

ONTARIO NORTHLAND

TRANSPORTATION COMMISSION

Request for Proposals No. RFP 2024 015

For

**ONTC Bridge Rehabilitations
Mile 69.6 & 69.7 Kapuskasing Subdivision
Location: Kapuskasing, Ontario**

REPLY BY DATE: 2:00:00 p.m. Wednesday May 15, 2024

Primary Contact:

**Brinda Ranpura
Procurement Contracts Specialist
Ontario Northland Transportation Commission
555 Oak Street East
North Bay, Ontario, P1B 8L3
Email: Brinda.ranpura@ontarionorthland.ca**

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PART 1

REQUEST FOR PROPOSALS

SECTION 1 - INTRODUCTION

1.1 General

- (1) Ontario Northland Transportation Commission (“ONTC”) is issuing this Request for Proposals (“**RFP**”) to obtain proposals from a vendor/service provider(s) for the provision of the goods and/or services described in the RFP Specifications (the “**Goods and/or Services**”).

- (2) In this RFP:

“Applicable Laws” means the statutes, regulations, orders, by-laws and other laws of Ontario, Quebec, Manitoba, Canada and any municipal government relevant to the RFP and the subject matter of the RFP;

“Addendum” means the written supplementary information provided to potential Respondents prior to the Submission Deadline, which information becomes part of the RFP Documents;

“Business Day” means any day except Saturday, Sunday or a statutory holiday;

“Final Agreement” means the agreement for the supply of the Goods and/or Services entered into by ONTC and the Successful Respondent;

“Material” means a document or information that must be included in the Proposal including without limitation the information requested in the RFP Data Sheet, and is essential to allow ONTC to evaluate a Proposal and that if not included will result in the disqualification of the Proposal;

“Non-compliant” means the Proposal or the Respondent does not meet a requirement of the RFP Documents;

“Proposal” means the response to the RFP submitted by a Respondent to ONTC;

“Respondent(s)” means the entity submitting a Proposal and includes prospective respondents, whether or not that entity submits a Proposal. If the context requires it, “Respondent” includes any of the Respondent’s respective shareholders, owners, officers, agents, consultants, partners, contractors, subcontractors, advisors, employees, or representatives;

“RFP Data Sheet” means the information and requirements contained in Schedule 2-A of Part 2;

“RFP Documents” means the documents listed in RFP Section 2.1 (1) and any additional documents issued through Addenda;

“Short-listed Respondent” means a Respondent selected to proceed to the next step in the evaluation process pursuant to section 6.2 (2) of the RFP;

“Substantially Compliant” means Proposal does not meet the requirements of the RFP Documents; however, the Proposal includes all of the Material items, as identified in the RFP Data Sheet;

“Successful Respondent” means the Respondent selected by ONTC to enter into the Final Agreement.

- (3) The process to select the Short-listed Respondents for the supply of the Goods and/or Services (the “**RFP Process**”) will commence with the issuance of these RFP Documents and will terminate at the earlier of:
- (a) when ONTC and the Successful Respondent execute the Final Agreement; or,
 - (b) upon the termination of the RFP Process in accordance with the terms and conditions of this RFP.

1.2 Ontario Northland Transportation Commission

The Ontario Northland Transportation Commission (ONTC) is an agency of the Province of Ontario that provides reliable and efficient transportation services to northern and rural communities. For over 120 years, the company has provided integrated and impactful transportation services including rail freight, passenger rail, motor coach transportation, rail repair, and remanufacturing services.

ONTC’s rail services are vital in maintaining a reliable supply chain in Northern Ontario by connecting freight customers to global economies. The forestry industry, mining operations, farming communities, and manufacturers count on ONTC’s services to deliver large volumes across vast distances. The company’s 675 miles of mainline track span throughout northeastern Ontario and northwestern Quebec.

ONTC motor coaches connect rural Ontario to major centres providing access to education, medical appointments, shopping, and seamless connections to other transportation providers. The Polar Bear Express passenger train connects Moosonee and Cochrane, Ontario, providing an all-season land link for Indigenous communities on the James Bay Coast.

Improving and repairing transportation equipment is also a large part of ONTC’s service offering. We remanufacture and repair locomotives, passenger rail cars, freight cars, and more. ONTC’s unique mechanical skillset attracts new business and secures skilled trades jobs in Northern Ontario.

ONTC makes provincial dollars reach further by creating innovative solutions that help drive economic growth sustainably, responsibly, and with future generations top of mind. Throughout the agency, modernization is underway with many exciting projects that will improve how we operate. ONTC employs over 900 people including Locomotive Engineers, Motor Coach Operators, skilled tradespeople, and business professionals. Employees work together to improve and deliver services that provide value to the regions served.

SECTION 2 - THE RFP DOCUMENTS

2.1 Request for Proposals Documents

- (1) The Request for Proposals documents consist of:

Part 1 – Request for Proposals

Part 2 – Requests for Proposals Summary of Requirements

- (a) Schedule 2-A – RFP Data Sheet
- (b) Schedule 2-B – Participation Registration Form

Part 3 – RFP Specifications

- (a) Schedule 3-A – Scope of Work
- (b) Schedule 3-A-1 – Technical Specifications
- (c) Schedule 3-A-2 – Contract Drawings, Reference Drawings, and Reports
- (d) Schedule 3-A-3 – Site Location
- (e) Schedule 3-A-4 – Site Photos
- (f) Schedule 3-A-5 – Working Blocks

Part 4 – Form of Proposal

- (a) Proposal Form 1 – Proposal Submission Form
- (b) Proposal Form 1-A – Proposal Submission Form
- (c) Proposal Form 2 – Respondent's General Information
- (d) Proposal Form 3 – Acknowledgment to Comply with Part 3 – Request for Proposals Specifications
- (e) Proposal Form 4 – References
- (f) Proposal Form 5 – Compliance with Contract Documents
- (g) Proposal Form 6 – Respondents' Meeting Registration Form
- (h) Proposal Form 7 – Health, Safety and Environment
- (i) Proposal Form 8 – Schedule of Materials
- (j) Proposal Form 9 – List of Equipment
- (k) Proposal Form 10 – Schedule and Proposed Approach
- (l) Proposal Form 11 – Schedule of Progress Payments
- (m) Proposal Form 12 – List of Personnel
- (n) Proposal Form 13 – Current Labour Agreements
- (o) Proposal Form 14 – Contractor's Qualification Statement
- (p) Proposal Form 15 – Claims

Part 5 – Ontario Northland Supplementary Conditions - CCDC 4 – 2011, and Ontario Northland – Special Supplementary Conditions – Schedule of Pricing.

- (2) The RFP Documents shall be read as a whole. The Schedules and Addenda, if any, constitute an integral part of this RFP and are incorporated by reference.
- (3) Each Respondent shall verify the RFP Documents for completeness upon receipt and shall inform the Contact Person (identified in RFP Section 3.2(7)), immediately:

- (a) should any documents be missing or incomplete; or,
 - (b) upon finding any discrepancies or omissions.
- (4) Complete sets of the RFP Documents are available at our company website at www.ontarionorthland.ca and MERX.
- (5) The RFP Documents are made available only for the purpose of Respondents submitting Proposals. Availability and/or use of the RFP Documents do not confer a license or grant for any other purpose.

2.2 Priority of Documents

- (1) If there are any inconsistencies between the terms, conditions or other provisions of the RFP Documents, the order of priority of RFP Documents, from highest to lowest, shall be:
- (a) Any Addenda modifying the RFP Documents issued during the RFP Process;
 - (b) The RFP Data Sheet;
 - (c) Part 1 — Request for Proposals;
 - (d) Part 3 — Specifications; and,
 - (e) Any other RFP Documents.

2.3 Distribution of Documents – Electronic Distribution

- (1) ONTC will use an online electronic distribution system to distribute all RFP Documents.
- (2) Each Respondent is solely responsible for making appropriate arrangements to receive and access the RFP Documents through that electronic distribution system.

2.4 Information Provided by ONTC

- (1) Each Respondent is solely responsible for conducting its own independent research, due diligence, and any other work or investigations and seeking any other independent advice necessary for the preparation of its Proposal, negotiation or finalization of the Final Agreement and the subsequent delivery of all the Goods and/or Services to be provided by the Successful Respondent. Nothing in the RFP Documents is intended to relieve the Respondents from forming their own opinions and conclusions with respect to the matters addressed in this RFP.
- (2) No guarantee, representation or warranty, express or implied, is made and no responsibility of any kind is accepted by ONTC or its representatives for the completeness or accuracy of any information presented in the RFP Documents, if any, during the RFP Process or during the term of the Final Agreement. By submitting a Proposal, each Respondent agrees that ONTC and its representatives shall not be liable to any person or entity as a result of the use of any information contained in the RFP Documents or

otherwise provided by ONTC or its representatives during the RFP Process or during the term of the Final Agreement.

SECTION 3 – THE RFP PROCESS

3.1 RFP Process

- (1) The deadline for the submission of Proposals (the “**Submission Deadline**”) is set out in the RFP Data Sheet.
- (2) ONTC may amend, extend or shorten any of the dates and/or times prescribed in this RFP, at any time, at its sole discretion, including without limitation the Submission Deadline. If ONTC extends the Submission Deadline, all requirements applicable to Respondents will thereafter be subject to the new, extended Submission Deadline.

3.2 Questions and Communications Related to the RFP Documents

- (1) Respondents shall submit all questions, requests for clarifications, and other communications regarding the RFP Documents and the RFP Process by email to the Contact Person set out in section 3.2(7) no later than four (4) full Business Days before the Submission Deadline.
- (2) ONTC will endeavor to provide the Respondents with written responses to questions that are submitted in accordance with this RFP Section 3.2, by no later than two (2) full Business Days before the Submission Deadline. Responses to any questions or requests for clarifications, will be collected and distributed with answers to be delivered to all Respondents who have submitted the Participation Registration Form by way of emailed addenda from ONTC in accordance with the timeline set out in this Section 3.2(2).
- (3) The responses to questions form part of the RFP Documents.
- (4) ONTC may, in its sole discretion:
 - (a) answer questions that ONTC deems to be similar from various Respondents only once;
 - (b) edit any question(s) for the purpose of clarity;
 - (c) respond to questions submitted after the deadline for submission of questions if ONTC believes that such responses would be of assistance to the Respondents generally; and,
 - (d) exclude any questions that, in the sole opinion of ONTC, are ambiguous, incomprehensible, or are deemed by ONTC to be immaterial to the RFP Process, the RFP Documents, or the Goods and/or Services.

- (5) If Respondents find discrepancies, omissions, errors, departures from laws, by-laws, codes or good practice, or information considered to be ambiguous or conflicting, they shall bring them to the attention of the Contact Person in writing, and not less than four (4) full Business Days before the Submission Deadline, so that ONTC may, if ONTC deems it necessary, issue instructions, clarifications or amendments by addendum to all Respondents prior to the Submission Deadline. ONTC will endeavor to, but is not required to, issue such Addenda at least two (2) full Business Days prior to the Submission Deadline. It is each Respondent's responsibility to seek clarification from ONTC of any matter it considers to be unclear in the RFP Documents or the description of the Goods and/or Services and the Respondent may seek clarification in accordance with this Section 3.2. Neither ONTC nor the Government of Ontario shall be responsible for any misunderstanding by a Respondent of the RFP Documents, the RFP Process or the Goods and/or Services.
- (6) If ONTC gives oral answers to questions at any meeting (Section 3.4), these answers will not be considered final, and may not be relied upon by any of the Respondents, unless and until such answers are provided by way of an addendum in accordance with this Section 3.2.
- (7) The Contact Person designated by ONTC for this RFP is **Brinda Ranpura, Procurement Contracts Specialist, 555 Oak Street East, North Bay, Ontario P1B 8L3 (705) 472-4500 ext. 548, brinda.ranpura@ontarionorthland.ca** (the "Contact Person"). The above Contact Person is the sole contact for this RFP. A Respondent may be disqualified where contact is made with any person other than the Contact Person.
- (8) ONTC will not be responsible for statements, instructions, clarifications, notices or amendments communicated orally by ONTC to one or more of the Respondents. Statements, instructions, clarifications, notices or amendments by ONTC, which affect the RFP Documents, may only be made by addendum.

3.3 Addenda/Changes to the RFP Documents

- (1) ONTC may, in its sole discretion, amend, supplement, or change the RFP Documents prior to the Submission Deadline. ONTC shall issue amendments, supplements, or changes to the RFP Documents by Addendum only. No other statement or response(s) to questions, whether oral or written, made by ONTC or any ONTC advisors, employees or representatives, including, for clarity, the Contact Person, or any other person, shall amend, supplement or change the RFP Documents. Addenda will be distributed in the same manner as the RFP and shall become part of the RFP Documents.
- (2) Each Respondent is solely responsible for ensuring that it has received all Addenda issued by ONTC. Respondents may, in writing by email to the Contact Person, seek confirmation of the number of Addenda, issued under this RFP.

3.4 Respondents' Meeting

- (1) To assist Respondents in understanding the RFP Documents, and the RFP Process, ONTC may conduct an information meeting (the “**Respondents' Meeting**”) for all Respondents. Whether or not ONTC will conduct a Respondents' Meeting is set out in the RFP Data Sheet. If ONTC is conducting a Respondents' Meeting, the meeting will be held on the date and at the time and location set out in the RFP Data Sheet.
- (2) Attendance by Respondents at a Respondents' Meeting may not be mandatory but, if one is held, Respondents are strongly encouraged to attend. Whether or not the Respondents' Meeting is mandatory will be identified on the RFP Data Sheet. When a Respondents' meeting is mandatory, all attending persons or entities will be required to sign the “Site Meeting Log” to confirm their attendance and provide a valid email address for purpose of receiving information.
- (3) If ONTC gives oral answers to questions at the Respondents' Meeting, these answers will not be considered final, and may not be relied upon by any of the Respondents, unless and until such answers are provided by way of an Addendum in accordance with Section 3.2.
- (4) If pre-registration for the Respondents' Meeting is necessary, the deadline for registration will be set out in the RFP Data Sheet and details regarding the registration process will be set out in the RFP Data Sheet.

3.5 Prohibited Contacts

- (1) Respondents and their respective advisors, employees and representatives are prohibited from engaging in any form of political or other lobbying, of any kind whatsoever, to influence the outcome of the RFP Process.
- (2) Without limiting the generality of Section 3.5(1) above, neither Respondents nor any of their respective advisors, employees or representatives shall contact or attempt to contact, either directly or indirectly, at any time during the RFP Process, any of the following persons or organizations on matters related to the RFP Process, the RFP Documents, or their Proposals:
 - (a) any member of the Evaluation Team (as defined in Section 6.1), except the Contact Person;
 - (b) any advisor to ONTC or the Evaluation Team, except the Contact Person; or,
 - (c) any directors, officers, employees, agents, representatives or consultants of:
 - (i) ONTC, except the Contact Person;
 - (ii) Ontario Ministry of Transportation;
 - (iii) The Premier of Ontario's office or the Ontario Cabinet office;
 - (iv) A Member of Provincial Parliament (including the Premier); or,

- (v) Any other person or entity listed in the RFP Data Sheet.
- (3) If a Respondent or any of their respective shareholders, owners, officers, agents, consultants, partners, contractors, subcontractors, advisors, employees, representatives, or other third parties acting on behalf or with the knowledge of the Respondent; in the opinion of ONTC, contravenes RFP Section 3.5(1) or 3.5(2), ONTC may, but is not obliged to, in its sole discretion:
- (a) take any action in accordance with RFP Section 7.2; or
 - (b) impose conditions on the Respondent's continued participation in the RFP Process that ONTC considers, in its sole discretion, to be appropriate.

3.6 Media Releases, Public Disclosures, Public Announcements and Copyright

- (1) A Respondent shall not, and shall ensure that its shareholders, owners, officers, agents, consultants, partners, contractors, subcontractors, advisors, employees, representatives, or other third parties acting on behalf or with the knowledge of the Respondent do not, issue or disseminate any media release, social media or Internet post, public announcement or public disclosure (whether for publication in the press, on the radio, television, internet or any other medium) that relates to the RFP Process, the RFP Documents or the Goods and/or Services or any matters related thereto, without the prior written consent of ONTC.
- (2) Neither the Respondents or any of their respective shareholders, owners, officers, agents, consultants, partners, contractors, subcontractors, advisors, employees, representatives, or other third parties acting on behalf or with the knowledge of the Respondent shall make any public comment, respond to questions in a public forum, or carry out any activities to either criticize another Respondent or Proposal or to publicly promote or advertise their own qualifications, interest in or participation in the RFP Process without ONTC's prior written consent, which consent may be withheld, conditioned or delayed in ONTC's sole discretion. Respondents, and their respective advisors, employees and representatives are permitted to state publicly that they are participating in the RFP Process but shall not publicly identify other Respondents without the prior written consent of ONTC.
- (3) Respondents shall not use the name of ONTC or any of ONTC's logos, designs, colours or registered trademarks and names used, owned or registered by ONTC, during the RFP Process, if selected as the Successful Respondent, or at any time prior to, during, or following the supply of the Goods and/or Services, except with the prior written consent of ONTC.

3.7 Confidentiality and Disclosure Issues – Respondent Information

- (1) Respondents are advised that ONTC may be required to disclose the RFP Documents, any other documentation related to the RFP Process and a part or parts of any Proposal pursuant to the *Freedom of Information and Protection of Privacy Act* (Ontario) ("FIPPA").

Respondents are also advised that FIPPA does provide protection for confidential and proprietary business information. Respondents are strongly advised to consult their own legal advisors as to the appropriate way in which confidential or proprietary business information should be marked as such in their Proposals. Subject to the provisions of FIPPA, ONTC will use reasonable commercial efforts to safeguard the confidentiality of any information identified by the Respondent as confidential but shall not be liable in any way whatsoever to any Respondent if such information is disclosed based on an order or decision of the Information and Privacy Commissioner or otherwise as required under the Applicable Laws.

- (2) The Respondent agrees that ONTC may disclose Proposals, and all information submitted in or related to the Proposals, to the Government of Ontario.
- (3) ONTC may provide the Proposals to any person involved in the review and/or evaluation of the Proposals on behalf of ONTC and ONTC may:
 - (a) make copies of the Proposal; and/or,
 - (b) retain the Proposal.
- (4) ONTC may disclose any information with respect to the Respondents, the Proposals and the RFP Process as required by the Applicable Laws.
- (5) The Respondent shall not require ONTC or any of its representatives to sign a non-disclosure agreement in respect of any step taken or information provided as part of this RFP Process, provided that if the nature of the subject matter of the RFP is such that, in the opinion of ONTC, it would be appropriate to enter into a non-disclosure agreement with a Respondent or Respondents, ONTC and/or the Respondent shall enter into such agreement in a form and with the content satisfactory to ONTC.

3.8 Confidential Information

- (1) In this RFP, “**RFP Information**” shall mean all material, data, information or any item in any form, whether oral or written, including in electronic or hard-copy format, supplied by, obtained from or otherwise procured in any way, whether before or after the RFP Process, from ONTC or any Ministry or Agency of the Government of Ontario, in connection with the RFP Documents or the Goods and/or Services excluding any item which:
 - (a) is or becomes generally available to the public other than as a result of a disclosure resulting from a breach of this RFP Section 3.8;
 - (b) becomes available to the Respondent on a non-confidential basis from a source other than ONTC, so long as that source is not bound by a non-disclosure agreement with respect to the information or otherwise prohibited from transmitting the information to the Respondent by a contractual, legal or fiduciary obligation; or,

- (c) The Respondent is able to demonstrate was known to it on a non-confidential basis before it was disclosed to the Respondent by ONTC.
- (2) RFP Information:
 - (a) shall remain the sole property of ONTC or the Government of Ontario, as applicable, and the Respondent shall maintain the confidentiality of such information except as required by law;
 - (b) shall not be used by the Respondent for any other purpose other than submitting a Proposal or performing obligations under any subsequent agreement with ONTC relating to the Goods and/or Services;
 - (c) shall not be disclosed by the Respondent to any person who is not involved in the Respondent's preparation of its Proposal or in the performance of any subsequent agreement relating to ONTC, or the Government of Ontario, as applicable, without prior written authorization from ONTC;
 - (d) shall not be used in any way detrimental to ONTC or the Government of Ontario; and,
 - (e) if requested by ONTC, shall be returned to the Contact Person or destroyed by the Respondent no later than ten (10) calendar days after such request is received in writing by the Respondent.
- (3) Each Respondent shall be responsible for any breach of the provisions of this RFP Section 3.8 by any person to whom it discloses the RFP Information.
- (4) Each Respondent or Short-listed Respondent acknowledges and agrees that a breach of the provisions of this RFP Section 3.8 would cause ONTC, the Government of Ontario and/or their related entities to suffer loss which could not be adequately compensated by damages, and that ONTC, the Government of Ontario and/or any related entity may, in addition to any other remedy or relief, enforce any of the provisions of this RFP Section 3.8 upon application to a court of competent jurisdiction without proof of actual damage to ONTC, the Government of Ontario or any related entity.
- (5) Notwithstanding RFP Section 9.3, the provisions of this RFP Section 3.8 shall be binding and shall survive any cancellation or termination of this RFP and the conclusion of the RFP Process.
- (6) ONTC may, in its sole discretion, require that Respondents execute a legally binding non-disclosure agreement in a form and substance satisfactory to ONTC prior to receiving the RFP Information.

3.9 Governing Laws and Attornment

- (1) This RFP Process and the Final Agreement entered into pursuant to this RFP Process shall be governed and construed in accordance with the laws of Ontario, the laws of Quebec, the laws of Manitoba, if relevant to the subject matter of this RFP, and the applicable laws of Canada, excluding any conflict of laws principles.
- (2) Each Respondent agrees that the courts of the Province of Ontario shall have exclusive jurisdiction to entertain any action or proceeding based on, relating to or arising from this RFP process.

3.10 Licenses and Permits

- (1) If a Respondent is required by the Applicable Laws to hold or obtain a license, permit, consent or authorization to carry on an activity contemplated in its Proposal, neither acceptance of the Proposal nor execution of the Final Agreement shall be considered to be approval by ONTC of carrying on such activity without the requisite license, permit, consent or authorization.

3.11 Respondents' Costs

- (1) The Respondent shall bear all costs and expenses incurred by the Respondent relating to any aspect of its participation in this RFP Process, including, without limitation, all costs and expenses related to the Respondent's involvement in:
 - (a) the preparation, presentation and submission of its Proposal;
 - (b) due diligence and information gathering processes;
 - (c) attendance at any Respondents' Meeting(s) or presentations;
 - (d) preparation of responses to questions or requests for clarification from ONTC;
 - (e) preparation of the Respondent's own questions during the clarification process;
 - (f) preparation of prototypes, proof of concept and/or demonstrations; and,
 - (g) any discussions or negotiations with ONTC regarding the Final Agreement.
- (2) Without limiting the generality of Section 9.1(2) of this RFP, in no event shall ONTC or the Government of Ontario be liable to pay any costs or expenses or to reimburse or compensate a Respondent under any circumstances for the costs or expenses set out in Section 3.11(1), regardless of the conduct or outcome of the RFP Process.

3.12 Delay and Costs of Delay

- (1) By submitting a Proposal, the Respondent waives all claims against ONTC and the Government of Ontario including any claims arising from any error or omission in any part of the RFP Documents or RFP Information or any delay, or costs associated with delays, in the RFP Process.

3.13 Clarification and Verification of Respondent's Proposal

- (1) Following submission of a Proposal, ONTC may:
 - (a) request a Respondent to clarify or verify the contents of its Proposal, including by submitting supplementary documents; and/or,
 - (b) request a Respondent to confirm an ONTC interpretation of the Respondent's Proposal.
- (2) Any information received by ONTC from a Respondent pursuant to a request for clarification or verification from ONTC as part of the RFP Process may, in ONTC's discretion, be considered as an integral part of the Proposal even if such information should have been submitted as part of the Respondent's Proposal and may, in ONTC's discretion, be considered in the evaluation of the Respondent's Proposal.
- (3) ONTC may, in its sole discretion, verify or clarify any statement or claim contained in any Proposal or made subsequently in any interview, presentation, or discussion. That verification or clarification may be made by whatever means that ONTC deems appropriate which may include contacting the persons identified in the contact information provided by the Respondent and contacting persons or entities other than those identified by any Respondent.
- (4) By submitting a Proposal, the Respondent is deemed to consent to ONTC verifying or clarifying any information and requesting additional information from third parties regarding the Respondent) and its directors, officers, shareholders or owners and any other person associated with the Respondent as ONTC may determine is appropriate.
- (5) ONTC is not obliged to seek clarification or verification of any aspect of a Proposal, or any statement or claim made by a Respondent.

- (6) Requests for clarifications shall not be construed as acceptance by ONTC of a Proposal.

3.14 Two-Envelope Process

- (1) ONTC may elect to complete a Two-Envelope Process. Whether Respondents will be required to submit their Proposals using a Two-Envelope Process will be identified on the RFP Data Sheet.

- (2) If ONTC elects to complete a Two-Envelope Process, the Proposal shall be broken down into two components; a technical submission and a financial submission.
- (3) If ONTC elects to complete a Two-Envelope Process, ONTC will identify a minimum score that must be attained on the technical submission on the RFP Data Sheet. Proposals that do not meet the minimum score for the technical submission following evaluation of the technical submission, will not proceed further in the evaluation process, provided that ONTC may, in its sole discretion, based on the overall scores of all the technical submissions, revise the minimum score required to proceed further in the evaluation process. Financial submissions will only be opened and evaluated for the Proposals that meet the minimum score for the technical submission.

SECTION 4 - PROPOSAL CONTENT AND FORMAT

4.1 Format and Content of Proposal

- (1) Respondents shall submit their Proposal in one envelope or, if submitting electronically, one electronic folder. Where required by the RFP Data Sheet to follow the two-envelope process, Respondents shall submit the technical submission and the financial submission in two separate envelopes or, if submitting electronically, two separate electronic folders.
- (2) Unless otherwise specified in the RFP Data Sheet, Respondents shall not submit pre-printed literature with their Proposals. Any unsolicited pre-printed literature submitted as part of a Proposal will not be reviewed by the Evaluation Team.
- (3) Each Respondent will:
 - (a) in a clear, concise and legible manner, complete and submit all documentation and information required by Part 2, Part 3, and Part 4 to the RFP;
 - (b) for a hard copy submission, complete any handwritten portions of the proposal forms in ink;
 - (c) provide all information requested and ensure that an authorized person or persons sign all forms where indicated. Failure to provide all requested information on the proposal forms and failure to fill in all blank spaces may result in a Proposal being determined to be non-compliant; and,
 - (d) use only the proposal forms issued as part of the RFP documents unless otherwise indicated.
- (4) Information provided by Respondents on hard copy proposal forms may be amended prior to the Proposal submission, provided the amendments are initialed by an authorized representative of the Respondent. Un-initialed pre-submission amendments may result in the Proposal being declared non-compliant.

- (5) Proposals that are not originals (if hard copy), are unsigned, improperly signed, incomplete, conditional or illegible, may be declared non-compliant.
- (6) The Harmonized Sales Tax (HST) shall not be included in the price. Any taxes or increases to taxes announced prior to the date of the issuance of the RFP Documents and scheduled to come into effect subsequent to it shall be taken into consideration at time of invoicing.
- (7) Price:
 - (a) Price shall be an all-inclusive lump sum price (excluding HST), unless otherwise indicated in the RFP Documents; and,
 - (b) Where the RFP requires the Respondent to provide a breakdown of the price in Proposal Form 1-A, the price as stated in Proposal Form 1 shall govern in the case of conflict or ambiguity between the price and the sum of the breakdown of the price.
- (8) Listing of Subcontractors

Each Respondent shall complete the “Subcontractors” section of Proposal Form 2 – Respondent’s General Information, naming the Subcontractors which the Respondent will employ to perform an item of the work called for by the RFP Documents. Failure of the Respondent to list Subcontractors where required, may result in the Proposal being declared non-compliant.

4.2 Proposal Submission Form

- (1) Each Respondent will complete and submit the forms included in Part 4 – Form of Proposal. Failure of the Respondent to complete and submit one or more of the forms included in Part 4 – Form of Proposal, may result in the Proposal being declared non-compliant.
- (2) Respondents shall execute the Proposal Submission Form as follows:
 - (a) in the case of a sole proprietorship, the sole proprietor will sign the Proposal Submission Form and have the signature witnessed;
 - (b) in the case of a corporation, an authorized signing officer will sign the Proposal Submission Form; or,
 - (c) in the case of a partnership, a partner or partners authorized to bind the partnership will sign the Proposal Submission Form and have their signatures witnessed.

4.3 Bid Performance Security

- (1) The Respondent shall provide with its Proposal, Bid Performance Security in one of the following forms:

- (a) Irrevocable stand-by Letter of Credit (“**LOC**”); or,
- (b) Bid bond

(the “**Bid Performance Security**”).

The Bid Performance Security shall be:

- (a) in the Respondent’s own name;
- (b) if a bid bond, issued by a surety licensed to conduct surety and insurance business in Ontario;
- (c) in a form satisfactory to ONTC;
- (d) for a term of at least ninety (90) calendar days after the Submission Deadline; and
- (e) in the amount of ten percent (10%) of the total bid price excluding HST.

The Bid Performance Security is for the benefit of ONTC and will be retained by ONTC to compensate ONTC for the damages it will suffer if the Successful Respondent fails to provide the Contract Securities (defined in Section 4.3(2), below) and evidence of insurance and other documents required by this RFP or by the Final Agreement, or fails to execute the Final Agreement within the time required by the RFP Documents.

The Bid Performance Security of the Successful Respondent will be returned after the Successful Respondent delivers to ONTC compliant Contract Securities and evidence of insurance and other documents required by this RFP or by the Final Agreement and the Successful Respondent has executed the Final Agreement, all within the time required by the RFP Documents.

The Bid Performance Security of all other Respondents shall be returned to the Respondents upon the occurrence of the earlier of:

- (a) execution by both parties of the Final Agreement between ONTC and the Successful Respondent;
- (b) the expiry of the 90-day period following the Submission Deadline;
- (c) the cancelation of the RFP process without an award of the contract; or,
- (d) the disqualification of all Proposals.

(2) Agreement to Bond

The Respondent shall provide with its Proposal an agreement to bond issued by a surety company undertaking to provide a fifty percent (50%) Performance Bond and a fifty percent (50%) Labour and Material Bond (the “**Contract Securities**”) in the form prescribed by the *Construction Act*, both to be provided to ONTC by the Successful Respondent following award of the contract.

(3) Proposals not accompanied by the required Bid Performance Security and the required agreement to bond will be declared non-compliant.

(4) The Respondent shall include the actual cost of all bonds, with no mark-up, in the Proposal price.

4.4 References and Past Performance Issues

(1) If specified in the RFP Data Sheet, Respondents shall provide reference information. Unless otherwise set out in the RFP Data Sheet, all references shall be, where possible, with respect to similar goods and/or services, as applicable, during the five (5) years immediately prior to the Submission Deadline. Unless otherwise set out in the RFP Data Sheet, the Respondent shall provide a minimum of three (3) references.

(2) ONTC may, in its sole discretion, confirm the Respondent’s experience and ability to provide the Goods and/or Services by contacting the Respondent’s references. However, ONTC is under no obligation to contact references submitted by any Respondent. References and information received from references, if contacted, will be taken into account in the evaluation process as identified in the RFP Data Sheet.

(3) ONTC may take into account in the evaluation process reliable information received from the Government of Ontario or its Agencies regarding past performance of a Respondent, provided information evidencing past poor performance by a Respondent is provided to the Respondent (subject to any restrictions on disclosure imposed by applicable law) and the Respondent is afforded an opportunity to respond to the information.

(4) If ONTC receives information from referees of a Respondent’s past poor performance, ONTC shall advise the Respondent (subject to any restrictions on disclosure imposed by applicable law) and afford the Respondent an opportunity to respond to the information prior to considering this information as part of the evaluation process.

4.5 Conflict of Interest

(1) For the purposes of this Section 4.5, the term “**Conflict of Interest**” includes, but is not limited to, any situation or circumstance where the interests, conduct, other commitments or relationships of a Respondent, a Respondent’s family member or an officer, director or employee of the Respondent could or could be perceived to, directly or indirectly, compromise, impair or be in conflict with the integrity of the RFP Process, the subject matter of the RFP or ONTC.

- (2) Each Respondent shall promptly disclose any potential, perceived or actual Conflict of Interest of the Respondent to the Contact Person in writing. If ONTC discovers a Respondent's failure to disclose a Conflict of Interest, ONTC may, in its sole and absolute discretion disqualify the Respondent or terminate the Final Agreement if such Respondent is the Successful Respondent.
- (3) ONTC may, in its sole discretion, and in addition to any other remedy available at law or in equity:
 - (a) waive any Conflict of Interest;
 - (b) impose conditions on a Respondent that require the management, mitigation and/or minimization of the Conflict of Interest; or,
 - (c) disqualify the Respondent from the RFP Process if, in the sole and absolute opinion of ONTC, the Conflict of Interest cannot be managed, mitigated or minimized.

SECTION 5 - PROPOSAL SUBMISSION, WITHDRAWAL, MODIFICATION

5.1 Submission of Proposals and Late Proposals

- (1) Each Respondent shall submit their proposal in the format prescribed in the RFP Data Sheet. ONTC will not accept any proposal submission that is not submitted in the format prescribed in the RFP Data Sheet.

ONTC may elect to accept Electronic Bid Submissions, Physical Bid Submissions or a combination of both.

- (a) If ONTC elects to use Electronic Bid Submissions, submissions shall be submitted on, and in accordance with, forms supplied by ONTC. **All responses are to be submitted to ONTC through the use of MERX Electronic Bid Submission (EBS).** Respondents shall be solely responsible for the delivery of their Proposals in the manner and time prescribed in the RFP Data Sheet.

Questions concerning submitting through MERX should be addressed to:

- MERX Customer Support
- Phone 1-800-964-6379
- Email merx@merx.com

Any Proposal from a Respondent whose name does not appear on the official MERX document request list (i.e., who has not downloaded the documents themselves) will be declared invalid, and the Proposal will not be considered.

MERX EBS does not allow submissions to be uploaded after the bid submission deadline; therefore, the Respondent should ensure they allow plenty of time to upload the documents.

Where required by the RFP Data Sheet to use a two-envelope process, Respondents shall include two separate and clearly identifiable attachments: 1) Technical and, 2) Financial. The file names for the technical and financial attachments should be sufficiently distinguishable such that ONTC does not need to open the attachments to differentiate between them.

- (b) If ONTC elects to use Physical Bid Submissions, Respondents shall submit one original and the number of copies of its Proposal (in hard copy) specified in the RFP Data Sheet and the number of electronic copies of its Proposal (on a properly labelled CD or USB key in PDF format) specified in the RFP Data Sheet, at the correct location for submission and on or before the Submission Deadline. If there is any difference whatsoever between the electronic copy of the Proposal and the original hard copy, the original hard copy of the Proposal, as submitted, will govern. The electronic copy of the Proposal is solely for the convenience of ONTC.

