisions of section 013530.

.2 Underwater installation plan:

.1 Deadline:

.1 Furnish with Construction Plan (Section 011100)

.2 Deliverables:

.1 Description of methods and equipment employed to:

.1 Place and grade stone ballast at the terminus of the rail system;

.2 Adjust horizontal alignment to stipulated tolerance;

.3 Install new tie rods and plates; and,

.4 Address existing grading deficiencies.

.3 As constructed inspection:

.1 Deadline:

.1 21 Calendar days following the completion of field work.

.2 Deliverables:

.1 Drawing indicating the location of all corrected deficiencies;

.2 Survey of repaired horizontal position;

.3 Photos of executed repairs; and,

.4 Video of repaired marine rail system.

1.4 Quality Assurance

.1 Coast Guards minimum inspection requirements are detailed below. The Contractor shall be responsible to notify Coast Guard of the date and time that the works may be inspected. Notice must be provided no less than three (3) working days in advance to permit scheduling of quality assurance testing. All deficiencies in the works identified at the time of inspection shall be remedied to the satisfaction of Coast Guard, by the Contractor at their expense. Work shall not progress until inspections have been completed and the Contractor has been provided with written notice to proceed with the works.

.1 Grading and backfill placement.

.2 Installation of new tie assemblies.

PART 2 - PRODUCTS

2.1 Granular Ballast

.1 25mm (1”) crushed clear stone ballast.

2.2 Consumables (fasteners, hardware, plates, rods)

.1 Material requirements are as indicated in Contract Drawings, Appendix B3

.2 Contractor shall provide a spare quantity of all consumables to Coast Guard to affect future repairs if necessary. Quantity of spares shall be 10%.

PART 3 - EXECUTION

3.1 Installation

.1 Installation shall be carried out as per the installation directions on the Contract Drawings.

.2 Additional ballast is to be added offshore to support the lower end of the railway.

.3 Existing ballast, near shore, is to be removed to an elevation below the existing rails. Ballast may be relocated to the side of the railway.

.4 Horizontal position of the rails is to be adjusted to offset distance stipulated in the Contract Drawings.

.5 Spacer rods are to be installed to secure alignment

.6 New tie down plates are to be installed as indicated.

.7 Tighten all existing fasteners as appropriate ensuring that adjusted alignment is maintained and elements are not over stressed.

.8 Ensure sufficient clearance is maintained for the carriage assembly.

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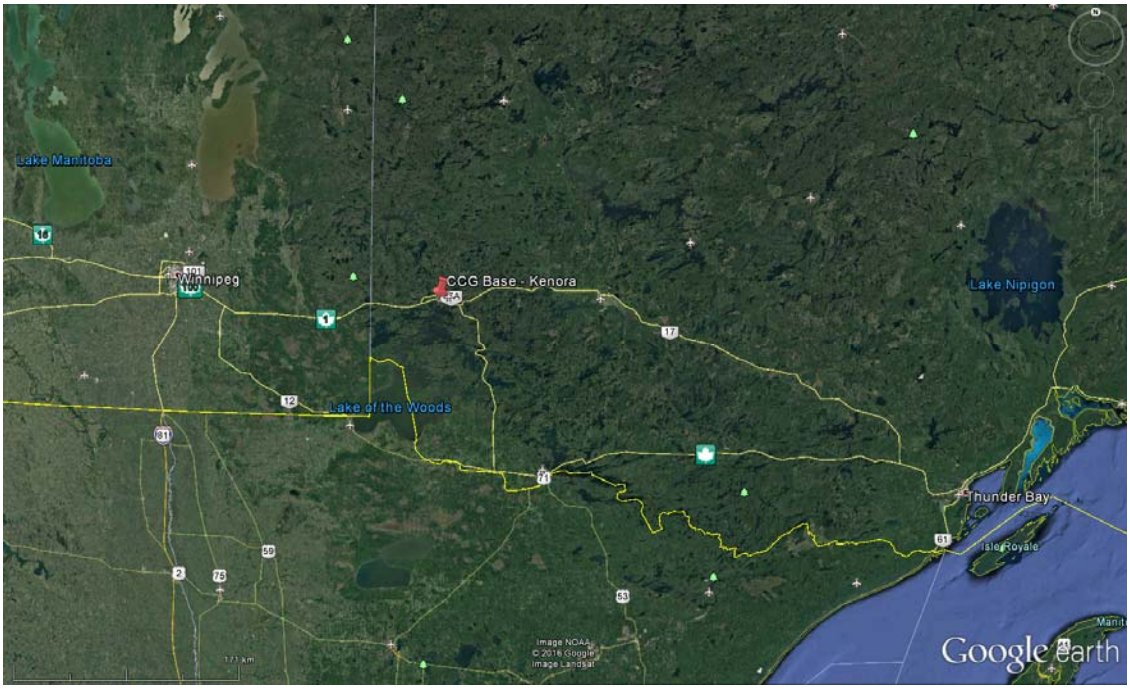
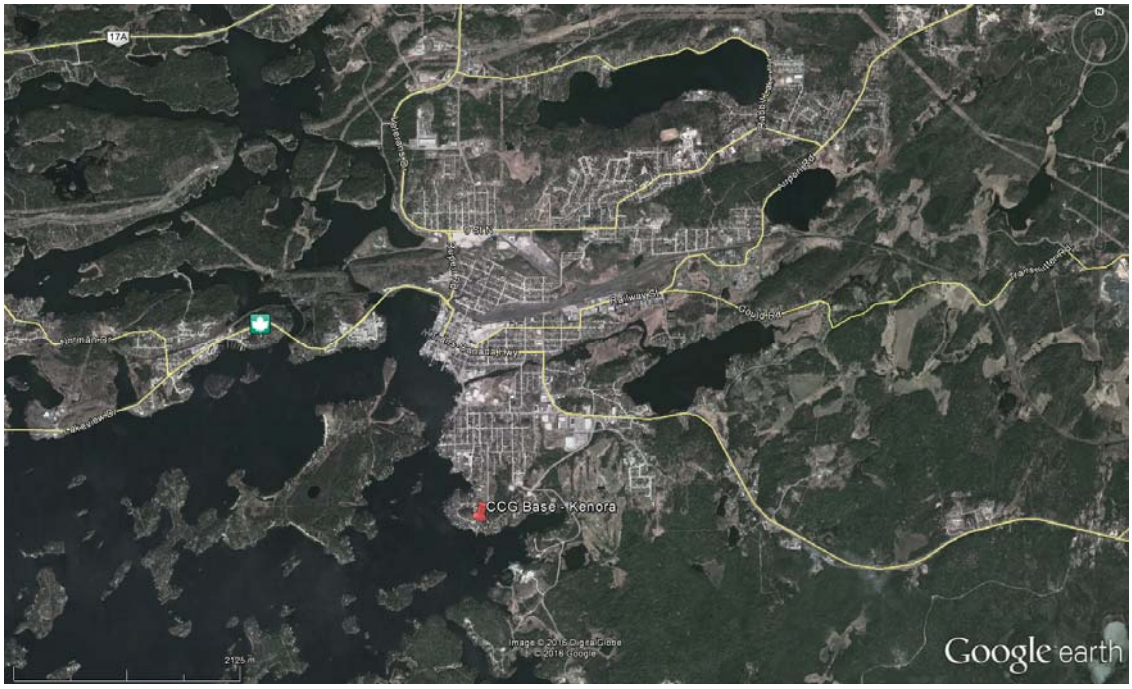
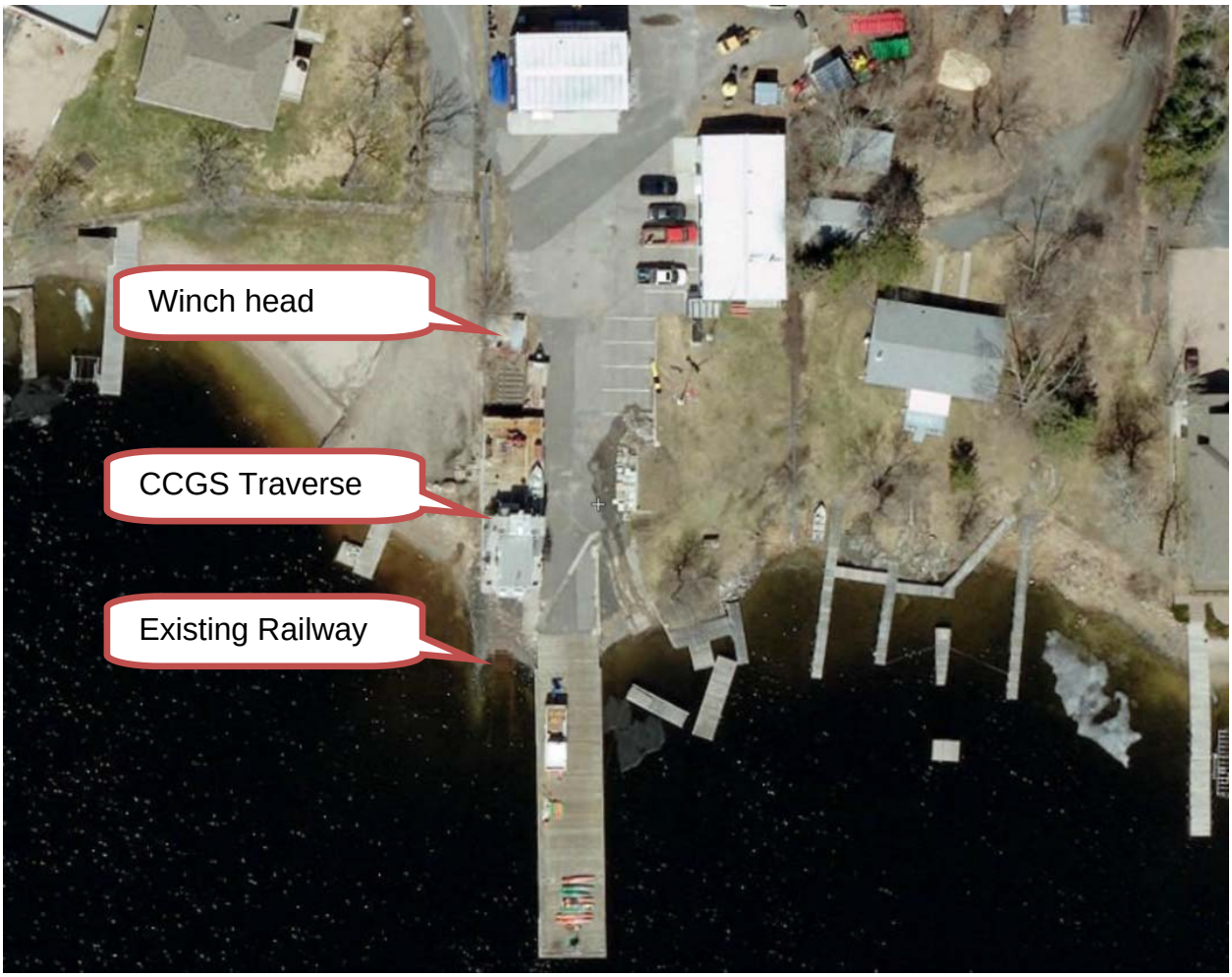
APPENDIX B1: SITE LOCATION AND PHOTOGRAPHS