Respondents shall submit their Proposals to the attention of the Senior Manager of Strategic Procurement by prepaid courier or personal delivery at the following address:

Jason Baker
Senior Manager, Strategic Procurement
Ontario Northland Transportation Commission
555 Oak Street East
North Bay, Ontario P1B 8E3

The Respondent shall place their Proposal Submission in a sealed envelope or package with the Respondent's full legal name and return address, the RFP Number, the Submission Deadline and the label "Proposal Submission" clearly displayed on the outside of the envelope.

Where required by the RFP Data Sheet to use a two-envelope process, Respondents shall have one sealed envelope as prescribed above that contains two individual sealed envelopes inside that are clearly marked "Technical Submission" and "Financial Submission".

- (c) For the convenience of the Respondents, and only when identified in the RFP Data Sheet, ONTC may allow either an Electronic Bid Submission through MERX or a Physical Bid Submission. The Respondent shall only use one method and follow the same procedure prescribed above.
- (2) Proposals must be received before the time noted in the RFP Data Sheet.

- (3) Proposals will be date and time stamped at the place receiving the Proposals. Late Proposals will be returned unopened.
- (4) Proposals which are submitted by facsimile transmission, email, or by electronic means other than MERX will NOT be considered.
- (5) Respondents are solely responsible for the method and timing of delivery of their Proposals.
- (6) ONTC reserves the right to make copies of the Respondent's Proposals as it may be required for the purpose of conducting a full evaluation of the Proposal submitted.
- (7) The Respondent should identify and mark any trade secret or proprietary intellectual property in its Proposal.

5.2 Late Proposals

- (1) ONTC will reject Proposals that are received after the Submission Deadline.

5.3 Withdrawal of Proposals

- (1) When submitting a Physical Bid Submission, a Respondent may withdraw its Proposal at any time before the Submission Deadline by notifying the Contact Person in writing. ONTC shall return, unopened, a Proposal that has been withdrawn.
- (2) When submitting an Electronic Bid Submission, MERX will allow withdrawal of Proposals up to the Submission Deadline.

5.4 Amendment of Proposals

- (1) When submitting a Physical Bid Submission, Respondents may amend their Proposals after submission but only if the original Proposal is withdrawn and the amended Proposal is submitted before the Submission Deadline.
- (2) Electronic Bid Submissions through MERX will allow amendments up to the closing date and time; however, **Respondents are responsible for ensuring they allow sufficient time to upload the amended documents.**
- (3) If more than one Proposal is received from the same Respondent before the Submission Deadline, only the last Proposal received before the Submission Deadline will be considered.

5.5 Proposal Irrevocability

- (1) Subject to the Respondent's right to withdraw or amend the Proposal before the Submission Deadline, the Respondent's Proposal is irrevocable and shall remain in effect and open for acceptance for ninety (90) days after the Submission Deadline.

5.6 One Proposal per Person or Entity

- (1) Except as set out in the RFP Data Sheet or with ONTC's approval:
 - (a) a person or entity shall submit or participate in only one Proposal either individually or as a Respondent team member; and,
 - (b) a person or entity shall not be a subcontractor of a Respondent and also submit a Proposal individually or as a Respondent team member in the same RFP Process.
- (2) If a person or entity submits or participates in more than one Proposal in contravention of RFP Section 5.6(1), ONTC may, in its sole discretion, disqualify any or all of the Proposals submitted by that person or entity or in which that person or entity is a participant.

SECTION 6 - PROPOSAL EVALUATION

6.1 Evaluation Team

- (1) ONTC will establish an evaluation team for the purpose of evaluating Proposals (the "**Evaluation Team**").
- (2) The Evaluation Team may, in its sole discretion, delegate certain administrative functions related to the evaluation of Proposals to a separate team of individuals who are not members of the Evaluation Team, who will be supervised by the Evaluation Team. Without limiting the generality of the foregoing, but for greater particularity, the Evaluation Team may seek the advice and assistance of third-party consultants and the Government of Ontario. Each Respondent acknowledges that the RFP documents may have been prepared with the assistance of a third-party consultant and that the consultant may participate in the evaluation of the Proposals.

6.2 Evaluation of Proposals

- (1) The Respondents' Proposals will be reviewed and evaluated by the Evaluation Team on the basis of the evaluation criteria set out in the RFP Data Sheet (the "**Evaluation Criteria**").
- (2) After selection of the Short-listed Respondent(s), ONTC may, in its sole discretion, negotiate changes, amendments or modifications to the Short-listed Respondent's Proposal or the Final Agreement.
- (3) If ONTC is of the opinion that any of the following apply, then ONTC may, in ONTC's sole discretion, decline to select that Respondent to be a Short-listed Respondent:
 - (a) a Respondent has submitted a price that is clearly insufficient to perform the supply of Goods and/or Services;

- (b) a Respondent has previously provided poor performance to ONTC or a subsidiary of ONTC;
- (c) a Respondent is disqualified from participating in the RFP Process per RFP Section 7.2 (1)(i);
- (d) ONTC cannot, to ONTC's satisfaction, prior to the conclusion of the RFP Process, verify independently or through a third party or parties any and/or all information, statements, representations and/or warranties contained in the Proposal;
- (e) a Respondent or any subcontractor of the Respondent is not financially sound, or ONTC is unable to obtain from the Respondent or third-party sources reasonable assurances of the financial position of the Respondent or any of its subcontractors;
- (f) the overall cost to ONTC would be significantly increased with that Respondent;
- (g) the Respondent failed to meet the mandatory requirements specified in the RFP Data Sheet; or,
- (h) the Respondent failed to attain the minimum score required for the Technical Submission, where the RFP Data Sheet called for a two-envelope process.

6.3 Short-Listing

- (1) The Evaluation Team will establish the list of Short-listed Respondents based on the Evaluation Criteria.
- (2) The number of Respondents short-listed is in the sole discretion of ONTC.

6.4 Interviews, Site Visits, Demonstrations and Presentations

- (1) ONTC may, in its sole discretion, conduct interviews, demonstrations, site visits or presentations as part of the evaluation process if set out in the RFP Data Sheet.
- (2) The evaluation of any interviews, demonstrations, site visits or presentations will be conducted in accordance with the process set out in the RFP Data Sheet.
- (3) ONTC may conduct interviews, demonstrations, site visits or presentations with some or all Respondents, or may restrict participation to only the Short-listed Respondent(s).

SECTION 7 - GENERAL EVALUATION AND DISQUALIFICATION PROVISIONS

7.1 ONTC's Discretion

- (1) ONTC may determine, in its sole discretion:

- (a) the membership of the Evaluation Team;
- (b) if a Proposal is compliant with the RFP Documents;
- (c) if a failure to comply is material;
- (d) if a Proposal or a Respondent is disqualified;
- (e) the evaluation results and ranking for each Respondent; and,
- (f) which Respondent, if any, and how many Respondents, based on the evaluation process, will be Short-listed Respondents.

7.2 Disqualification

- (1) ONTC may, in its sole discretion, disqualify a Respondent or a Respondent's Proposal or cancel its decision to identify a Respondent as a Short-listed Respondent or a Successful Respondent, at any time prior to the execution of the Final Agreement by ONTC, if:
 - (a) The Respondent fails to cooperate in any attempt by ONTC to clarify or verify any information provided by the Respondent in its Proposal;
 - (b) The Respondent contravenes RFP Section 3.5, RFP Section 3.6 or RFP Section 5.6(2);
 - (c) The Respondent fails to comply with the Applicable Laws;
 - (d) The Proposal contains false or misleading information, or the Respondent provides false or misleading information in any part of the RFP Process;
 - (e) The Proposal, in the sole discretion of ONTC, reveals a Conflict of Interest that cannot be managed, mitigated or minimized;
 - (f) There is evidence that the Respondent colluded with one or more other Respondents in the preparation or submission of Proposals;
 - (g) The Respondent has previously breached or been in default of compliance with any term of any agreement with ONTC and such breach or default has not been waived by ONTC or the Respondent has not cured the default;
 - (h) The Respondent has been convicted of an offence in connection with any services rendered by the Respondent to ONTC, or to any Ministry, Agency, Board or Commission of the Government of Ontario or the Government of Canada;

- (i) The Respondent, at the time of issuance of this RFP or any time during the RFP Process, has an outstanding claim or is engaged in an ongoing legal dispute with ONTC, other than an adjudication under the Construction Act;
 - (j) The Proposal is not Substantially Compliant;
 - (k) The Respondent has failed to notify ONTC of, or ONTC has not approved, a post-submission change in the control of the Respondent or in the circumstances of the Respondent that may materially negatively impact the Respondent's ability to perform its obligations if selected as the Successful Respondent; and,
 - (l) The Respondent has received a Vendor Performance Evaluation as part of ONTC's Vendor Performance Policy, and received a total rating on the Final Performance Form that disqualifies the Respondent from participating in the RFP Process.
- (2) Notwithstanding Section 7.2(1), ONTC shall retain the right to select as the Successful Respondent, any Respondent(s) which, in ONTC's sole and absolute discretion, has submitted a substantially compliant Proposal(s).

7.3 General Rights of ONTC

- (1) ONTC may, in its sole discretion and at any time during the RFP process:
- (a) reject any or all of the Proposals;
 - (b) accept any Proposal or any portions of any Proposals for any reason whatsoever;
 - (c) reject any Proposals or any portions of Proposals for any reason whatsoever;
 - (d) if only one Proposal is received, elect to either accept it, reject it, or enter into negotiations with the applicable Respondent;
 - (e) elect not to proceed with, cancel, or terminate the RFP;
 - (f) alter the Submission Deadline or any other deadlines associated with the RFP Process;
 - (g) change the RFP Process or any other aspect of the RFP Documents; or,
 - (h) cancel this RFP Process and subsequently conduct another competitive process for the same Goods and/or Services that are the subject matter of this RFP or subsequently enter into negotiations with any person or persons with respect to the Goods and/or Services that are the subject matter of this RFP.
- (2) If ONTC, in its sole discretion, is of the opinion that all of Proposals submitted are not substantially compliant, ONTC may:

- (a) take any action in accordance with Section 7.3. (1);
- (b) carry out a process whereby all Respondents are directed to correct the deficiencies in their Proposals for re-submission; or,
- (c) negotiate an agreement for the whole or any part of the Goods and/or Services with a Respondent which has submitted a Non-compliant Proposal.

SECTION 8 – AGREEMENT, FINALIZATION AND DEBRIEFING AND SUCCESSFUL RESPONDENT

8.1 Finalization of the Agreement

- (1) ONTC may, in its sole discretion, retain more than one Respondent to provide the Goods and/or Services.
- (2) ONTC reserves the right in its sole discretion to sub-divide and/or bundle the Goods and/or Services which are the subject of this RFP and award one or any number of separate contracts for the Goods and/or Services.
- (3) ONTC may, in its sole discretion, enter into negotiations with one or more Respondent(s) for the purpose of selecting a Successful Respondent(s) and finalizing an agreement.
- (4) Either ONTC or a Respondent may withdraw from negotiations at any time prior to the Successful Respondent(s) being identified.
- (5) The Successful Respondent is expected to enter into the relevant CCDC form of agreement which shall include the Supplementary Conditions attached in Part 5. Proposal Form 5 – Compliance with Contract Documents allows a Respondent to submit suggested changes to the Supplementary Conditions. ONTC does not have any obligation to accept any proposed changes to the Supplementary Conditions and will do so in its sole discretion. ONTC may, in ONTC's sole discretion; (i) consider only a minimal number of changes to the Supplementary Conditions; (ii) consider significant material proposed changes to negatively impact the evaluation of the Respondent's proposal; or (ii) disqualify any Respondent where the changes or the number of changes made by the Respondent to the Supplementary Conditions would be, in ONTC's sole discretion, too onerous to successfully negotiate within the timeframe set out in Section 8.1(6) below or are unacceptable to ONTC.

In any event, ONTC will not accept any material changes to the clauses in the Supplementary Conditions relating to Confidentiality, Personal Information, Intellectual Property ownership and infringement, Indemnification, Limitation of Liability or rights of ONTC on termination. ONTC, as an Ontario Crown corporation, is unable to provide indemnities pursuant to s.28 of the *Financial Administration Act* (Ontario).

If a Respondent does not submit any proposed amendments in Proposal Form 5, it will be deemed to have accepted and will be required to execute the Final Agreement in the form attached to this RFP. If a Respondent has submitted proposed amendments to the Final Agreement, negotiations respecting those amendments shall be conducted within the timeframe set out in Section 8.1(6).

- (6) If a Successful Respondent fails or refuses to enter into and execute the Final Agreement within ten (10) Business Days of being notified they are the Successful Respondent (ONTC may extend such period of time in ONTC's sole discretion), or a Successful Respondent fails or refuses to provide the documentation in accordance with Section 8.1(7), ONTC may, in its sole discretion, take any one of the following actions:
 - (a) terminate all negotiations and cancel its identification of that Respondent as a Successful Respondent;
 - (b) select another Respondent or Short-Listed Respondent as the Successful Respondent;
 - (c) retain the bid security described in Section 4.3 to compensate for any damages suffered by ONTC as a result of the Successful Respondent's failure or refusal to enter into the Final Agreement;
 - (d) take any other action in accordance with Section 7.3; or,
 - (e) pursue any other remedy available to ONTC at law.
- (7) Prior to supplying any Goods and/or Services pursuant to the Contract, the Successful Respondent shall deliver to ONTC:
 - (a) The performance bond and the labour and material bond described in the RFP Documents. The form of such bonds shall comply with the requirements prescribed in the *Construction Act*. Refer to the link below for the appropriate forms (Form 31 and 32).

<http://ontariocourtforms.on.ca/en/construction-lien-act-forms/>
 - (b) Certificates of insurance as specified in the Final Agreement;
 - (c) Executed Contractors Health and Safety Responsibility Agreement. Refer to Proposal Form 7;
 - (d) Respondent's Health and Safety, and Environmental Policies as identified in Proposal Form 7; and,
 - (e) A current Clearance Certificate issued by the Workplace Safety and Insurance Board, if applicable.

8.2 Notification If Successful or Not

- (1) The Successful Respondent and unsuccessful Respondents will be notified by ONTC in writing regarding their success or failure in the RFP Process.

8.3 Debriefing

- (1) Respondents may request a debriefing after receipt of a notification pursuant to RFP Section 8.2. All Respondent requests should be in writing to the Contact Person no later than 60 calendar days after receipt of the notification. ONTC will conduct debriefings in the format prescribed by the OPS Procurement Directive.

SECTION 9 - LEGAL MATTERS AND RIGHTS OF ONTC

9.1 Limit on Liability

- (1) The total liability of the Respondent to ONTC for loss and damage arising from the Respondent who is selected as the Successful Respondent but then fails to deliver the Contract Security, evidence of insurance or other documents required under Section 8.1(7) within the time period specified in Section 8.1(6) or fails to execute the Final Agreement shall be limited to the value of the Bid Performance Security provided by the Respondent pursuant to Section 4.3. The liability of the Respondents for any other loss or damage suffered by ONTC as part of this RFP Process shall be without limit.
- (2) By submitting a Proposal,
 - (a) each Respondent acknowledges ONTC's rights as stated herein and absolutely waives any right of action against ONTC for ONTC's failure to accept the Respondent's Proposal whether such right of action arises in contract, negligence, bad faith, or any other cause of action;
 - (b) each Respondent covenants and agrees that, under no circumstances, shall ONTC, or any of its employees, officers, representatives, agents or advisors, be liable to any Respondent, whether in contract, tort, restitution, or pursuant to any other legal theory, for any claim, action, loss, damage, cost, expense or liability whatsoever and howsoever arising from this RFP Process, a Respondent's Proposal in response to this RFP Process, or due to the acceptance or non-acceptance of any Proposal, or as a result of any act or omission by ONTC and/or its employees, officers, representatives, agents or advisors, including any information or advice or any errors or omissions that may be contained in the RFP Documents, or any other documents or information provided to a Respondent, or arising with respect to the rejection or evaluation of any or all of the Proposals, any negotiations with any of the Respondents, or the selection of any Respondent as a Short-listed Respondent or the Successful Respondent; and

- (c) each Respondent shall indemnify and hold harmless ONTC, its employees, officers, representatives, agents and advisors, from and against any and all claims, demands, actions or proceedings brought by third parties, including but not limited to the Respondent's subcontractors or suppliers, in relation to this RFP Process.

9.2 Power of Legislative Assembly

- (1) No provision of the RFP Documents (including a provision stating the intention of ONTC) is intended to operate, nor shall any such provision have the effect of operating, in any way, that would interfere with or otherwise fetter the discretion of the Legislative Assembly of Ontario in the exercise of its legislative powers.

9.3 RFP Not a “Bidding Contract” or a Tender

- (1) Notwithstanding any other provision of this RFP, this RFP is not a tender call, ONTC does not intend to create any contractual relations or obligations with any of the Respondents by virtue of issuing this RFP, and this RFP is not an offer to enter into a contract (often referred to as “Contract A”). Except as provided in RFP Section 3.8, 4.3 and 9.1, neither this RFP nor the submission of a Proposal by a Respondent shall create any legal or contractual rights or obligations whatsoever on any of the Respondent, ONTC, the Government of Ontario or any Ministry of the Government of Ontario.

SECTION 10 – VENDOR PERFORMANCE

10.1 General

- (1) ONTC has established a Vendor Performance Policy, which provides a framework for ONTC to maximize the value for money of its Vendors by:
 - (a) proactively managing the performance of Vendors in accordance with ONTC's Purchasing Policy; and
 - (b) creating a record of past performance for use by ONTC when selecting Vendors for the supply of goods and services.

10.2 Vendor Performance Evaluation

- (1) Successful Respondents who enter into a Final Agreement with ONTC may be required to participate in the Vendor Performance Evaluation process.

10.3 Vendor Ratings for Proposal Evaluation Purposes

- (1) ONTC may access a Respondent's Vendor Performance Evaluations for previous contracts as part of the Evaluation Process. The manner in which the Respondent's ratings will be used will be identified in the Evaluation Criteria of the RFP Data Sheet.

SECTION 11 – TRANSPARENCY AND FAIRNESS

11.1 General

- (1) ONTC is committed to procuring goods and services through a process that is conducted in a fair and transparent manner, providing equal opportunity to vendors.
- (2) ONTC endeavors to provide specifications that meet the requirements of the procurement without naming specific brands. However, there may be instances where a third-party consultant prepares a specification on behalf of ONTC, and a specific brand is named. In these instances, alternate materials or products may be used if ONTC determines the proposed materials or products are equivalent to the materials or products in the specifications. Respondents shall submit proposed alternate materials or products with their Proposal submission to be considered.

SECTION 12 – INTERPRETATION

12.1 General

- (1) In this RFP, the singular shall include the plural and the plural shall include the singular, except where the context otherwise requires.
- (2) All references in this RFP to “discretion” or “sole discretion” means in the sole and absolute discretion of the party exercising the discretion.
- (3) For clarity, where the expression “Government of Ontario” is used in this RFP, it includes all Ministries and Agencies of the Government of Ontario.



PART 2

REQUEST FOR PROPOSALS SUMMARY OF REQUIREMENTS

**PART 2 – REQUEST FOR PROPOSALS
 SUMMARY OF REQUIREMENTS
 SCHEDULE 2-A
 RFP DATA SHEET**

RFP 2024 015 ONTC Bridge Rehabilitations – Mile 69.6 & 69.7 Kapuskasing Subdivision	
Contact Details	
Contact Person	Brinda Ranpura, Procurement Contracts Specialist
Contact Information	555 Oak Street East North Bay, Ontario, P1B 8L3 brinda.ranpura@ontarionorthland.ca (705) 472-4500 ext. 548
Proposal Detail	
Respondents' Meeting	A <u>mandatory</u> Respondents' Meeting carried out by a Teams conference call will take place on Wednesday, April 24, 2024 at 1:00 p.m. Respondents must complete the Respondents' Meeting Registration Form and return it via email by Monday, April 22, 2024 at 4:00 p.m. to Brinda Ranpura at brinda.ranpura@ontarionorthland.ca . Registered Respondents will receive an invitation to the Teams call.
Validity of Proposals	90 days following the Submission Deadline
Format of Submission	Respondents shall submit their Proposal through MERX Electronic Bid Submissions (EBS). Refer to Part 1, Request for Proposals, Section 5.1 (1) (a). MERX EBS does not allow Proposals to be uploaded after the Submission Deadline; therefore, Respondents shall ensure they allow sufficient time to upload the documents. Proposals which are submitted by facsimile transmission, by email or by electronic means other than MERX <u>will NOT</u> be considered.
Two-Envelope Process	This procurement will not be a two-envelope process.
Distribution Method	The RFP Documents will be posted on the ONTC website and MERX. Any addenda to the RFP will be shared with those Respondents who attended the Mandatory Respondents' Meeting.

PART 2 – REQUEST FOR PROPOSALS
SUMMARY OF REQUIREMENTS
SCHEDULE 2-A
RFP DATA SHEET *continued*

RFP 2024 015 ONTC Bridge Rehabilitations – Mile 69.6 & 69.7 Kapuskasing Subdivision			
Proposal Detail <i>continued</i> – <u>Note the requirements below are new to ONTC</u>			
Submission Requirements	<p>Respondents are required to submit all of the documents listed below as part of their Proposal. Respondents shall confirm they have included the documents listed below with their Proposal by placing a checkmark in the column “Included in Proposal”. If the Respondent fails to include a document listed below as being “Material”, the respondent may be disqualified in accordance with section 6.2 (3) of the RFP.</p>		
	Item	Included in Proposal (indicate with ✓)	Item is classified as Material
	This checklist		
	Proposal Form 1 - Proposal Submission Form		Material
	Proposal Form 1-A – Proposal Submission Form		Material
	Proposal Form 2 - Respondent's General Information		Material
	Proposal Form 3 Acknowledgment to Comply with Part 3 – Request for Proposals Specifications		Material
	Proposal Form 4 - References		Material
	Proposal Form 5 - Compliance with Contract Documents		
	Proposal Form 7 Health, Safety and Environment		Material
	Proposal Form 8 - Schedule of Materials		
	Proposal Form 9 - List of Equipment		
	Proposal Form 10 Schedule and Proposed Approach <u>Include Construction Schedule in Gantt chart format and Written Narrative Proposed Approach</u>		Material
	Proposal Form 11 - Schedule of Progress Payments		
	Proposal Form 12 - List of Personnel <u>and Resumes</u>		Material
	Proposal Form 13 - Current Labour Agreements		
	Proposal Form 14 Contractor's Qualification Statement <u>Include Company Profile and 3 Project Descriptions</u> <u>Include Subcontractor Profiles, if applicable</u>		Material
	Proposal Form 15 - Claims		
	Bid Performance Security as prescribed in Part 1, Request for Proposals, Section 4.3.		Material

PART 2 – REQUEST FOR PROPOSALS

SUMMARY OF REQUIREMENTS SCHEDULE 2-A *continued* RFP DATA SHEET

RFP 2024 015 ONTC Bridge Rehabilitations – Mile 69.6 & 69.7 Kapuskasing Subdivision			
Important Dates			
Publication Date	Friday, April 12, 2024		
Participation Registration Form	Complete and submit to the Contact Person as soon as possible		
Deadline for Additional Information Request	Four (4) full Business Days prior to the Submission Deadline		
Submission Deadline Date and Time	Wednesday, May 15, 2024, at 2:00:00 p.m. local time (North Bay, ON)		
Target Start Date	Summer 2024		
Target Completion Date	October 31, 2025		
Draft Agreement			
Liquidated Damages	The per diem rate calculated in relation to Section 10.4 of the Supplementary Conditions is \$2,000 for each calendar day of delay beyond the prescribed date for Substantial Performance of the Work until Substantial Performance of the Work is achieved and certified, pursuant to the terms of the Contract.		
Procedure of Selection			
Mandatory Requirements	Respondents must first satisfy that all of the Mandatory Requirements listed below have been met. Respondents will receive a pass/fail for each Mandatory Requirement. Respondents who fail any of the Mandatory Requirements will be disqualified from the RFP Process.		
	Mandatory Requirement	Pass	Fail
	Respondent has participated in the Mandatory Respondents' Meeting		
	Respondent has submitted all of the documents as specified in the Submission Requirements listed in Part 2, Request for Proposals, Summary of Requirements, RFP Data Sheet		
	Respondent has provided sufficient evidence to pass the Contractor Safety Pre-Qualification (Part 4 – Form of Proposal, Proposal Form 7, Health, Safety and Environment)		
	Respondent has achieved a minimum score of 10 under Experience and Qualifications		
	Bid Bond and Agreement to Bond included in Proposal Submission (scanned copy acceptable)		

**PART 2 – REQUEST FOR PROPOSALS
 SUMMARY OF REQUIREMENTS
 SCHEDULE 2-A *continued*
 RFP DATA SHEET**

RFP 2024 015 ONTC Bridge Rehabilitations – Mile 69.6 & 69.7 Kapuskasing Subdivision		
Procedure of Selection <i>continued</i>		
Evaluation General Procedure	ONTC will proceed with an evaluation of the Proposals. The evaluation will be based on the following criteria:	
Evaluation Criteria	Description	Weight
	Price ONTC will use the following to calculate the initial score for price: $\text{Lowest price of all Proposals} / \text{price of Respondent} \times 45 = \text{Score}$ <i>ONTC reserves the right in its sole discretion to consider the best overall value when evaluating price and adjust the score accordingly. If ONTC, in its sole discretion, is the opinion that the Respondent has submitted a price that is too low to adequately complete the scope of work, then ONTC reserves the right not to use that price as the "Lowers price of all Proposals".</i>	45
	Experience and Qualifications ONTC will assess Respondents' experience and qualifications using the information supplied as part of Part 4 of this RFP. The following sub-weights will apply: Company Profile and Resumes of Key Personnel – 5 points Project Profile 1 – 5 points Project Profile 2 – 5 points Project Profile 3 – 5 points (ONTC may or may not contact references as part of the evaluation and may use this information as part of this score)	20
	Schedule and Proposed Approach ONTC will assess the Respondent's Schedule and Proposed Approach based on the following: Is the Schedule in the format requested and are the milestone dates in conjunction with the ONTC deadline? – 5 points Is the schedule and proposed approach logical and does it have sufficient detail with durations for each task? – 5 points	10
	References ONTC may rely on the information submitted by Respondents or contact references in order to evaluate this area.	10

**PART 2 – REQUEST FOR PROPOSALS
 SUMMARY OF REQUIREMENTS
 SCHEDULE 2-A *continued*
 RFP DATA SHEET**

RFP 2024 015 ONTC Bridge Rehabilitations – Mile 69.6 & 69.7 Kapuskasing Subdivision		
Procedure of Selection <i>continued</i>		
Evaluation Criteria	Description	Weight
	Local Benefit Describe how and when you will use local workforce, local vendors, local manufacturers, local contractors, and local apprentices/trainees to achieve the project goals and provide the requested services – 10 points Describe your organization's diversity programs – 5 points	15
	Environmental and Sustainability Provide evidence of compliance to Ontario's environmental requirements (e.g. recycling, waste management, etc.) – 10 points	10
	Total	100
Alternative Proposals		
General Procedure	ONTC will consider alternative proposals for this procurement. IN the event ONTC receives an alternative proposal, it will be reviewed by the consulting engineer to determine if the solution achieves the objectives. If it does, then it will be evaluated along with the other submissions in the same manner.	

**PART 2 – REQUEST FOR PROPOSALS
SUMMARY OF REQUIREMENTS
SCHEDULE 2-B
PARTICIPATION REGISTRATION FORM**

Required in order to register and receive any communications in relation to the requirement referenced below.

Date: _____
Reference Number: RFP 2024 015
Description of Requirement: ONTC Bridge Rehabilitations – Mile 69.6 & 69.7 Kapuskasing Subdivision

I, the undersigned, am registering to participate in the above referenced requirement and will be the primary contact for any communications in relation to this process and project until further advised.

Company Name: _____
Address: _____

Name of person registering to represent company referenced above (please print): _____
Email Address: _____
Phone Number: (Main Office Number) _____
Cell Number: _____

Signature of Primary Contact: _____

Return form to the Contact Person as referenced below via email as an attachment:

Thank you.

Brinda Ranpura
Procurement Contracts Specialist
Ontario Northland Transportation Commission
Phone: 1-800-363-7512 or 705-472-4500 Ext. 548
Email: brinda.ranpura@ontarionorthland.ca
Website: www.ontarionorthland.ca



PART 3
REQUEST FOR PROPOSALS
SPECIFICATIONS

PART 3 – RFP SPECIFICATIONS
SCHEDULE 3-A
SCOPE OF WORK

Introduction

Ontario Northland Transportation Commission (ONTC) maintains over 100 bridges and 2000 culverts spread across 700 miles of track exposed to the Northern Ontario climate. ONTC is conducting the rehabilitation of the Bridges at:

- i. Kapuskasing River Bridge located at Mile 69.6 on the Kapuskasing Subdivision.
- ii. Kapuskasing River Bridge located at Mile 69.7 on the Kapuskasing Subdivision.

We are requesting proposals for the bridge rehabilitation projects at these locations (see Schedule 3-A-4). Contractors are invited to submit proposals for this project. The work is scheduled to commence in summer 2024 and to be completed by October 31, 2025. All submissions must be submitted by:

2:00:00 p.m. local time on Wednesday, May 15, 2024

Conditions of the Places of Work

The Places of the Work are located from Mile 69.6 to Mile 69.7 Kapuskasing Subdivision, the Town of Kapuskasing, Cochrane District, and Province of Ontario.

Each Respondent must form their own opinions and conclusions with respect to the Work addressed in the RFP Documents. Before submitting a Proposal, investigate the Place of the Work to fully ascertain existing conditions, circumstances and limitations affecting the Work. No allowances will be made for additional costs and no claims will be entertained in connection with conditions which could reasonably have been ascertained by such investigation or other due diligence prior to submitting a bid.

Respondents will be required to use the photos included in Schedule 3-A-4 in lieu of a site visit as well as information supplied during the virtual site meeting.

Scope of Work

The Work covered under this contract involves the Steel span replacement and concrete repair work, in accordance with the Bid Documents. The Sites are ONTC's Bridges located at Miles 69.6 & 69.7 Kapuskasing Subdivision, Town of Kapuskasing, Cochrane District, and Province of Ontario (See Part 3 – Schedule 3-A-3 Site Location).

The Work covered under this contract involves, but is not limited to, the supply of all labour, material and equipment required to carry out the following work:

- Comply with all requirements of safety guidelines for Contractor and Environmental Guidelines in Appendix 2.
- Mobilize to the sites.

- Design, supply, erect and dismantle all types of scaffolding and temporary platforms, if required
- Design, supply, install and remove any cofferdams or other dewatering apparatus if required for the pier and abutments repairs.
- Survey of top of rail profile for 500 ft of approach on both ends of the bridge at maximum 30 ft intervals and preparation of survey drawing. Determine proper elevations for bearing pedestal installation.
- Environmental protection
- The removal and re-installation of rails and guard rails.
- Removal, storage and re-installation of the timber decks, walkways and hand railings from the existing steel DPG spans to the new steel DPG spans at both bridge locations. Dependent on the contractor's method of span installation, the contractor is to re-use as much of the timber deck ties as possible.
- Supply and Installation of new timber deck ties and all associated hardware, lag screws, tie spacers, hook bolts and re-installation of walkways with hand railing and grating as required for contractor's method of span installation.
- For the Installation of any new ties, the ONR will supply any extra tie plates and spikes required. Contractor to supply and install neoprene tie pads and hook bolts.
- Removal and re-installation of the rails and guard rails on the timber deck, as required.
- Removal and disposal of the total of 5 steel DPG spans from both bridge locations.
- Supply, fabrication, transportation, and installation of the total of 5 steel DPG spans at the two bridge locations.
- Supply, fabrication, transportation, and installation of the bronze bearings and shims for the total of 5 steel DPG spans at the two bridge locations.
- Supply, fabrication, transportation, and installation of the steel pedestals for the total of 5 steel DPG spans at the two bridge locations.
- Temporary support of fiber-optic cables and conduits during span removal and installation.
- Modification and re-installation of existing backwall ties.
- Excavation and supply and installation of backfill as needed.
- Supplying, installing, and removing of any jacking equipment required.
- Respect current No in-water work window of September 15th to June 20th. This window is currently under review with the possibility of it being increased.
- Chipping and demolition of concrete on piers, abutments, backwalls and wingwalls of both bridge locations.
- Supplying and installing a reinforced concrete jacket on concrete piers, abutments, backwalls and wing walls of both bridge locations, including formwork and reinforcement bars.
- Disposal of chipped and demolished concrete and any removed steel pieces.
- Supplying and installing waterproofing and sealant on new concrete pier and abutment.
- Supply and install precast concrete L-shaped retaining walls.
- Supply, installation and hand tamping of additional ballast on approaches including removal of any fouled ballast.
- Protect and restore site as required by environmental agencies and regulatory bodies, including seeding and mulching any disturbed areas.
- Stacking of any non-re-used removed ties/rail materials and then loading, transport and unloading of the ties in the ONR Englehart Yard.
- All other work as called for on the drawings and/or described in the specifications.
- Demobilization.

The Contractor shall contact Ontera as soon as possible after award of contract and provide construction details/plans with planned construction start and completion dates. The contractor is also required to provide Ontera a work schedule indicating when work affecting the Fibre optic cable will take place.

Ontera Contacts:

Peter.Aultman@Ontera.ca

Serge.Contant@Ontera.ca

Michael.Pollon@Ontera.ca

Dave.Hack@Ontera.ca

Additionally, the Contractor shall contact On1call prior to any excavation work on railway property at least 72 hours prior to work taking place.

The Work shall be performed at the site within the dates shown on the agreed upon schedule as well as respecting any no in-water work restrictions. The work plan will highlight any required track work blocks that propose to shut down Railway traffic. The scheduling of the work blocks will be negotiated with the Railway.

General Contractor Requirements

1. The contractor will be required to obtain and pay for all necessary permits and ministry notifications required for the project including, but not limited to, the following:
 - Filing notice of project with the Ontario Ministry of Labour.
2. The contractor will be required to arrange and pay for their own locates.
3. All excavated material (soil, gravel, stones, broken concrete, etc.) can be disposed of nearby on ONTC property. The disposal of this material shall be coordinated with ONTC supervision. The contractor shall remove all other material from ONTC property and pay for all disposal fees.
4. The contractor shall:
 - Supply their own on-site facilities, including construction trailer, eating areas, and washroom facilities.
 - Plan and organize the work prior to and during construction.
 - Prepare all required documentation submittals in compliance with the contract documents.
 - Supply personal protective equipment (PPE) and consumable supplies as required.
 - Designate a site supervisor who will be responsible for managing the project and be responsible for on-site safety. This site supervisor will be required to communicate with ONTC supervision to ensure the work is completed safely with minimal impact on the operation of the facility.
 - Coordinate required site inspections with **independent test firms and Hatch.**

- Purchase and deliver to the site all Contractor supplied materials, equipment, facilities, and manpower necessary to accomplish the work within the schedule.
- Establish a site-use plan acceptable to the ONTC providing an organized, safe, and efficient means of personnel transport, material handling, storage/laydown areas, construction trailer locations, access points and methods of access, and limits of construction within the premises. Obtain all temporary access agreements with third parties to access the work site, if required.
- Receive, unload, store, protect, secure, and transport within the jobsite all Contractor and ONTC furnished equipment and materials.
- Provide on-site and off-site quality control services as required in specifications, drawings and documents.
- Maintain complete records including daily construction site diary/log book, shop drawings, and pertinent photographs.
- Provide qualified personnel to perform the work.
- Ensure that the project is started and completed on schedule.
- Make every reasonable effort to contain any dust or fumes so that adjacent work areas are not contaminated during the project.
- Clean up and demobilize areas upon completion of the work.
- Supply all necessary tools and equipment to perform the work including, but not limited to, scaffolding, ladders, man lifts, temporary lighting, heating, lifting equipment. The Contractor shall provide all necessary vehicles and suitably qualified personnel to transport materials.

PART 3 – RFP SPECIFICATIONS
SCHEDULE 3-A-1
TECHNICAL SPECIFICATIONS

Refer to the technical specifications prepared by Hatch, as outlined below, and which are attached to this Schedule 3-A-1.

<u>SECTION</u>	<u>TITLE</u>
01520	Construction Facilities
01530	Temporary Works
01546	Rail Traffic Protection and Work Blocks
01561	Environmental Protection
02072	Geotextiles
021130	Track Reconstruction
02140	Dewatering
02225	Sitework Demolition and Removals
02235	ONR Crushed Rock Ballast
02270	Erosion Control
02316	Backfill for Structure
02317	Excavation Backfilling and Compacting
02371	Rip Rap/Rock Protection
02911	Topsoil Seed and Mulch
03010	Portland Cement and Concrete
03100	Concrete Formwork and Falsework
03200	Concrete Reinforcement
03300	Cast-in-Place Concrete
03450	Precast Elements
05122	Structural Steel for Bridges
05500	Jacking
05900	Bronze Bearings
07560	Damp proofing and Sealer
09900	Surface Preparation and Field Touchups

PART 1 – GENERAL

1.1 Description

- .1 This section covers mobilization, temporary procedures & controls, temporary works, protections, project identification, site maintenance, public convenience, safety, parking, etc. necessary to carry out the Work.

1.2 Mobilization

- .1 Mobilization and demobilization shall include, but not limited to, all preparatory work within and outside the Site, including Site preparation; supply, installation and maintenance of temporary facilities and controls, including Site and roadway maintenance; all costs related to establishing construction offices for the Contractor and Subcontractors; temporary power, communications, and other temporary utilities which may be required; Site security as necessary; installation and maintenance of construction barriers, maintenance of environmental controls; transportation to the Site of construction equipment as required for the performance of the Work; and demobilization and removal and disposal from the Site of all items not turned over to the Engineer. Include all provisions outlined in this section.
- .2 Upon request of the Engineer, support the unit rate submitted for Mobilization and Demobilization with data that will substantiate its correctness.

PART 2 - TEMPORARY CONTROLS

2.1 Traffic Control

- .1 The contractor shall provide whatever signs, barriers, hoarding or other delineation required to isolate construction vehicles and equipment from adjacent access ways and neighbouring properties. The contractor shall meet with the Engineer prior to the commencement of the Work to receive approval for all proposed traffic control methods.

2.2 Barriers

- .1 Supply and erect barriers to close off Work Site and protect public access ways during performance of the Work, to the satisfaction of the Engineer and the governing authority having jurisdiction.
- .2 Provide signage, flag-persons to control movement of pedestrians, vehicles, shipments, etc. as directed by the Engineer.
- .3 Provide barriers around trees and plants for protection from damage by equipment or construction procedures.
- .4 Prior to start of the Work, submit to the Engineer for approval, a comprehensive, thoughtful, written plan outlining measures to be undertaken for temporary controls.

2.3 Scaffolding

- .1 Provide and maintain any required scaffolding, ramps, ladders, swing staging, platforms, temporary stairs, etc. in accordance with the Occupation Health and Safety Act and all authorities having jurisdiction.
- .2 All temporary access measures must be designed and approved by an experienced professional engineer, licensed in the province of Ontario.

2.4 Hoisting & Cranes

- .1 Provide, operate, maintain hoists and cranes required for moving of workers, materials and equipment in accordance with the Ontario Occupational Health and Safety Act, Regulation for Construction Projects.
- .2 And cranes shall be operated by qualified operator whose proof of certification and/or qualifications must be available onsite at all times.

PART 3 – TEMPORARY WORKS

3.1 Installation and Removal

- .1 Provide temporary utilities, facilities and controls in order to execute the Work expeditiously. Remove from Site when directed to do so by the Engineer.

3.2 Temporary Power

- .1 Supply, install and maintain temporary electrical power if required in order to complete the Work.
- .2 Do not use voltage in excess of 600 V.
- .3 Arrange for connection with appropriate utility company and arrange for payment of all costs for installation, consumption, maintenance and removal.

3.3 Water Supply

- .1 Provide and pay for a continuous supply of potable water as required for Contractor's use.

3.4 Sanitary Facilities

- .1 Provide and maintain sanitary facilities for work-force in accordance with governing regulations and authorities having jurisdiction, including the Ontario Ministry of Labour's Occupational Health & Safety Act.

3.5 Telephone Service

- .1 Provide and pay for temporary telephone service as required for Contractor's use.

PART 4 – PROTECTION

4.1 Protection of Public Area

- .1 Protect surrounding private and public property from damage during performance of the Work.

4.2 Fire Protection

- .1 Take precautions to prevent fires. Provide and maintain temporary fire protection equipment of a type appropriate to the hazard anticipated in accordance with authorities having jurisdiction, governing codes, regulations, by-laws and to the satisfaction of the Engineer, as well as the municipal and insurance authorities.
- .2 Bulk storage of flammable liquids and other hazardous materials is not allowed on Site. Flammable liquids must be handled in approved containers.
- .3 Handling, use and disposal of gasoline, benzene or other flammable materials shall be required, with safe practice as required by authorities having jurisdiction.
- .4 Provide fire extinguishers of the non-freezing chemical type in each temporary building, enclosure, and/or trailer.

PART 5 – TEMPORARY STRUCTURES

5.1 Temporary Buildings

- .1 *A temporary office is not required for the Engineer.* If required, temporary offices for Contractor's own use will be sited at a location determined by the Engineer, in cooperation with the Company.
- .2 Provide first aid equipment in accordance with requirements of the Workers' Safety and Insurance Board, and the Ontario Ministry of Labour.
- .3 Provide such buildings as are required under Trades Union Rules for the protection of labour and custody of clothing and tools.
- .4 For all trailers and temporary buildings, provide wood or metal stairs and landing, painted and repainted as required with non-skid abrasive paint. Stairs and landings must be equipped with railings meeting latest Ontario Building Code requirements.

- .5 Do not locate any buildings, structures or equipment in a manner that interferes with normal flow of vehicular or pedestrian traffic, unless otherwise approved by the Engineer.
- .6 Remove temporary buildings immediately upon notification by the Engineer.

PART 6 – PROJECT IDENTIFICATION

6.1 Display & Documentation

- .1 Do not display signs without the Engineer’s written consent.
- .2 All documentation submitted to the company shall be referenced to as:

“ONR Bridge Rehabilitation – 69.6 & 69.7 Kapuskasing”

PART 7 – SITE MAINTENANCE

7.1 Maintenance & Temporary Procedures

- .1 Maintain the Site and adjacent premises in a clean and orderly condition, free from debris and other objectionable matter. Immediately remove rubbish and surplus products, equipment and structures from the Site. If the Site is not cleaned (within 48 hours after the Contractor has been instructed to do so), the Engineer may clean the Site and retain the cost from monies due, or to become due, to the Contractor.
- .2 When the Work of this Contract is substantially performed, remove surplus products, tools, construction machinery and equipment not required for the performance of the remaining Work.

PART 8 – PUBLIC CONVENIENCE, SAFETY, AND PARKING

8.1 Haul Routes

- .1 Keep haul routes and access roads free at all times from products or construction materials. Clean adjacent highways and streets of deposits due to performance of the Work to the satisfaction of the Engineer and the highway and street authorities, within 24 hours of Engineer’s instruction.
- .2 Construct and maintain whatever access roads are required to complete the Work outlined in the Contract Documents.
- .3 The Engineer may inspect haul routes, the Site and adjacent highways, roadways and premises daily and may halt operations, withhold payment, or carry out such additional

operations as necessary, deducting the cost from monies due, or to become due, to the Contractor.

8.2 Access and Egress

- .1 Access and egress to the Site will only be allowed via the approved construction access and egress routes, as indicated on the contract drawings or otherwise agreed to with Engineer.

8.3 Safety

- .1 Safety on the Owner's property is strictly governed by the ONTC Contractor's Safety Orientation.
- .2 Observe and enforce construction safety measures required by National Building Code of Canada, Occupational Health and Safety Act and Regulations for Construction Projects, Workers Safety and Insurance Board, as well as any municipal statutes and regulations.
- .3 Comply with the requirements of the Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials.
- .4 In event of conflict between any provisions of the above authorities, the most stringent provision shall govern.

8.4 Parking

- .1 Parking will be permitted on Site provided it does not disrupt performance of the work or expected traffic patterns. The Contractor shall prevent construction workers from parking within any unapproved areas.

8.5 Site Visitors

- .1 During the progress of the Work afford access to visitors duly authorized by the Engineer and facilitate inspections or tests they may desire to complete.
- .2 Ensure Site visitors follow all safety provisions as specified in the ONTC Contractor's Safety Orientation.

PART 9 – MEASUREMENT & PAYMENT

9.1 Measurement

- .1 The Work of this section will not be measured.

9.2 Payment

- .1 Payment for the Work of this Section shall be included in the lump sum for Mobilization and Demobilization included in Schedule A – Schedule of Quantities and Prices. Payment will be full compensation for all materials, labour, and use of equipment, tools and incidentals necessary to complete the Work of this section. Include all costs of attendance at any Site safety and security briefings.
- .2 The Contractor will be paid for a maximum of eighty percent (80%) of the lump sum contract price for “Mobilization and Demobilization” after completion of the mobilization. The remaining twenty percent (20%) will be paid following completion of the demobilization in accordance with this section.

END OF SECTION

01520-6

PART 1 – GENERAL

1.1 Description

- .1 Design, supply, fabrication, installation, maintenance and removal of temporary works, including, but not limited to: access roads, site work roads, work bridges, work platforms, rock berms, cofferdams, shoring and formwork/falsework for cast-in-place concrete;
- .2 Mobilization and demobilization of equipment and material required for the Work; and,
- .3 Site restoration.

1.2 References

- .1 The following references shall be used in completion of fabrication, delivery, erection, etc.:
 - .1 Ontario Provincial Standard Specification OPSS 518, latest revision, “Construction Specification for Control of Water from Dewatering Operations”.
 - .2 Ontario Provincial Standard Specification OPSS 539, latest revision, “Construction Specification for Temporary Protection Systems”.
 - .3 Ontario Provincial Standard Specification OPSS 805, latest revision, “Construction Specification for Erosion and Sediment Control Measures”.
- .2 The interim code of practice for cofferdams should be used: <https://www.dfo-mpo.gc.ca/pnw-ppe/codes/cofferdams-batardeaux-eng.html>

1.3 Related Work

- .1 Section 01520 – Construction Facilities

1.4 Submittals

- .1 Detailed design notes and Shop Drawings for temporary works (access roads, site work roads, work bridges, work platforms, rock berms, cofferdams, shoring and formwork/falsework for cast-in-place concrete) that are stamped, signed and dated by a Professional Engineer registered or licensed to practice in the province where the bridge is located. The design shall be in accordance with the requirements of this Specification and the requirements shown on the Drawings.
- .2 Proof that the above noted temporary works have been constructed in accordance with the Professional Engineer’s Shop Drawings and specifications. This proof shall be in the form of a letter bearing the seal of the Professional Engineer certifying the temporary works are in accordance with his/her design and that he/she has carried out a personal inspection of the temporary works.
- .3 Proposed supplier(s) and location of quarry(ies) for supply of rockfill material for access roads, site work roads and rock berms.

PART 2 - PRODUCTS

2.1 General

- .1 The Contractor shall be responsible for the supply, safe storage, and handling of all materials associated with this Work.

PART 3 – EXECUTION

3.1 General

- .1 Temporary works, as described above, shall be designed to support all anticipated loads. The temporary works shall be designed and constructed such that the Work can be properly constructed as required by the Specifications, Drawings and Special Provisions. Sufficient clearances shall be provided by the temporary works to permit all required construction activities to proceed unhindered.
- .2 The Contractor shall construct the temporary works in accordance with the Shop Drawings. Variations in the construction will not be permitted, unless such variations are accepted by the Professional Engineer and the Engineer is provided with revised Shop Drawings.
- .3 Care shall be taken not to damage any portion of the permanent Work. Damage to the permanent Work during installation or removal of the temporary works shall be repaired by the Contractor at his own cost to the satisfaction of the Engineer.
- .4 Temporary works shall be in accordance with the environmental and regulatory requirements and to the satisfaction of the Engineer.

3.2 Access Roads and Site Work Roads

- .1 Access roads and site work roads shall be located as shown on the Drawings to minimize disturbance of vegetation. If access roads and site work roads are not shown on the Drawings, the Contractor shall submit proposed locations as part of the Site Plan submission.
- .2 The Contractor shall not disturb the channel and embankment slopes beyond the limits shown on the Drawings unless he has obtained written permission from the Engineer. Such written permission shall be granted only if it can be shown conclusively that there is no alternative to cutting of the banks or slopes beyond the limits shown on the Drawings. If permission is granted, the Contractor shall be responsible for restoring the banks and slopes to the profile and compaction shown on the Drawings or as directed by the Engineer at his own expense.
- .3 Temporary stockpiling of the material required to construct access roads and site work roads may be permitted, subject to the approval of the Engineer. The locations and dimensions of all stockpiles shall not be detrimental to the sustainability of any existing

watercourse channel or the stability of the banks. Any erosion and sedimentation control devices (e.g. silt fence) deemed necessary by the Engineer to protect the temporary stockpile area shall be supplied, installed, maintained and removed at the Contractor's expense.

- .4 The Contractor is responsible for all snow removal within the limits of the Work. Temporary stockpiling of cleared snow may be permitted at locations and to dimensions acceptable to the Engineer. All procedures for temporary stockpiling of snow shall consider the requirements for temporary sediment and erosion control measures, sight lines for the travelling public and channel/embankment slope stability, if applicable.
- .5 The Contractor shall return all access roads and site work roads to pre-construction condition upon or before completion of the Work to the satisfaction of the Engineer.

3.3 Work Bridges, Work Platforms and Rock Berms

- .1 The Contractor shall be responsible for maintaining the uninterrupted flow of water through the site for the duration of the Contract, unless otherwise allowed by environmental regulatory approvals.
- .2 The use of creosoted timbers in contact within the watercourse channels will not be permitted.
- .3 Temporary stockpiling of the material required to construct the rock berms may be permitted, subject to the approval of the Engineer. The material shall be stockpiled in locations and to dimensions acceptable to the Engineer.

3.4 Cofferdams for Water Control - Shallow

- .1 Cofferdams shall be provided at the upstream and downstream limits of the site to allow excavation in the watercourse under dry conditions. Cofferdams shall be constructed with granular materials or sheetpiling and be as watertight as is necessary for the proper performance of the work that must be done inside them. The cofferdams shall be designed and constructed to meet the requirements of the Contractor's Water Control Plan, particularly with respect to maintaining stream flow through or around the site.
- .2 Cofferdams shall be constructed to the elevations determined by the contractor and shall provide sufficient clearances for:
 - (a) Streambed excavation and backfilling;
 - (b) Chipping of deteriorated concrete;
 - (c) Installation of rebar; and
 - (d) Construction and inspection of forms and their subsequent removal.
- .3 Sheet piling shall be driven to a depth below the bottom of the excavation to preclude the possibility of a blow-up from the bottom of the excavation.
- .4 Cofferdams shall not be removed until construction and backfilling operations have been completed to an extent where unimpeded stream flow can be re-established. Backfill

required around the permanent Work shall be supplied and placed in accordance with the Specifications for Excavating, Backfilling and Compacting.

3.5 Cofferdams for Deep Water Control

- .1 Sheet piling cofferdams, if determined to be required by the contractor, may be provided for all river pier works within the watercourse. As these piers may be within a navigable waterway, signage and lighting during construction may be required.
- .2 Temporary cofferdams shall be as watertight as is necessary for the proper performance of the work that must be done inside them. Temporary cofferdams shall be designed and constructed to the elevations determined by the contractor.
- .3 Sheet piling shall be driven to a depth below the bottom of the excavation to preclude the possibility of a blow-up from the bottom of the excavation.
- .4 The Contractor shall design and install the cofferdam prior to commencing work. The cofferdam shall be installed in such a manner as to not disturb or damage any adjacent structures, railways or roadways. Temporary cofferdams shall be designed and constructed to provide sufficient clearances for:
 - (a) Construction and inspection of forms and their subsequent removal;
 - (b) Excavation and Backfilling; and
 - (c) All works below the waterline at the pier.
- .5 Pumping from the interior of the cofferdam shall be done in such a way as to preclude the possibility of the flow of water through any fresh concrete and respecting any environmental restrictions. Pumping will not be permitted during the placing of concrete or for a period of 24 hours after, unless the pumping is done from a suitable sump separated from the concrete by a watertight wall or other effective means.
- .6 The Contractor shall insulate the walls of temporary cofferdams constructed during the winter, when it is not possible to seal off water leaks that may develop from thawing due to introduction of heat.
- .7 Unless otherwise provided for, temporary cofferdams and associated shoring, including sheeting and bracing, shall be removed after the completion of the structural concrete for the affected components of the substructure units. Care shall be taken not to disturb or otherwise damage the finished concrete or foundation material of the permanent Work or adjacent structures, railways or roadways. Backfill required around the permanent Work, with the exception of rip rap protection, shall be placed prior to removal of the temporary cofferdams and shoring, and shall be supplied and placed in accordance with the Specifications for Excavating, Backfilling and Compacting for Structures.

3.6 Shoring

- .1 Shoring shall be provided as required to support existing structures, roadways or railways, as well as unstable slopes within the limits of the work site. Structural shoring requirements for supporting existing structures will be shown on the Drawings and

identified in the Special Provisions. Excavation shoring requirements shall be in accordance with the Specifications for Structural Excavation.

- .2 Shoring shall be designed by a Professional Engineer registered or licensed to practice in the province where the bridge is located. The design shall be in accordance with the requirements of this Specification and the requirements shown on the Drawings. Detailed design notes and Shop Drawings shall be submitted in accordance with this Specification for review and comment by the Engineer.
- .3 Struts, bracing and other material not shown on the Shop Drawings shall not extend into the bridge foundations without written permission from the Engineer. The bracing system of the shored excavation or sheet piling cofferdam shall not be removed in part or in whole until the shoring or sheet piling cofferdam has been fully braced in an alternate manner, the excavation is backfilled, or the shoring or sheet piling cofferdam is otherwise ready to be removed.

3.7 Formwork/Falsework for Cast-In-Place Concrete

- .1 Formwork/falsework for cast-in-place concrete shall meet the requirements specified in the Specifications for Cast-in-Place Concrete and Concrete Formwork and Falsework.

3.8 Quality Management

- .1 The Contractor shall inspect temporary works on a daily basis to ensure that they are safe and have not been damaged due to construction, environmental exposure or vandalism.
- .2 Any damage or deficiencies in temporary works that could be perceived as unsafe or that may result in imminent danger shall be corrected immediately.

PART 4 – MEASUREMENT & PAYMENT

4.1 Measurement

- .1 The Work of this section will not be measured.

4.2 Payment

- .1 Payment for the Work of this Section shall be included in the lump sum for the Temporary Work included in Schedule A – Schedule of Quantities and Prices. Payment will be full compensation for all materials, labour, and use of equipment, tools and incidentals necessary to complete the Work of this section. Include all costs of attendance at any Site safety and security briefings.
- .2 The Contractor will be paid for a maximum of fifty percent (50%) of the lump sum contract price for “Temporary Work” after completion of the Temporary Work. The remaining fifty percent (50%) will be paid following completion of the removal of the Temporary Work.

END OF SECTION

01520-5

PART 1 - GENERAL

- .1 Note that part of the work shall be carried out under and adjacent to the Railway's operating tracks.
- .2 **Up to 3** scheduled trains may be operated during any 24-hour period as well as Extra Work Trains that are not on any fixed schedule and ordered only as required. Most of these trains would be considered daytime traffic.

The expected train schedule and available work blocks are shown in Schedule 3-A-5.

- .3 Ensure that construction operations are carried out without interfering with the continued safe movement of rail traffic.
 - .1 Bear all cost of train delays and cost of repairs to any rail, ties and ballast required as a result of damage caused by the operation.
- .4 Give the Engineer 72 hours notice of the hours within which work is to be carried out in order that protection may be provided. Time wasted unnecessarily by the Railway personnel due to the Contractor, will be charged against the Contractor.
- .5 The Railway will provide flag persons for the protection of the Railway's plant and equipment.
 - .1 The Contractor shall not commence work at the start of each work day unless authorized by the Railway flag person and shall not continue or resume site work outside of the daily work hours unless approved by the Engineer.
- .6 The Contractor shall ensure that a responsible person is present at all times to whom the Railway personnel will issue orders regarding work near the tracks. Comply immediately with such orders and instructions.
- .7 Contractor is to hold Safety Meetings with all personnel engaged in working on the site and discuss all safety matters pertaining to the work including all matters involving working around and near the railway tracks and structures.
- .8 The Contractor shall supply portable, hand held, two-way radios to be used by the flag person to communicate instructions to the Contractor's responsible person. The number of radios shall be sufficient to supply one each to the flag person, the ONR Site Supervisor and at least one responsible person for the Contractor at each work location.
- .9 The flag person and the Contractor shall have a daily briefing at the beginning of the shift to inform the Contractor what trains are expected and that rail traffic protection is in place. The flag person will also explain the procedure to be used to clear trains.
- .10 On the approach of a train, the flag person will communicate to the Contractor's responsible person, either by radio or personal contact that a train is approaching.

- .11 After receiving the train information from the flag person, the Contractor's responsible person will ensure that all workers, equipment and materials are "Clear Of The Track" then communicate this to the flag person.
- .12 "Clear Of The Track" shall be defined as:
 - .1 All workers, equipment and material must be at least 13 feet from the nearest rail of the track on which the train is to pass.
 - .2 No one shall be allowed on the deck of the bridge while a train is passing.
 - .3 All off-track equipment within 33 feet of the nearest rail must stop working on the approach of a train and remain stopped until the entire train has passed. Machine operators will leave their equipment unless directed otherwise by the foreman.
 - .4 All on-track equipment shall be moved into the siding or other track not being used by the approaching train and remain there until directed by the flag person. Operators will leave their equipment unless directed otherwise by the foreman.
 - .5 Booms of cranes or other similar equipment must not be moved over passing trains.
- .13 The Contractor shall safely expedite the "Clearing of the Track" so as not to cause any delays to passing trains.
- .14 Once the flag person has received confirmation that the track is Clear, the approaching train will be authorized to pass through the working limits.
- .15 After the train has passed, no one is to foul the track until the flag person advises that it is safe to do so.
- .16 Ensure that all personnel are instructed in the Safety Requirements contained herein prior to entering the work site.
- .17 Provide all means necessary to prevent the entrance of unauthorized personnel on to the work site.
- .18 The Contractor is responsible for ensuring that all new workers or visitors to the site are made aware of the safety and flagging procedures.
- .19 Anyone failing to comply with these procedures will be removed from the work site.

PART 2 - TRACK PROTECTION

- .1 At all locations where there is a possibility of trees, rock or other debris falling on the tracks, provide track protection such as timber mats or an approved equivalent in order to prevent possible damage to rail, ties and ballast.
- .2 Prevent excavated material from fouling ballast and sub-ballast.

PART 3 - RESTRICTIONS ON CONSTRUCTION OPERATIONS

- .1 In order to ensure the continued safe movement of rail traffic, certain restrictions shall be imposed on the construction operations. Without in any way limiting the generality of the foregoing statement, the following are some of the limitations or restrictions that shall be imposed.
 - .1 When operations are being carried out which may endanger the existing track or impede the safe passage of trains, perform such work only during such times as there is a block on the mainline rail traffic.
 - .2 All equipment within 33 feet from the nearest rail must stop working on the approach of a train and remain stopped until the train has passed.
 - .3 Do not work closer than 33 feet from the nearest rail without the prior consent of the Engineer and only during such times as there is rail traffic protection provided by the Railway.
 - .4 Confine all work activities to daylight hours and do not exceed 10 hours per day unless authorized by the Engineer.
 - .5 Drilling or welding to support construction equipment will not be permitted.
- .2 The Railway may, from time to time, delay or suspend operation under the Contract, either upon the whole of the works, or at any particular point or points. Should any such delay or suspension, in the opinion of the Engineer, unreasonably limit the time for the completion of the works, the Engineer may allow such additional limit, in extension of such time for completion; but no such delay, or suspension shall vitiate the Contract, or any part hereof, or any security or obligation for the performance hereof, nor shall the Contractor be entitled to make any claim for damages by reason thereof. Upon the termination of such delay, or suspension, or the removal of the cause thereof, or upon the Contractor receiving notice from the Engineer requiring him to resume the work, he shall at once resume operations and diligently carry on the same.

PART 4 - CROSSING TRACKS

- .1 Do not cross tracks of the Railway Company with scrapers, bulldozers, trucks, barrows or other mechanical equipment at grade nor place crossing planks except by authority of the Engineer, at locations designated by him. Ensure that both rails of the same tracks are never connected with any conductor of electricity such as steel measuring tapes or metal traction equipment.
- .2 Construct grade level track crossing at a location and to a standard acceptable to the Engineer. Crossings constructed to a standard less than the following shall be used by equipment only when flagging protection has been provided by Railway personnel.
- .3 The crossing shall:
 - .1 Have a level gradient on either side for a distance of 30 feet or not less than the maximum length of vehicle using it.
 - .2 Have approach grades not greater than 5%.

- .3 Have a crossing surface of suitable material extending at least 3 feet beyond the traveled width on both sides measured at right angles to the roadway.
- .4 Be of an overall safe width suitable for the use intended.
- .4 Equipment capable of crossing in the time available, considering sight distances, may use the crossing without special protection, but must stop 10 feet short of the nearest rail and ensure that it is safe to cross before doing so. Crawler-mounted equipment and all equipment (including low bed type equipment) which is not capable of safely completing a move across the crossing within the time determined by the sight lines and train speed shall use the crossing only when flagging protection has been provided by Railway personnel.
- .5 To minimize fouling the ballast, install filter fabric over the entire ballast section under the crossing planks and approaches.
- .6 Construct, upgrade and maintain crossings to meet the aforementioned requirements.
- .7 All costs for material and labor to construct the crossing shall be the responsibility of the Contractor.

PART 5 - SHORT WORK BLOCKS

- .1 The Railway may, between scheduled trains, and when required, be able to provide positive protection against train movements for a short time period.
- .2 During this block time, no rail traffic shall pass through the construction area except in case of emergency.
- .3 Generally this train protection is for the construction operations which, in the opinion of the Engineer, have minimal potential to impede rail traffic or damage the main track. The Contractor shall give the Engineer 48 hours advance notice when work requiring such a block is to be carried out.
- .4 The Railway is prepared to schedule this short work block only to permit the Contractor to do minor work on the structure.
- .5 The traffic indicates that these short work blocks occur every day. For work which requires a long duration see "Long Work Blocks" below.

PART 6 – LONG WORK BLOCKS

- .1 These work blocks can occur Saturday to Sunday (Summer Schedule) or Saturday to Monday (Fall/Winter/Spring Schedule), at any time of the day or night. The proposed duration of the work blocks specified herein may be subject to negotiation with the Engineer.

- .2 During these block times, no rail traffic will pass through the construction area except in case of emergency.
- .3 The specific time of day is subject to confirmation by the Engineer.
- .4 During the long and short blocks, railway traffic will be stopped and the Contractor will be permitted to occupy the track portion of the bridge.
- .5 Outside of these “blocks”, the Contractor will not be permitted under any circumstances to occupy the operating track portion of the bridge or in any way affect scheduled train operations.
 - .1 The Contractor and his equipment must stay out of the train operating area.
 - .2 When handling structural members, the Contractor shall ensure that they never encroach into the operating area of the track.

PART 7 - MEASUREMENT AND PAYMENT

7.1 Measurement

- .1 No measurement for payment will be made for Rail Traffic Protection and Work Blocks.

7.2 Payment

- .1 No payment will be made for Rail Traffic Protection and Work Blocks.

END OF SECTION

PART 1 - GENERAL

1.1 Description

- .1 The work specified in this section consists of all matters related to protection of the environment, including, but not limited to, protection of streams and watercourses, protection of air and water quality, protection of wildlife and wildlife habitats, protection of vegetation, protection of social, cultural and historic resources and restoration.
- .2 The work includes provision of suitable waste disposal means, including but not limited to: disposal of construction wastes, sanitary wastes, process wastes and any other waste materials generated during the conduct of the work or incidental thereto.
- .3 The work requires adherence to all applicable Municipal, Provincial and Federal Legislation, Regulations, Orders, Standards and Guidelines.
- .4 The work includes obtaining and complying with provisions of all Permits, Permissions, Allowances and Licences required by governing bodies for the conduct of the Work and matters incidental thereto.
- .5 The Contractor shall maintain all protection control features in satisfactory working condition throughout the length of this Contract.

1.2 Related Work

- .1 Section 01520, Construction Facilities and Temporary Controls
- .2 Section 02225, Sitework Demolition and Removal

1.3 Definitions

- .1 ENVIRONMENT means all natural physical, chemical and biological components and all social, cultural and historic components of the world.
- .2 ECOSYSTEM means the interaction of all environmental components.
- .3 WATERBODY shall mean any body of water, whether moving or still, including, but not limited to, rivers, streams, creeks, channels, lakes, ponds, marshes, sloughs, swamps, bogs and ditches with water in them, and shall include the area bounded by these bodies up to and including the high water mark.

1.4 Submittals

- .1 Submit the following at least ten (10) working days prior to starting the work or engaging in new aspects of the work to the Engineer for their review and acceptance:
 - .1 Design of all environmental protection measures, which are included in the work or incidental thereto.

- .2 Methodology for all environmental protection measures which are included in the work or incidental thereto.
- .3 Emergency response plans for protection of the environment.
- .4 The names of all responsible parties to the work and how these persons may be contacted at any time.
- .2 Submit the following from time to time as requested by the Engineer and/or any governing body:
 - .1 Samples of air, soils, water, rock and any construction materials, including, but not limited to, fuels, oils, grease and process chemicals. Samples are to be submitted immediately upon request.
 - .2 Evidence of valid Licences, Permits, Permissions and Approvals.

1.5 Stoppage of Work

- .1 The Engineer shall have the authority to stop Work and order immediate actions to remedy a situation that, in his opinion, endangers the integrity of the environment.
- .2 The Company shall not be liable for costs or delays caused by such actions.

1.6 Contractor Responsibility

- .1 The Contractor is responsible for complying with ONR environmental standards, other applicable regulatory agency requirements and all permit compliance issues during construction, as well as the following:
 - .1 Site control for drainage and sediments
 - .2 Water quality throughout the operation
 - .3 Materials management
 - .4 Minimal footprint of impacted area

PART 2 - PRODUCTS

Not applicable

PART 3 - EXECUTION

3.1 Clearing

- .1 Clearing shall be performed in compliance with section 02225 – Sitework Demolition and Removal and will not be commence more than three (3) weeks prior to the initiation of grading work. The area of exposed soil shall at all times be minimized.
- .2 Burning of vegetation shall NOT be allowed.

3.2 Work Adjacent to Waterways

- .1 Do not operate construction equipment in waterways. All equipment used adjacent to the waterway shall be clean, sound and inspected for mechanical soundness.
- .2 Do not dump excavated fill, waste material or debris in waterways.
- .3 Do not cross waterway with construction equipment except at designated locations that have been constructed in accordance with requirements and materials approved by DFO and the Engineer.
- .4 Do not distribute construction materials across waterways.
- .5 The Contractor shall have an approved environmental protection mitigation plan in the event of a spill or other contamination event adjacent to the waterway. All materials required to implement the mitigation plan must be on site and available, and the Contractor's personnel trained in their use, before commencing any work adjacent to the waterway.

3.3 Air Quality Protection

- .1 The Contractor shall control dust emissions from the Work or activities incidental to the Work in compliance with the Contractor's environmental protection plan
- .2 All equipment shall be fitted with standard emission control devices appropriate to the equipment and in compliance with Federal, Provincial and Municipal regulations and standards.

3.4 Wildlife and Wildlife Habitat Protection

- .1 The Contractor shall avoid disturbance of wildlife and/or disruption of wildlife habitat.
- .2 The Contractor shall provide "wildlife proof" garbage disposal containers for all food scraps, lunchroom scraps and other wastes which may attract wildlife.
- .3 Feeding of wildlife, including but not limited to, bears, birds and small mammals, shall not be permitted.
- .4 Raptor nests, wildlife denning sites and other areas of wildlife habitation shall not be disturbed while occupied.

3.5 Aquatic Life and Aquatic Habitat Protection

- .1 The Contractor shall avoid unnecessary disturbance of the fish and/or disruption of aquatic habitat.
- .2 At all times, the Contractor shall carry out his operations in or adjacent to the river as per the specifications herein and as per the regulations and requirements of all applicable

Municipal, Provincial and Federal Legislation, Regulations, Orders, Standards and Guidelines.

- .3 If the Contractor proposed construction procedures and methods have the potential of causing significant turbidity in the watercourse, the Contractor shall foresee the installation of appropriate control measures (ie. Turbidity curtains, silt fences, percolation wells, etc.) as per DFO and other regulatory body regulations.

3.6 Vegetation Protection

- .1 The Contractor shall avoid unnecessary damage to vegetation.
- .2 The Contractor shall restrict activities to the area of Work.
- .3 Snow and other materials shall not be pushed into adjacent vegetated areas.
- .4 Trees which abut the area of Work and which in the normal conduct of the Work become damaged shall be made good in compliance with section 02225 – Sitework Demolition and Removal.

3.7 Petroleum Storage

- .1 Store petroleum products in compliance with Federal and Provincial regulations.
- .2 Whenever possible all equipment shall be fuelled away from the watercourse in compliance with Federal and Provincial regulations. If fuelling should be required adjacent to the watercourse, it shall be executed in compliance with environmental regulations and the approval of the Engineer.