Project location, CCG Base – Kenora



Site Location: CCG Base – Kenora, 1100 Third Ave. South, Kenora, Ontario.

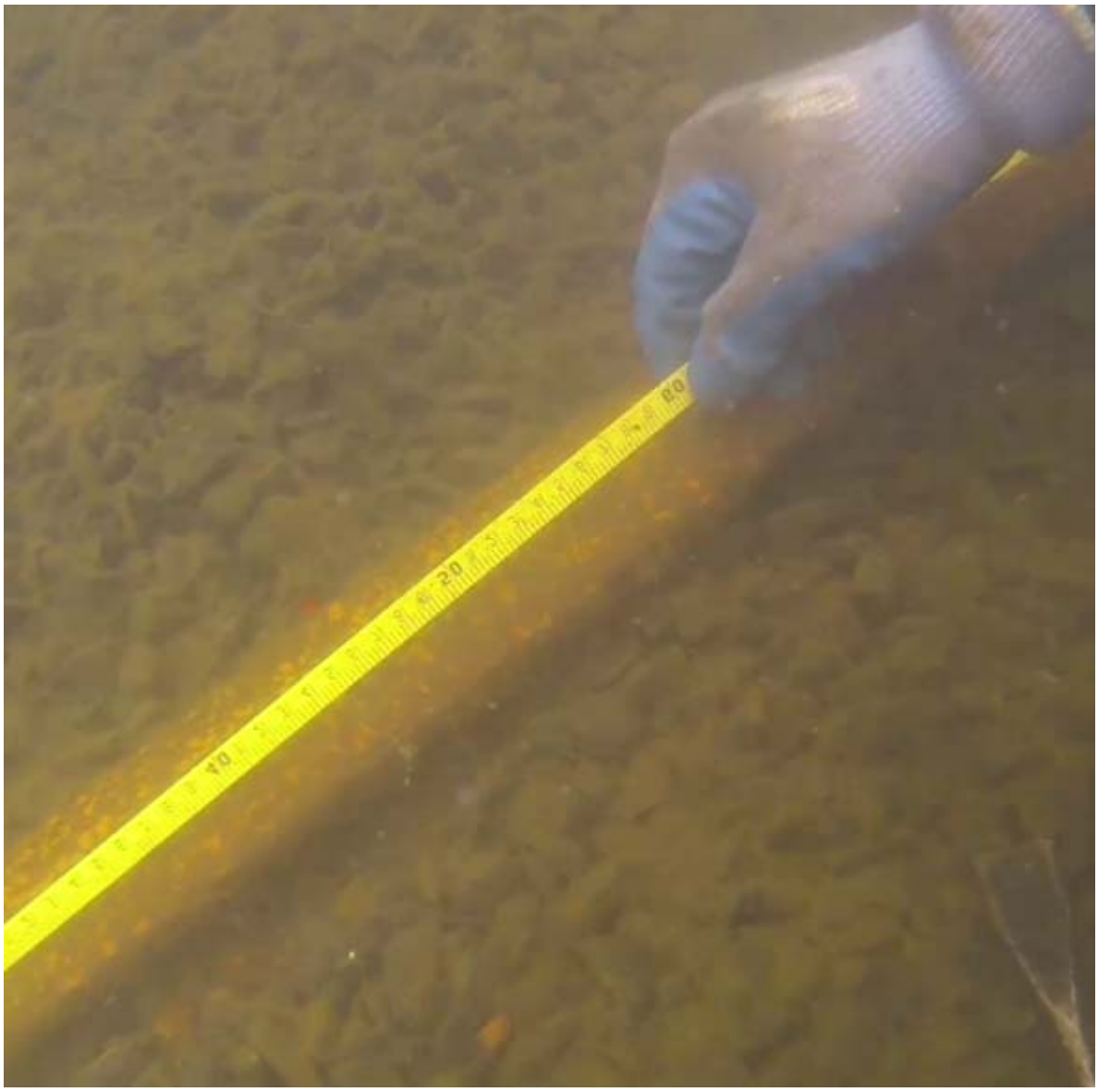


Existing facilities

Existing carriage rails, sleepers, and ballast

Existing Railway, view to south

Existing Railway, view to north



Existing ballast, near shore

Ballast to be removed to sleeper elevation

Damaged connecting rod

Existing connecting rod

Note longitudinal orientation of existing timber sleeper

Existing Tie plates, typical, sleeper dimension/orientation varies

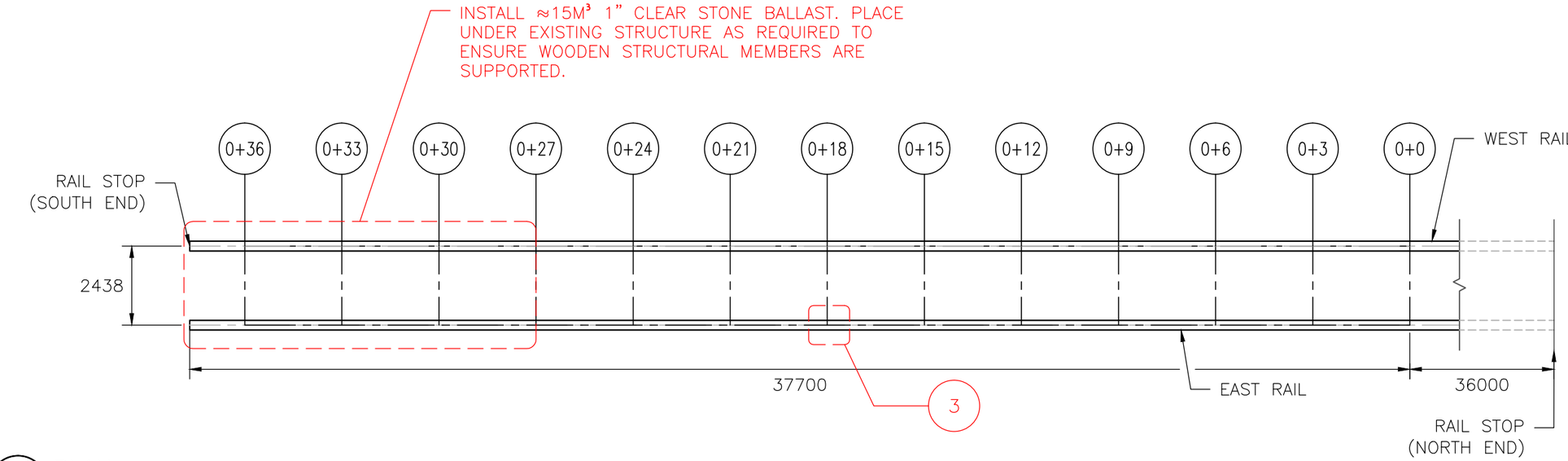
Unsupported sleeper, toward rail termination