3.8 Social, Cultural and Historical Protection

- .1 The Contractor shall conduct all activities such that social, cultural and historical resources are protected.
- .2 Archaeological sites or other sites of historic or cultural significance shall be protected. Disturbance of such sites in any manner shall not be permitted except with the express written consent of the Engineer and the responsible governing body.
- .3 The Contractor shall ensure that the workforce does not adversely impact adjacent towns, villages or individuals.

3.9 Waste Disposal

- .1 The Contractor shall observe all regulations concerning public health and is responsible for providing sanitation facilities as required. Sanitary waste shall be taken to an approved disposal site.
- .2 Make provision for suitable waste disposal means, including, but not limited to, disposal of construction wastes, sanitary wastes, process wastes and any other waste materials

generated during the conduct of the work or incidental thereto. Comply with Federal, Provincial and Municipal regulations.

- .3 All construction debris/waste shall become the property of the Contractor and shall be disposed of in a timely fashion during the prosecution of the Work. The Contractor shall be solely responsible for all costs relating to the disposal of the waste.

3.10 Site Control Conditions and Mitigation

- .1 Any excavated shrubs, trees and surficial soils disturbed during site development should be removed a minimum 120 meters from the river bed to a suitable storage area, i.e. at remove on road access.
- .2 Any infill materials, imported to the site should be clean, clear fill with a minimum of fines and/or erodible material. Washing may be required.
- .3 Any in filled areas within the watercourse should be within a filter cloth lined infill cell. Infill should be weather clean rock. Gradation of rock fill for strength/stability must be without a fines component.
- .4 Prior to construction of any in-water pad, the area to be filled should be contained with a silt curtain. Turbid waters shall be pumped to the filtration cell.

3.11 Restoration and Reclamation

- .1 The Contractor shall ensure that all debris, waste, garbage and other materials not naturally found at the site are removed at the completion of the Work and that the site is left in a neat and tidy condition satisfactory to the Engineer.
- .2 All temporary structures shall be removed at the completion of the Work and when instructed by the Engineer.
- .3 Soils and/or other materials contaminated by petroleum products, chemicals or other undesirable materials shall be cleaned up in compliance with the Contractors Environmental Protection Plan. Materials so fouled shall be excavated and hauled to an approved disposal site, unless otherwise agreed in writing by the Engineer.
- .4 Sediments collected in sediment control traps shall be removed when instructed by the Engineer and at the completion of the Work. Sediment control traps shall be similarly removed unless otherwise directed by the Engineer.
- .5 **The contractor shall be solely responsible for all compensation requirements levied against it by applicable regulatory agencies as a result of non-compliance with environmental guidelines, restrictions and regulations.**

PART 4 - MEASUREMENT AND PAYMENT

01561-5

4.1 Measurement

- .1 No measurement for payment will be made for environmental protection.

4.2 Payment

- .1 Environmental protection will be paid for at the Contract Lump Sum Bid Item Price as per Schedule A – Schedule of Quantities and Prices, and that shall constitute full compensation for all work performed under this section. Payment will be full compensation for all materials, labour, use of equipment, tools and incidentals necessary to complete the Work.

END OF SECTION

PART 1 – GENERAL

1.1 Description

- .1 This section specifies requirements for installation of geotextile materials required to store existing ballast or underlay backfill or erosion control, if required.

1.2 Related Work

- .1 Section 01561, Environmental Protection
- .2 Section 02317, Excavation, Backfilling and Compaction

1.3 References

- .1 Ontario Provincial Standard Specification OPSS 1860, latest revision, “Material Specification for Geotextiles”.

PART 2 – PRODUCTS

2.1 Geotextiles

- .1 Terrafix Non Woven 4000R, Armtec 250 Non-woven Geotextile or approved equivalent for protection of railway ballast if the existing ballast is deemed reusable by the Engineer.

PART 3 – EXECUTION

3.1 Preparation and Placement

- .1 Geotextile installation shall be in accordance with manufacturer recommendations in a dry and clean area on existing terrain.
- .2 Damaged or deteriorated geotextile will be replaced, at the Contractors cost, to the satisfaction of the Engineer.
- .3 Vehicles are not permitted on exposed geotextile.

PART 4 – MEASUREMENT AND PAYMENT

4.1 Measurement

- .1 No measurement for payment will be made for Geotextiles.

4.2 Payment

- .1 Payment of geotextiles shall be included in the unit prices associated with the items in which they are used as per the Schedule A Schedule of Quantities and Prices. Payment will represent full compensation for all material, labour, use of equipment, tools and incidentals necessary to complete the Work.

END OF SECTION

PART 1 - GENERAL

1.1 Description

- .1 This Section specifies the requirements for dewatering necessary to lower and control ground water table levels and hydrostatic pressures to allow excavation, backfill and construction to be completed in the dry. Control of surface water shall be considered part of the work associated with this specification.
- .2 The Contractor shall be responsible for the design, installation, operation and monitoring of the dewatering system. The design and adequacy of the dewatering system shall be based on the available data provided by the Company contained in the appendices.

Note: Any proposed dewatering methodology which requires more than 50,000 l/day of pumping by mechanical means; the contractor will be required to obtain a Permit to Take Water (PTTW) from the Ministry of Environment.

1.2 Related Work

- .1 Section 01561 – Environmental Protection.
- .2 Section 02270 – Erosion Control.

1.1 References

- .1 Ontario Water Resources Act, R.R.O. 1990, Regulation 903.
- .2 Ontario Provincial Standard Specification OPSS 517, latest revision, “Construction Specification For Dewatering of Pipeline, Utility and Associated Structure Excavation”.
- .3 Ontario Provincial Standard Specification OPSS 518, latest revision, “Construction Specification For Control of Water From Dewatering Operations”.

3.1 Submittals

- .1 Submit a Dewatering Plan at least 20 days before commencing with the work containing Shop Drawings and design data indicating the following:
 - .1 Proposed types of dewatering systems.
 - .2 Arrangement, location and depths of system components.
 - .3 Description of equipment and instrumentation including back up units.
 - .4 Installation, operation and maintenance procedures.

- .5 Types and sizes of filters.
 - .6 Design calculations showing adequacy of the proposed system and equipment.
 - .7 Methods of disposal of pumped water.
- .2 Submit copies of all required permits

PART 2 – PRODUCTS

2.1 Materials and Equipment

- .1 Contractor shall be responsible for providing all materials, tools, equipment, labour and services necessary to complete the work.
- .2 Provide complete standby equipment, installed and available for immediate operation in the event of partial or complete failure of the primary system.

PART 3 – EXECUTION

3.1 General

- .1 Excavation work shall not commence prior to the erosion and sedimentation control plan are in place and accepted by the Engineer.
- .2 The dewatering system shall be of sufficient size and capacity necessary to lower and maintain ground water table levels to an elevation at least 1 metre below the lowest invert elevation permitting excavation, construction and placement of backfill materials to be carried out in dry conditions.
- .3 Methods of dewatering may include sump pumping, single or multiple stage well point systems, eductor or ejector type systems, deep wells, and combination thereof.
- .4 The Contractor shall operate the dewatering system continuously 24 hours a day, 7 days a week until installation of utilities and structures are completed, including backfill material and dewatering is no longer required.
- .5 The Contractor shall comply with and obtain the required Provincial and/or local permits or approvals required for dewatering and disposal of pumped water.
- .6 Provide and maintain perimeter and diversion ditches to prevent surface water from entering any excavation.
- .7 Perform dewatering in accordance with approved Shop Drawings and Dewatering Plan. Advise the Engineer of any changes made to accommodate field conditions. Revise and resubmit Shop Drawings as necessary to reflect current installation.

- .8 Maintain stability of side slopes and bottom of excavation.
- .9 The dewatering system shall be maintained and the surrounding area monitored by the Contractor for impacts to items such as, but not limited to, settlement and ground water usage. The Engineer shall be advised immediately of any impacts
- .10 The Contractor shall be responsible for controlling and disposing of all water.
- .11 Prior to discontinuing operation and removal of the dewatering system the Contractor shall obtain written approval from the Engineer.

3.2 Records

- .1 Observe and record the average flow rate and time of operation of each pump used in the dewatering system. The Contractor shall submit flow rate data through out the course of the dewatering operation.
- .2 Observe and record the elevation of the ground water during the period the dewatering operation. Submit observation records within 24 hours of reading, on a regular basis.
- .3 During initial period of dewatering, make required observations on a daily basis. Once dewatering operations have stabilized, make observations at longer intervals.

PART 4 - MEASUREMENT AND PAYMENT

4.1 Measurement

- .1 No measurement for payment will be made for dewatering.

4.2 Payment

- .1 Payment for the work shall be included in the price for Excavation included in the Schedule A – Schedule of Quantities and Prices. Payment will be full compensation for supplying all materials, labour, equipment, tools and incidentals necessary to complete the Work including installation, maintenance, operation, monitoring, data recording and removal.

END OF SECTION

PART 1 – GENERAL

1.1 Description

- .1 This section specifies the requirements for demolition, salvage and removal, wholly or in part, of those materials and structures so designated, including the requirements for excavation, backfilling of resulting trenches holes or pits.

1.2 Related Sections

- .1 Section 01520, Construction Facilities and Temporary Controls
- .2 Section 01561, Environmental Protection

1.3 References

The following references shall be used in completion of demolition and removal, etc.:

- .1 Ontario Provincial Standard Specification OPSS 180, latest revision, “General Specification for the Management and Disposal of Excess Material”.
- .2 Ontario Provincial Standard Specification OPSS 314, latest revision, “Construction Specification for Untreated Granular, Sub-base, Base, Surface, Shoulder and Stockpiling”.
- .3 Ontario Provincial Standard Specification OPSS 501, latest revision, “Compacting”.
- .4 Ontario Provincial Standard Specification OPSS 510, latest revision, “Construction Specification for Removal”.
- .5 Ontario Provincial Standard Specification OPSS 1010, latest revision, “Aggregates - Granular A, B, M and Select Subgrade Material”.
- .6 Ontario Provincial Standard Specification OPSS 1350, latest revision, “Material Specification for Concrete – Materials and Production”.

1.4 Submittals

- .1 Submit, to the Engineer 10 days prior to removals, detailed Removal Plans and Working Drawings. The submission should include, but not limited to, layout and description of removal sequences, equipment and temporary supports. Protection measures for the rail track, utilities, environment and property shall also be included. Dropping of debris onto the rail track below is strictly prohibited, unless proper protection methods are adopted to ensure that the railway track is prevented from any damage.
- .2 Submit to the Engineer, on a weekly basis, verification receipts from the disposal site operator.

PART 2 – PRODUCTS

Not applicable

PART 3 – EXECUTION

3.1 Preparation

- .1 Before the start of any demolition work, the Contractor must verify the geometry of the abutment to be reduced and send detailed measurements to the Engineer for review.
- .2 Contractor to inspect site and verify with Engineer items designated for removal and items to be preserved.
- .2 Locate and protect all utility lines. Preserve in operating condition active utilities traversing the site.
- .3 Notify and obtain approvals and permits from all agencies prior to commencing work.
- .4 Blasting and the use of explosives will not be permitted on this project.

3.2 Clearing and Grubbing

- .1 Clearing and grubbing limits are identified, as all areas defined by the Drawings where earth surfaces are to be covered by embankments/backfill or where earth excavation will take place.
- .2 Within the areas designated for Clearing and Grubbing; close-cut all trees, underbrush and vegetation at the ground surface. Prune back branches from trees which overhang the area to be cleared.
- .3 Request and obtain direction from the Engineer before cutting down any trees or vegetation from outside the area designated for clearing.
- .4 Grub out stumps and roots to not less than 400 mm below the ground surface.
- .5 Grub out visible rock fragments and boulders larger than 300 mm in dia.
- .6 Dispose of all cleared and grubbed material at an approved landfill site.
- .7 Trees within the clearing limits shall be cut down so that they fall within the project site.

3.3 Protection

- .1 In all circumstances ensure that demolition work does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution.
- .2 Protect trees, plants and foliage on site and adjacent properties where indicated.

- .3 Maintain and protect from damage, water, sewer, gas, electric, communication and other utilities and structures encountered. Comply with authorities having jurisdiction with respect to requirements for working in close proximity to their utility. Temporarily support utilities or their supports during work that could affect their stability including poles/guy anchors. Submit drawings with support details. All submitted drawings to bear signature and stamp of qualified professional engineer registered or licensed in Ontario.
- .4 Where utility lines or structures exist in area of work, obtain direction of Engineer before removing or rerouting.
- .5 Design, supply, erect and remove upon completion of work any temporary shoring if required for the removal of existing structure.
- .6 Protect existing buildings and surface features which may be affected by work from damage while work is in progress. In event of damage, immediately make repair to the satisfaction of the Engineer.
- .7 Erect necessary hoarding, fencing, guardrails, markers; place temporary warning lights; and take all other precautions to ensure that no damage or injury is caused to persons or property as a result of this Work.
- .8 Protect any open excavations, maintaining warning devices during construction and periods of inactivity.
- .9 Protect the work of other trades or other Contractors working at the Site as well as Owner's existing property, stored products, services, and utilities.

3.4 Railway Protection

- .1 Protect the existing railway track and property from damage during all aspects of the work.
- .2 Design, supply, erect and remove upon completion of work any temporary shoring if required.
- .3 Comply with ONR Policy Minimum Safety Requirements For Contractors Working On Railway Property.
- .4 Contamination of ballast will not be permitted.
- .5 Erect temporary fencing, as directed by the Engineer, to permit work adjacent to tracks without affecting train movements.

3.5 Removals

1. Removal associated with contract will include chipped concrete and possibly reinforcing steel as indicated in the drawings. There may also be contaminated ballast to be replaced after excavating. Steel spans will be removed and replaced. Other steel removals would include removed portions of the deck.

3.5 Disposal

- .1 The Contractor shall dispose of all removed materials off site at appropriate recycling facilities or disposal sites, in accordance with all municipal, provincial, and federal regulations.
- .2 The Contractor shall assume the structural steel coating contains lead. It is responsibility of the Contractor to verify any contaminates in coating prior to disposal.

PART 4 - MEASUREMENT AND PAYMENT

4.1 Measurement

- .1 No measurement for payment will be made for Sitework Demolition and Removal.

4.2 Payment

- .1 Payment will be full compensation for all materials, labour, use of equipment, tools and incidentals necessary to complete the Work of this section, as per Schedule A – Schedule of Quantities and Prices. This includes but is not limited to engineering, removal, protection, temporary support, dewatering, stockpiling, and disposal off site.
- .2 Payment for the removal of the steel shall be included in the price to supply and install the steel items and new steel spans.

END OF SECTION

PART 1 – GENERAL

1.1 Description

- .1 This section specifies the requirements for demolition, salvage and removal, wholly or in part, of those materials and structures so designated, including the requirements for excavation, backfilling of resulting trenches holes or pits.

1.2 Related Sections

- .1 Section 01520, Construction Facilities and Temporary Controls
- .2 Section 01561, Environmental Protection

1.3 References

The following references shall be used in completion of demolition and removal, etc.:

- .1 Ontario Provincial Standard Specification OPSS 180, latest revision, “General Specification for the Management and Disposal of Excess Material”.
- .2 Ontario Provincial Standard Specification OPSS 314, latest revision, “Construction Specification for Untreated Granular, Sub-base, Base, Surface, Shoulder and Stockpiling”.
- .3 Ontario Provincial Standard Specification OPSS 501, latest revision, “Compacting”.
- .4 Ontario Provincial Standard Specification OPSS 510, latest revision, “Construction Specification for Removal”.
- .5 Ontario Provincial Standard Specification OPSS 1010, latest revision, “Aggregates - Granular A, B, M and Select Subgrade Material”.
- .6 Ontario Provincial Standard Specification OPSS 1350, latest revision, “Material Specification for Concrete – Materials and Production”.

1.4 Submittals

- .1 Submit, to the Engineer 10 days prior to removals, detailed Removal Plans and Working Drawings. The submission should include, but not limited to, layout and description of removal sequences, equipment and temporary supports. Protection measures for the rail track, utilities, environment and property shall also be included. Dropping of debris onto the rail track below is strictly prohibited, unless proper protection methods are adopted to ensure that the railway track is prevented from any damage.
- .2 Submit to the Engineer, on a weekly basis, verification receipts from the disposal site operator.

PART 2 – PRODUCTS

Not applicable

PART 3 – EXECUTION

3.1 Preparation

- .1 Before the start of any demolition work, the Contractor must verify the geometry of the abutment to be reduced and send detailed measurements to the Engineer for review.
- .2 Contractor to inspect site and verify with Engineer items designated for removal and items to be preserved.
- .2 Locate and protect all utility lines. Preserve in operating condition active utilities traversing the site.
- .3 Notify and obtain approvals and permits from all agencies prior to commencing work.
- .4 Blasting and the use of explosives will not be permitted on this project.

3.2 Clearing and Grubbing

- .1 Clearing and grubbing limits are identified, as all areas defined by the Drawings where earth surfaces are to be covered by embankments/backfill or where earth excavation will take place.
- .2 Within the areas designated for Clearing and Grubbing; close-cut all trees, underbrush and vegetation at the ground surface. Prune back branches from trees which overhang the area to be cleared.
- .3 Request and obtain direction from the Engineer before cutting down any trees or vegetation from outside the area designated for clearing.
- .4 Grub out stumps and roots to not less than 400 mm below the ground surface.
- .5 Grub out visible rock fragments and boulders larger than 300 mm in dia.
- .6 Dispose of all cleared and grubbed material at an approved landfill site.
- .7 Trees within the clearing limits shall be cut down so that they fall within the project site.

3.3 Protection

- .1 In all circumstances ensure that demolition work does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution.
- .2 Protect trees, plants and foliage on site and adjacent properties where indicated.

- .3 Maintain and protect from damage, water, sewer, gas, electric, communication and other utilities and structures encountered. Comply with authorities having jurisdiction with respect to requirements for working in close proximity to their utility. Temporarily support utilities or their supports during work that could affect their stability including poles/guy anchors. Submit drawings with support details. All submitted drawings to bear signature and stamp of qualified professional engineer registered or licensed in Ontario.
- .4 Where utility lines or structures exist in area of work, obtain direction of Engineer before removing or rerouting.
- .5 Design, supply, erect and remove upon completion of work any temporary shoring if required for the removal of existing structure.
- .6 Protect existing buildings and surface features which may be affected by work from damage while work is in progress. In event of damage, immediately make repair to the satisfaction of the Engineer.
- .7 Erect necessary hoarding, fencing, guardrails, markers; place temporary warning lights; and take all other precautions to ensure that no damage or injury is caused to persons or property as a result of this Work.
- .8 Protect any open excavations, maintaining warning devices during construction and periods of inactivity.
- .9 Protect the work of other trades or other Contractors working at the Site as well as Owner's existing property, stored products, services, and utilities.

3.4 Railway Protection

- .1 Protect the existing railway track and property from damage during all aspects of the work.
- .2 Design, supply, erect and remove upon completion of work any temporary shoring if required.
- .3 Comply with ONR Policy Minimum Safety Requirements For Contractors Working On Railway Property.
- .4 Contamination of ballast will not be permitted.
- .5 Erect temporary fencing, as directed by the Engineer, to permit work adjacent to tracks without affecting train movements.

3.5 Removals

1. Removal associated with contract will include chipped concrete and possibly reinforcing steel as indicated in the drawings. There may also be contaminated ballast to be replaced after excavating. Steel spans will be removed and replaced. Other steel removals would include removed portions of the deck.

3.5 Disposal

- .1 The Contractor shall dispose of all removed materials off site at appropriate recycling facilities or disposal sites, in accordance with all municipal, provincial, and federal regulations.
- .2 The Contractor shall assume the structural steel coating contains lead. It is responsibility of the Contractor to verify any contaminates in coating prior to disposal.

PART 4 - MEASUREMENT AND PAYMENT

4.1 Measurement

- .1 No measurement for payment will be made for Sitework Demolition and Removal.

4.2 Payment

- .1 Payment will be full compensation for all materials, labour, use of equipment, tools and incidentals necessary to complete the Work of this section, as per Schedule A – Schedule of Quantities and Prices. This includes but is not limited to engineering, removal, protection, temporary support, dewatering, stockpiling, and disposal off site.
- .2 Payment for the removal of the steel shall be included in the price to supply and install the steel items and new steel spans.

END OF SECTION

PART 1 – GENERAL

1.1 Description

- .1 This section specifies the requirements for supply and handling of crushed rock ballast.

PART 2 – PRODUCTS

2.1 Crushed Rock Ballast

- .1 The material for railway ballast can be waste mine rock or other suitable quarry rock, some of which has been primary crushed and should conform with present environmental regulations regarding the mineral content and its suitability for railway ballast. The Supplier/Contractor of the rock will provide Ontario Northland with a certificate of compliance respecting any and all governing environmental regulations by the Ministry of the Environment of Ontario or any other governing agency. The Supplier/Contractor is to accept full responsibility for size, condition and location of the raw material relative to the designated location of the proposed stone pile of such material.
- .2 The material shall be composed of hard, strong and durable particles clean and free from clay and shale and from excess of dust or elongated pieces.
- .3 All tests shall be carried out according to the latest revision of the standard test methods referred to in this specification.
- .4 Deleterious substances shall not be present in prepared ballast in excess of the following amounts:
- | | |
|----------------------------------|----|
| - soft and pliable pieces | 5% |
| - material finer than #200 sieve | 1% |
- .5 The percentage of wear of prepared ballast as tested by the Los Angeles machine (ASTM C131) shall not be greater than 40% except as otherwise specified by the Director Rail Infrastructure.
- .6 The soundness of prepared ballast shall be such that when tested in the sodium sulphate or magnesium sulphate soundness test (ASTM C88), the weighted average loss shall not exceed 10% after 5 cycles.

- .7 Gradations to be within the specified limits:

Sieve Size	% Passing By Weight
Nominal Size Square Opening 1-1/2" – 3/4"	(Square Opening Lab. Sieves)
50 mm (2")	100
37.5 mm (1-1/2")	90 – 100
25.4 mm (1")	20 – 55
19 mm (3/4")	0 – 15
12.5 mm (1/2")	-
9.4 mm (3/8")	0 - 5
4.76 mm (No. 4)	-
74 micron (No. 200)	0 - 1

- .9 Grading of crushed gravel ballast shall be determined by ASTM C136, latest edition.
- .10 Amount of material finer than 74 micron (No. 200) shall be determined by ASTM C117, latest edition.
- .11 Specific gravity, loose density and rodded unit weight of crushed rock ballast shall be performed on sample for every 500 tons of prepared ballast, unless otherwise ordered by the Rail Infrastructure Department. The samples shall be representative and shall not weigh less than 50 pounds.

2.2 Quality Control

- .1 The Contractor shall ensure that the ballast is manufactured in accordance with these specifications.
- .2 At the start of production, the Contractor shall perform all specified tests on ballast samples and submit results to the Ontario Northland to establish compliance with this specification, at least two (2) weeks prior to delivery to the site.
- .3 Prepared ballast shall be handled at the producing plant in such a manner that it is kept clean and free from segregation. It shall be loaded only into trucks which are

in good order, tight enough to prevent leakage and waste material and which are clean and free from rubbish or any substance which would foul or damage ballast.

- .4 Determination of deleterious substances, resistance to abrasion and soundness shall be made at a testing laboratory selected by the purchaser, but visual inspection and gradation tests shall be made at the place of production prior to shipment as often as considered necessary.
- .4 The following tests shall be performed by the Contractor: Sampling of materials shall be in accordance with ASTM Standard D75.
 - .1 ASTM C29 – Unit Weight of Aggregates.
 - .2 ASTM C88 – Soundness of Aggregates
 - .3 ASTM C131 - Resistance to Degradation
 - .4 ASTM C136 – Sieve Analysis of Aggregates
 - .5 All tests to be performed to the latest edition of the specific standards by a certified testing facility.
- .5 The Ontario Northland’s decision as to the quality of ballast will be final.

2.3 Handling and Loading

- .1 Prepared ballast shall be handled at the producing plant in such a manner that it is kept clean and free from segregation. It shall be loaded only into trucks which are in good order, tight enough to prevent leakage and waste material and which are clean and free from rubbish or any substance which would foul or damage ballast.
- .2 The Contractor shall handle, stockpile, load and distribute ballast and trowelling stone in such a manner as to minimize abrasion of particles and segregation of size.
- .3 The Contractor shall not allow rubber tired or crawler type vehicles to operate repeatedly over the stockpile of crushed material.

PART 3 - MEASUREMENT AND PAYMENT

3.1 Measurement

- .1 No measurement will be made for the work of this section. Measurement will be provided in tons from the weight tickets provided by scales certified by the testing

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authority of the Dominion Government and supplied from the trucks delivering the ballast to the site.

3.2 Payment

- .1 Payment for the Work of this Section shall be included in the unit price items that would require Crushed Rock Ballast included in the Schedule A – Schedule of Quantities and Prices. Payment will be full compensation for labour, use of equipment, tools and incidentals necessary to complete the Work of this section.

END OF SECTION

GENERAL CONDITIONS

Description

- .1 Comply with General Conditions, Supplementary Conditions, Addenda thereto, specifications and drawings.

PART 1 – GENERAL

1.1 Related Work

- .1 Section 01561 - Environmental Protection.
- .2 Section 02072 – Geotextiles.
- .3 Section 02225 – Sitework Demolition and Removal.

1.2 References

- .1 OPSS 805, Temporary Erosion and Sediment Control Measures
- .2 OPSS 1860, Material Specification for Geotextiles

1.3 Quality Assurance and Qualifications

- .1 Not applicable

1.4 Submittals

- .1 Submit product literature and sample for geotextiles in accordance with Section 01600.

1.5 Delivery, Storage & Handling

- .1 Not applicable

1.6 Environmental Requirements

- .1 Conform to Section 01561 Environmental Protection.

PART 2 – PRODUCTS

2.1 Materials

- .1 Light Duty Silt Fence Barrier OPSD 219.110.
- .2 Heavy Duty Silt Fence Barrier OPSD 219.130.
- .3 Rock Flow Check Dam OPSD 219.210 and 219.211.
- .4 Turbidity Curtain OPSD 219.260

PART 3 – EXECUTION

3.1 General

- .1 Install all erosion and siltation control devices prior to commencement of clearing, grubbing and grading works, all to the satisfaction of the Engineer.
- .2 No work will be permitted on site until all such erosion and siltation control devices are properly installed.
- .3 The Contractor's work must in no way impact the environmentally sensitive areas, or any other areas, as delineated by the Engineer.

3.2 Erosion and Siltation Control

- .1 Install temporary heavy duty silt fence barriers to control erosion and siltation as well as to delineate the environmentally sensitive areas identified on the Contract Drawings and as directed by the Engineer.
- .2 Install temporary turbidity curtains (if conditions are suitable) at watercourse to control sediments washed into the existing watercourse as shown on the Contract Drawings and as directed by the Engineer.
- .3 Maintain all erosion and siltation control devices to the satisfaction of the Engineer.
- .4 Periodically inspect all erosion and siltation control devices in accordance with permit requirements, and during and after every rain event.
- .5 Remove temporary erosion control devices upon completion of work and stabilization of any disturbed areas.

PART 4 – MEASUREMENT AND PAYMENT

4.1 Measurement

- .1 No measurement for payment will be made for Erosion Control.

4.2 Payment

- .1 Payment for the Work of this Section shall be included in the unit prices included in Schedule A – Schedule of Quantities and Unit Prices. Payment will be full compensation for all materials, labour, and use of equipment, tools and incidentals necessary to complete the Work of this section and their subsequent removal.
- .2 Periodic removal of accumulated silt and sediment is considered incidental to the work, and will not be paid separately.
- .3 Removal and disposal of erosion control measures is considered incidental to the works.

END OF SECTION

PART 1 - GENERAL

1.1 Description

- .1 Work under this item shall include the supply and placement of Granular 'B' for backfill around the abutments of the bridge structure.

1.2 Related Work

- .1 Excavating Backfilling and Compacting, as specified in Section 02317

1.3 Reference

- .1 Ontario Provincial Standard Specification OPSS 1359, latest revision, "Material Specification for Unshrinkable Backfill".
- .2 Ontario Provincial Standard Specification OPSS 1004, latest revision, "Material Specification for Aggregates – Miscellaneous
- .3 Ontario Provincial Standard Specification OPSS 501, latest revision, "Construction Specification for Compacting"
- .4 Ontario Provincial Standard Specification OPSS 902, latest revision, "Construction Specification for Excavating and Backfilling".

PART 2 - PRODUCTS

- 2.1 Backfill for the structure foundations shall be Granular B in accordance with Ontario Provincial Standard Specification OPSS 1359, latest revision, "Material Specification for Unshrinkable Backfill" or Granular "B" material shall be "Granular B – Type II"

PART 3 - EXECUTION

- 3.1 Place unshrinkable backfill in accordance with Ontario Provincial Standard Specification OPSS 1359, latest revision, "Material Specification for Unshrinkable Backfill".
- 3.2 Place granular backfill in accordance with Ontario Provincial Standard Specification OPSS 501, latest revision, "Construction Specification for Compacting"
- 3.3 Prior to placement of backfill material, the subgrade must be prepared to the satisfaction of the Engineer. All deleterious material must be removed and, in some cases, excavation of native mineral soils may be required.
- 3.4 Backfill shall be placed in 150mm loose lifts simultaneously behind both sides of the structure, keeping the height of the backfill approximately the same. At no time shall the difference in the elevation be greater than 500 mm. Prior to adding each lift, the previous lift shall be compacted in accordance with OPSS 501 to at least 98% standard Proctor maximum dry density. Particular attention must be paid to wet subgrades and possible additional measures required to achieve sufficient compaction.

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- 3.5 The Contractor shall repair or replace any granular material lost through washouts or bladed off the roadway and no additional payment will be made for this work.

PART 4 - MEASUREMENT AND PAYMENT

4.1 Measurement

- .1 Measurement of Backfill for structure will be per cubic foot of material placed in accordance with this section.

4.2 Payment

- .1 Payment for the Work of this Section shall be included in the unit price item for Backfill for Structure or as part of a separate item that includes backfilling included in the Schedule A – Schedule of Quantities and Prices. Payment will be full compensation for labour, use of equipment, tools and incidentals necessary to complete the Work of this section.
- .2 Any over-excavation and subsequent filling shall not be entitled to payment.

END OF SECTION

PART 1 – GENERAL

1.1 Description

- .1 The work covered under this section of the specification shall include:
 - .1 Provision of all cribs, dikes, berms, silt fences, ramps, workbridges, etc. that may be necessary for the work; removal of same on completion of the work.
 - .3 Supply and place approved granular backfill in areas indicated on the drawings.
 - .4 Placement of suitable excavated existing material in areas indicated on the contract drawings.
 - .5 Supply and place approved geotextile and rip rap material in areas indicated on the contract drawings.
 - .6 Re-installation of stored track bed materials in areas indicated on the contract drawings as well as installation of ant track ballast required.
 - .7 Disposal of surplus excavated materials.
 - .8 Restoration of the bridge site, as shown on the drawings and specified herein.

1.2 Related Sections

- .1 Section 01520, Construction Facilities and Temporary Controls
- .2 Section 01561, Environmental Protection

1.3 References

- .1 Ontario Provincial Standard Specification OPSS 511, latest revision, “Construction Specification for Rip Rap, Rock Protection and Gravel Sheeting”.
- .2 Ontario Provincial Standard Specification OPSS 1004, latest revision, “Material Specification for Aggregates - Miscellaneous”.

PART 2 – PRODUCTS

2.1 Rip Rap/Rock Protection Materials

- .1 As per section 02371, Rip Rap/Rock Protection, and OPSS 511, and OPSS 1004.

2.2 Backfill Materials

- .1 As per section 02316, Backfill for Structure, and OPSS 1010.

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PART 3 – ENVIRONMENTAL PROTECTION

- .1 The Contractor will be responsible for environmental protection measures as specified by provincial regulatory agencies.
- .2 See Section 01561 – Environmental Protection
- .3 Protection measures will include, but may not be limited to:
 - .1 All work should be conducted out of the wetted perimeter of the creek, except where permitted in writing by the Engineer and any necessary regulatory bodies.
 - .2 All excavated material is to be piled away from the wetted perimeter of the creek. Silt fencing is to be installed between exposed excavations and/or stockpiled soils and the creek. Drawings of the proposed silt fencing must be provided to the Engineer for review a minimum of 10 days prior to commencing excavation.
 - .3 Vegetation damaged within the creek channel due to construction activities must be replaced by live staking and seeding.

PART 4 – EXECUTION

4.1 Excavation

- .1 All material excavated down to the elevation as shown on the drawings and/or required for the execution of the work shall be considered as inclusive to the work.
- .2 Excavation shall be kept to the minimum required to properly execute all work covered in this section, allowing for safe and stable excavation slopes.
- .3 Additional excavation which the Contractor may require for the movement of his equipment and the carrying out of his operations and backfilling of same, shall be considered incidental to the work as part of the lump sum prices show on the Form of Tender.
- .4 All surplus excavated materials shall be disposed off-site under the Contractor's own arrangements.
- .5 All stumps, tree roots, boulders, or other obstructions found upon the line of work must be removed and disposed of and all depressions and holes resulting from this work shall be refilled when necessary in the opinion of the Engineer. No extra remuneration will be paid to the Contractor for such work.

- .6 All material excavated except solid rock shall be classified as “common material” and this shall be defined as follows:
- All boulders, loose stones, hardpan and seamed rock, which in the opinion of the Engineer can be removed with excavating equipment.
 - Clay, shale, sand, gravel, silt, etc., shall also be termed “common material.
 - Solid rock is defined as rock formation wherever found, as can be removed only by drilling and blasting and consisting of more than one (1) cubic meter in volume. Rock shall not include glacial till or “hardpan” or layered rock in its original location which, in the opinion of the Engineer, can be ripped by a single rear-mounted tooth on a D-8 crawler-type tractor.
- .7 The Contractor shall take all necessary precautions to protect all utilities against damage.
- .8 The Contractor shall carry out his work in a safe manner with due regard for railway and roadway traffic to the satisfaction of the Engineer, and any authority having jurisdiction.

4.2 Backfilling

- .1 Geotextile must be placed in the excavation prior to placement of the rock protection. Carry out backfilling operations systematically and as early as possible.
- .2 Rip rap material must be placed in a stable manner such that it is not displaced by the force of the water.

4.3 Restoration

- .1 Upon completion of work, remove unusable materials and debris, trim slopes, and correct defects noted by the Engineer.
- .2 Reinstate areas affected by equipment outside of planned area to condition which existed prior to commencement of work and leave site in rake-clean condition as directed.

PART 5 - MEASUREMENT AND PAYMENT

5.1 Measurement

- .1 Measurement of Excavating, Backfilling and Compaction will be per cubic foot of material excavated or placed in accordance with this section.