APPENDIX B2 – SUMMARY OF SUBMITTALS

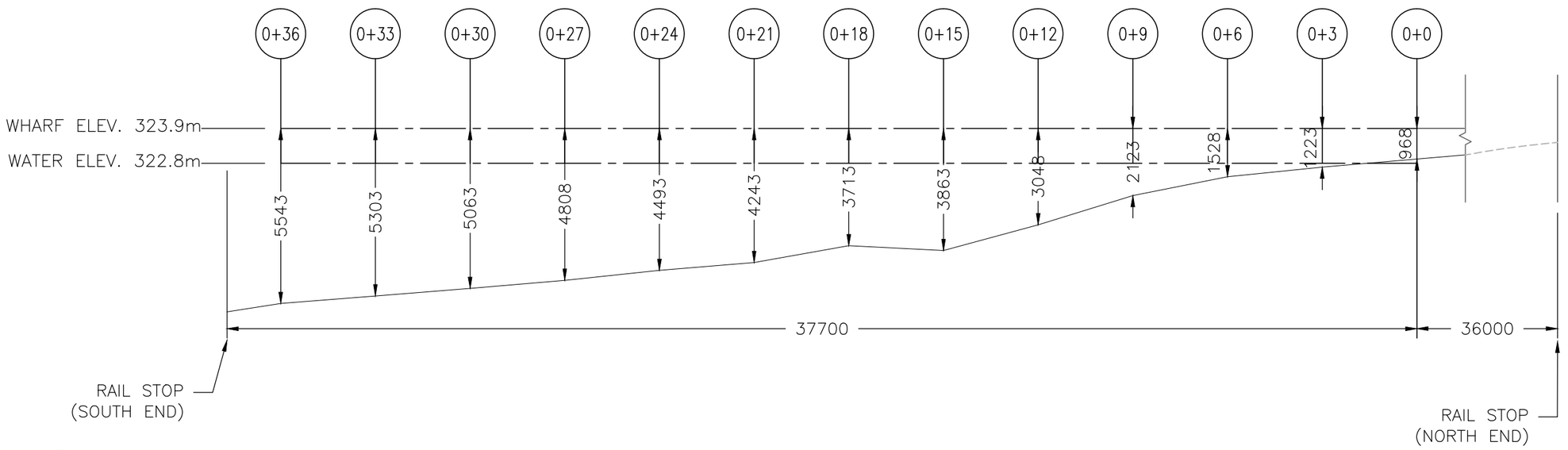
Following Contract Award	
Submission Description	***Section(s)***
Deadline: 10 working days following award	
Detailed schedule:	
Proof of qualifications:	*011100*
a) Proof of Vessel Registration	*011100*
b) Listing of all Subcontractors	
Deadline: 10 working days prior to mobilization	
Construction Plan	
a) Project specific safety plan	*011100*
b) Project environmental protection program	*011100*
c) Detailed demolition plan	*024116*
d) Underwater installation plan	*350000*
Deadline: 21 calendar days following acceptance of the works	
Waste disposal receipts (if requested)	*024116*
As-built drawings	*350000*

APPENDIX B3

CONTRACT DRAWINGS



1 PLAN
NTS



2 ELEVATION (WEST RAIL)
NTS

No	Revisions	Date
1	ISSUED FOR TENDER	2016/08/15
0	ISSUED FOR REVIEW	2016/08/15

Orientation

NORTH

Seal

The Contractor shall check and verify all dimensions and report all errors and omissions to the Engineer (as applicable) for his/her written direction before proceeding with the Work.

A/B A Detail No
B Sheet No where detailed

LBE group inc.

Client
DEPARTMENT OF FISHERIES & OCEANS

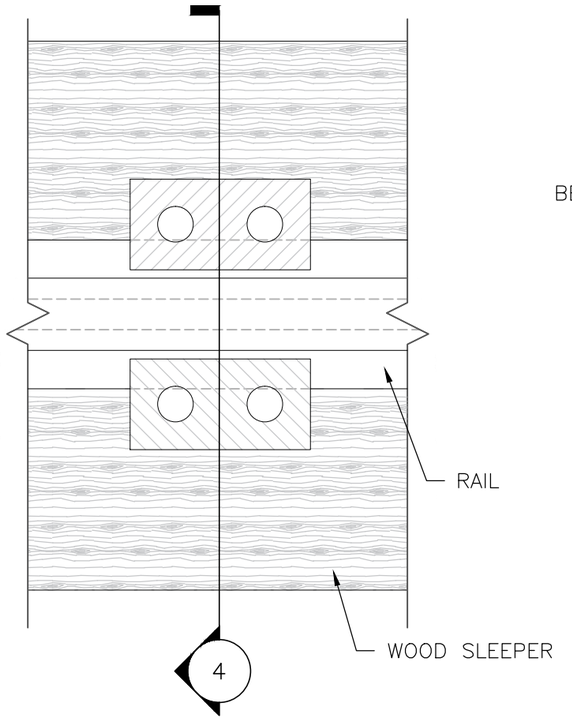
Project
CANADIAN COAST GUARD KENORA
MARINE RAILWAY SYSTEM REPAIRS

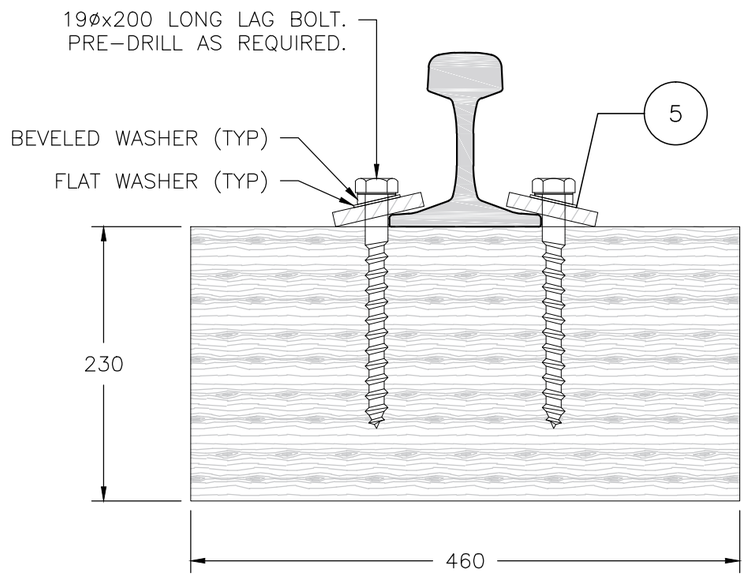
Location
KENORA, ONTARIO

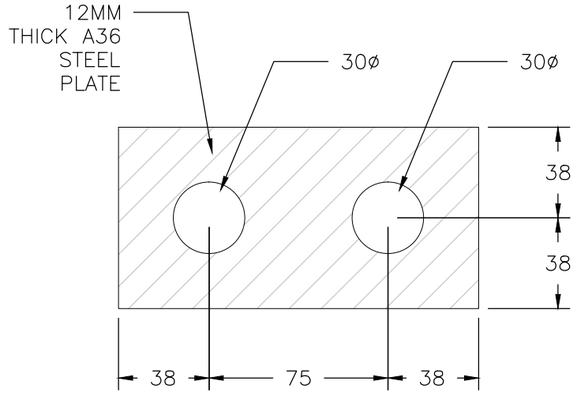
Drawing Title
PLAN AND ELEVATION

Scale: NTS	Date: 2016/08/15
Drawn by: LN	Dwg No.: 16-073-001 Rev.: 1
Designed by: AB	
Approved by:	1 of 2

279mm x 432mm



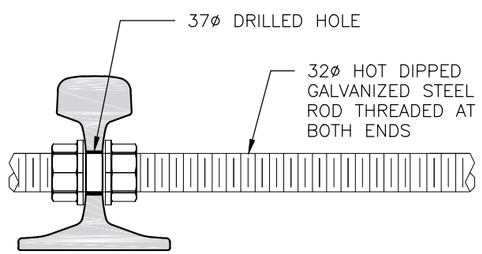




3 DETAIL (TYP)
NTS

4 SECTION
NTS

5 DETAIL – TIE DOWN PLATE
NTS



6 SPACER ROD DETAIL (TYP)
NTS

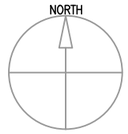
REPAIRS
1. REALIGN RAILS BEFORE INSTALLING TIE DOWN PLATES.
2. ENSURE C/C SPACING OF RAILS.
3. RAIL C/C DISTANCE TO BE ADJUSTED TO 2438±10MM.
4. INSTALL 32ø SPACER ROD BETWEEN RAIL FLANGES EVERY 3000.
5. INSTALL TIE DOWN PLATES EVERY 1000 STARTING AT 0+8M THROUGH TO RAIL STOP (SOUTH END).
6. TIGHTEN ALL LOOSE FASTENERS.
7. HAMMER IN ALL LOOSE SPIKES.
8. RE-GRADE EXISTING BALLAST TO ENSURE SUFFICIENT CLEARANCE FOR RAIL CART.

GENERAL NOTES
1. DO NOT SCALE DRAWINGS.
2. ALL DIMENSIONS IN MM.
3. THE CONTRACTOR IS TO VERIFY DIMENSIONS, ELEVATIONS, SLOPES, DETAILS AND CONDITIONS.
4. THE CONTRACTOR IS TO OBTAIN AND PAY FOR ALL NECESSARY PERMITS TO COMPLETE THE WORK.
5. ANY MODIFICATIONS FROM THE DRAWING TO BE APPROVED BY THE ENGINEER.
6. ALL MATERIALS AND INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE RELEVANT CSA STANDARDS AND THE ONTARIO BUILDING CODE.
7. ALL WORK TO BE COMPLETED IN ACCORDANCE WITH APPLICABLE CODES BY APPROPRIATELY LICENSED AND INSURED PERSONNEL.

MATERIAL NOTES
1. ALL MATERIALS TO BE HOT DIPPED GALVANIZED.
2. ALL PLATES TO BE A36 CARBON STEEL, HOT DIPPED GALVANIZED.
3. ALL LAG BOLTS TO BE HOT DIPPED GALVANIZED, GRADE A.

No	Revisions	Date
1	ISSUED FOR TENDER	2016/08/15
0	ISSUED FOR REVIEW	2016/08/15

Orientation



Seal

The Contractor shall check and verify all dimensions and report all errors and omissions to the Engineer (as applicable) for his/her written direction before proceeding with the Work.

A/B A Detail No
B Sheet No where detailed

LBE group inc.

Client
DEPARTMENT OF FISHERIES & OCEANS

Project
CANADIAN COAST GUARD KENORA
MARINE RAILWAY SYSTEM REPAIRS

Location
KENORA, ONTARIO

Drawing Title
DETAILS & NOTES

Scale: NTS	Date: 2016/08/15
Drawn by: LN	Dwg No.: 16-073-002 Rev.: 1
Designed by: AB	
Approved by:	2 of 2

279mm x 432mm

APPENDIX B4 – MARINE ACCESS REQUIREMENTS

.1 Marine Access

.1 Vessel(s) employed in the performance of the contract shall be certified as required by the Canada Shipping Act 2001 and its applicable regulations including Marine Personnel Regulation.

.1 The bidder shall ensure that the vessel(s) proposed for the work meets all requirements of the Canada Shipping Act 2001 and the applicable Regulations under the Canada Shipping Act.

.2 Bidders shall provide copies of the following documentation to facilitate evaluation and award:

.1 Proof of vessel registration as a commercial vessel in accordance with the Canada Shipping Act 2001. Either one of two registrations will be accepted:

.1 Proof of commercial vessel registration in the Small Vessel Register (SVR) if less than 15 Gross Tons or;

.2 Proof of commercial vessel registration in the Canadian Register of Vessels (CRV) if more than 15 Gross Tons.

.3 NOTE: Pleasure Craft and Fishing Vessels are not acceptable for the performance of this work – it must be a commercially registered vessel.

.2 Where the vessel is registered in the SVR the bidder shall also provide the following:

.1 Copy of vessel certification and any limitations the vessel is operating under. Where the vessel is restricted, the operator shall ensure that the vessel can be used to safely perform the work in this specification;

.2 Copy of inspection according to the Small Vessel Compliance Program; Bidder shall submit proof of enrolment in the compliance program and;

.3 Either a copy of the initial inspection report or the most recent copy of an annual inspection report and;

.4 Copy of the crew certification that will be operating the vessel. Crewing and certification of crew shall be in accordance with the Marine Personnel Regulations, latest edition.

.3 Where the vessel is registered in the CRV the bidder shall also provide the following:

.1 Copy of the latest Annual Inspection Certificate endorsement and;

.2 Copy of any restrictions that the vessel is operating under and the general sailing limitations of the vessel. Where the vessel is restricted, the operator shall ensure that the vessel can be used to safely perform the work in this specification;

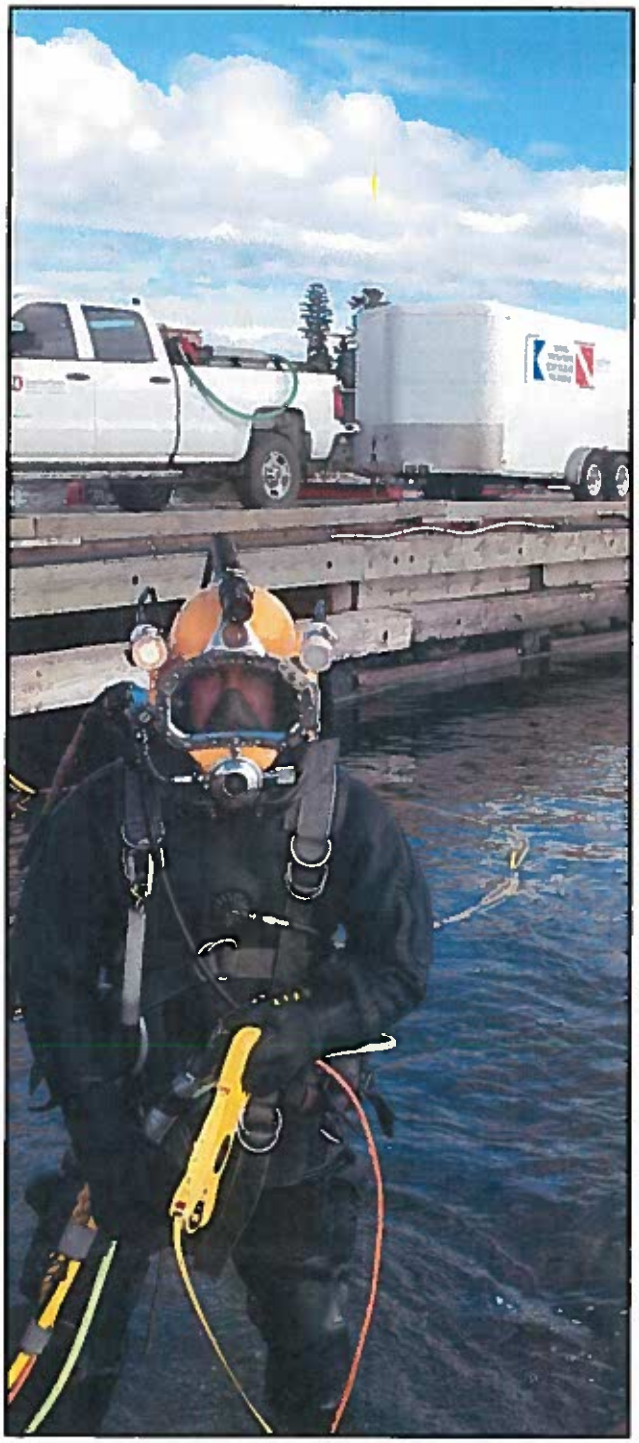
.3 Copies of the crew certification that will be operating the vessel. Crewing and certification of crew shall be in accordance with the Marine Personnel Regulations, latest edition.

.2 Vessels and crew found to be in contravention of the act will not be permitted to be engaged in any elements of the works identified herein. In the event that a vessel or crew is found non compliant a suitable replacement vessel and/or crew will be retained by the Contractor at their sole expense.

APPENDIX B5

DIVE INSPECTION

Dominion Divers, Winnipeg MB



Canadian Coast Guard
Base - Kenora, ON

Marine Railway
Underwater Inspection

LICENSED PROFESSIONAL ENGINEER
A. J. BROOKES
100080215
16 06 17
PROVINCE OF ONTARIO

Dominion Divers
MARINE & CONTRACTORS

19 Archibald St
Winnipeg, MB R2J 0V7

T (204) 237 8939
Email: info@dominiondivers.ca

Project Number: DD20160602

Date: 02/06/2016

CADC
CANADIAN ASSOCIATION OF DIVING CONTRACTORS

ISNetworld
Member Contractor

COR

TABLE OF CONTENTS

1.0 Company Background

Established in 1965, Dominion Divers is a wholly Canadian-owned business specializing in underwater construction, fabrication, installation, maintenance, recovery, and enhanced sonar imaging services. Dominion Divers is committed to providing the highest quality of diving, marine construction, and support services while maintaining the strictest safety regime and utmost consideration of our environment.

Our industry approved Safety, Health, and Environmental Program is certified by the Manitoba Heavy Construction Association, ISNetworld, Workplace Safety and Health and is nationally recognized. Our quality management system is ISO 9001:2008 registered and audited by Quasar.

Dominion Divers is a member of the Canadian Association of Diving Contractors (CADC). We employ full-time professional divers that are certified by the Divers Certification Board of Canada to the minimum level of Unrestricted Surface Supplied Diver to the CSA Z275.4 Competency Standard for Diving Operations. Our divers are some of the most experienced in the industry.

Dominion Divers will carry out all work in strict adherence to the CSA Z275.2 Occupational Safety Code for Diving Operations, regulations and policies of the client and Provincial agencies.

Dominion Divers is bondable for Labour and materials-and-performance for projects up to $3,000,000. We have an excellent safety record with the Workers Compensation Boards of Manitoba, Saskatchewan, Ontario, British Columbia, Nutavut and Northwest Territories. The company carries $5,000,000 in comprehensive liability insurance and $5,000,000 in environmental impairment liability.

2.0 Introduction

2.1 General

Dominion Divers was engaged by the Canadian Coast Guard to provide an underwater inspection of the marine railway located at the Coast Guard Base in Kenora, Ontario. The dive team set out to inspect the condition and positioning of the underwater portion of the marine railway, detailing any damage or defects. The objective was to obtain data, video and stills to assist in the completion of a condition assessment for all of the components related to the marine rail.