5.2 Payment

- .1 Payment will be included in the Unit prices associated with the item for which the excavation and backfill works are required as included in Schedule A – Schedule of Quantities and Prices. Payment will be full compensation for all labour, equipment and material required to complete the work.
- .2 Any over-excavation and subsequent filling shall not be entitled to payment.

END OF SECTION

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PART 1 - GENERAL

1.1 Description

- .1 This Section covers the requirements for rip rap/rock protection to be provided in locations shown on the Contract Drawings.

1.2 Related Work

- .1 Section 01561, Environmental Protection
- .2 Section 02072, Geotextiles
- .3 Section 02317, Excavation, Backfilling and Compaction

1.3 References

- .1 Ontario Provincial Standard Specification OPSS 511, latest revision, "Construction Specification for Rip Rap, Rock Protection and Gravel Sheeting".
- .2 Ontario Provincial Standard Specification OPSS 1004, latest revision, "Material Specification for Aggregates - Miscellaneous".

PART 2 - PRODUCTS

2.1 Rip Rap/Rock Protection

- .1 Rip Rap/Rock Protection shall conform to OPSS 1004. Except reclaimed Portland Cement will not be accepted.

2.2 Geotextile

- .1 Geotextile shall be Terrafix Non- Woven 270R, Armtex 200 Non-woven Geotextile or approved equivalent.

PART 3 - EXECUTION

3.1 Preparation and Placement

- .1 Rip rap/Rock Protection construction shall be in accordance with OPSS 511 and the Contract Drawings.
- .2 Geotextile shall be placed beneath rip rap beds and extend 300mm beyond each edge.

PART 4 - MEASUREMENT AND PAYMENT

4.1 Measurement

- .1 No measurement for payment shall be made.
- .2 No measurement will be made for associated Geotextile.

4.2 Payment

- .1 Rip Rap/Rock Protection shall be paid for at the applicable Contract Unit Price as included in the Schedule A – Schedule of Quantities and Prices. Payment shall be based on Plan Quantity Payment per cubic meter. Payment will represent full compensation for all materials (including geotextile), labour, use of equipment, tools and incidentals necessary to complete the Work.
- .2 Any over-excavation and subsequent filling shall not be entitled to payment.

END OF SECTION

PART 1 – GENERAL

1.1 Description

- .1 This section specifies requirements for installation of topsoil, seed and mulch, if required.

1.2 Related Work

- .1 Section 01561, Environmental Protection
- .2 Section 02270, Erosion Control
- .3 Section 02315 Excavating, Backfilling and Compacting

1.3 References

- .1 Ontario Provincial Standard Specification OPSS.PROV 804, latest revision, “Construction Specification for Seed and Cover”.
- .2 ASTM D698-91, Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (600 kN-m/m³).

1.4 Quality Assurance

- .1 Submit suppliers’ test data and certification that all materials meet requirements of this section at least 2 weeks prior to commencing work.

1.5 Submittals

- .1 Submit a Seed Analysis Certificate.

1.6 Delivery, Storage & Handling

- .1 All product must be in original sealed package with original label securely attached.
- .2 Store in a cool, dry location.
- .3 Separate fertilizer which may have corrosive, flammable or explosive properties when exposed to other fertilizer or substances.

PART 2 – PRODUCTS

2.1 Topsoil

- .1 Imported Topsoil: fertile loam material free of roots, vegetation or other debris of a size and quantity that prevents proper placement of topsoil and shall not contain material greater than 25mm in size, such as stones and clods or contaminants that adversely affect plant growth..

2.2 Seed

- .1 All seeding to conform with OPSS.PROV 804 latest revision, “Construction Specification for Seed and Cover”.

2.3 Mulch

- .1 Straw mulch - oat or wheat straw, supplied in dry bales, free of weeds and other foreign materials.
- .2 Hydraulic mulch – capable of dispersing rapidly in water to form a homogeneous slurry and remain in such state when agitated or mixed with other special materials, capable of forming a uniform, cohesive mat when applied and not inhibit growth or germination of the seed mix. Hydraulic mulch shall be free of weeds or other foreign materials, supplied in factory sealed packages bearing the manufacturer’s label indicating product name and mass.

2.4 Fertilizer

- .1 Fertilizer to conform with OPSS.PROV 804 latest revision, “Construction Specification for Seed and Cover”.

PART 3 – EXECUTION

3.1 Seeding

- .1 Seeding shall be performed in all areas that receive topsoil and shall conform with OPSS.PROV 804 latest revision, “Construction Specification for Seed and Cover”.
- .2 Seeding shall be performed on all backfill material around the new abutment and pier.

3.2 Mulching

- .1 Mulching shall be performed in all areas that receive topsoil and shall conform with OPSS.PROV 804 latest revision, “Construction Specification for Seed and Cover”.

PART 4 – MEASUREMENT AND PAYMENT

4.1 Measurement

- .1 Measurement for imported topsoil of this section shall be in square feet as placed in the field.
- .2 Measurement for seed and mulch of this section shall be in square feet as placed in the field.

4.2 Payment

- .1 Payment for the work in this section shall be included in the unit prices associated with the items in which they are used as per the Schedule A Schedule of Quantities and Prices. Payment will represent full compensation for all material, labour, use of equipment, tools and incidentals necessary to complete the Work.

END OF SECTION

PART 1 – GENERAL

1.1 Description

- .1 The Work specified in this Section consists of furnishing Portland cement concrete in accordance with CSA Standard CAN3-A23.1.
 - The Work includes development and control of concrete mix design; storage and quality control of concrete ingredients; batching, mixing, production quality control, and delivering concrete of indicated compressive strength class.
 - All concrete is to be air-entrained.
 - The compressive strength of cast-in-place concrete shall be as shown on the Drawings.

1.2 Related Sections

- .1 Concrete Forms and Accessories, as specified in Section 03100
- .2 Concrete Reinforcement, as specified in Section 03200
- .3 Cast-in-Place Concrete, as specified in Section 03300
- .4 Section 03450, Precast Elements

1.3 Definitions

- .1 The word, "concrete", followed by a strength class designation (e.g. Concrete - 35 MPa) indicates normal weight concrete, i.e., concrete having a unit weight of approximately 2,300 kg per cubic metre without reinforcement.
- .2 The nominal compressive strength of concrete is indicated by the word "class" followed by a two digit number which expresses the nominal strength, in megapascals (MPa) of test specimens at 28 days when prepared and tested in accordance with CSA Standard A23.2.

1.4 Quality Assurance

- .1 Concrete shall be produced in a weatherproof concrete batch plant that has the capacity to produce and deliver concrete conforming to specified requirements at the required rate. Ready mix concrete will be acceptable provided the quality standards are met.

1.5 References

- .1 American Standards for Testing and Materials (ASTM)
 - C1567-13 – Standard Test Method for Determining the Potential Alkali-Silica Reactivity of Combinations of Cementitious Material and Aggregate (Accelerated Mortar-Bar Method)

- .2 Canadian Standards Association (CSA):
 - A23.1:19/A23.2:19 - Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete
 - A23.3:19 – Design of Concrete Structures
 - A23.4:09 – Precast Concrete Material and Construction
- .3 Ontario Provincial Standard Specification
 - OPSS 1002 - Material Specification for Aggregates - Concrete

1.6 Testing of Concrete

- .1 Three specimens will comprise a compressive strength test. There will be at least one strength test for each 50 cubic metres of each class of concrete (or fraction thereof) and in any event not less than one strength test for each class of concrete each day it is used.

1.7 Submittals

- .1 Submit the following at least 14 working days prior to starting work in this section for review and acceptance by the Engineer:
 - .1 Design mixes for each concrete class determined by the Contractor through an approved design laboratory, to produce the results as specified herein. New design mixes shall be submitted for each change of ingredients, ingredient sources, and admixtures.
 - .2 Methods for cold and hot weather mixing, if applicable.
 - .3 Certifications of conformance of all concrete ingredients to the specified requirements.
 - .4 Certifications of conformance of design mixes to specified requirements in respect to strength, unit weight, maximum size aggregate, air entrainment and slump.
- .2 Submit an evaluation of cement-aggregate reactivity to Engineer, along with results from tests stipulated in Section 2.1, article 3.
- .3 Submit batching plant recorder printouts to Engineer. Refer to section 3.7, article 2 for information to be recorded on printout.

PART 2 – PRODUCTS

2.1 Materials

- .1 Cement:
 - .1 CSA Standard A23.1, Type GU.

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- .2 All concrete shall be made with low alkali Portland Cement (with less than 0.6% sodium equivalents). Cement shall be stored in suitable weatherproof silos that will protect the cement from dampness. Provision for storage shall be ample to meet minimum requirements specified herein, and shipments of cement as received shall be stored separately in such a manner as to provide easy access for the identification and inspection of each shipment, and so that the cement of each shipment may be used in the Work in the order in which the shipments are received.
- .2 Aggregates for Structural Concrete:
 - .1 Coarse Aggregate: Stone having specific gravity of not less than 2.65 and conforming to CSA Standard A23.1. Maximum size of aggregate shall be 20 mm for all concrete
 - .3 Fine Aggregate: Natural sand conforming to CSA Standard A23.1.
 - .1 The grading and quality of aggregates shall conform to the requirements of CSA Standard A23.1. Aggregates shall be handled and stored in a manner to prevent segregation or the intrusion of foreign materials. Fine and coarse aggregates shall be stored separately so as to prevent the two materials from becoming intermixed.
 - .2 Quality testing of aggregate shall include an evaluation of cement-aggregate reactivity as outlined in CSA Standard A23.1. The Contractor shall submit an evaluation of cement-aggregate reactivity as outlined in the Ontario Provincial Standard Specification 1002 entitled "Material Specification for Aggregates - Concrete".
 - .3 The Contractor shall submit results of ASTM Standard C1567 test and CSA test method A23.2 - 14A to the Engineer. Until the above test results are available, the Contractor may use low-alkali cement or other means as approved by the Engineer.
 - .4 Water: Free from substance which would interfere with the chemical action by which concrete is formed, would detract from the strength and durability of the concrete, would cause variations in the colour of the concrete, or would cause a combination of such defects.
- .4 Admixtures:
 - .1 Air Entraining Agents shall conform to CSA Standard A23.1. Precautions shall be taken to ensure the air-entraining agent does not become frozen, either in transit or storage. Air entraining agent that has at any time been frozen shall not be used.
 - .2 Water Reducers, Retarders, Accelerators, Water Reducer/Retarders, and Water Reducer/Accelerators: CSA Standard A23.1.
 - .3 Admixtures containing chloride are prohibited.

PART 3 – EXECUTION

3.1 Equipment

- .1 Conform to CSA Standard CAN3-A23.1.
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- .2 The Contractor shall have equipment of sufficient capacity to undertake the Work to the satisfaction of the Engineer.
- .3 The batch plant shall be certified with the Ready Mix Concrete Association of Ontario (RMCAO).

3.2 Aggregate Processing

- .1 Do not mix aggregates from different sources, except as required to satisfy the accepted mix design.
- .2 Do not change mix designs and sources of aggregates without written acceptance by the Engineer.
- .3 Do not allow aggregate mixtures to become segregated.

3.3 Temperature Control

- .1 Prepare aggregates by methods that produce concrete having a temperature of not more than 30 degrees Celsius and not less than 10 degrees Celsius at the time of placement in the forms.
- .2 Do not heat water in excess of 60 degrees Celsius.
- .3 Heat concrete ingredients when ambient air temperature is 5 degrees Celsius and falling or cool concrete ingredients when ambient air temperature rises above 30 degrees Celsius, by methods approved by the Engineer.

3.4 Proportioning

- .1 Proportion concrete ingredients in conformance with the accepted mix design for the indicated strength class and usage and CSA Standard CAN3-A23.1.
- .2 All concrete mixes shall be of the proportions approved by the Engineer. Minor changes in the relative quantities of fine and coarse aggregates may be made for the purpose of adjusting the workability of the mix with the Engineer's approval.

3.5 Measuring, Batch Plant, Mixers and Agitators, Mixing and Delivery

- .1 Conform to CSA Standard CAN3-A23.1.
- .2 Materials shall be measured by weighing, except as otherwise specified. The apparatus provided for weighing the aggregate and cement shall be suitably designed and constructed to secure the specified quantities in each batch. Each size of aggregate and the cement shall be weighed separately. The accuracy of all weighing devices shall be such that all weights may be determined to within one percent.
- .3 Cement in standard packages need not be weighed, but bulk cement shall be weighed.

- .4 When sacked cement is used, each batch shall contain a whole number of sacks. The use of fractional sacks of cement will not be permitted.
- .5 The mixing water shall be measured by volume or by weight. An approved water measuring device shall be provided upon or in conjunction with the mixer capable of being set to deliver the specified quantity of water. Such measuring devices shall be accurate to within one-half of one percent of the total required for batch mix.
- .6 Concrete shall be thoroughly mixed in a batch mixer of an approved size and type that will ensure a uniform distribution of the materials throughout the mass.
- .7 The mixer shall be equipped with adequate water storage and a device for accurately measuring and automatically controlling the amount of water used in each batch. Mechanical means shall be provided for recording the number of revolutions for each batch and automatically preventing the discharge of the mixer until the materials have been mixed the specified minimum time.
- .8 The entire contents of the mixer shall be removed from the drum before materials for a succeeding batch are placed therein. Materials composing a batch shall be deposited at the same time in the mixer.
- .9 All concrete shall be mixed for a period of not less than 1-1/2 minutes after all materials, including water, are in the mixer. During the period of mixing, the mixer shall operate at the speed for which it has been designed.
- .10 The first batch of concrete materials placed in the mixer shall contain a sufficient excess of cement, sand and water to coat the inside of the drum without reducing the required mortar content of the mix. Upon the cessation of mixing for a considerable period the mixer shall be thoroughly cleaned.
- .11 The batch plant must be enclosed and heated to a minimum temperature of 7 degrees Celsius to protect all batching equipment from cold, wind, rain and snow.

3.6 Admixtures

- .1 Dispense admixtures in liquid form for each batch from a dispenser having capacity to measure the quantity required for one batch and operated by one of the following two methods.
 - Method A: By introducing liquid at a uniform and constant rate into the stream of water entering each batch.
 - Method B: By introducing liquid into pre-measured water for each batch.

3.7 Production Quality Control of Structural Concrete

- .1 Concrete Batch Plant
 - .1 Concrete shall conform to the accepted mix design and to CSA Standard A23.1.

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- .2 Weighing, indicating, and control equipment shall be insulated against vibration and movement from operating equipment.
- .3 When entire plant is running, scale readings at cut-off shall not vary from calculated batch weight for accepted mix design by more than one percent for cement, or one percent for total aggregate in any batch.
- .4 Calibrate scales, as frequently as Engineer may deem necessary to ensure their accuracy.
- .2 Recorders
 - .1 Batching plant shall be equipped with an accurate recorder which shall produce a digital printout of batch number and scale readings corresponding to each of ingredients of each concrete batch, including zero initial readings. Recordings shall indicate by name or code each individual ingredient corresponding to each weight, including amount of each admixture.
 - .2 Each printout shall indicate date and time of batching, identification number identical to that of concrete delivery ticket, and codes for mix design and project section.
 - .3 Printout shall be produced in duplicate and one copy delivered with its corresponding concrete delivery ticket to Engineer.
 - .4 Each recorder mechanism shall be housed in a locked, dust-tight cabinet.
 - .5 Recorders shall be placed in a position convenient for observation.
- .3 Permit and assist Engineer to take concrete for moulding of test specimens at points of delivery of concrete to worksite at no cost to the Company.
- .4 The Contractor shall furnish and maintain a storage box, for use by the Engineer, for curing test specimens. The storage box will be of sufficient size to facilitate the storage of test specimens from the time they are cast until they are moved to a testing facility. The storage box shall maintain the temperature of the cylinders between 20 degrees and 24 degrees Celsius and prevent loss of moisture. The storage box will be equipped with an automatic heater, a minimum registering thermometer and a locking system with three keys.
- .5 The allowable range of air content in the concrete is 5 - 8% by volume.
- .6 The allowable slump range for the concrete is defined in CSA CAN3-A23.1.

PART 4 – MEASUREMENT AND PAYMENT

4.1 Measurement

- .1 No measurement for payment will be made for Portland Cement concrete.

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4.2 Payment

- .1 Payment for the Work of this Section shall be included in the lump sum items for Concrete in Foundations included in the Schedule of Quantities and Prices. Payment will be full compensation for material, labour, use of equipment, tools and incidentals necessary to complete the Work of this section.

END OF SECTION

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PART 1 - GENERAL

1.1 Description

- .1 The Work in this section includes but is not limited to the following:
- Design of forms and supporting falsework.
 - Use of wood or steel forms for all cast-in-place concrete.
 - Shoring, bracing and anchorage.
 - Formed openings for other trades.
 - Co-ordination of installation of concrete accessories.
 - Cleaning erected formwork prior to concrete placement.
 - Removal of forms and supporting falsework.

1.2 Related Sections

- .1 Section 03200, Concrete Reinforcement.
- .2 Section 03300, Cast-in-Place Concrete.

1.3 Submittals

- .1 Design of forms, falsework, accessories, etc. to be completed by a Professional Structural Engineer registered in the Province of Ontario. The same Engineer is also to inspect the erected formwork and certify, in writing, that it is in accordance with the design.
- .2 Submit shop drawings for review in accordance with the General Conditions.

1.4 Reference Standards

- .1 Design, construct and erect supporting falsework in accordance with the National Building Code of Canada, CSA CAN3-A23.1, ACI 347 and applicable construction safety regulations.

1.5 Quality Assurance

- .1 Formwork shall be designed so that all face joints, corners, gaps or holes shall be water-tight and non-absorbent.
- .2 Materials used for form leakage control shall produce, flush, water-tight and non-absorbent surfaces and joints and shall be compatible with type of forming materials selected.
- .3 Form ties shall be located in a uniform pattern and shall be she-bolt, coil or taper tie type. Form ties shall be designed to prevent loss of parts or moisture.

PART 2 - PRODUCTS

2.1 Materials

- .1 For Exposed Surfaces: square-edged, smooth surfaced panels true in plane, free of holes, surface markings or defects.
- .2 For Unexposed Surfaces: square-edged T&G lumber, plywood or other material suitable to retain concrete without leakage or distortion.
- .3 Wood Materials:
 - Plywood: Douglas fir, conforming to CSA 0121-M, solid one side select sheathing - tight face grade. Sound, undamaged sheets with clean true edges.
 - Lumber: conforming to CSA 0141-M.
 - Nails, Spikes and Staples: galvanized or phosphatized, conforming to CSA B111.
- .4 Prefabricated Forms:

Steel Type: minimum 1.6 mm steel thickness; well matched, tight fitting and adequately stiffened to support the weight of concrete without deflection detrimental to structural tolerance and appearance of finished concrete surface.
- .5 Accessories:
 - Form Ties: removable or snap-off metal type with metal form spacers, fixed or adjustable length; minimum working strength of 13 kN. When assembled, free of defects that will leave metal closer than 40mm from concrete surface. Wire ties are not permitted. Use plastic cone snap type on exposed surfaces.
 - Form Release Agent: colourless mineral oil that will not stain concrete or impair natural bonding or colour characteristics of coating intended for use on concrete.
 - Corner or Chamfer Fillets: extruded plastic or mill finish pine, 19mm width, maximum possible lengths, mitre ends.
 - Sealing Tape: reinforced, self-adhesive polyvinyl-chloride.

PART 3 - EXECUTION

3.1 Examination

- .1 Before starting Work, the Contractor shall examine work done by others having an effect on this Work.

.2 Rectify all conditions that would prejudice proper completion of this Work.

.3 Commencement of Work implies acceptance of existing conditions.

3.2 Erection

.1 Verify lines, levels and centres before proceeding with formwork. Ensure dimensions agree with the Drawings.

.2 Construct formwork and falsework to meet design and regulatory requirements and to produce finished concrete conforming to surfaces, shapes, lines and dimensions indicated on the Drawings. Ensure visible lines of the walls follow a smooth profile both vertically and horizontally.

.3 Arrange and assemble formwork to permit removal without damage to concrete.

.4 Align joints and make watertight to prevent leakage of cement paste and disfiguration of concrete. Keep form joints to a minimum.

.5 Do not use earth surfaces to form concrete without written approval of Engineer.

.6 Arrange forms to allow removal without removal of principal shores where these are required to remain in place.

.7 Provide falsework to ensure stability of formwork. Prop or strengthen all previously constructed parts liable to be overstressed by construction loads.

.8 Position form joints to suit any expressed lines required in exposed concrete. Arrange form board panels in a regular symmetrical pattern to the approval of the Engineer.

.9 Provide 19mm chamfer on all internal and external corners and edges of exposed concrete unless shown otherwise.

.10 Form chases, slots, openings, drips and recesses as detailed on the Drawings.

.11 Set screeds with top edge level to required elevations.

.12 Check and re-adjust formwork to required lines and levels during placing of concrete.

.13 If form sheathing is to be re-used, remove nails and clean surfaces in contact with concrete before re-using.

3.3 Tolerances

- .1 Construct formwork and all supporting or bracing members to within the following deflection limitations under the weight or pressure of wet concrete and other loadings incidental to construction. Deflections are not cumulative.
- Forms: 1/270 of span between supporting studs.

- Studs: 1/270 of backing wale space.
 - Wales: 1/270 of span between ties or other support points.
- .2 Construct formwork to produce concrete with dimensions, lines, and levels within the following discrete tolerances.
- Deviation from Vertical Line for Walls: 6 mm in 3m, 9 mm in 6m, and 20 mm in 12m or more.
 - Deviation from Flat Surface of Walls: 3 mm in 3m.
 - Deviation from Horizontal Line: 6 mm in 3m.
 - Deviation from Position of Walls: 6 mm.
 - Deviation in Cross-sectional Dimensions of Walls or Thickness of Slabs: +6 mm/-0 mm.
- .3 If tolerances are exceeded, the Contractor must remove, replace or modify placed concrete as directed by the Engineer at no additional cost to the Company.
- .4 The Contractor must provide for settlement, closure of joints and elastic shortening of the forms and shoring.

3.4 Construction Joints

- .1 Locate joints not indicated on the Drawings so as to least impair the strength of the structure. Obtain the Engineer's approval before proceeding.
- .2 Construct joints in accordance with CSA CAN3-A23.1.
- .3 Roughen surface of hardened concrete and thoroughly clean of any foreign matter and laitance. Wet surface with water and ensure forms are tight against face of hardened concrete.

3.5 Form Ties

- .1 Submit tie patterns to the Engineer for review for all exposed surfaces. Arrange ties in a uniform pattern, both horizontally and vertically.
- .2 For exposed concrete, fit ties with cones approximately 20 mm in diameter and not longer than 50 mm. Through-hole ties are not permitted. Snap-off ties can be removed while ensuring sufficient numbers of ties remain to hold form in place. Cutting ties back from the face of the wall is not permitted.

- .3 Below grade or below water level and all non-exposed concrete: fill all holes left by withdrawal of rods, or holes left by removal of tie ends with solid mortar.
- .4 Remove all cones from exposed concrete surfaces. If surface is to be sandblasted, leave cones in place until after sandblasting is complete. Fill cone holes with small amount of grey sealant to cover metal rod.
- .5 The holes left by withdrawal of rods or the holes left by removal of ends of ties shall be filled solid with mortar after first being thoroughly wetted. Holes not passing entirely through the wall shall be filled with a small tool that will permit packing the hole solid with mortar. Any excess mortar at the wall shall be struck off flush with the surface.

3.6 Embedded Items

- .1 Provide formed openings where required for pipes, conduits, sleeves and other work to be embedded in and passing through the concrete members.
- .2 Accurately locate and set in place, items which are to be cast directly into concrete.
- .3 Co-ordinate the work of other Sections and cooperate with trades involved in forming openings, slots, recesses, chases and setting sleeves, bolts, anchors and other inserts.
- .4 Do not set anchor bolts, sleeves and inserts into placed concrete.

3.7 Quality Control

- .1 Inspect and check complete formwork, falsework, shoring, and bracing to ensure that the work is in accordance with formwork design and that supports, fastenings, wedges, ties and parts are secure.
- .2 Inform Engineer when formwork is complete and has been cleaned to allow for inspection. Engineer's inspection will be for verification that forms are clean and free from debris.
- .3 Do not patch formwork for any exposed concrete surfaces.
- .4 Allow the Engineer to inspect each section of formwork prior to re-use. Formwork may be re-used if approved by the Engineer.

3.8 Cleaning

- .1 Clean forms as erection proceeds to remove foreign matter. Remove cuttings, shavings and debris from within the forms. Flush completely with water to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.
- .2 During cold weather, remove ice and snow from within the forms. Do not use de-icing salts. Do not use water to clean out completed forms unless formwork and concrete construction proceed within a heated enclosure. Use compressed air or other means to remove foreign matter.

3.9 Preparation

- .1 Apply form release agent in accordance with the manufacturer's recommendations prior to placing reinforcing steel, anchoring devices and embedded parts.
- .2 Do not apply form release agent where concrete surfaces are to receive special finishes or applied coverings that are affected by the agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces moist prior to placing the concrete.

3.10 Form Removal

- .1 Notify Engineer prior to removing falsework.
- .2 The following Table is to be used as a guide for the removal of forms and supports:

	Min. Period of Time	Min. Concrete Strength (based on 28 Day Strength)
Caisson (or Drilled Shaft) Caps	3 days	70 %
Arches, girders, beams	14 days	80 %
Pier caps	5 days	70 %
Columns	3 days	70 %
Piershafts and vertical walls	2 days	50 %
Deck	5 days	70 %
Suspended Slabs	5 days	70%
Footings	2 days	-

- .3 Remove falsework progressively in accordance with regulatory requirements and ensure that no shock loads or imbalanced loads are imposed on the structure.
- .4 Loosen forms carefully. Do not apply tools to exposed concrete surfaces.
- .5 Leave forms loosely in place for protection until the Engineer approves complete removal.
- .6 Store removed forms for exposed architectural concrete in a manner that surfaces to be in contact with fresh concrete will not be damaged. Marked or scored forms will be rejected.

PART 4 - MEASUREMENT AND PAYMENT

4.1 Measurement

- .1 Form work and falsework will not be measured for payment.

4.2 Payment

- .1 Payment for the Work of this Section shall be incidental to the contract items requiring this work. Separate payment for this item shall not be made.

END OF SECTION

PART 1 - GENERAL

1.1 Description

- .1 The work specified in this Section consists of furnishing and placing reinforcing steel bars for cast-in-place concrete complete with tie wire, support chairs, bolsters, bar supports and spacers for reinforcing, all as shown on the Contract Documents.

1.2 Related Work

- .1 Section 03300, Cast-in-Place Concrete.

1.3 Quality Assurance

- .1 Reinforcing bars shall be placed in accordance with CSA Standard CAN3-A23.3 and the following tolerances:
- Concrete cover to formed surfaces: plus zero, minus 6mm.
 - Minimum spacing between bars: plus zero, minus 6mm.
 - Crosswise of members: spaced evenly within 50mm.
- .2 Reference Standards:

The following CSA (unless noted otherwise) standards are to be followed:

- CAN3-A23.1 - Concrete Materials and Methods of Concrete Construction.
- CAN3-A23.3 - Code for the Design of Concrete Structures for Buildings.
- W186 - Welding of Reinforcing Bars in Reinforced Concrete Construction.
- ACI-315 - Details and Detailing of Concrete Reinforcement.
- G30.3M - Cold-Drawn Steel Wire for Concrete Reinforcement.
- G30.5M - Welded Steel Wire Fabric for Concrete Reinforcement.
- G30.15M - Welded Deformed Steel Wire Fabric for Concrete Reinforcement.
- G30.18M - Billet-Steel Bars for Concrete Reinforcement.
- ACI-SP66 - ACI Detailing Manual 1980.

1.4 Submittals

- .1 Placement drawings, mill certificates, and bar lists shall be submitted to the Engineer for approval. Mill certificates and bar lists need not be submitted until reinforcement has been fabricated. The Contractor shall be responsible for the accuracy of the drawings and lists and for providing all bar reinforcing steel in accordance with the details indicated. Reinforcing bars shall be detailed in accordance with CSA Standard CAN 3-A23.1. The prepared drawings and lists shall show bending and dimensions. Each list shall show weights of each bar, the total weights of each bar size, and the total weight of the reinforcement shown on that list. Weights shall be calculated in accordance with CSA Standard G30.18M. All shop drawings shall bear the stamp of a qualified Professional Engineer registered in the Province of Ontario.

- .2 The Contractor shall notify the Engineer in sufficient time to permit sampling and testing of reinforcement before reinforcement is shipped. Each bundle of steel shall be tagged at the mill with an identifying mill tag, showing the name of the mill and the heat number. Tags shall be metal and shall be attached with a lead seal and placed in an exposed position for easy identification. A certified copy of mill tests on each heat, showing physical and chemical analyses, shall be available to the Engineer at the time of sampling. Two or more samples, each 2-1/2 feet long, may be taken at random from each size in each heat. All samples shall be furnished by the Contractor without cost to the Company.

PART 2 - PRODUCTS

2.1 Bar Reinforcement

- .1 Bars shall be deformed and shall be of the sizes and shapes indicated and shall conform to CSA Standard G30.18M - Grade 400.

2.2 Fabrication

- .1 Bars shall be neither bent nor straightened in a manner that will injure the material. Bars with kinks or improper bends, or both, shall not be used. All bars shall be bent cold. Field bending, without prior acceptance from the Engineer, will not be allowed.

PART 3 - EXECUTION

3.1 Reinforcing Bars

- .1 Bars shall be placed where indicated and shall be secured by wiring at intersections with No. 16 gauge, black, soft wire and shall be supported by either pre-cast mortar blocks or metal chairs, spacers, metal hangers, supporting wires, or other accepted devices having a strength which will resist crushing under full load. Where any portion of accessories has less than the specified minimum cover, they shall be hot dipped galvanized. The placing of bars on layers of fresh concrete as the work progresses, and the adjusting of bars during the placing of concrete, will not be permitted.

3.2 Concrete Protection for Reinforcement

- .1 The minimum clear cover for reinforcement shall conform to the requirements of CSA Standard CAN3-A23.1, Chapter 12, paragraph 12.6 unless otherwise indicated on Drawings.

3.3 Spacing of Reinforcing Steel

- .1 Spacing shall conform to the requirements of CSA Standard CAN3-A23.1, Chapter 12, paragraph 12.5.

3.4 Splicing of Bar Reinforcing Steel

- .1 Splicing shall be either by lapping or by mechanical coupler, except that no lapped splices shall be used for bars larger than No. 11 (35M). The bar-to-concrete clearance shall not be impaired. Bar reinforcing steel may be continuous at locations where splices are indicated.

3.5 Splice Locations

- .1 Splices shall be used only where shown on the Drawings or approved by the Engineer. When not indicated, splices shall be determined by the Contractor, but with prior approval by the Engineer, and shall be based upon using available commercial lengths where practicable. Splices at points of maximum tensile stress shall be avoided wherever possible; such splices where used shall fully develop the strength of the reinforcement or provided with Class C tension lap splices.

3.6 Length of Lapped Splices

- .1 No. 11 (35M) bars and smaller deformed bars shall be lapped as indicated on the Drawings. Bar laps not indicated shall be Class C tension lap splices unless otherwise approved by the Engineer. Bars shall be placed in contact with each other, and shall be wired together in a manner that will maintain a clearance of not less than the indicated clear distances. Unless otherwise indicated or permitted by the Engineer, splices shall be staggered not less than 30 bar diameters, and not more than one-third of the bars may be spliced at one location, provided the indicated clearances are maintained.

3.7 Mechanical Coupler Splices

- .1 Mechanical Coupler splices shall develop 125 percent of the specified yield strength of the bars.

3.8 Inspection

- .1 Concrete shall not be placed until the Engineer has accepted placement of reinforcement.

3.9 Interference

- .1 Interference with other reinforcing steel and embedded items may be avoided by moving bars. If bars are moved either more than one diameter, or enough to exceed the tolerances specified herein, the resulting bar arrangement shall be subject to acceptance by the Engineer.

3.10 Cleaning

- .1 Before concrete is placed, the reinforcement to be embedded shall be free of mortar, oil, dirt, paint, loose mill scale, ice, and other coating of that character which would destroy or reduce the bond.

PART 4 - MEASUREMENT AND PAYMENT

4.1 Measurement

- .1 Concrete Reinforcement will not be measured for payment.

4.2 Payment

- .1 The Work specified in this Section will per pound (lbs) of reinforcing steel provided as outlined in Schedule A – Schedule of Quantities and Prices. Payment at the Contract price for the above items shall be full compensation for all labour, equipment, and material required to complete placement drawings, fabricate, and place reinforcement in accordance with this section.

END OF SECTION

PART 1 - GENERAL

1.1 Description

- .1 The Work specified in this Section consists of placing, finishing, and curing portland cement concrete.

1.2 Related Work

- .1 Section 03010, Portland Cement Concrete
- .2 Section 03100, Concrete Formwork and Falsework.
- .3 Section 03200, Concrete Reinforcement.

1.3 Reference Standards

- .1 Canadian Standards Association (CSA):
 - CAN3-A23.1 Concrete Materials and Methods of Concrete Construction.
 - CAN3-A23.2 Methods of Test for Concrete.
 - CSA S269.1 - Falsework for Construction Purposes.
- .2 ASTM C309-74 - Specification for Liquid Membrane - Forming Compounds for Curing Concrete.

1.4 Submittals

- .1 Submit the following for each concrete placement operation at least fourteen (14) working days prior to first concrete placement for review by Engineer:
 - Detailed descriptions of intended equipment and methods for conveying, placing, consolidating, preliminary finishing, and curing concrete.
 - Detailed description of intended means of protecting fresh concrete from extremes of temperature and inclement weather.
 - Location and scheduled date of concrete placement, intended rate of placing, and mix design designation with updates as required.
 - Composite working drawings, for each concrete lift, indicating locations and sizes of pipe sleeves, conduits, inserts, openings, recesses, construction joints, and similar configurations for work of other disciplines.

1.5 Quality Assurance

- .1 Qualifications of Concreting Supervisor: Five (5) years minimum experience in placing, consolidating, and curing portland cement concrete in structures similar to those in this Contract, in which the last two (2) years of experience involved overall responsibility for such work.

- .2 Concrete Pumping Plant Design Criteria: Conform to recommendations of ACI 304.
- .3 Allowable Deviations from Indicated Dimensions and Elevations
 - Caisson (or Drilled Shaft) Caps: 2 mm
 - Footings and Abutments:
 - o Misplacement and eccentricity, as measured to centre of footing: 25mm.
 - o Elevation of top: 6mm.
 - o All other footing dimensions: Minus 6mm or plus 50mm.
 - Variation from indicated elevation on sloped surface: 5mm.
 - Thickness of finished monolithic slabs: 6mm.
 - Variation from a 3 metre straight edge placed in all directions on horizontal and inclined plane surfaces: 6mm.
 - Top elevation of walls: Plus or minus 6mm.
 - Flatness of finished horizontal surfaces: Eliminate depressions that could hold water.
 - Elevation of bottom of slabs on grade: Plus zero, minus 25mm.
 - Thickness of walls: 6mm.
- .4 Field Quality Control for Placed Concrete: Take samples of concrete in accordance with CSA Standard CAN3-A23.2 for each batch of concrete or as required by the Engineer. Immediately test samples, in the presence of the Engineer, to determine if changes in slump, air content, and other significant mix characteristics have occurred. Should tests show that such changes have occurred, modify corresponding adjustments to mix design. The Engineer has the right to refuse concrete that is not in compliance with mix design or Contract Documents

1.5 Job Conditions

- .1 Cold Weather: Conform to recommendations of CSA Standard CAN3-A23.1 when temperature is predicted to drop to five (5) degrees Celsius or lower.
- .2 Hot Weather: Conform to recommendations of CSA Standard CAN3-A23.1. When required to prevent concrete temperature from rising above thirty (30) degrees Celsius, as determined by the Engineer, pre-cool aggregates and mixing water.

PART 2 - PRODUCTS

2.1 Materials

- .1 Pigmented Curing Compound: Two component, mineral-filled, epoxy-polysulphide polymer conforming to FS MMM-A-001993.
- .2 Chemical Bonding Agents: Film-forming, freeze-thaw resistant compound suitable for brush or spray application conforming to ASTM C 932.
- .3 Preformed Joint Filler: AASHTO M33.

2.2 Mixtures

- .1 Concrete
 - Strength shall be as specified on the Contract Drawings or other sections of the specifications, unless otherwise approved by the Engineer.
 - Pumped concrete shall be as recommended by ACI 304, subject to modification by the Engineer.
- .2 Mortar for patching of concrete shall be one part portland cement of same type and manufacture as used in the impinged concrete to two parts fine aggregate conforming to CSA Standard CAN3-A23.1 and of same gradation and source as that of the fine aggregate used in the impinged concrete.

PART 3 - EXECUTION

3.1 Equipment

- .1 Capacity: To maintain continuous flow at the accepted rate of concrete placement.
- .2 Chutes:
 - Material: Steel or steel-lined.
 - Maximum slope, unless discharging into hopper shall be one vertical to two horizontal.
 - The above requirements do not apply to discharge hose from an “elephant trunk” (reinforced rubber hose).
- .3 Belt Conveyors:
 - Operate in horizontal position or on a slope less than that which would cause segregation.
 - Arrange discharge to prevent segregation. Do not use hopper.
- .4 Pumped Concrete Equipment: As recommended by ACI 304, subject to review by Engineer at all times and to prompt correction if not operating correctly.
- .5 Buggies: Steel, rubber-tired.
- .6 Bottom Dump Buckets: Steel, non-clogging.
- .7 Collector Cone (for use in placing concrete in deep narrow forms): Provide with drop chute consisting of a rubber tube that collapses flat when concrete is not being discharged.
- .8 Vibrators: Immersion type selected in accordance with ACI 309, Table 5.1.4 and provided in sufficient quantity to properly consolidate each batch of concrete immediately following its placement.

.9 Expendable Materials:

- Burlap: AASHTO M182, Class 4.
- Blanket insulation: FS HH-I-521F.
- Vapour Barrier (min. 6 mil)

3.2 Inspection Immediately Prior to Start of Concreting

- .1 Substrate Surface Condition: Foundation conditions shall be inspected and approved by the Engineer prior to placing concrete. Unsuitable material shall be excavated and replaced with new material as directed by the Engineer. Verify that bearing capacity of sub grade meets indicated density requirements, and that surface is hard, reasonably level, slightly moist, and free from loose, saturated, and frozen material and debris. Also verify that previously placed concrete has been prepared for bonding and is free from loose and extraneous matter.
- .2 Embedded Items: Inspect embedded anchorage devices, replace defective pieces and correct improper positioning, omissions, and weaknesses in fastenings against displacement. Verify that embedded pipes, conduits have been satisfactorily tested, that external threads are completely capped that internally-threaded and non-threaded ends are acceptably plugged, and that embedded anchorage devices are secured in their indicated locations.
- .3 Formwork: Inspect formwork for defects in alignment, grade, and integrity of bracing, tie-bolts, falsework, camber, waterstops, and joints; and correct defects. Verify that the temperature of contacting surface is not greater than temperature that will permit normal setting time for the concrete.
- .4 Concrete Reinforcement: Inspect reinforcing steel for quantity, sizes, and positioning. Verify that fastenings will prevent displacement. Verify that the temperature of the reinforcement is not greater than that temperature which will permit normal setting time for the concrete. Do not start placement of concrete until initial inspection has been satisfactorily completed and approved by the Engineer.

3.3 Preparation

- .1 Maintain continuous flow of concrete to point of placement, without segregation or loss of mortar, by use of appropriate equipment. Ensure that equipment is cleaned prior to contact with fresh concrete.
- .2 Vibrators: Provide sufficient spare vibrators as replacements for possible outages.
- .3 Working Platforms: Arrange temporary runways for buggies to ensure efficient placement of concrete. Properly support runways on formwork.
- .4 Devices for Conveying and Placing Concrete: Arrange facilities to maintain mobility.

- .5 Uncoated Wood Forms: Thoroughly wet forms with form oil immediately before placing concrete.
- .6 Bonding at Construction Joints and Patching Areas: Roughen surfaces of set concrete at joints, remove laitance, coatings, loose particles, and foreign matter. Roughen surfaces in a manner that will expose aggregate uniformly and not leave laitance, loose particles of aggregate, and damaged concrete on surface. Prepare for bonding fresh concrete to new concrete that has set, but is not fully cured, as follows:
- a. At joints between footings and walls or columns, and between walls or columns they support, and elsewhere, unless otherwise indicated: Dampen, but do not saturate, roughened and clean surface of set concrete immediately before placing fresh concrete.
 - b. At joints in exposed work, vertical joints in walls, other structural members, dampen, but do not saturate, roughened and cleaned surface of set concrete and apply a liberal coating of neat cement grout.
 - c. Use cement grout consisting of equal parts Portland cement and fine aggregate by weight and not more than six gallons of water per sack of cement. Apply with a stiff broom or brush to a thickness of not less than 2mm. Deposit fresh concrete before cement grout has attained its initial set.
 - d. In lieu of cement grout, bonding grout may be an epoxy-resin-bonding agent, acceptable to the Engineer, applied to cleaned concrete surfaces in accordance with bonding material manufacturer's printed instructions.
 - e. Prepare for bonding fresh concrete to fully-cured, hardened concrete or existing concrete by using epoxy-resin bonding agent as follows:
 - Handle and store epoxy-resin bonding agent in compliance with manufacturer's printed instructions and safety precautions.
 - Mix epoxy-resin bonding agent in proportions recommended by manufacturer, carefully following directions for personnel safety.
 - Before depositing fresh concrete, thoroughly roughen and clean hardened concrete surfaces and coat with epoxy-resin grout not thinner than 2mm. Place fresh concrete while epoxy-resin material is still tacky, without removing in-place grout coat, and as required by the epoxy-resin manufacturer.

3.4 Conveyance by Pumping

- .1 Equipment: Furnish, install, operate, and maintain equipment in accordance with the accepted working drawings and the recommendations of ACI 304. Maintain backup equipment on site in case of breakdown during concreting. Pneumatic placers will not be permitted.
- .2 Preparations: Prior to charging pipeline, operate pump to verify that moving parts are in satisfactory operating condition. Pump portland cement grout through the line immediately ahead of the concrete. Do not place grout in the work, except as bedding for construction joints. Transport grout, once used, off the worksite.

- .3 Conveyance: Operate pumps at low speed until concrete fills line and is moving steadily and at speeds below those at which pump would be required to be stopped during necessitated slow-down in placing concrete. If placement is impeded by delay in concrete delivery, from repairs or other circumstances, reduce pumping rate just to maintain some movement in the concrete. During long delays, limit the pump operation to occasional single strokes. For placement in confined areas during long delays, re-circulate concrete through a return line to receiving hopper. If delays are of such duration as to render concrete in the line immovable, clean-out line and restart work cycle, as described above. When form is nearly filled and there is enough concrete in line to complete placement, stop pump and force go-devil through line.
- .4 Field Quality Control for Pumped Concrete: Take samples of concrete in accordance with CSA Standard CAN3-A23.2 at points of placement of pumped concrete for each change of location, as required by the Engineer. Immediately test samples, in the presence of the Engineer, to determine if changes in slump, air content, and other significant mix characteristics have occurred. Should tests show that such changes have occurred, modify corresponding adjustments to mix design. The Engineer has the right to refuse concrete that is not in compliance with mix design or Contract Documents.
- .5 Clean-Up: Dump waste concrete in a container and remove it from the worksite.

3.5 Placement

- .1 Deposit concrete as near as possible to final position. Do not use vibrators to alter the location of poured concrete. Do not drop concrete more than 1.2 metres free fall.
- .2 Deposit concrete against leading face of lift being placed.
- .3 Deposit concrete continuously in layers of such thickness as can be properly consolidated; cover previously-placed layers before concrete has begun to harden. Cover each layer with fresh concrete within thirty (30) minutes. Each layer shall be of as uniform a thickness as possible.
- .4 Do not place concrete that has attained its initial set, and that which has contained its mix water for more than one hour unless accepted by the Engineer.
- .5 In monolithic placements, do not deposit concrete in supported elements such as slabs until concrete previously deposited in walls has set for two hours.
- .6 In concrete slabs, deposit and consolidate concrete between indicated construction joints in a single continuous operation without interruption.
- .7 Locate construction joints as indicated or as shown on the Contract Documents or approved shop drawings.

3.6 Consolidation

- .1 Consolidate concrete during placement with high frequency internal vibrators of type, size, and number as recommended by CSA Standard CAN3-A23.1 for the particular conditions, until voids are filled, and free mortar appears on surface.
- .2 Use sufficient number of vibrators to consolidate incoming concrete within fifteen (15) minutes after depositing concrete in forms.
- .3 Provide spare vibrator at worksite during concreting when more than twenty cubic metres of concrete is being placed.
- .4 Apply vibrator only for such time as necessary to obtain maximum consolidation without causing segregation of mortar and coarse aggregate, and without causing water and cement paste to flush to surface.
- .5 Space the points of vibrator insertion at one and a half times the radius of action recommended by CSA Standard A23.1 for the particular application.
- .6 Operate vibrators for a time period equal to two-thirds of the duration of concrete placement.
- .7 Penetrate previously-placed layer of fresh concrete a few inches at regular intervals.
- .8 When consolidating concrete in slabs, make vibrator penetrate and re-vibrate previously-placed fresh concrete in top of supporting members.
- .9 Use external vibrators only when acceptable to the Engineer, and if forms have been constructed sufficiently rigid to resist deformation and damage from external vibration.

3.7 Concrete Finishes

- .1 Unformed Finishes: Follow the requirements for finishing in CSA CAN3-A23.1. Consolidate concrete with a compacting type screed operated on and between supports or headers, until a uniform surface is obtained. Use templates and strike boards alternately to tamp and strike off the concrete with a combined longitudinal and transverse motion, and that are rigidly constructed and designed to prevent deflection and distortion. Leave a uniform film of mortar or grout of suitable consistency on the concrete surface after last pass of template and strike board.
- .2 Formed Surfaces: Remove fins and irregular projections from surfaces that are exposed to view and from surfaces that will receive waterproofing. Fill holes vacated by removable components of form ties with mortar of same mix and ingredients as employed in surrounding concrete. Prepare pointing mortar not more than thirty (30) minutes prior to use. Maintain mortar patches, wet and cure and leave contraction and articulated joints carefully tooled and free from mortar and concrete. Leave joint filler exposed for its full length with clean and true edges.

- .3 All of the above to be performed as part of the unit price or lump sum price for concrete in accordance with this section.

3.8 Replacement of Defective Concrete

- .1 General: The Engineer will determine whether defective section shall be removed and completely replaced or the extent and manner of action to be taken for the correction of defective concrete as may be revealed by surface defects or otherwise.
- .2 Repair of Formed Surfaces: Repair and patch defective areas with cement mortar of mix proportions and materials identical to those used in the surrounding concrete and produce a finish on the patch that is indistinguishable from the finish of the surrounding concrete, immediately after removing forms, in a manner and by a method accepted by the Engineer in writing prior to start of repair operation. Cut-out honeycomb, rock pockets, and voids having a diameter more than 15mm to solid concrete but not shallower than 25 mm. Make edges of cuts perpendicular to concrete surface. Before placing cement mortar, thoroughly clean, dampen, and brush-coat area to be patched with neat cement grout. Proprietary patching compounds may be used if accepted by the Engineer in writing prior to start of repair operation. Fill holes extending through concrete by means of plunger-type gun or other suitable device from the least exposed face, using a flush stop held at the exposed face to ensure complete filling.
- .3 Repair of Unformed Surfaces: Test unformed surfaces for smoothness and to verify conformance of surface plane to tolerances specified. Correct low and high areas and test unformed sloped surfaces for trueness of slope and smoothness, using a template having required slope. Repair finished unformed surfaces that contain defects which adversely affect durability of concrete. Grind high areas in unformed surfaces either during or immediately after concrete has cured sufficiently to permit repairs without damaging adjacent areas. Cut-out low areas in unformed surfaces either during or immediately after completion of surface finishing operations and replace with fresh concrete. Finish repaired areas to blend into adjacent concrete. Cut-out defective areas, except random cracks and single holes not exceeding one inch diameter, and replace with fresh concrete. Remove defective areas to sound concrete with clean, square cuts, and exposed reinforcing steel within at least 20mm clearance all around. Dampen concrete surfaces in contact with patching concrete and brush with a neat cement grout coating. Place patching concrete before grout takes initial set. Mix patching concrete of same materials and in same proportions as adjacent concrete. Place, compact, and finish as required to blend with adjacent concrete. Cure in same manner as adjacent concrete. Repair isolated random cracks and single holes not over one inch in diameter by the dry-pack method. Groove tops of cracks cut-out holes to sound concrete, and remove dust, dirt, and loose particles. Dampen cleaned concrete surfaces and brush with neat cement grout coating. Mix dry-pack, consisting of one-part Portland cement to 2-1/2 parts fine aggregate passing No. 1.18 mm sieve, using only enough water for handling and patching. Place dry-pack before grout takes initial set. Compact dry-pack mixture in-place and finish to match adjacent concrete. Keep patched areas continuously moist for not less than 72 hours. Repair methods not specified above may be used, subject to acceptance by Engineer in writing.

3.9 Curing

- .1 Protect freshly-placed concrete from excessively hot and cold temperatures as specified elsewhere in this section.
- .2 During curing period keep wood forms wet. If forms are removed before curing is completed, use any of the specified methods of curing immediately and continue for remainder of curing period.
- .3 Maintain surface of newly placed concrete moist until the accumulated time in days and fractions thereof, during which the temperature of the air in contact with the concrete is warmer than ten (10) degrees Celsius, has totalled not less than four (4).
- .4 When the mean daily temperature of the atmosphere is cooler than five (5) degrees Celsius, maintain the temperature of newly placed concrete between ten (10) and twenty (20) degrees Celsius, for no less than four (4) consecutive days.
- .5 Cover concrete surface with double thickness burlap sheet, laid directly on concrete and kept wet at all times. Maintain sheet in good condition and position in such manner that entire surface of concrete being cured is fully covered at all times. Immediately repair any damaged burlap. Cover burlap with vapour barrier.
- .6 The forms may not be stripped until the concrete has reached the strength specified in and not sooner than 24 hours after placement.

PART 4 - MEASUREMENT AND PAYMENT

4.1 Measurement

- .1 Cast-In-Place Concrete will not be measured for payment.

4.2 Payment

- .1 Cast-in-place Concrete will be paid for in accordance with the unit price item as outlined in Schedule A – Schedule of Quantities and Prices. Payment at the Contract price for the above items shall be full compensation for all labour, equipment, and material required to complete concrete as per the Contract Documents and in strict accordance with this section.

END OF SECTION

PART 1 – GENERAL

1.1 Description

- .1 This Section specifies requirements of fabrication, delivery and erection of precast elements.

1.2 Related Sections

- .1 Section 01520, Construction Facilities and Temporary Controls
- .2 Section 03010, Portland Cement Concrete
- .3 Section 03200, Concrete Reinforcement

1.3 References

The following references shall be used in completion of fabrication, delivery, erection, etc.:

- .1 OPSS PROV 909 – Construction Specification for Prestressed Concrete – Precast Girders

1.4 Submittals

- .1 At least three (3) weeks before the commencement of fabrication, pdf copies of shop drawings, indicating element details, reinforcing steel schedules, method and sequence of casting, lifting point locations, details of all temporary supports and all other pertinent details shall be submitted to the Engineer for approval. One set of these drawings will be returned to the Contractor marked to indicate required changes.
- .2 Clearly identify all shop drawings and correspondence submitted to the Engineer with the project title as it appears on the drawings title block, including the subdivision and mileage.
- .3 Shop drawings that fully conform to the Contract Drawings shall bear the seal and signature of a Professional Engineer registered in the province of Ontario.

1.5 Quality Assurance

- .1 Visual inspection and sampling may be done in the field by an inspector to confirm the material supplied is as specified in the Contract Documents.

1.6 Delivery, Storage and Handling

- .1 Protect precast elements from damage during delivery, storage and handling.
- .2 Repair or replace damaged elements, as directed by Engineer.

1.7 Coordinate with Others

- .1 Coordinate and schedule work with the Engineer.

PART 2 – PRODUCTS

2.1 Acceptable Manufactures

- .1 Precast units shall be fabricated by a plant certified by CSA or by CPCI under the category Group B, Bridges.

2.2 Materials

- .1 Element dimensions, concrete, reinforcement, prestressing strands, backing rods/sealant details and diaphragms details shall be as indicated on the drawings.

PART 3 – EXECUTION

3.1 General

- .1 All material, equipment, construction, delivery and erection shall be as per OPSS 909.

PART 4 - MEASUREMENT AND PAYMENT

4.1 Measurement

- .1 No measurement for payment will be made for precast elements.

4.2 Payment

- .1 Payment for the Work of this Section shall be included in the lump sum for Precast Elements included in Schedule A – Schedule of Quantities and Prices. Payment will be full compensation for labour, material, use of equipment, tools and incidentals necessary to complete the Work of this section.

END OF SECTION

PART 1 – GENERAL

1.1 Description

- .1 This section applies to the furnishing of all labour, material and equipment for the supply, detailing, fabrication, transporting, erection and finishing of structural steel and associated items for bridges as outlined in the Contract Documents.

1.2 Related Sections

- .1 Section 01520, Construction Facilities.

1.3 References

The following references shall be used in completion of fabrication, delivery, erection, etc.:

- .1 AREMA Manual for Railway Engineering (Chapter 15). *This reference shall govern over all other references herein which are provided for guidance only. The Contactor is required to immediately notify the Engineer if there is a conflict between the AREMA requirements and those specified anywhere in the Contract Documents.*
- .2 Ontario Provincial Standard Specification OPSS 180, latest revision, “General Specification for the Management and Disposal of Excess Material”.
- .3 Ontario Provincial Standard Specification OPSS 919, latest revision, “Formwork and Falsework”.
- .4 Ontario Provincial Standard Specification OPSS 906, latest revision, “Construction Specification for Structural Steel Bridges”.
- .5 Canadian Standards Association (CSA):
 - CAN/CSA-G40.20/G40.21-04 (R2009) General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steels
 - CSA G189-1966 (R2003) – Sprayed Metallic Coatings for Atmospheric Corrosion Protection
 - CSA G164-M92 (R2003) – Hot Dip Galvanizing of Irregularly Shaped Objects
 - CAN/CSA-S6-06, Design of Highway Bridges
 - CAN/CSA-S16.1-09 Limit States Design of Steel Structures
 - CSA S269.1- 1975 (R2003) Falsework for Construction Purposes
 - CSA-W47.1-09 Certification of Companies for Fusion Welding of Steel Structures
 - CSA-W48-06 (R2011) Filler Metals and Allied Materials for Metal Arc Welding
 - CSA-W59-03 (R2008) Welded Steel Construction (Metal Arc Welding)
 - CSA-B95-1962 (R2002) Surface Texture (Roughness, Waviness and Lay)
- .6 American Society of Testing and Materials (ASTM):
 - ASTM A123-08 – Zinc (Hot-Dip Galvanized) Coatings for Steel Products

- ASTM F3125-19 Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength
- ASTM A 563-15 Standard Specification for Carbon and Alloy Steel Nuts
- ASTM F 436M-19 Standard Specification for Hardened Steel Washers

.7 American Welding Society (AWS):

- AWS A5 Series Standards published by the Committee on Filler Metals and Allied Materials

1.4 Submittals

- .1 At least three (3) weeks before the commencement of fabrication, an estimate of the fabrication time and pdf copies of erection diagrams and shop drawings shall be submitted to the Engineer for approval. All symbols for welding and non-destructive testing shall be according to CSA W59-M.
- .2 Erection diagrams shall include at least the following:
 - Principal dimensions of the bridge
 - Erection marks
 - Size and type of bolts
 - Bolt installation requirements, including the number of fitting up bolts required at each connection and identification of oversize and slotted holes
 - Bracing during erection of structural steel
 - Treatment at faying surfaces for joints designed as slip critical
- .3 Shop drawings that fully conform to the Contract Drawings shall be accompanied by a letter bearing the seal and signature of an Engineer verifying this conformity and shall include the following:
 - Full detail dimensions and sizes of all component parts of the structure making allowances for changes in shape due to weld shrinkage, camber, and any other effects that cause finished dimensions to differ from initial dimensions.
 - Erection marks and all material specifications.
 - Identification of areas requiring special surface treatment.
 - Identification of fracture-critical and primary tension members and component parts.
 - Bolt installation requirements, including number of fitting up bolts required at each connection and oversize and slotted holes.
 - Locations of all shop and field splices.

- .4 Procedures:
- At least three (3) weeks before commencement of erection, pdf copies of the erection procedures, including lifting point locations and details of all temporary supports shall be submitted to the Engineer for review.
 - The erection procedure, including drawings and calculations signed and sealed by a Professional Engineer, fully illustrating the proposed method of erection, including erection sequence; weight and lifting points of the members; and locations and lifting capacities of the cranes to be used to lift them.
- .5 Mill Test Certificates shall be submitted as follows:
- One (1) copy of mill test certificates for all material to be used in the fabrication shall be available for review at the fabricating plant during fabrication. The mill test certificates shall show that the material is according to the Contract Documents. If mill test certificates cannot identify the material, coupons shall be taken and tested and these test certificates shall be made available to the Engineer.
 - Where mill test certificates originate from a mill outside Canada or the United States of America, the Contractor shall have the information on the mill test certificate verified by testing by a Canadian laboratory, accredited by the Standards Council of Canada.
- .6 Fastener Test Reports: When requested by the Engineer, the Contractor shall provide proof that the bolts, nuts, and washers meet the chemical composition, mechanical properties, dimensions, workmanship, and head burst as required by ASTM F3125, ASTM A 563M, or ASTM F 436M. Verification of the acceptability of assemblage of zinc-coated bolts shall be provided with the bolts, nuts, and washers delivered to the job site. For bolts supplied from a manufacturer outside Canada or the United States of America, the above information shall be verified by testing by a Canadian laboratory as outlined in the Mill Test Certificates clause.
- .7 Copies of all inspection reports shall bear the seal and signature of an Engineer and shall be submitted to the Engineer.
- .8 As-built drawings shall be prepared by the Contractor as follows:
- For all work incorporated in the completed structure that required the submission of working drawings.
 - For all changes from the original Contract requirements.
 - The as built drawings shall be signed and sealed by a Professional Engineer. The submission of as built drawings as well as an electronic copy shall be accompanied by a letter bearing the seal and signature of a Professional Engineer stating the as built drawings contain any changes to the work.

- .9 Review and Return of Approvals: Two copies of each submission to be returned shall be marked as one of the following:
- Stamped with the wording that allows for permission to construct meaning that work can commence upon receipt of the drawing by the Contractor. A copy of these drawings shall be available at the site prior to and during construction.
 - Stamped with the wording that allows for permission to construct as noted meaning that work can start on receipt of the drawings by the Contractor. The drawings shall be updated as noted and shall have a stamp affixed that is signed by a Professional Engineer stating the drawings have been revised according to the noted comments. A copy of the stamped updated drawings shall be available at the site prior to and during construction.
 - Showing only required changes meaning that the drawings shall be updated as required and the submission process repeated.

1.5 Quality Assurance

- .1 Visual inspection and sampling will be done in the fabricating shop and in the field by an inspector to confirm the material supplied, fabrication, and erection is as specified in the Contract Documents.
- .2 The Contractor is responsible for supply of electric power scaffolding, protection from the weather, and free access for inspection and testing of material, to all aspects of the fabrication, delivery, and erection of the structural steel at no additional cost to the Owner.
- .3 The marking on the material will be compared to the mill test reports to verify the material is as specified in the Contract Documents and coupon test reports will be examined.
- .4 Inspection of bolted construction shall be according to CSA S16.

PART 2 – PRODUCTS

2.1 Structural Steel

- .1 Structural steel shall be new and of the grade and category specified on the drawings and in the Contract Documents and shall be according to CSA G40.20/G40.21
- .2 Substitution of material for size and grade is not permitted unless approved by the Engineer.

2.2 Fasteners

- .1 High strength bolts, nuts, and hardened washers shall be according to ASTM F3125, ASTM A 563, and ASTM F 436. The nuts, bolts, and washers shall be shipped together as an assembly.
- .2 High strength bolts, nuts, and washers for use with unpainted corrosion-resistant steel shall be Type 3. Bolts, nuts, and washers used with steel specified in the Contract Documents shall receive a paint coating or galvanizing, shall be Type 1, and shall be galvanized or painted as indicated on the drawings.

2.3 Shop Painting

- .1 With the exception of the steel components specified under clause 2.3.2, all other steel where called for on the drawing as being painted shall receive a primer coating and top coat of paint with one of the paint systems specified under Clause 2.4.5 herein:
- .2 The components with surfaces made up of 75% or more of faying or mating surfaces shall receiver the primer coat only of the zinc primer only from one of the manufacturers specified under Clause 2.4.5 herein:
- .3 **Preparation of Surfaces - Near White Blast Cleaning:**
 - .1 Clean all surfaces of steel by Near-White Blast cleaning in accordance with SSPC-SP10.
 - .2 The final surface appearance should correspond to SSPC-VIS-1-89 Visual Standard for Abrasive Blast Cleaned Steel (Standard Reference Photographs).
- .4 Application of the paint shall be executed prior to the commencement of rusting of any of the blast-cleaned surfaces. If rusting occurs prior to the application of the paint system, the Fabricator shall re-clean the surfaces by sand blasting or mechanical wire brush.
- .5 All surfaces of new steel shall be shop painted with one of the following paint systems.
 - .1 Paint Systems
 - I System no. 1 supplied by Amercoat Canada:
 - .1 Primer coat: zinc Dimetcote 9
 - .2 Top coat - epoxy paint Amercoat 385
 - II System no. 2 supplied by Stoncor:
 - .1 Primer coat: - zinc primer Carbozinc 11
 - .2 Top coat - epoxy paint Carboguard 890
 - III System no. 3 supplied by Devoe Coating:
 - .1 Primer coat - zinc primer Cathacoat 304
 - .2 Top coat - epoxy paint Devran 224HS
 - IV System no. 4 supplied by International Paints
 - .1 Primer coat - zinc primer Interzinc 22 QHA027/QHA028
 - .2 Top coat - epoxy paint Interseal 670HS
 - .2 Colour of Paint:

- .1 Primer coat shall be light gray, or an approved equivalent.
- .2 Color of top coat (finish coat) shall be as selected by the Engineer or to match color of existing bridge.
- .6 Primer Coat: The Primer Coat shall be applied to all steel surfaces to a dry film thickness of 3 mils.
- .7 For steel receiving a top coat, prior to the application of the Top Coat, **ALL FAYING SURFACES** (shop or field) which are connected with high strength connection bolts, **MUST BE MASKED** so that the top coat is not applied closer than 2" from a group of bolt holes.
- .8 Top Finish Coat: apply the top coat to a dry film thickness of 5.0 mils.

2.4 Hot-Dip Galvanizing

- .1 All steel except anchor bolts, where called for on the drawing as being hot dip galvanized shall be executed after fabrication of the element and shall be in accordance with CSA Standard G164 "Hot Dip Galvanizing of Irregularly Shaped Objects" (ASTM A123) and shall have a minimum mass of zinc coating of 610g/m² (2 oz/ft²).
- .2 F1554 anchor bolts shall be galvanized by the following methods:
 - a. Grade 36, 55 and 105-Zinc Hot Dip to ASTM A153 Class C.
- .3 Galvanized nuts shall be tapped oversize according to ASTM A563 and shall meet the requirements of supplementary requirement S1 of ASTM 563. Excess hot-dip galvanized on threaded portions shall be removed by centrifuging or air blasting immediately upon withdrawal, flame chasing is prohibited.
- .4 Prior to galvanizing all steel components shall be prepared in accordance with SSPC-SP10.

PART 3 – EXECUTION

3.1 Structural Steel Fabrication

- .1 Plate bending shall adhere to the following:
 - Steel plate for main members shall be cut so that the primary direction of rolling is parallel to the direction of tensile or compressive stress.
 - Sheared edges of plates more than 16 mm in thickness and carrying calculated tension load shall have 3 mm of edge material removed by planning, milling, or grinding.

- Oxygen cutting of structural steel shall be done by machine, with the exception of hand-guided cutting which is permitted for copes, blocks and similar cuts where machine cutting is impractical. Re-entrant corners shall be ground smooth and shall have a fillet of the largest practical radius but not less than 25 mm.
- Plasma arc cutting is not permitted unless approved by the Engineer.
- The quality of the cut edges and their repair shall be according to CSA W59-M. All cut edges that are not to be welded shall have a surface roughness not greater than 1000 as defined by CSA B95.
- Inspection and repair of planar discontinuities shall be according to CSA W59-M.

.2 Bent plates shall be fabricated in accordance with the following:

- Load carrying, rolled steel bent plates shall be cut from the stock plates such that the bend line is at right angles to the direction of rolling unless otherwise approved by the Engineer.
- Before bending, the edges of the plate shall be lightly chamfered by grinding in the region of the bend.
- Cold bending shall be carried out in such a manner that no cracking or tearing of the plate occurs. Minimum bend radii for various plate thickness (t), measured to the concave face of the metal shall be:

<u>t, mm</u>	<u>radius</u>
≤ 12	2 t
> 12 ≤ 25	2-1/2 t
> 25 ≤ 38	3 t
> 38 ≤ 65	3-1/2 t
> 65 ≤ 100	4 t
- Forming radii less than that permitted for cold bending shall be done by hot bending at a plate temperature not greater than 600°C. Accelerated cooling of a hot bent component will only be permitted when the temperature of the component is below 300°C. Only compressed air or water shall be used for accelerated cooling.

.3 Straightening shall be as follows:

- All steel shall be flat and straight according to the specified mill tolerances before commencement of fabrication. Material with sharp kinks or bends shall only be straightened with the approval of the Engineer. Any details of the method of straightening shall be according to CSA W59-M and submitted to the Engineer two (2) weeks prior to the Contractor arranging for inspection.
- After straightening, the surface of the steel will be examined by the Engineer who will specify an appropriate method of testing to be used by the Contractor to determine whether or not there is evidence of fracture or other damage. If necessary the Engineer will specify the corrective action to be taken.

.4 Holes in structural steel members shall be as follows:

- Except as specified for punched holes in material up to 16 mm in thickness, all holes shall be, punched, drilled, or reamed to the finished diameter.
- The nominal diameter of a hole other than oversize or slotted holes shall not be more than 2 mm greater than the nominal bolt size. Oversize or slotted holes shall only be used when specified in the Contract Documents or may be considered for use in bracing and diaphragms.
- Oversize holes shall be 4 mm larger than bolts 22 mm and less in diameter, 6 mm larger than bolts 23 to 26 mm in diameter, and 8 mm larger than bolts 27 mm and greater in diameter.
- Short slotted holes shall be 2 mm wider than the bolt diameter and have a length that does not exceed the oversize diameters above by more than 2 mm.
- Long slotted holes shall be 2 mm wider than the bolt diameter and have a length greater than short slotted holes, but are not longer than 2.5 times the bolt diameter.
- Nominal diameter of a hole requirements may be waived to permit the use of a 3/4" bolt in a 22 mm hole, a 7/8" bolt in a 24 mm hole, or either a 1" bolt or an M24 bolt in a 27 mm hole.
- Holes shall only be punched to finish size in material 16 mm or less in thickness and the diameter of a hole punched to finish size shall not be more than 2 mm larger than the nominal diameter of the bolt unless oversize holes are approved.
- The diameter of the die shall not exceed the diameter of the punch by more than 2 mm. Holes shall be clean cut without ragged or torn edges.
- Holes which are to be reamed to finished diameter shall first be sub-drilled or sub-punched to 4 mm smaller than the hole diameter. With connecting parts assembled and securely held, the holes shall be reamed to 2 mm larger than the nominal diameter of the bolts. The parts shall be match-marked before disassembling.
- Holes which are drilled to finished diameter shall be 2 mm larger than the nominal diameter of the bolt unless oversize or slotted holes have been specified. Holes to be drilled shall be accurately located by using suitable numerically-controlled drilling equipment, or by using a steel template carefully positioned and clamped to the steel. The dimensional accuracy of holes and locations prepared in this manner shall be such that like parts are exact duplicates and require no match marking.
- The holes for any connection may be drilled to finished diameter when the connecting parts are assembled and clamped in position, in which case the parts shall be match-marked before disassembling.

.5 Pins and rollers shall be fabricated as follows:

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- Pins and rollers shall be accurately turned to the dimensions and finish shown on the Contract Documents and shall be straight and free from flaws. Pins and rollers more than 175 mm in diameter shall be forged and annealed. Pins and rollers 175 mm or less in diameter may be either forged and annealed or may be of cold-finished carbon-steel shafting.
 - Holes for pins shall be bored to the diameter and finish specified in the Contract Documents and at right angles to the axis of the member. The diameter of the pin hole shall not exceed that of the pin by more than 0.5 mm for pins 125 mm or less in diameter or by 0.75 mm for larger pins. Built up members shall be completely assembled prior to boring of pinholes.
- .6 Cambering shall be completed as follows:
- Girders shall be cambered before heat-curving. When rolled sections are heat cambered, the method of heat cambering shall be submitted to the Engineer for review prior to cambering.
 - Plate girders shall have the required camber cut into the web with suitable allowance for camber loss due to cutting and welding.
 - Steel box girders fabricated with webs in an upright position shall have the fabricated camber verified by subtracting ordinates for deflections for girder segments from the relaxed camber diagram ordinates. The ends of cambered girders shall be trimmed to be vertical under full dead load.
- .7 Heat curving: Steel beams and welded girders with a specified minimum yield point greater than 350 MPa shall not be heat curved. If approved by the Engineer, a detailed procedure for the heat curving operation shall be submitted for review describing the type of heating to be employed, the extent of the heating patterns, the sequence of operations, and the method of support of the girder, including an assessment of any dead-load stresses present during the operation.
- .8 Identification Marks for Erection: Each member shall carry an erection mark for identification. Permanent marking shall be affixed in an area not exposed to view in the finished structure.