2.2 Site Specific

The Canadian Coast Guard base in located in the city of Kenora, situated on the Lake of the Woods. Dominion Divers was able to gain access to the inspection area by vehicle. The diver entered and exited the water from shoreline. The team deployed alpha flags to notify marine traffic in the area.

3.0 Scope of Work

Project EWTM 8010-3-1 scope of work included the following:

- Full photographic documentation of all underwater structural components (including ASCE 80 rails, 9"x18" wooden sleepers, and 9" by 12" wooden spacers).
- Full photographic documentation of the condition of the soils/gravels/rock supporting the timbers.
- Measurements of the rail structure in both plan and profile. CCG would like to determine if the rail is straight in both plan and profile.
- If any areas with flaws or deficiencies are found, higher level of investigation and/or photographing is required.
- Any large cracks/bends/dents shall be measured and documented.
- Any heavy corrosion shall be measured and documented.
- Any broken or missing components shall be documented.

4.0 Work Procedure

4.1 Background

Dominion Divers completes projects with a minimum of a four-member crew, equipped with surface supplied diving gear. The diver is in constant communication with the three surface support crew members that consist of a standby diver, panel operator / supervisor and the diver's tender.

The dive team members are all trained to meet or exceed local regulations and adhere to the CSA standard. To ensure adequate competencies and safety all employee must maintain a current certification from the Diver's Certification Board of Canada

4.2 Safety Requirements

Dominion Divers onsite crew members initially completed an orientation with the site representative, Dean Calder. Due to the nature of the outlined project, environmental conditions and other external factors, a job hazard assessment was completed with all parties before commencing work. The dive platform and associated support equipment was inspected, part of Dominion Divers Safety, Health and Environment Policies.

First aid and spill response equipment were stationed onsite along with a raised Alpha flag. Communication to emergency services was enabled by mobile service, service reception in the region was adequate

4.3 Equipment Used

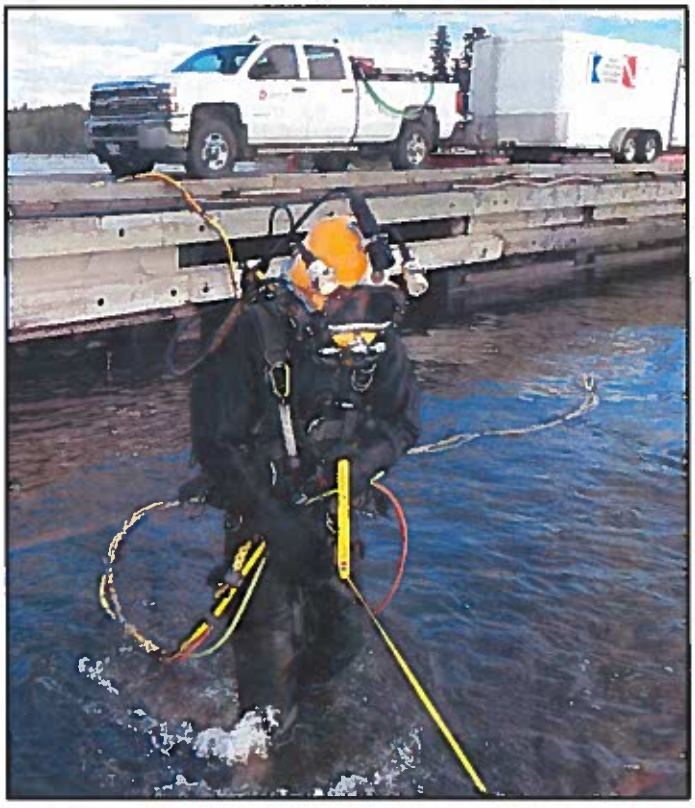
- Standard Sufrace Supplied Diving Equipment
- Video and Still Camera
- Optical Level, Elevation Rod, Tape Measures and String Lines

5.0 Methodology

The dive team mobilized from Winnipeg to Kenora Ontario on June 2, 2016. The dive station was assembled in a trailer and positioned on the wharf. System checks were completed including communications and video equipment.

An optical level was assembled near the shoreline along the centerline of the railway. A tape measure and a string line were deployed along each rail to record chainage and horizontal alignment. The chainage started at the shoreline which was measured at 36 metres south to the north rail stop.

The first dive was dedicated for clearing the rust nodules with a chipping hammer and a wire brush. The intent was to expose key components down to the steel to quantify corrosion.



6.0 Observations

6.1 East Rail

4.70m / (00:03:10)
Tie plate, secured to wooden sleeper, plate exhibits corrosion, < 20% loss

5.55m / (00:04:02 / 00:05:03)
Splintered and rotten wooden sleeper end. Spikes elevated off tie plate, 25mm gap between the bottom of the east rail to the top of the wooden sleeper.

5.95m / (00:06:13)
Typical wooden spacer 9"x12"
Appears to be in good condition

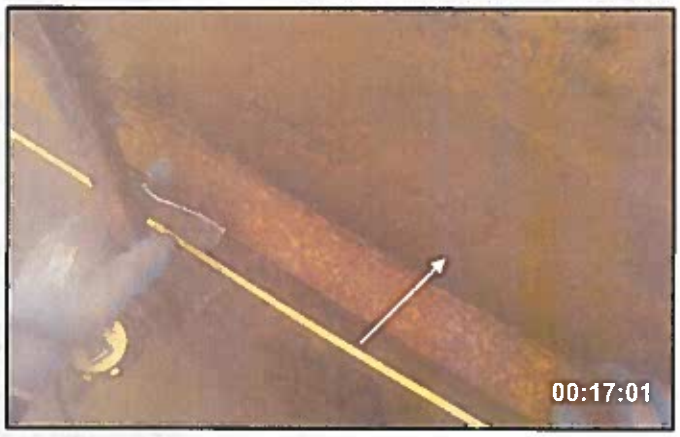
6.60m / (00:07:36) - Tie plate secured to wooden sleeper, sleeper end exhibits cracks *(image file 00h08m05s.png)*

7.20m / (00:11:29)
Tie plate and spikes elevated, 50mm gap between the bottom of the east rail to the top of the wooden sleeper

8.10m / (00:012:23) - Tie plate secured to sleeper *(file 00h12m23s.png)*
9.00m / (00:014:39) - Tie plate partially buried by ballast *(file 00h14m39s.png)*

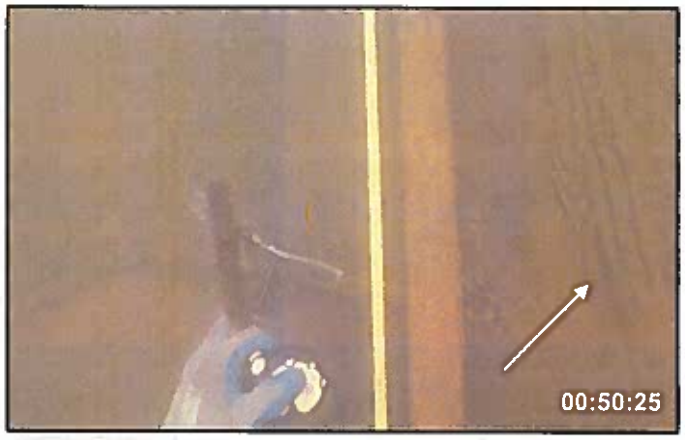
10.12m / (00:15:21)
Joint with connection plate, missing both spikes northeast side of joint. The furthest southeast spike is slightly elevated. Timber running under the rail protrudes from cover. No deflection between rail sections at the joint

11.10m / (00:17:01)
Single spike securing the bottom flange of the rail.



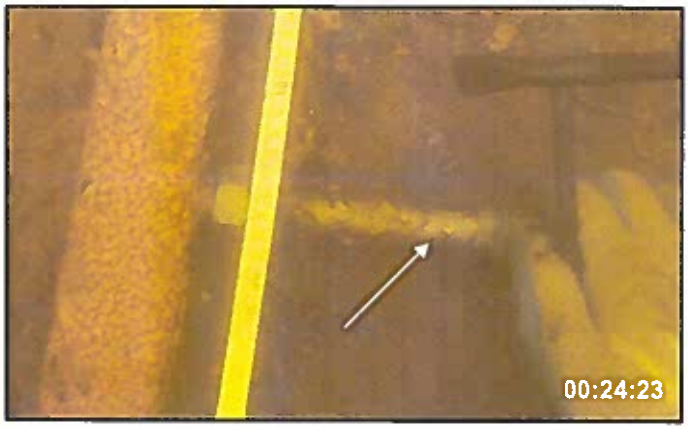
14.40m / (00:21:35 / 00:21:52)
Connecting rod damaged and pulled out of west rail