3.2 Welding

- .1 Unless otherwise stated in the Contract Documents or approved by the Engineer, all welding is to be shop welding.
- .2 Prior to commencement of welding, the Contractor shall make available the Canadian Welding Bureau's valid identification cards for each welder, or welding operator to be employed for the Work.
- .3 All welding procedures, conditions of prequalification, selection of type of groove, including workmanship, tolerances, weld quality, techniques, repairs and qualification

control of distortion and shrinkage stresses shall be according to the requirements of CSA W59-M except where modified by the following clauses.

- The electroslog and electrogas welding processes shall not be used for welding quenched and tempered steels or for welding components of members subject to tension stress or stress reversal.
- Members and components of members designated fracture-critical or primary tension shall be constructed according to the requirements specified in the Fracture Control for Fracture-Critical and Primary Tension Members subsection.
- The use of heat to alter the sweep or camber of fracture critical girders shall be approved by the Engineer prior to the application of heat.
- Welding procedure specifications, data-sheets, and procedures used for repairs shall be submitted for approval to the Contract Administrator two (2) weeks prior to commencement of work.
- The companies undertaking welded fabrication and erection shall be certified according to CSA W47.1, Division 1 or Division 2.1.
- Complete joint penetration groove welds shall be according to CSA W59-M and unless produced with the aid of a backing, the root of the initial weld shall be gouged, chipped, or otherwise removed to sound metal before commencing welding the other side.
- Runoff tabs or extension bars shall be provided so that groove welds terminate on the tab. The welds that attach the tabs to the pieces being welded shall be placed inside the joint so that they are incorporated into the final weld.
- Where practical, web to flange fillet welds shall be made continuously by automatic welding. Welds may be repaired using either a semi-automatic or manual process; however, the repaired weld shall blend smoothly with the adjacent welds
- Assembly shall be according to CSA W59-M and the following guidelines. Bearing stiffeners shall be vertical under full dead load. Intermediate stiffeners shall be either vertical or perpendicular to fabrication worklines. Bearing stiffeners fitted to bear shall have a minimum bearing contact area of 50% and the separation of any remaining portions shall not exceed 0.50 mm, except locally at the tips of the bearing stiffeners where a separation of 0.75 mm is permissible. Fitted intermediate stiffeners shall have a minimum bearing contact area of 25% and a maximum separation of 2 mm. Longitudinal web stiffeners shall be cut 25 mm short of the transverse web stiffeners.
- Tack welds shall be according to CSA W59-M, however they shall not be used on fracture-critical or primary tension members unless they are incorporated into the final weld.

- Temporary welds shall be according to CSA W59-M, however they shall not be used on fracture-critical and primary tension members. In addition, temporary welds shall not be used on flange material in compression unless approved by the Engineer.
 - Groove welds in web splices and tension flange splices shall be finished flush.
 - Any steel members subjected to shape corrections or straightening shall be allowed to cool in still air.
 - Stress relief-heat treatment temperatures shall be recorded using thermo-couples or other methods acceptable to the Engineer. A record showing temperature and time data of the heat treating operation shall be maintained and be made available upon request.
 - Arc strikes in fracture-critical and primary tension members shall be repaired according to the provisions of the Welding Corrections and Repairs for Fracture-Critical and Primary Tension Members clause.
- .4 Fracture Control for Fracture-Critical and Primary Tension Members shall be as outlined in OPSS 906, unless otherwise approved by the Engineer
- .5 Only welding consumables meeting the requirements of the Canadian Welding Bureau according to the CSA W48 series standards or to AWS A5 series specifications shall be used.
- .6 Groove welds shall be in accordance with OPSS 906, unless otherwise approved by the Engineer.
- .7 Welding Repairs or Corrections shall be as specified in OPSS 906.07.04 unless otherwise approved by the Engineer. Any section of weld that does not meet the acceptance standards shall be removed, re-welded, and re-examined.

3.3 Structural Steel Connections

- .1 Bolted Connections: ASTM F3125 Grade 325 high strength bolts shall be used for bolted connections. Bolts shall be sufficiently long to exclude threads from the shear plane.
- .2 Assembly: The assembly of joints shall be according to CAN/CSA-S16.1 except that Turn-of-Nut tightening method shall be the only installation method used. When assembled, all joint surfaces, including those adjacent to bolt heads, nuts and washers, shall be free of loose scale, burrs, dirt, and foreign material. The faying surfaces of connections identified as slip-critical connections shall as follows:
- For clean mill scale, the surfaces shall be free of oil, paint, lacquer, or any other coating and then blast cleaned.
 - For coated surfaces other than galvanized, the surfaces shall be free of oil, lacquer, or other deleterious coatings.

- Hot dip galvanized surfaces shall be roughened after galvanizing by means of hand wire brushing. Power wire brushing is not permitted.
 - This treatment shall apply to all areas within the bolt pattern and for a distance beyond the edge of the bolt hole that is the greater of 25 mm or the bolt diameter.
- .3 Bolt Tension: Pretensioned bolts shall be tightened to at least 70% of the specified minimum tensile strength provided in the corresponding ASTM standard.
- .4 Galvanized bolts shall not be reused once they have been fully tightened. Bolts that have not been fully tensioned may be reused up to two times, providing that proper control on the number of reuses can be established. Retightening of bolts loosened due to the tightening of adjacent bolts is not considered to be a reuse.
- .5 Washers shall be as follows:
- Hardened washers are required under the head or nut of bolts, when that part is turned as well as under the nut or bolt head adjacent to joint surfaces containing oversize or slotted holes. When used with slotted holes the washer shall be at least 8 mm thick and of sufficient size to overlap the hole by 5 mm all around.
 - Bevelled washers shall be used to compensate for lack of parallelism where an outer face of bolted parts has more than 5% slope with respect to a plane normal to the bolt axis.
- .6 Nut tightening shall be as outlined in OPSS 906, unless otherwise approved by the Engineer.

3.4 Tolerances

- .1 Structural members consisting of a single rolled shape and built up bolted structural members shall meet the straightness tolerances of CSA G40.20/G40.21 except that compression members shall not deviate from straight by more than 1/1000 of the length between points of lateral support. A variation of 1 mm from the detailed length is permissible in the length of members that have both ends finished for contact bearing. Other members without finished ends may have a variation from the detailed length of not more than 2 mm for members 10 m or less in length or not more than 4 mm for members over 10 m in length.
- .2 When compression members are butted together to transmit loads in bearing, the contact faces shall be milled or saw-cut. The completed joint shall have at least 75% of the entire contact area in full bearing, which is defined as not more than 0.5 mm separation, and the separation of the remainder shall not exceed 1 mm. At joints where loads are not transferred in bearing, the nominal dimension of the gap between main members shall not exceed 10 mm.
- .3 The surface finish of bearing surfaces that are in contact with each other or with concrete, shall meet the following roughness requirements according to CSA B95:

Steel slabs or plates in contact with concrete
--

2000 Micro inches

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Plates in contact as part of bearing assemblies	1000 Micro inches
Milled ends of compression members	500 Micro inches
Milled or ground ends of stiffeners	500 Micro inches
Bridge rollers or rockers	250 Micro inches
Pins and pin holes	125 Micro inches
Sliding bearings - steel and copper alloy or steel and stainless steel	125 Micro inches

- .4 Surfaces of flanges that are in contact with bearing sole plates shall be flat within 0.5 mm over an area equal to the projected area of the bearing stiffeners and web. Outside this area a 2 mm deviation from flat is acceptable. The bearing surface shall be perpendicular to the web and bearing stiffeners.
- .5 Bearing Plate Tolerances shall be as follows:
- Rolled steel bearing plates 50 mm or less in thickness may be used without planing provided that a satisfactory contact bearing is obtained.
 - Rolled steel bearing plates over 50 mm but not over 100 mm may be straightened by pressing or by planing on all bearing surfaces to obtain a satisfactory contact bearing.
 - Rolled steel bearing plates over 100 mm in thickness shall be planed on all bearing surfaces except for those surfaces which are in contact with concrete foundations and are subsequently grouted to ensure full bearing.
- .6 Allowable tolerance for bolt or rivet holes shall be as follows:
- Matching holes for bolts and rivets shall line up so that dowel 2 mm less in diameter than hole passes freely through assembled members at right angles to such members.
 - Finish holes not more than 2 mm in diameter larger than diameter of rivet or bolt unless otherwise specified by the Engineer.
 - Centre-to-centre distance between any two holes of group to vary by not more than 1 mm from dimensioned distance between holes.
 - Centre-to-centre distance between any two groups of holes shall not vary more than following:

Centre-to-centre Distance (m)	Tolerance (± mm)
Less than 10	1
10 to 20	2
20 to 30	3

3.5 Transportation and Storage

- .1 The Contractor shall perform all work necessary to ensure safe loading, delivery, unloading and storage of structural steel. This includes loading and shipping in such a

manner that transportation and unloading do not cause excessive stress, deformation, or other damage. Plate girders must be transported with their webs in a vertical plane unless otherwise approved by the Engineer. Structural steel shall be stockpiled to avoid excessive stress deformation or other damage while stored.

- .2 The Work shall consist of loading the members, transporting them, and unloading at the site and shall include temporary works for access, and providing a delivery schedule to the Engineer at least one (1) week in advance.
- .3 Protect unpainted weathering steel, before erection, with waterproof covering and ensure that no portion of steel comes into contact with ground.

3.6 Steel Erection

- .1 Before erection of structural steel, perform dimensional survey of existing bridge elements and verify locations of substructure and superstructure units, elevations, and location of fasteners, etc. Immediately report any discrepancies to the Engineer.
- .2 Components shall be lifted, placed, and maintained in position using appropriate lifting equipment, temporary bracing, guys, or stiffening devices so that the components are at no time overloaded, unstable, or unsafe. Additional permanent material may be provided, if approved by the Engineer, to ensure that the member capacities are not exceeded during erection. The additional material shall be shown in the erection diagram.
- .3 The Engineer shall be notified in writing of the starting date at least two (2) weeks prior to the commencement of field operations. Work shall not be carried out until an inspector is on the site.
- .4 Unless otherwise approved by the Engineer, at least 50% of the holes in the joints shall be filled with drift pins or hand tightened bolts prior to removing the crane. At least 50% the bolts required in the flanges shall be installed. Drift pins shall not be left in place over traffic when the crane is removed.
- .5 Material intended for use in the finished structure shall not be used for erection or temporary purposes unless such use has been shown on the working drawings or authorized by the Engineer.
- .6 Hammering that will damage or distort the members is not permitted.
- .7 All falsework, including necessary foundations, required for the safe construction of the structure shall be designed, furnished, maintained, and removed according to OPSS 919.
- .8 Any error in shop fabrication or any deformation resulting from handling or transportation that prevents the proper assembly and fitting of parts, especially splices of main material, shall be reported and the proposed method of correction shall be submitted to the Engineer for approval
- .9 Bolt heads shall be located on the outside faces of the exterior girders. Bolt heads in field splices for box girders shall be located on the exterior surfaces.

- .10 The bridge shall be erected to the proper alignment in plan and in elevation, taking into account the dead load camber specified in the Contract Documents.
- .11 Parts shall be assembled according to the erection marks shown on the erection drawings and the component match marks. For temporary fit ups, main girder splices and connections shall be aligned with drift pins and a sufficient number of fitting up bolts shall be installed to maintain the integrity of the connection. The fitting up bolts may be the high strength bolts used in the installation. Drift pins shall be 1 mm larger in diameter than the required bolts. Excessive drifting that distorts the metal and enlarges the holes shall not be allowed. Reaming up to 2 mm over the nominal hole diameter is permitted, with the exception of in oversize or slotted holes.
- .12 When cantilever erection is used splices that support the cantilevering member shall be fully bolted before extending.
- .13 Attachments making use of tack welds or other welds that are not part of the welds shown on the working drawings shall not be permitted.
- .14 In addition to quality control measures instituted by the Contractor, the Contractor shall be responsible for the quality control procedures as outlined in OPSS 906 including but not limited to Control of Material, Visual Inspection, Non-Destructive Testing, Testing of Welds, and Erected Elevations.
- .15 Management and disposal of excess material shall be in accordance with OPSS 180 and the authority having jurisdiction.

PART 4 - MEASUREMENT AND PAYMENT

4.1 Measurement

- .1 Measurement of Structural Steel for Bridges will not be measured. The cost to fabricate, transport, erect, and connect, including nuts, bolts, washers and application of finishes as outlined in the Contract Documents shall be paid as detailed below.

4.2 Payment

- .1 The Contractor will be paid for Structural Steel in accordance with the unit price items per type of steel as outlined in Schedule A – Schedule of Quantities and Prices. Payment at the Contract price for the above items shall be full compensation for all labour, equipment, and material required to complete shop / erection drawings, other submittals, fabrication, transport and installation of Structural Steel in accordance with this section.

END OF SECTION

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PART 1 - GENERAL

1.1 Description

- .1 This section applies to the supply of all labour, materials and equipment required to complete the installation of jacking beams and jacking for installing bearings and pedestals.

1.2 Related Sections

- .1 Section 05122, Structural Steel for Bridges

1.3 Workmanship and Quality Assurance

- .1 The Contractor's workforce shall be experienced in executing this type of work and shall have a minimum of 5 years experience in the jacking of spans and bearing replacement.

1.4 Damage to Existing Span Members

- .1 Do not damage the span members and especially avoid making notches to the edges of members which may cause cracks due to fatigue stresses.
- .2 The field drilling or burning of holes, in any member, is strictly forbidden.

PART 2 - PRODUCTS

2.1 Levelling Mortar

- .1 Supply and place a fast-setting pre-mixed non-shrink grout, "SikaSet 45" by Sika Construction, or approved equal.

2.1 Anchor Bolt Grout

- .1 Supply and fill space around anchor bolts with approved non-shrink grout, "SikagROUT 212" supplied by Sika Construction, or approved equal.

PART 3 – EXECUTION

3.1 Execution

- .1 Actual jacking of spans for bearings and steel pedestals can only take place during an arranged track closure, approved by ONR.

3.2 Preparatory Work Prior to Jacking of Spans

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- .1 Prior to the commencement of the scheduled train block, the Contractor shall have the following components in place:
 - .1 All blocking and steel shims pre-cut to size;
 - .2 Timber stiffeners and blocking and jacks shall be in position;
 - .3 Replace existing rivets with high strength bolts. As existing rivets are being removed, they shall be immediately replaced with high strength bolts;
 - .4 Install jacking devices and jacking beams as detailed;
- .2 Rehearse the entire operation to detect flaws in the plan and defective equipment. Time how long it will take to do the various operations. Ensure that all equipment and materials will fit in the place provided for it.

3.3 Jacking of Steel Spans

- .1 The Contractor shall appoint one person who will be responsible for the operation. All other groups shall report to the person in charge and must follow his directions.
- .2 Ensure that all workers taking part know what the plan is and what their part is.
- .3 Jacking:
 - .1 Jacks shall be size to lift the lifting loads shown on the drawings.
 - .2 All jacks shall have a 30% spare capacity.
 - .3 Test all jacks and pumps to ensure that they will carry the design load.
 - .4 Keep hydraulic fluid, reservoirs, and piping surgically clean.
 - .5 Use as few jacks as possible and have all of them the same size and capacity.
 - .6 Use jacks with as long a stroke as possible and which are lowered by internal springs.
 - .7 Load jacks perpendicular and prevent jacks from tilting.
 - .8 Put appropriate blocking and stiffeners above and below the jack. Check the crushing and bearing strength of all this material. All blocking and shims shall be cut to exact sizes and thicknesses before starting to jack.
 - .9 Spans should be jacked a maximum of 1/4" or just enough to release the bearings.
- .4 Spare equipment should be on hand for all items of work (jacks, high pressure piping, hydraulic fluid, pumps, cranes, gasoline, generators, lights, etc.)

3.4 Rivet Removal and High Strength Field Connection Bolts

- .1 Where the Contractor is executing steel replacement, the existing rivets shall be carefully removed and shall be replaced with permanent erection bolts.

- .2 Rivet removal shall be by pneumatic or mechanical methods without damage or distortion of the structural members from which the rivets are being removed. Removed rivets shall be recuperated and shall be disposed off-site by the Contractor. If the Contractor experience difficulty in removing a rivet, in order to facilitate its removal, the Contractor will be permitted to drill through the center of the rivet using a ½ " drill bit.
- .3 **Combusting cutting equipment will NOT BE PERMITTED on any member whatsoever, unless specifically indicated on the drawing, in which case the Contractor shall supply and place a thermal barrier (ie. Rigid asbestos sheet or other approved material) thus protection adjacent steel surfaces.**
- .4 Rivet removal shall be pre planned and properly executed in accordance with specifications.
- .5 All connection bolts, nuts and washers shall be ASTM F3125 Grade 325, Type I.
- .6 All connection bolts, nuts and washers shall be installed and tightened by the turn-of-nut method.
- .7 For inspection purposes, all bolts must have their "Snug Tight" positions marked by the Contractor prior to the final tightening.
- .8 All high strength connection bolts, ASTM F3125 Grade 325, Type I, black bolts and nuts may be **USED ONLY ONCE** and then discarded and replaced with new high strength bolts.
- .9 Existing rivet holes which have not been incorporated in a final field connection shall be filled by Contractor with a permanent high strength field connection bolt and fully tightened in the same manner as all other bolts.
- .10 Field paint touch-up of permanent high strength bolts and connections shall be executed only after bolt tightening has been accepted by Engineer.

3.5 New Bolt Holes

- .1 The perimeter of new bolt holes shall not exceed a surface roughness of ASA 500.
- .2 The Contractor shall accommodate the inspector who will verify surface roughness and presence of cracks in the existing bolt holes.
- .3 Instructions will be given to the Contractor if reaming is required.

3.6 Installation Procedures and Installation Tolerances

- .1 Fabrication procedures and tolerances shall be in accordance with Part 3, Chapter 15, A.R.E.M.A. Standard, unless stated otherwise in the specifications or on the drawings.
- .2 All holes must be drilled from the solid.

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- .3 Steel templates with hardened bushings will be required for drilling holes.
- .4 Strictly adhere to the various procedures of installation called for on the drawings.

3.7 Handling of Components

- .1 The various components shall be delivered to the bridge site and handled by the Contractor.
- .2 All pieces shall be handled in such a way to avoid damages to the members. Steel slings or chains shall not be used for handling materials. If steel slings or chains must be used, the pieces shall be surrounded and protected so that the steel slings do not come in contact with the components.
- .3 Do not drop, throw or drag pieces during loading and unloading from trucks or cars. Do not slide shop-painted components. Pieces that have not been grouped together must be handled individually during loading and unloading.
- .4 Existing steel shall be carefully removed so as not to be damaged for re-installation where required by the drawings.
- .5 The Contractor shall also remove and re-install, as required, certain pieces where the new piece does not fit.

3.8 Gouges to Steel Members

- .1 Gouges in parent material caused by the Contractor in excess of 1/8" shall be subject to complete member replacement at the Contractor's expense.
- .2 Gouges up to 1/16" shall be ground smooth by the Contractor to 1/10 slope to the Engineer's complete satisfaction.

3.9 Removal of Materials

- .1 Removed materials shall become the property of the Contractor and shall be disposed off-site by the Contractor.

3.10 Installation

- .1 All pieces shall be handled in such a way to avoid damages to the members. Steel slings or chains shall not be used for handling materials. If steel slings or chains must be used, the pieces shall be surrounded and protected so that the steel slings do not come in contact with the components.
- .2 Do not drop, throw or dag pieces during loading and unloading from trucks or cars. Do slide galvanized components. Pieces that have not grouped together must be handled individually during loading and unloading.

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3.11 Touch-ups

- .1 Any damaged areas of the galvanized, zinc-metallic or painted coating due to field installation by the Contractor shall be made good by touching-up with cold-applied galvanizing compound or appropriate paint finish to the satisfaction of the Engineer.

3.12 Marking

- .1 Bearings, pedestals/shim plated, and transition plates will be tagged and identified in accordance with the "Type Code" indicated on the drawings.

3.13 Setting of Anchor Bolts

- .1 Drill anchor bolt holes using rotary drills and in accordance with drawings.
- .2 Place anchor bolts in drilled holes to elevations and locations indicated. Turn anchor bolt one full turn. Protect holes against entry of water and foreign material.
- .3 Supply necessary materials and protection as directed and completely fill space around anchor bolts with approved non-shrink grout, "SikagROUT 212" supplied by Sika Construction, or approved equal.

PART 4 - MEASUREMENT AND PAYMENT

4.1 Measurement

- .1 Jacking will not be measured for payment.

4.2 Payment

- .1 Jacking will be paid for in accordance with the unit price item as outlined in Schedule A – Schedule of Quantities and Prices. Payment at the Contract price for the above items shall be full compensation for all labour, equipment, and material required to complete concrete as per the Contract Documents and in strict accordance with this section.

End of Section

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PART 1 - GENERAL

1.1 Description

1. This section covers the supply and installation of the bronze bearings and anchor bolts.

1.2 Related Work

- .1 Section 05500, Jacking and Pedestals

1.3 Reference

1. Perform work in accordance with the requirements of this and the latest issue of following specifications and standards:
 - .1 A.R.E.M.A Chapter 15 - Steel Railway Bridges
 - .2 C.S.A. CAN3-G40.21-M04 - Structural Quality Steels
 - .3 A.S.T.M. Specifications A325 Type 1, galvanized - High-Strength Bolts for Structural Steel Joints.
 - .4 A.S.T.M. Specifications B22-82 - Self-Lubricating Bronze Plates
 - .5 C.S.A. Standard G189-R2003 - Sprayed Metallic Coatings for Atmospheric Corrosion Protection
 - .6 C.S.A. Standard G164-R2003 - Hot Dip Galvanizing of Irregularly Shaped Objects
 - .7 C.S.A. CAN3 W59-2008 - Welded Steel Construction

1.4 Source Quality Control

1. Prior to fabrication, provide the Engineer with two copies of steel producer certifications, in accordance with CSA G40.20M1992.
2. Materials and fabrication will be subjected to inspection by the Engineer or by an organization appointed by the Engineer. Provide suitable facilities and cooperation fully with the inspection organization and the Engineer in carrying out inspection and tests required.

1.5 Identification of Correspondence and Shop Drawings

- .1 Clearly identify all shop drawings and correspondence submitted to the Engineer with the project title as it appears on the Railway's drawing title block including subdivision and mileage.

1.6 Shop Drawings

1. Submit shop drawings for review by the Engineer before any shop work is commenced.
2. Clearly indicate shop and erection details including cuts, copes, connections, holes, bearing plates, threaded fasteners.
3. All changes in material from that specified shall be underlined in red on all prints submitted for review.
4. After review, provide such additional prints as may be directed by the Engineer.
5. No alterations shall be made to any reviewed plan without the written consent of the Engineer.
6. Correctness of all shop drawings irrespective of any review by the Engineer shall be the responsibility of the Contractor.
7. All plans made by the Contractor and/or his subtrades shall be made to a minimum A-2 drawing size 420 x 594 (approx. 16" x 23"), all smaller sized drawings such as material lists, etc. on completion shall be assembled on mylar to the same size as the rest of the set.
8. Approved electronic copies of all plans shall be delivered to the Railway Company or its representative as soon as the shop fabrication is completed.
9. Drawings shall be drawn to the same system as the tender drawings.
10. Any materials ordered prior to the review of the shop detail drawing shall be at the Contractor's risk.
11. Final payment will not be issued unless all plans are delivered to the Railway Company.

1.7 Protective Blocking

1. Provide protective blocking for lifting and transportation. Exercise care during fabrication and transportation so as not to damage plates.

1.8 Guarantee

1. All work performed under this Contract, unless otherwise specified, shall be guaranteed by the Contractor for a period of **5 years** from the date of final acceptance of work by the Railway. The Contractor shall, immediately on receipt of notice in writing from the Railway, and at his own expense, make good all defects of whatever nature that may develop during that period.

PART 2 - PART 2 - PRODUCTS

2.1 Materials

- .1 Steel for bearing assembly fabrication shall be in accordance with CSA G40.21-04, Structural Quality Steel Grade 300W.
 1. When ordering steel from the Mill, state that it will be used for railway bridge bearing construction.
 2. Furnish to the Railway Company's Shop Inspector mill test reports, properly correlated to all steel sections to be used for steel construction under this specification.
 3. Fabrication shall be carried out in the Contractor's own plant, the use of sub-contractors for all or portions of the fabrication will only be considered if applied for in writing by the Contractor and subsequently approved in writing by the Engineer.
2. **Bronze Bearing Metal:** to meet the requirements of A.S.T.M. Specification B22-09e2, Copper Alloy UNS No. C86300 (Formerly Alloy E).
3. **Finishes and Tolerances:**
 1. Bearing plates shall be furnished to the size shown on the approved design drawings.
 2. Bearings shall be machine finished and the surface roughness when measured in accordance with ASA Standard B46.1-1955 shall not exceed the following:
 1. expansion bearing plates: 125 micro inches.
 2. fixed expansion bearing plates: 250 micro inches.
 3. top surface of bronze spherical surface: 63 micro inches.
 3. The bearing surfaces of the opposing steel plates shall also be finished in the same manner.
4. **Lubricant:** Either one or both surfaces, as indicated on the approved design drawings, shall be provided with trepanned recesses which shall be filled with a lubricating compound capable of withstanding the atmospheric elements and consisting of graphite and metallic substance with a lubricating binder. The compound shall be pressed into the recesses by hydraulic presses to as to form dense, non-plastic lubricating inserts. The lubricant shall be lubrite, supplied by lubrite Technologies, 145 Webster Street, Hanover, Massachusetts 02339, Tel. (781) 871-1420. Materials that do not have lubricating

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qualities or promote chemical or electrolytic reactions will not be acceptable. The total lubricating area (the trepanned recesses) shall comprise not less than 25% of the total bearing area of the plate.

5. **Coefficient of Friction:** The coefficient of friction between the self-lubricating plates and the steel plates in contact with them shall not exceed 0.10 when subjected to the designed unit loading and also at twice the designed unit loading.
6. **Corrosion Protection:**
 1. All non-sliding bearing surfaces shall be zinc metallized with a minimum coating of 0.25 mm in accordance with CSA Standard G189-1966 (R1998) "Sprayed Metallic Coatings for Atmospheric Corrosion Protection".
 2. All edges of steel (bearing plates, etc) to be metallized shall be slightly rounded in order that metallizing will adhere.
 3. All shim plates, transition plates and grillages shall be hot-dip galvanized to CSA G164-M1992 (R2003) "Hot Dip Galvanizing of Irregularly Shaped Objects".
7. **Anchor bolts, washers and nuts:** supply all anchor bolts as detailed on drawings included with these specifications. Anchor bolts, washers and nuts shall conform to ASTM Specification F1554 and shall be hot-dip galvanized in accordance with CSA Standard G164-M1992 (R2003) "Hot Dip Galvanizing of Irregularly Shaped Objects".

2.2 Rubber Pads

1. The Fabricator shall supply and place rubber pads where indicated on the approved design drawings.
2. Rubber bearing pads shall conform to AREMA Chapter 15, Part 10, Clause 10.2.6 meeting the requirements of Table 15-10-2 Elastomeric Material Property Test Requirements. The rubber pad shall be exposed to field temperatures falling to -40°C frequently for short durations and may remain below -15°C continuously for up to two (2) months. The test temperature for Low Temperature Properties shall be -30°C.
3. The Fabricator shall submit a certificate from his supplier to the Engineer stating the requirements of the above clause have been met.

PART 3 - EXECUTION

3.1 Fabrication Procedures and Tolerances

1. Fabrication procedures and tolerances shall be in accordance with Part 3 and Part 11, Chapter 15, A.R.E.M.A. Standard, unless stated otherwise in the specifications or on the drawings.
2. Plates which have been sheared shall be planed to a depth of 6 mm.

3. All holes must be drilled from the solid or subpunched and reamed.
4. Field connections:
 1. Supply all bolts for field connections as called for on the approved design drawings.
 2. The Contractor shall supply additional high strength connection bolts for field assembly. The number of field high strength bolts of each size and length furnished in excess of the nominal number required shall be 5% plus 5. The number of nuts and washers of each size and type furnished in excess of the nominal number required shall be 5%.
 3. All field connections shall be slip-resistant (friction-type) using High Strength bolts.
 4. Bolts, nuts and washers shall conform to A.S.T.M. Specification F3125 Grade 325, Type 1, galvanized.

3.2 Final Assembly and Clamping

- .1 After final inspection and acceptance of the various parts of the furnished bearing they shall be assembled and clamped together. Bearings shall be preset at the time of fixing the clamping devices. All deleterious material shall be excluded from sliding and other contact surfaces.

3.3 Marking

- .1 Completed bearings shall have the supplier's name (or trade mark) and a serial number indelibly marked thereon. The serial number shall be unique and such as to enable other bearings manufactured at the same time to be traced through the production control records should the need arise. Where practicable the serial number shall also be visible after installation of the bearing in the structure. The top of each bearing shall be clearly marked and the size and direction or preset, if any, and the direction of installation shall be indicated.

3.4 Handling, Transport, Storage and Installation of Bearings

- .1 **Care and Protection:**
 1. During handling and transport bearings shall be kept clean and protected from mechanical damage, heat, contaminants and other deleterious effects.
- .2 **Handling devices:**
 1. Suitable handling devices shall be provided as required. Temporary clamping devices shall be used to maintain the correct orientation of the parts but shall not be used for slinging or suspending bearings unless specifically designed for this purpose.
- .3 **Bolt Holes:**

1. Bolt holes shall be drilled or reamed. Where specified by the Engineer, bolts shall be of a vibration resistant type.
 2. Tolerances:
 1. Setting of bearings:
 1. Bottom flanges of girder over bearings shall be true and square. Maximum measured deviation at outside edge of bearing plates shall not exceed 1mm.
 3. Threaded fixings:
 1. Threaded fixings shall be tightened without using excessive force to ensure that the load is transferred uniformly to the bearing.
4. **Damaged Areas:**
1. Any damaged areas of zinc-metallic coating shall be made good to the satisfaction of the Engineer prior to shipment.

3.5 Weight Information

1. Each bearing assembly shall be clearly identified in accordance with the following information:
 1. Bridge location (Mileage and Subdivision)
 2. “mark” as indicated on the drawings.
 3. “weight” of the total bearing assembly. The weight shall be indicated in Imperial and Metric units.
2. This information must be put on a metal tag and shall be attached to each bearing assembly.

PART 4 - MEASUREMENT AND PAYMENT

4.1 Measurement

- .1 Measurement shall be based on units installed.

4.2 Payment

- .1 Payment for Bronze Bearings will be made at the Contract Unit Prices included in Schedule A – Schedule of Quantities and Prices for each bearing installed. Payment will be full compensation for all materials, labour, use of equipment, tools and incidentals necessary to complete the work.

END OF SECTION

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PART 1 – GENERAL

1.1 Description

- .1 The Work specified in this Section consists of labour, supply and application of damp proofing and sealer to concrete surfaces as shown on the Contract Documents, and in accordance with the manufacturer's directions.

1.2 Related Work

- .1 Section 01561, Environmental Protection

1.3 Submittals

- .1 Prior to commencing the Work, the manufacturer shall furnish evidence that the specified materials have been manufactured by the same source and successfully utilized on a yearly basis for a minimum of five (5) years on projects of a similar scope to that shown and specified for this Project. The work shall be performed by a firm having yearly experience with spray applied systems for a minimum of five (5) years experience in the installation of materials specified herein on projects comparable to this project. Submit evidence of successful completion of work of similar scope to that shown and specified for this project using similar applications and materials.
- .2 Submit manufacturer's printed literature, specifications and installation instruction for the application systems and other data as may be required to show compliance with the Contract Documents. Indicate by transmittal form that a copy of manufacturer's installation details has been sent to the applicator.
- .3 Before commencing work submit written statement signed by the Trade Contractor and the Applicator stating that the Contract Documents have been reviewed with a qualified representative of the manufacturer of the sealing systems, and that he is in agreement that the selected materials are appropriate and compatible for the applications shown, and that the conditions and details are not in conflict with the Manufacturer's Warranty specified herein. Indicate by transmittal form that a copy of the statement has been sent to the manufacturer.
- .4 Submit a certified statement issued by the manufacturer of the materials, and countersigned by the applicator, attesting that all areas to receive damp proofing and sealer have been inspected and found satisfactory for the reception of this Work; and are not in conflict with the "Warranty" requirements. Application will be construed as acceptance of surfaces.
- .5 Submit Material Safety Data Sheets with products delivered to jobsite.

1.4 Quality Assurance

- .1 Perform Work in accordance with the printed requirements of the membrane manufacturer and this specification. Advise designer of any discrepancies prior to commencement of the Work.
- .2 Maintain one copy of manufacturers literature on site throughout the execution of the Work.
- .3 At the beginning of the Work and at all times during the execution of the Work, allow access to site by the manufacturer's representatives.
- .4 Materials used in this Section, including, primers, mastics and membranes, asphaltic protection boards, composite drainage boards and expansion joint membranes shall be fully compatible, and each system shall be sourced and or produced by one manufacturer.

1.5 Delivery, Storage and Handling

- .1 Deliver materials to the job site in undamaged and original packaging indicating the name of the manufacturer, product, grade, class and other qualifying information.
- .2 Cold applied membrane should be stored in closed containers outdoors.
- .3 Store materials in a dry location in such manner as to prevent damage or invasion of foreign matter, and in accordance with manufacturer's instructions. Conspicuously mark "Rejected" on materials which have once been wet or damaged and remove from the job site.
- .4 Membrane contain petroleum solvents and are flammable. Do not use near open flame.
- .5 Store roll materials horizontally in original packaging.
- .6 Keep solvents away from open flame or excessive heat.

1.6 Project Conditions

- .1 Weather Condition Limitations: Proceed with application and associated work only when weather conditions will permit unrestricted use of materials and adequate quality control of work being installed, in compliance with requirements and with recommendations of primary materials manufacturers.
- .2 Do not apply moisture protection materials during inclement weather or when ambient temperature and surfaces are less than specified by the manufacturer's application instructions. Do not apply materials to frozen or frost-filled surfaces. Protect completed application from weather and other damage for a period of 24 hours after installation.

1.7 Protection

- .1 Protect all adjacent construction for damage resulting from spillage, dripping and dropping of material. Prevent materials from entering and clogging drains and water conductors. Repair and restore or replace other work that is soiled or damaged in connection with the performance of this work. Protect work of other trades from damage resulting from work of this section. Make good such damage at own expense to satisfaction of the consultant.