14.40m / (00:50:25)
East side of timber, splintered

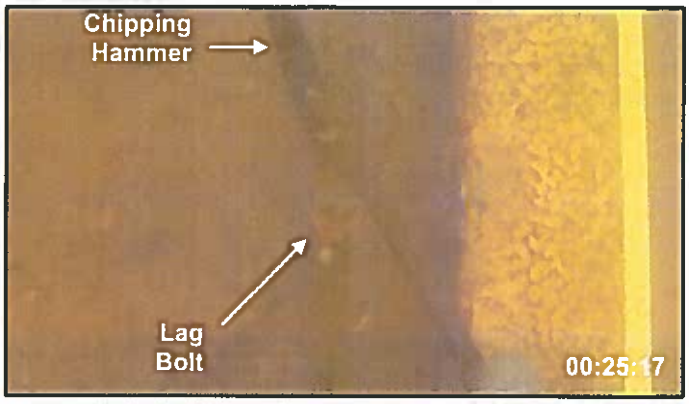


15.27m / (00:23:50)
Connection plate secure to both rail sections, no deflection. There is a gap between the two northeast spikes and the connection plate as seen in the image

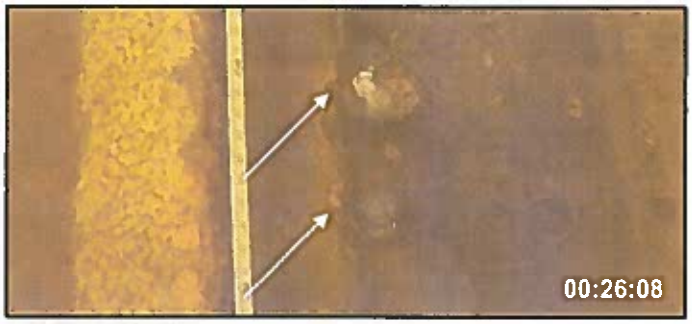
18.06m / (00:24:23)
Connecting rod secure, minor corrosion



20.20m / (00:25:17)
Lag bolt with washer connecting the rail's bottom flange to the timber. Lag bolt and washer elevated, rail is not secure.



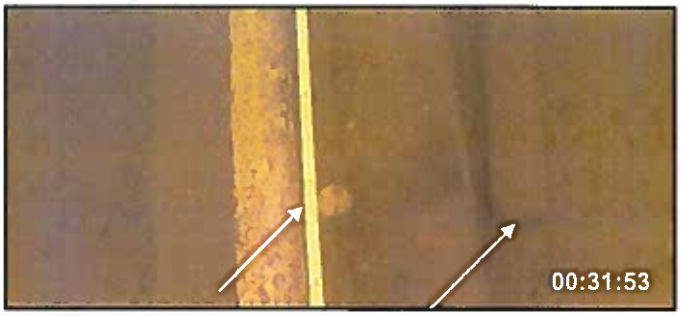
21.20m / (00:26:08)
Spike and lag bolt elevated, rail is not secure. Invert of 25mm between bottom of rail and top of timber



21.75m / (00:028:00) – Connecting rod secure to east rail, rail/timber gap 25mm *(file 00h28m00s.png)*
23.05m / (00:028:47) – Lag bolt elevated *(file 00h28m47s.png)*
23.67m / (00:028:47) – Lag bolt elevated *(file 00h28m47s.png)*
25.07m / (00:028:47) – Connecting rod exhibits a nut loose *(file 00h28m47s.png & 01h12m51s.png)*

25.50m / (00:31:34)
Connection plate secure to both rail sections, no deflection. Spikes missing along the west side of the track

26.70m / (00:31:53)
Spike elevated by 100mm, above the timber, securing the east rail. Diagonal rail support begins.

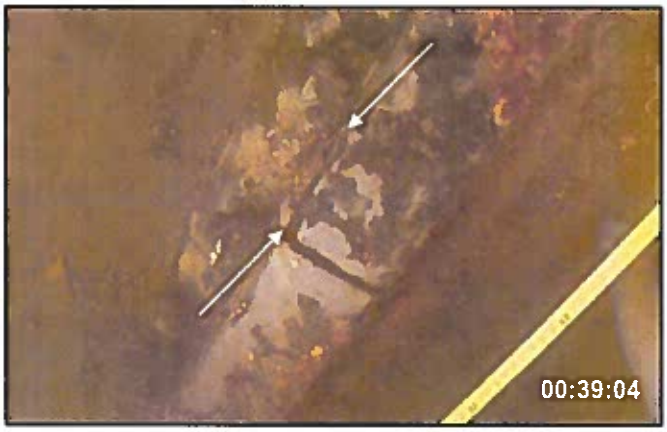


27.30m / (00:33:19) – Spikes securing diagonal rail elevated by 90mm *(file 00h33m19s.png)*
28.15m / (00:33:49) – C-Channel securing two timber sections *(file 00h33m19s.png)*
28.16m / (00:34:01) – Timber joint secure and no deflection between sections *(file 00h33m19s.png)*

28.77m / (00:33:34) – Connecting Rod and 25mm gap between bottom of rail and top of timber.

29.15m / (00:35:46) – Spikes securing diagonal rail elevated by 80mm *(file 00h35m46s.png))*
32.20m / (00:37:21) – Spikes securing diagonal rail elevated by 80mm *(file 00h37m21s.png))*

33.36 / (00:39:04)
Connection plate and fastener secure to both rail sections, South rail slightly proud with a 60mm longitudinal crack.



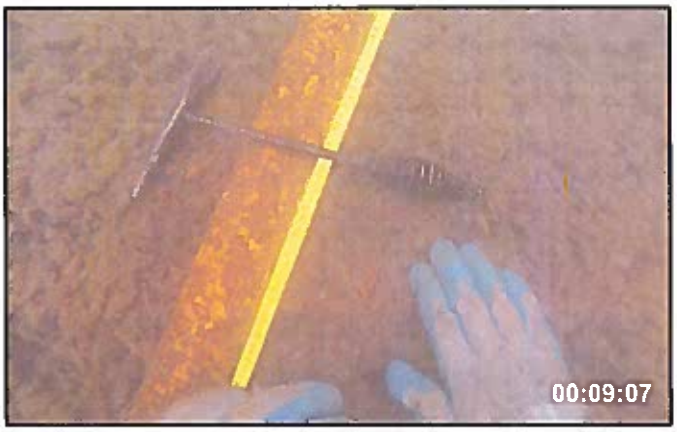
5.96 / (00:42:08) – Connecting rod secure *(file 00h42m08s.png))*

35.96 / (00:44:08)
150mm gap between lake bottom and bottom of timber sleeper.

End of Rail / (00:48:32) – 260mm gap between lake bottom and bottom of timber sleeper *(file 00h48m32s.png)*

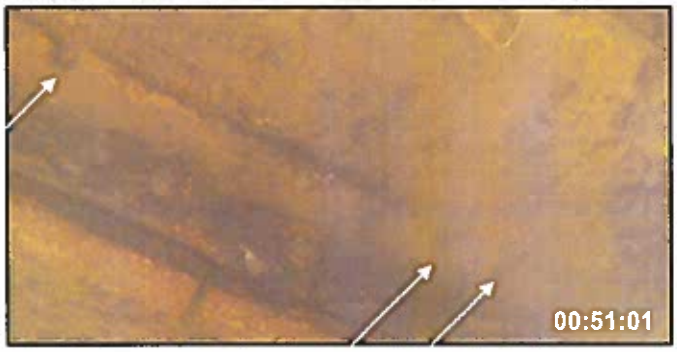
6.2 West Rail

6.60m / (00:09:07)
Ballast proud of top of rail

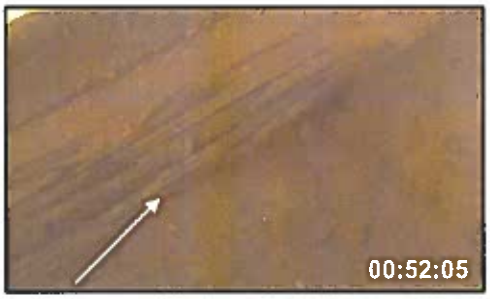


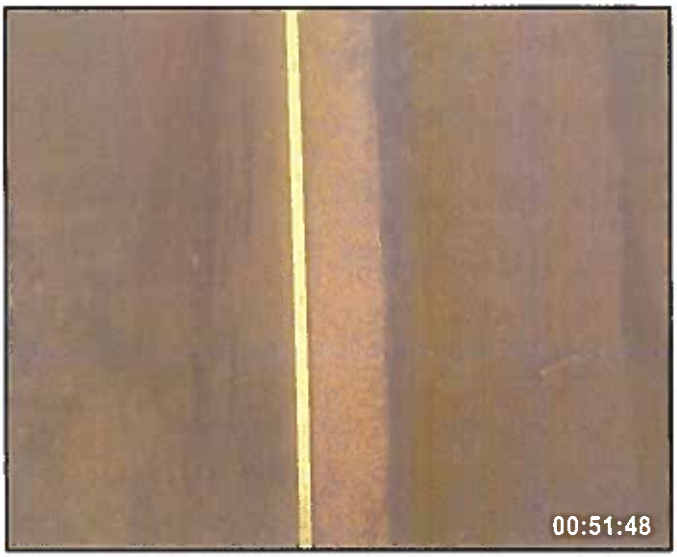
8.10m / (00:13:30) - Ballast proud of top of rail *(file 00h13m30s.png)*

10.12m / (00:51:01)
Joint with connecting plate, missing spikes, both northwest side of joint and closest southwest spike. No deflection between rail sections at the joint

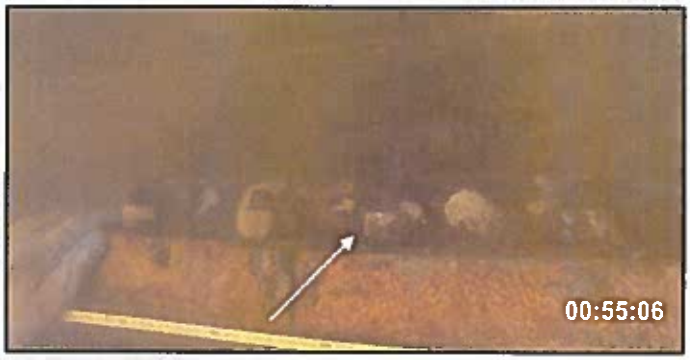


14.00m / (00:51:48 / 00:52:05)
Base timber splintered from 14.00m - 15.30m. The connecting rod at 14.40m is disconnected, buried rail in the sediment nearby *(file 00h21m35s.png)*. It appears the original rail was dislodged causing damage to the timber, rail is not centered on timber





15.60m / (00:55:06)
Connection plate secure to both rail sections, no deflection. One fastener is loose



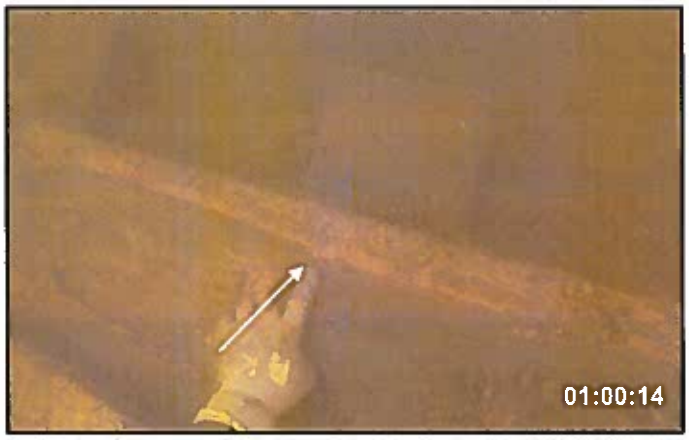
18.06 / (00:55:43) – Connecting rod secure to west rail *(file 00h55m43s.png)*
21.75m / (00:56:25) – Connecting rod secure to west rail *(file 00h56m25s.png)*

24.60m / (00:57:02)
Connection plate secure to both rails, only one spike located on the southwest corner.

25.07m / (00:57:56) – Connecting rod secure *(file 00h28m47s.png)*

25.07m / (00:58:00) – Disconnected timber situated under connecting rod in middle of rail

28.16m / (01:00:14)
C-channel securing two timber sections
(file 01h00m14s.png)

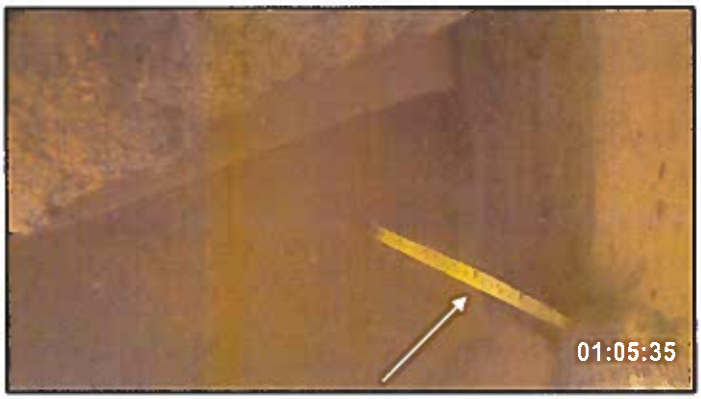


28.77m / (01:00:33) – Connecting rod secure to west rail *(file 01h00m33s.png)*
29.20m - 31.70m / (01:01:02) – Timber splintered, 25mmx100mm cross-section *(file 01h01m02s.png)*
32.23m / (01:03:01) – Connecting rod secure to west rail *(file 01h03m01s.png)*
32.55m / (01:03:30) – Connection plate secure to both rail sections, no deflection *(file 01h03m30s.png)*

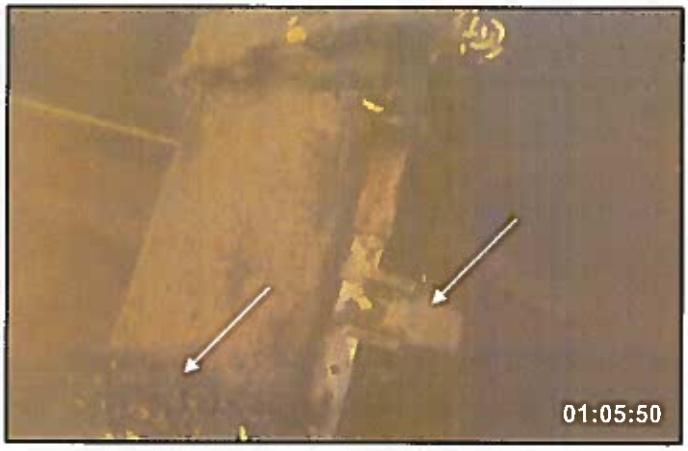
34.10m / (01:04:39)
25mm gap between lake bottom and bottom of timber sleeper.

35.93m / (01:04:58) – Connecting rod secure to west rail *(file 01h04m58s.png)*
35.93m / (01:05:20) – 100mm gap between lake bottom and bottom of timber *(file 01h05m20s.png)*

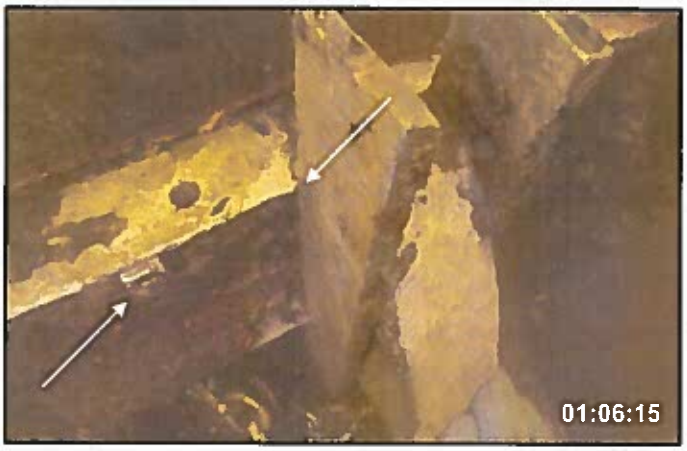
End of Rail Sleeper/ (01:05:35)
150mm gap between lake bottom and bottom of timber sleeper, west side of rail *(file 01h05m35s.png))*



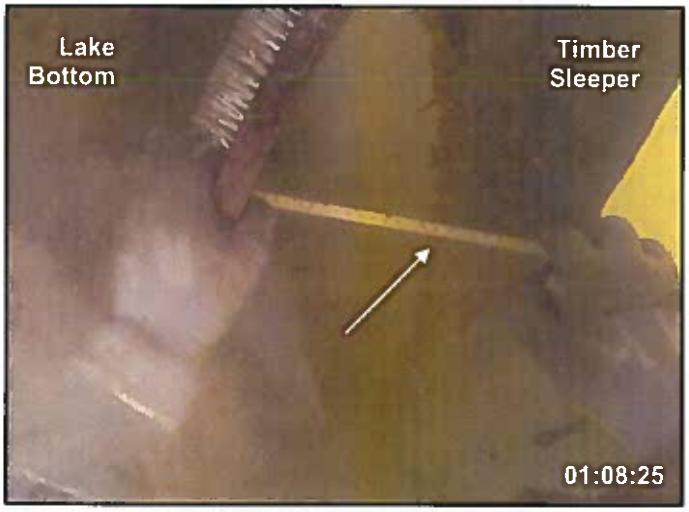
Top of End Stop / (01:05:50)
Secured with end stop bracket and chain wrapped around timber sleeper



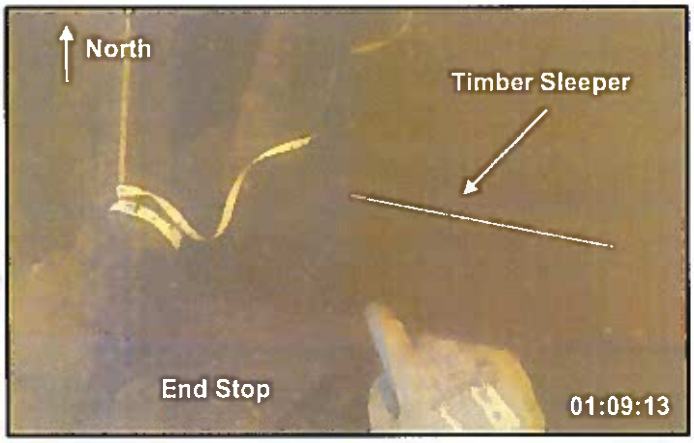
End Stop Bracket / (01:06:15)
C-Channel welded to end stop bracket and fastened to timber



End of Rail Sleeper / (01:08:25)
180mm gap between lake bottom and the bottom of timber sleeper, along the centre line of the rail *(file 01h08m25s.png))*



End of Rail / (01:09:13)
End stop is not square to rails, west end appears to be further south from east end



7.0 Synopsis

The underwater inspection suggests previous damage to the rail (broken connecting rod) and what appears to be a previous repair (installed lag bolts). The vertical and horizontal alignment does not appear to be linear, suggesting movement in the rail overtime. Typical corrosion on all the steel components throughout, <20% loss.

The marine rail near the end appears to be unstable, last three sleepers at the end of the rail are not bearing on the lake bottom.

Review completed by LBE Group Inc, please see Appendices 9.2

8.0 Deliverables

- Report
- Marine Rail Measurement Drawing – Plan and Profile
- Media Clip from the underwater inspection
- Stills

9.0 Appendices

9.1 Engineering Services by LBE Group Inc.
9.2 Reference Drawing

LBE group inc.

LBE Group Inc. | 610 Lakeview Drive
Kenora, ON P9N 3P7
(807) 468-4445
info@lbegroup.ca
www.lbegroup.ca

June 17, 2016

Dominion Divers Ltd
19 Archibald Street
Winnipeg, MB
R2J 0V7

RE: CCG Kenora Marine Rail

Dear Sean Wills,

As requested, we have reviewed the documentation pertaining to the inspection of the Marine Rail at the Canadian Coast Guard base in Kenora, ON. The review included site reconnaissance, topside still photographs, underwater still photographs, underwater video, survey results and your final report for project # DD20160602.

A complete inspection of the rail system has revealed several significant deficiencies with regards to the structure. There appears to have been previous repairs to the structure. A survey of rail elevation and distance from centreline indicates that both of the rails have shifted to the west starting at 0+15.0 m through to the south end rail stop. Horizontal displacement from the rail centreline at the worst location is approximately 88 mm and there is a variation in the rail spacing of up to 16 mm. Differential rail elevation from east to west varies with a maximum difference of 110 mm occurring at the 0+21.0 m.

Deterioration of the wooden members was observed in multiple locations and there are loose and/or missing spikes. Some areas of the rail are not bearing on the wooden members and some of the wooden members are not bearing on the lake bottom. There is a loss of ballast in some areas and excess ballast in other areas that is piled as high as the top of rail at 0+5.5 m. Horizontal rail connecting rods are broken, bent and damaged in multiple locations and at 0+33.4m the east rail has a longitudinal crack approximately 60 mm long.

There are sufficient deficiencies with the rail system that it should be taken out of service until such time that emergency repair can be completed. We recommend the following work be completed to ensure the long term reliability and safety of the rail system.

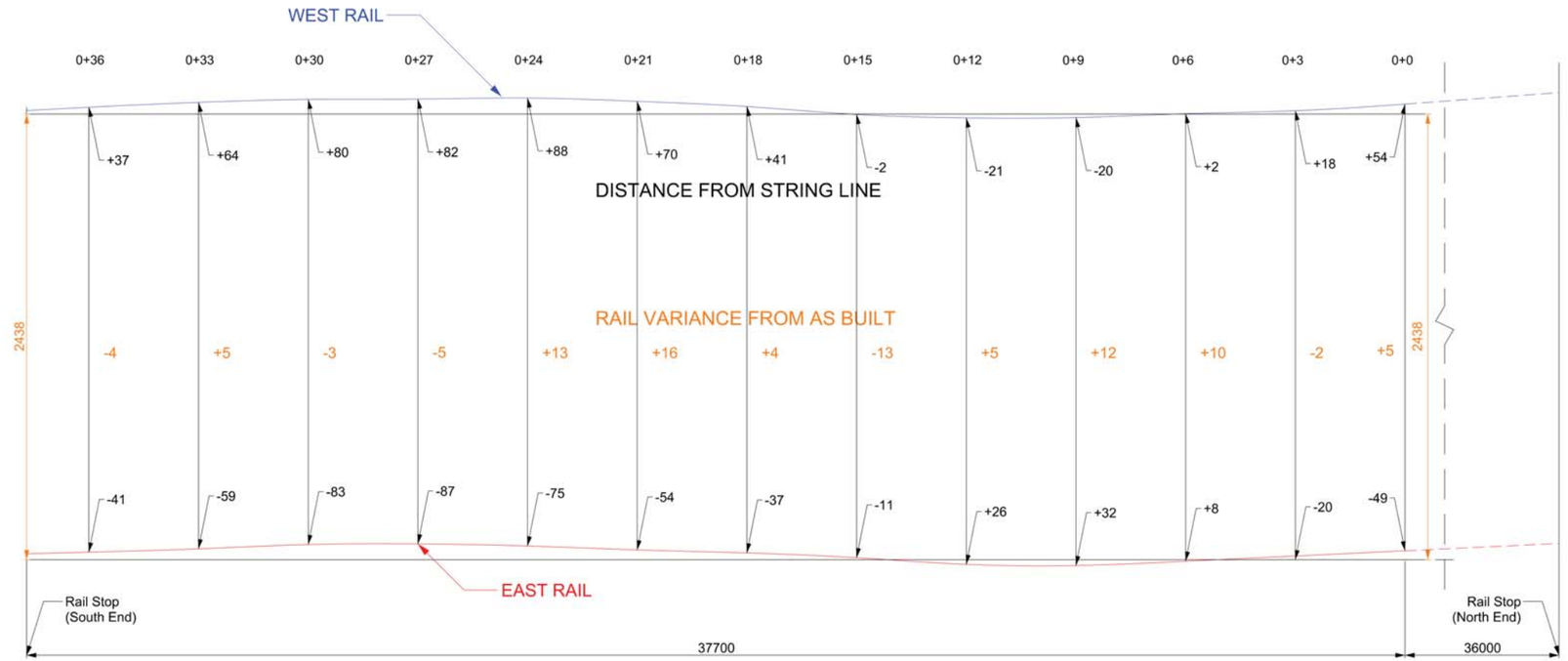
1. Engineering of the emergency repairs to be completed immediately in order to make the rail system safe to use.
2. Implement emergency repairs as designated in design (1-2 months).
3. Engineering of long term repairs to be completed for asset management planning.
4. Implement long term repair/replacement (2-5 years).
5. Complete annual inspections of the rail system until such a time that the long term repairs are completed.

We are available to discuss the findings in more detail and assist with planning the repairs should you require.

Respectfully,

LBE GROUP INC.

Andrew Brookes, P. Eng., CMVP

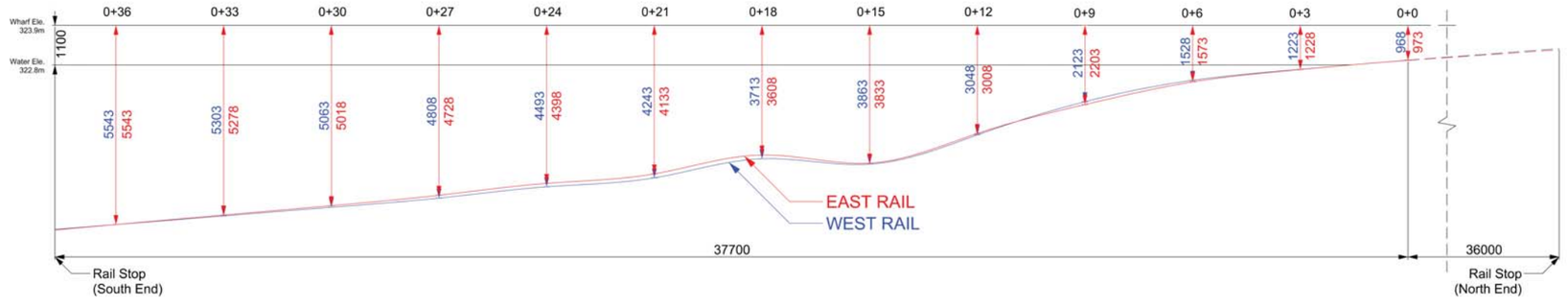


PLAN PROFILE

SCALE (mm)

HORIZONTAL 0 5000

VERTICAL 0 1000



ELEVATION PROFILE

SCALE (mm) 0 5000

AERIAL VIEW:

NOTES:

1. DATA WAS COLLECTED BY DIVERS ON JUNE 2, 2016.
2. WHARF ELEVATION WAS OBTAIN BY TENDER EWTM 8010-3-1, IN APPENDIX B
3. RAIL ELEVATIONS WERE OBTAIN BY AN OPTICAL LEVEL AND A MEASURING ROD
4. RAIL ALIGNMENT WAS OBTAIN BY MEASURING FROM DEPLOYED STRING LINES
3. ALL VALUES ARE METRIC (mm), UNLESS STATED OTHERWISE

PREPARED FOR:

Fisheries and Oceans Canada / Pêches et Océans Canada
Canadian Coast Guard / Garde côtière canadienne

CCG BASE KENORA, ON

Dominion Divers
MARINE CONTRACTORS

TITLE:	SHEET:	DATE:
MARINE RAILWAY	1 OF 1	01/15/2016
DRAWN BY:	SCALE:	SIZE:
S WILLS	1:75	A1

PROJECT NUMBER: DD20160602