1.8 Warranty

- .1 Warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and are in addition to and run concurrent with other warranties made by the Trade Contractor under requirements of the Contract Documents.
- .2 Provide a written warranty, directly to the Owner, for a period of 10 years warranting against leaks resulting from defects of materials or workmanship. Upon notification of such defects, within the warranty period, make the necessary repairs and replacements, at the convenience of the Owner.

PART 2 – PRODUCTS

2.1 Damp proofing

- .1 Provide and apply damp proofing on all concrete surfaces that are in contact or will be in contact with soil.
- .2 **Damp proofing**
 - .1 Damp proofing: two heavy coats of emulsified asphalt compound. The emulsified asphalt compound shall be Bakor 700-01 or shall be Bakor 710-11 as manufactured by Bakor Inc., or approved equal.
 - .2 Primer:
 - .1 When using Bakor 700-01: apply Bakor 700-01 diluted 20% by volume with clean water and let dry. Rate of application shall be in accordance with the manufacturer's recommendations.
 - .2 When using Bakor 710-11: apply Bakor Primer 910-01 and allow to dry. Rate of application shall be in accordance with the manufacturer's recommendations.

2.2 Sealant

- .1 Components and materials must be obtained as a single-source from the membrane manufacturer to ensure total system compatibility and integrity.
- .2 Sealant product: Sikagard A50 by Sika Canada Inc., or approved equivalent.
- .3 Provide and apply the sealant on the all concrete surfaces exposed to air.
- .4 Before applying the sealant, the concrete shall be completely cured as per manufacturer's recommendations.

- .5 Apply the product according to the manufacturer's instructions, at the specified rate of application.

PART 3 – EXECUTION

3.1 General

- .1 All material, equipment, construction, delivery and erection shall be as per drawings.
- .2 Damp proofing shall be applied to all concrete surfaces that are in contact or will be in contact with soil.
- .3 Sealer shall be applied to all concrete surfaces that will be exposed to air.

3.2 Pre-Installation Meeting

- .1 If required, Prior to the start of the Work, and at the Trade Contractor's direction, meet at the Project site to review methods and sequence of spray applied waterproofing installation, special details and conditions, standard of workmanship, testing and quality control requirements, job organization and other pertinent topics related to the Work. The meeting shall include the Consultant, the Consultant, the Construction Manager, spray applied applicator, spray applied waterproofing materials manufacturer representative, and any other subtrades whose work requires coordination with this work.

3.2 Condition of Surfaces

- .1 Examine the substrates, adjoining construction and the conditions under which the Work is to be installed. Do not proceed with the Work until unsuitable conditions have been corrected.
- .2 The manufacturer of the spray applied waterproofing membrane and the applicator shall inspect and approve the concrete substrate to review the acceptability of the concrete for application of the waterproofing membrane system.

3.3 Preparation

- .1 Clean substrate of debris and deleterious material, which would impair the Work. Surfaces shall be free of oil grease, curing compounds, loose particles, moss, algae, growth, laitance, friable matter, dirt, bituminous products and other detrimental matter. All steel surfaces shall be degreased before cleaning. No visible moisture shall be present on the surface at the time of the application. Dry substrate using method and materials approved by the spray applied waterproofing manufacturer.
- .2 Do not proceed with installation until all defects in the substrate have been corrected and vents, drains, curbs, and other projections through the waterproofing have been installed.
- .3 Holes, honeycombs and cavities shall be pointed or filled, patched and finished flush to provide a smooth, structurally sound surface, in accordance with manufacturer's directions utilizing materials recommended by the manufacturer of the spray applied

waterproofing membrane. Cut off high spots and grind smooth. Treat non-moving cracks, penetrations, control joints and other joints in substrate with materials, methods and designs as recommended by the waterproofing membrane manufacturer.

- .4 The substrate surface shall be abrasively cleaned (shot blasting) in accordance with ASTM D4259, to provide a sound substrate free from laitance.
- .5 The grout tubes shall be cut flush with the deck surface prior to sand blasting and shall be re-cut flush with the concrete surface if shot-blasting results in the tube projecting from above the concrete.
- .6 Following the preparation work and prior to the application of the spray applied waterproofing system, the substrate shall be inspected and approved by the spray applied waterproofing system applicator and the manufacturer of the spray applied waterproofing to ensure the preparatory works are satisfactory and the finished substrate meets the required standard. Comply with submittal of substrate acceptability statement as specified in "Submittals".

3.4 Installation

- .1 At the start of the installation and periodically as work progresses provide the services of the manufacturer's technical representative at the job site as often as deemed necessary by the manufacturer to advise on all phases of this work.
- .2 Install the damp proofing system and sealant system in accordance with the manufacturer's instructions. Install and complete the system to assure that no water leakage through the system occurs.

3.5 Field Quality Control

- .1 An inspection agency may be engaged by the Owner to inspect work specified herein. The presence of the Inspection Agency is for the Owner's own Purposes and any information or assistance furnished by his Inspection Agency shall not relieve the Trade Contractor of the responsibility for the Work.
- .2 The Trade Contractor's Responsibility is as follows:
 - Upon award of Contract, complete the form furnished by the Inspection Agency.
 - Provide the Inspection Agency with safe access to the Work.
 - Notify the Inspection Agency whenever work is to be done, in sufficient time to arrange inspection.
 - Discontinue any practice immediately when notified which, in the Inspection Agency's opinion, is not in accordance with the Specifications or will act to the detriment of the system. The Inspection Agency will notify the Owner, the Consultant, the Trade Contractor and the manufacturer immediately of all violations. Any work affected by the practice will be subject to complete replacement.
 - Give written notice to the Inspection Agency stating that the installation has been completed in accordance with the Contract Documents and requesting that a final inspection be conducted.

PART 4 - MEASUREMENT AND PAYMENT

4.1 Measurement

- .1 Measurement of Concrete Damp proofing and Sealer will be per square foot of surface completed.

4.2 Payment

- .1 Concrete Damp proofing and Sealer will be paid for in accordance with the unit price item as outlined in the Schedule of Quantities and Prices. Payment at the Contract price for the above items shall be full compensation for all labour, equipment, and material required to complete the work of this section.

END OF SECTION

GENERAL CONDITIONS

The Contract Form, Supplementary Conditions and Special Provisions of this Specification applies equally to this Section of the Specification.

PART 1 - GENERAL

1.1 Surface Preparation

- .1 The work shall include the supply of all labor, materials and equipment required to clean contact surfaces destined to receive new materials.
- .2 Clean all surfaces by removing all paint, rust, mill scale, welding slag, dirt, oil, grease and other foreign substances by Power Tool Cleaning in accordance with SSPC-SP3 of the "Steel Structures Painting Council".
- .3 All traces of removed materials such as lead based paint, rust, etc., shall be recuperated by vacuum or by other method approved by the environmental authorities.
- .4 The Contractor shall abide by all environmental laws set out by federal, provincial and municipal authorities. The Contractor shall contact these authorities prior to commencing the work so that all measures in force are implemented in the execution of the work.

1.2 Related Work Specified Elsewhere

- .1 Section 01561, Environmental Protection
- .2 Special Provisions SP18

1.3 Field Painting

- .1 The work shall include the supply of all labour, materials and equipment required to apply an epoxy top coat to all permanent field connection bolts after repair steel is in place and also where a second coat was not applied in the shop or where paint was damaged by the Contractor.

PART 2 - PRODUCTS

2.1 Materials - Paint

- .1 The paint system to be used for the field touch-up of connection bolts, for painting around all connections where only one coat was applied in the fabrication shop and where paint was damaged by the Contractor shall be an epoxy coating system, Interseal 670HS as supplied by International Paints, or approved equal.
- .2 Colour of top coat (finish coat) shall be as selected by the Engineer or to match colour of existing bridge.
- .3 Mixing and application shall be in strict accordance with manufacturer's written instructions.
- .4 Paint Film Thickness
 - .1 Two coats epoxy coating to a minimum dry film thickness of 4.0 mils each coat.

PART 3 - EXECUTION

3.1 Field Paint Touch-ups

- .1 All steel components/assemblies supplied by the railway will have been shop painted with the exception of around connections where only one shop primer coat will have been applied
- .2 The Contractor shall supply and apply an epoxy top coat to field connection bolts, nuts and washers applied in the field.
- .3 The Contractor shall also touch-up only the areas where over cleaning of the contact surfaces was done.
- .4 All high strength **permanent field connection bolts** shall be cleaned and touched-up with an epoxy topcoat.
 - .1 Contractor shall note that when bolt spacing pattern is very close, the Contractor shall paint the entire component.
 - .2 For each high strength connection bolt, remove heavy deposits of oil or grease by Solvent Cleaning to SSPC-SP-1-63.
 - .3 The various Price submitted on the Form of Tender for strengthening and/or retrofitting of various members, shall include the entire cost of all labor, materials and equipment required to clean, supply and apply an epoxy field touch-up coat as specified.

- .4 Both sides of bolts shall be cleaned and painted (heads, nuts and washers)
- .5 All surfaces to be touched-up or field painted shall be cleaned and prepared in accordance with the paint manufacturer's recommendations
- .6 The various Prices submitted on the Form of Tender for the replacement of various members, shall include the entire cost of all labor, materials and equipment required to:
 - .1 supply and apply an epoxy field touch-up coat to all **permanent field connection bolts**;
 - .2 supply and apply paint to areas where the paint was damaged during the installation of these components;
 - .3 the supply of paint and the execution of all field touch-ups around all connections where only one coat was applied.
 - .4 touch-up areas where over cleaning of the contact surfaces was done.
 - .5 cleaning and painting of areas identified on the drawings.

3.2 Field Galvanizing Touch-ups

- .1 Any damaged areas of the galvanized or zinc-metallic coating due to field installation by the Contractor shall be made good by touching-up with cold-applied galvanizing compound to the satisfaction of the Engineer.

3.3 Method of Payment for the cleaning of contact surfaces

- .1 The various Prices submitted on the Form of Tender for the replacement of various members, shall include the entire cost of all labor, materials and equipment required to:
 - .1 The cleaning of contact surfaces and the costs associated with the recuperation of all contaminated materials obtained from the surface cleaning operations and all other costs associated with abiding by all environmental protection requirements set out by the authorities having jurisdiction over this matter.

END OF SECTION

GENERAL CONDITIONS

Contract Form GENERAL CONDITIONS OF THE CONTRACT and all sections of these tendering documents apply equally to this section of the Specifications.

PART 1 - GENERAL

All contractors' personnel operating track units on ONR trackage **MUST** be qualified in CROR rules and applicable Special Instructions and must be current.

1.1 Related Work

- .1 Section 02235 – Crushed Rock Ballast.

PART 2 – PRODUCTS

2.1 General

- .1 The Contractor shall provide all equipment, tools, labour and materials necessary and required for the track re-construction and all other work as shown on the drawings and as described in the Scope of Work and Special Provisions and Technical Specifications.
- .2 Material supplied by the Contractor shall be inspected by ONR, and Contractor will be advised if material in question is suitable for use. If material is rejected by ONR, the Contractor shall immediately remove the material from site and shall be replaced at no additional cost to ONR.
- .3 If materials, whether supplied by ONR or by the Contractor, are damaged, lost or wasted through Contractor's negligence, poor workmanship or handling, Contractor shall replace said materials in kind at no additional cost to ONR.

2.2 Materials

- .1 Wood ties shall be minimum new No. 2 Hardwood track ties 6" x 8" x 8'6" 100% end-plated for mainline and No. 1 Hardwood track ties 7" x 9" x 9'0" 100% end-plated for the crossing rehabilitation. All ties shall be hardwood grade ties, treated with a creosote-coal tar solution to a net retention of 9.2 lb. per cubic foot minimum for mixed hardwoods and 7 lb. per cubic foot minimum for oak. Wood ties shall conform to current AREMA Specifications, Chapter 30, "Ties", for size, quality, treatment, and defects.
- .2 During the track replacement, existing tie plates shall be re-used, rail anchors will be re-used or renewed as required. ONR shall supply replacement tie plates for those that are missing during replacement. The Contractor shall be responsible for any lost material or any material that is damaged during the work.

- .3 Track spikes must be new 5/8" square with reinforced throat design. All track spikes shall conform to current AREMA Specifications for High-Carbon Steel Track Spikes, Chapter 5, Part 2. Length of track spike under its head shall be 6 inches.

PART 3 - TRACK RE-CONSTRUCTION

3.1 General

- .1 Contractor shall exercise care in the unloading and distribution of track material and in the construction of trackage to avoid disturbing the surface of the ballast, subballast and the seeding and mulching on the side slopes. Any damage to either the ballast or subballast surface or side slopes caused by Contractor's operations shall be repaired at Contractor's expense to the satisfaction of ONR.
- .2 The total length of TSO's applied for work performed by the Contractor as described in these specifications shall not exceed 2.0 miles at any time and shall not cause any more than 5.0 minutes of delay to any train, including train acceleration and deceleration. In general, TSOs applied as a result of track disturbances will be 25 mph for two days of operation following the track disturbance. It should be noted that it is ONR's sole responsibility to apply TSOs as a result of the work and may require that speed restrictions or other operating restrictions remain in place until the condition is made better and judged to be acceptable.

3.2 Handling of Material

- .1 Except as otherwise noted, the Contractor shall be responsible for loading and hauling materials as well as for unloading and placing materials at construction locations. Prior to loading materials from stockpiles, Contractor shall inspect materials for damage or irregularities and notify ONR of same. If materials are damaged, lost or wasted through Contractor's negligence, poor workmanship or handling, Contractor shall replace said materials in kind at no additional cost to ONR.
- .2 No additional compensation will be allowed for segregating materials of questionable quality or condition. After inspection by ONR, Contractor will be advised if material in question is suitable for use. If material is rejected by ONR, and ONR requests Contractor to transport the rejected material to a designated location, additional compensation will be allowed as authorized by ONR.
- .3 The Contractor shall be responsible for material once it is loaded and hauled to the site. Contractor's responsibility begins at his loading of materials, continues through its placement into the track structure and until final acceptance of the track by ONR. If materials are damaged, lost, or wasted through Contractor's negligence, poor workmanship or handling, Contractor shall replace said materials in kind at no additional cost to ONR.
- .4 Hardware received at the job site shall be protected from corrosion by storing under cover or by a protective coating.

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- .5 Materials supplied by the Contractor, shall conform to the requirements stated in these specifications.

3.3 Execution – Mainline Tie Replacement – IF REQUIRED

- .1 Mainline track ties to be replaced will be marked by ONR prior to start of work.
- .2 Timber ties shall be unloaded and handled in such a manner as not to damage them, using approved handling equipment. Pulling timber ties into position with picks or shovels will not be permitted. Tie tongs shall be used for this purpose.
 - .1 Cross ties shall be placed at a design spacing of 20-1/2” centre to centre. The cross ties shall be placed perpendicular to centre line of track, with the right hand (in the direction of increasing mileage) ends of cross ties being parallel with and each end of the cross tie being the same distance from centre line of track, except on curves, where cross ties are to be aligned to the inside of the curve. All insulated joints and welds are to be suspended between ties.
 - .2 If spikes are pulled from any timber tie, hole shall immediately be filled by use of tie plugs to the full depth of the hole.
 - .3 Lay timber ties with heartwood face down, and if not possible to determine position of the heartwood, lay the widest surface of the timber tie down.
 - .4 Top surface of timber ties shall be clean and smooth to provide full bearing for tie plates. The bottom of the rail, the tie plate, and the wearing surface of the timber tie shall be broom cleaned before the rail is laid.
- .3 When replacing ties, the Contractor shall remove no more ballast than required from the shoulder and crib to remove existing tie and insert new tie.
 - .1 All spikes removed shall become the property of the Contractor and shall be disposed of by removal from the site and shall be replaced with new spikes.
 - .2 All removed ties shall become the property of the Contractor and shall be disposed of by removal from the site in accordance with all applicable guidelines and regulations regarding disposal of treated track ties.
 - .1 The Contractor shall provide a clearance certificate, including end location and quantities, to ONR that all ties have been disposed of according to regulations.
 - .3 Only the proper tools or machines will be used when applying or removing anchors. The use of spike mauls is prohibited.

- .4 For the tie replacement program, anchors removed for replaced ties shall be re-used or renewed as required. New anchors shall, also be installed following the de-stressing of the new rail and welded rail. Anchors must be installed from gauge to field side of rail to insure full bearing surface against the side of the tie, bearing against the adjacent tie and remain tight on the rail. Anchors must be on the same side of the same tie on both rails. Ties are to be at right angles to the rail before applying anchors. Anchors improperly installed must be removed and applied correctly without additional charge by the Contractor.
- .5 Anchors must be fully driven; however, care must be taken to avoid over-driving as this may fracture or spread the metal, resulting in loss of holding power. Any rail anchor that is fractured or with metal spread will be rejected and replaced with another anchor at the Contractor's expense.
- .6 All ties installed must be spiked and anchors reapplied, the ballast shoulders restored and ties mechanically tamped and compacted with a dynamic stabilizer to ensure that the track structure is safe for train traffic at 25 mph before the close of each day's work.
- .7 Any adjacent ties that may be left hanging must also be tamped.
- .8 No ties will be installed when the temperature is above the PRLTR unless directed by ONR.
- .9 In CWR the maximum number of consecutive ties that can be replaced in a single pass shall be:

	Number of Consecutive Ties	
	Tangent Track to 2° Curves	Greater Than 2° Curves
With Junior Tamper or Production Tamper	5	4
With Hand Tamping or Hydraulic Tools	3	2

- .10 Track disturbed by tie installation must be compacted with a dynamic stabilizer prior to allowing train movement.
- .11 Track disturbed by tie installation must be protected by the placement of a TSO of 25 mph. This TSO must remain in place until the track has been surfaced by a mechanical tamper, compacted by a dynamic stabilizer and accumulated appropriate tonnage.
- .4 Tie plates shall be removed and replaced under running rails where timber ties are replaced.
- .1 Tie plates must be free of dirt and foreign material when replaced.

- .2 Care must be exercised to see that canted tie plates are applied so as to cant the rail inward.
 - .3 Tie plates must be placed square with the rail and centred on the tie. Particular care must be given to see that the tie plate shoulders and spike heads are never under the base of the rail and that the tie plates are well seated with full even bearing on the ties and the rail is properly seated on the tie plate. After rails are in place, outside shoulder of tie plate shall be in full contact with outside edge of rail base.
 - .4 The same size tie plate must be used opposite one another on each cross tie.
 - .5 Cutting or burning of tie plates is not permitted.
- .5 In areas where rail is being replaced, since tie replacement will take place prior to rail replacement, cross ties outside the limits of curves shall be spiked with two rail holding spikes on each rail, one on the gauge side and one on the field side of the base of rail staggered so that the outside spikes for each rail are on the same side of the tie. A second spike on the gauge side of each rail will be added upon new rail installation. In areas where rail is not being replaced, new ties shall be spiked with three rail holding spikes on each rail, two on the gauge side and one on the field side of the base of rail staggered so that the outside spikes for each rail are on the same side of the tie.
- .1 Uniform track gauge must be maintained when spiking and must be checked by use of standard track gauge.
 - .2 The right hand rail going in the direction of increasing stationing shall be spiked to cross ties, and the opposite rail shall be brought to standard gauge of 4' 8-1/2" measured at right angles between the rails, 5/8" below the top of rail. Gauge of track to be set and checked at every third tie by using a tested and approved track gauge.
 - .3 Spikes will be driven only with a standard spike maul, sledge hammer, pneumatic or hydraulic spiking hammer or spiking machine.
 - .4 Cross ties within the limits of curves shall be spiked with three rail holding spikes on each rail, two on the gauge side.
 - .5 All spikes shall be started and driven vertically with the face of the spike in contact with the base edge of the rail and so driven as to allow 1/8 inch to 3/16 inch space between the underside of the head of the spike and the top of the base of the rail. In no case shall the spikes be overdriven or straightened while being driven. When spikes are driven by machine, work shall be closely supervised to see that they are driven with a hammer centred exactly over each spike head and drive spike vertically. Set stop on the machine to prevent overdriving.

- .6 No spike shall be within 2" of the end of a joint bar. Do not strike rail directly with a maul, either on top when driving, or on side to obtain track gauge.
- .7 Withdraw spikes which are incorrectly driven and hole shall immediately be filled by use of tie plugs to the full depth of the hole.
- .8 On completion of all tie replacement and prior to CWR replacement, welding and de-stressing, the Contractor shall mechanically line, resurface, compact with a dynamic stabilizer and broom all disturbed track, adding sufficient ballast to ensure that cribs are full and shoulders are trimmed to standard for CWR rail installation as specified under Part 5 – Ballasting and Surfacing of this Specification.
- .9 All removed materials shall become the property of the Contractor and shall be disposed of by removal from the site in accordance with all applicable guidelines and regulations regarding disposal of treated ties.
 - .1 The Contractor shall provide a clearance certificate, including end location and quantities, to ONR that all ties have been disposed of according to regulations.

PART 4 - THERMITE FIELD WELDING

4.1 General

- .1 All rail joints between CWR strings, turnout ends, transition rail, glued insulated joints, and new rail through railroad crossings shall be thermite field welded.
- .2 Field welds should be made at the time of rail laying regardless of temperature. When the field welding of a rail joint cannot be completed, each rail must be bolted with at least two bolts on each side of the joint before the track is placed in temporary service (four bolts per joint).
- .3 Holes for complete bolting of cut rails shall be drilled by an approved type of rail drill. Under no circumstances shall new holes be drilled between two holes already drilled. Cutting rails or drilling holes in cut rails by means of acetylene or electric torch will not be permitted.

4.2 Execution

- .1 All thermite field welding shall be supervised and performed by an experienced rail welding supervisor and welder certified by the manufacturer of the welding equipment.
- .2 Contractor shall inform ONR daily of the location of completed welds in order for ONR to arrange for testing and inspection. A record shall be kept by the Contractor for each field weld made during new track construction and copied to ONR.

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- .3 All equipment and material required in the production of thermite welds shall be furnished by the Contractor. Thermite welding materials and equipment shall be as manufactured by Boutet or Orgotherm or equivalent.
- .4 The thermite welding method and procedure shall conform to current AREMA Specification Chapter 4 and with the instructions from the welding kit manufacturer (Boutet or Orgotherm) and as specified herein. Boutet or Orgotherm self-preheating weld kits shall be applied in strict accordance with manufacturer instructions, these Specifications, and to the satisfaction of ONR.
- .5 Thermite welding shall **not** be performed during rain or snow.
- .6 Wearing of all protective clothing and safety equipment is required during welding operations.
- .7 Prior to welding, rail must be visually examined for physical defects and must meet the criteria within this specification for alignment and wear. Any rail not meeting the criteria must be reported to ONR immediately.
- .8 Thermite welds shall be located as close as possible to the centre of tie cribs. The weld shall not be closer than 4" to the edge of the tie and in no case shall a weld be situated over a tie plate. Contractor shall re-space ties as necessary to prevent a weld from sitting on a tie. Field welded joints are to be centred between ties.
 - .1 Contractor shall tamp and dress track, as necessary, to provide firm support at the weld.
 - .2 Contractor shall plug and re-drive all necessary spikes.
 - .3 Contractor shall re-apply and adjust anchors as necessary to conform to specified anchor pattern.
- .9 No holes closer than 6" from the weld will be permitted in the rail. Distance is measured from the cut face to the closest edge of the hole.
- .10 Thermite welds will not be made within 6' of another field weld or within 3' of a plant weld without written approval by ONR.
- .11 Welding gaps for thermite welds shall be 1" except where approved wide gap welds are used.
- .12 All rail ends shall be saw cut. The cut must be square and perpendicular to the rail axis, with a variation not exceeding 0.03" and all scale, rust and burrs must be removed.
- .13 Overflow on rails shall be ground off for 2" beyond the mould area.
- .14 Vertical rail end alignment shall be made along the running surface of the rails, such that a flat running surface will result on cool down. Any difference in height of rails shall be in the vertical base offset.

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- .15 Vertical misalignment of rail ends on the base underside must not exceed 1/8" on thermite welds.
- .16 Horizontal alignment must be straight for at least 36" through the weld area. To meet this requirement when welding in curved track, rail positioners (aligners) must be used.
- .17 Horizontal rail end alignment shall be made along both sides of the head, web and base edges of the rail. Adjustments shall be made such that:
 - .1 On new rails, or rails with comparable gauge face wear, any difference in the width of head, web or base shall be divided equally on either side.
 - .2 On rails with uneven head width, the bases, and webs of the rails shall be aligned so that the horizontal offset in the head, web, or base does not exceed 0.06". The gauge and field sides of the railhead shall be blended in by grinding.
- .18 Head bond weld nuggets of exothermic rail bonds, which fall within the mould must be completely removed by grinding prior to thermite welding.
- .19 Immediately prior to mould installation the rail ends and surface area that will be exposed to the thermite material must be cleaned a minimum distance of 6" from the end with a wire brush or a grinding wheel in order for this area to be free of grease, rust, and other foreign material, along with any other recommendations of the welding kit manufacturer.
- .20 Moulds must be centred over the weld gap.
- .21 During sealing of the moulds, cardboard inserts must be placed over the moulds to prevent any foreign material from falling into the mould cavity.
- .22 Check the plastic bag containing the charge, ensuring that the bag is sealed and has not been punctured in handling. If damaged or contents are reduced new charge is to be used.
- .23 Before preheating, check the rail temperature with a rail thermometer, if the rail temperature is below 60 degrees Fahrenheit both rails must have supplemental heat applied to raise the rail temperature to at least 100 degrees Fahrenheit.
 - .1 The length of the rail to be supplementally heated shall be between 30 and 36 inches for rail temperatures between 60 degrees Fahrenheit down to 16 degrees Fahrenheit.
- .24 A rail expander will be placed on the rail to maintain the correct gap and crown unless temperature conditions are such that the possibility of rail movement is eliminated.
 - .1 If a change in rail temperature is anticipated while the weld is being poured or while it is cooling, the rail expander should be adjusted to compensate for any stresses which will occur at the weld due to a change in temperature.

- .2 Depending upon the type of change expected, one of the following procedures will assist in preventing temperature induced stresses from affecting the quality of the weld.
 - .1 Rail temperature is low and a raise in temperatures is anticipated, the rail expander should be set up to expand the gap and enough pressure built up to cause a slight increase in the gap. This should prevent any subsequent decrease in gap width.
 - .2 Rail temperature is high and a drop in temperature is anticipated, the rail expander should be set up to pull and enough pressure built up to cause a slight subsequent increase in width.
 - .3 Whenever either of the above procedures is required, the final gap width must be as stated in the manufacturers instructions for the rail weight being welded.
 - .4 The rail expander must remain on the rail until the weld is complete and has cooled to 700 degrees F. This is verified when the centre of the weld around its entire periphery will not melt a 700 degree F tempilstick.
 - .5 When the rail expander is removed, it must be released in a gradual manner.
- .25 Rail ends will be preheated prior to welding to a sufficient temperature and for a sufficient time to ensure full fusion of the weld metal to the rail ends without cracking of the rail or weld, per manufacturers instructions. Preheating must not be interrupted and the heat shall be uniformly distributed over the rail ends. The preheat time specified for the process must be adhered to.
- .26 Ignition must be preformed immediately after preheating.
- .27 During the pour, the crucible must be centred over the mould. When the pour is completed the molten slag must be allowed to solidify for three minutes prior to removing the slag pot. **For the CJ One shot crucible, the slag pot must not be removed until 5 minutes after the pour. The weld must not be sheared until 6-1/2 minutes after the pour.**
- .28 In the event of a leak, apply moulded fusel paste with the end of a wood handle at least 36" in length. Never attempt to stop a leak in any other manner.
- .29 Should the thermite reaction or the time delay of the self-tapping thimble be abnormal, the weld must be rejected.
- .30 With multi-use crucibles if the reaction is abnormal, and the automatic thimble doesn't tap, the crucible should be left standing over the mould for 5 minutes. If the thimble releases during that time, the metal will pour into the mould and although the weld will

have to be cut out, there is no danger of personal injury. The loaded crucible should then be carefully set aside and no attempt made to empty it until the metal has cooled. After cool down, the metal is easily dumped.

- .31 With power shears or a sledge hammer and hot cut chisel, remove the excess metal, while still hot, off the sides of the ball of the rail.
- .32 Never dump hot slag or any molten material on wet soil, wet ballast, or into water. To extinguish a metal fire, use only dry sand. The use of vapour forming extinguishing materials is forbidden.
- .33 The mould shall be left in place after tapping for a sufficient time to permit complete solidification of the molten metal and proper slow cooling to prevent cracking and provide a complete weld with the proper hardness and ductility.
- .34 Thermite welds shall be ground hot. When hot grinding, the weld shall be left at least 0.032" above the parent rail steel on the running surface, to ensure it does not shrink below the rail head upon cool down. The contour radius, gauge face and field side of the head shall be hot ground flush or blended in where necessary. Do not grind the rail head free hand.
- .35 After the weld has cooled to ambient temperature it shall be cold ground, flush with the rail surface and blended in where necessary. Do not grind the rail head free hand. Check the final contour of the rail head with a 36" straight edge.
- .36 The weld must be protected against water or any liquid for two hours after finish grinding. Welds shall be allowed to cool normally, without induced cooling.
- .37 Date and initials of welder and Contractor's name shall be placed on the web of the rail with metal marking paint and all welds shall have a number based upon a numbering system approved by ONR. These marks will be placed on the field side of the rail being welded.
- .38 Contractor shall not add more rail than what was removed, nor remove more rail than what was added, when installing insulated joints, replacement rail, and performing welds after final de-stressing of the CWR.
- .39 Contractor shall provide sufficient time to allow welds to cool to 450 degrees Fahrenheit and have completed the finish grinding prior to any equipment movement across welds.
- .40 With the "unfinished" base of the thermite welds the Contractor will need to exercise caution when adjusting the rail so as not to bind the rail at a tie plate, or allow the ties to be skewed.

4.3 Field Quality Control

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- .1 All welds giving fault indication by ultrasonic inspection or visible inspection, being unacceptable, shall be replaced at no expense to ONR. This includes the addition of a rail plug and additional welds where required.
 - .1 Ultrasonic testing of all completed welds in the track shall be carried out as specified herein.
 - .2 All initial testing and submittals shall be performed as directed by ONR at no cost to the Contractor.
 - .3 Welds not meeting the following requirements will be rejected:
 - .1 Each weld shall have full penetration and complete fusion with no evidence of surface or internal fissures or cracks.
 - .2 Porosity or slag type defects shall not exceed 0.040 inches in any dimension and the total area of all defects shall not exceed 0.024 square inches.
 - .3 Conformance to alignment tolerances.
 - .4 If a defective weld is found, it shall be cut out, and a new section not less than 12' long on tangent track and not less than 16' long on curved track shall be inserted, welded with two thermite welds, and re-tested all at Contractor's expense.
 - .5 Ultrasonic testing will be performed by a competent material testing service as determined by ONR.
 - .6 All welds shall be visually inspected by the Contractor and ONR for surface cracks and alignment. Welds with surface cracks visible to the eye or not within the alignment tolerances will not be acceptable.

PART 5 - BALLASTING AND SURFACING

5.1 Execution

- .1 Power tamping machines are to be used throughout all track construction. Manual tamping will not be allowed.
 - .1 Tamping machines are to be automatic multi-tooled with a minimum of 8 tamping feet per rail and having automatic profile reference beams of not less than 75'.
 - .2 The tamping machine with the reference beam will tamp every tie.

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- .3 Each tool shall have a tamping pressure sufficient to close the ballast beneath each tie. The foot of each tool shall be a minimum of 1 1/2"x3" at all times.
- .4 A junior tamping machine less the reference beam may be used in conjunction with a lead machine provided that all other characteristics of the lead machine are the same on the junior tamper.
- .5 Proposed ballast compaction equipment shall be subject to acceptance of ONR.
- .6 Ballast used for all mainline CWR trackage will be compacted by means of dynamic stabilizer.
- .4 No part of the track structure will be raised more than 3" in any one lift. New track construction will have to be worked more than once and the Contractor will have to apply additional ballast to conform to the ballast cross section shown within the Typical Track Section in drawings.
- .5 Each lift is to be tamped from a line 16" inside each rail on both sides of and to the ends of the ties. Centre area between these limits shall be filled lightly with ballast but not tamped. Tamping shall proceed, simultaneously; at both ends of the tie making sure ballast is forced directly under the ties and against the sides and ends of the ties.
- .1 Too many insertions with a power tamper may cause a centre bound track condition. Generally two squeezes per tie up to 1-1/2" of raise with one additional insertion and squeeze for each additional 1" of raise is required with insertion depth being a minimum of 1 1/2" below the bottom of tie.
- .2 When the track has been raised to within 2" of final grade, the final lift shall be made by raising the track up to grade stake elevation making necessary allowance for settlement. The ballast shall be applied under the ties for their entire length.
- .6 During raising and tamping, if any crib area is void of ballast below the bottom of the tie then the area of the track is to be re-tamped following the application of additional ballast.
- .7 While raising and tamping track levels shall be constantly used to insure correct surface and cross level.
- .1 Contractor will finish each point on the track to within a maximum of 1/2" deviation from zero cross level on tangent. Average cross level on tangent and superelevation on curves will be as specified.
- .2 Contractor will finish the track so that the difference in cross level between any two points less than 62' apart on tangents and on curves between the spirals must be no more than 1/4". Deviation from zero cross level at any point on tangent may not be more than 1/4". Variations in cross level on spirals in any 31' may

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- not be more than 1/2". Track will be finished so that the deviation from uniform profile on either rail at the mid-ordinate of a 62' chord may not be more than 1/4".
- .3 Contractor will finish the track so that the horizontal alignment between any two points 62' apart on tangent track will deviate from a straight line by no more than 1/4". Mid ordinate of a 62' chord between two points on the gauge side of the outer rail will be one inch per degree of curve with an allowable tolerance of plus or minus 1/4".
- .8 After track has been brought to true surface, elevation, and grade, it shall be given a final lining and placed in true alignment and grade conforming to the elevations and alignment according to the drawings, and the ballast dressed to the design ballast cross section.
- .9 When raising track, the Contractor has a tolerance of plus or minus 1/2" of the design grade as long as requirements of this Section are met. If not raised to the established grade, then the Contractor will unload ballast in sufficient quantity and continue to surface the track to comply with the tolerances.
- .1 All ties are to be straightened and re-spaced as necessary immediately prior to unloading ballast for the final raise.
- .2 If the Contractor raises the track too high to comply with the allowable tolerance, Contractor, at his expense, will excavate the ballast sufficiently to lower the track and then surface the track again to bring it into full conformity.
- .10 When track is lifted or jacked, care must be exercised by the Contractor to avoid stressing or permanently bending the rail, joints, or turnout components.
- .11 When surfacing through a turnout with boltless adjustable rail braces, switch points, and stock rails will be blocked to prevent displacement of stock rail from the switch plate.
- .12 Tamp turnout ties for 16" on each side of main and turnout rails. Headblock ties to be tamped as above with no voids under remainder of tie.
- .13 Turnout tie cribs are to be full except to prevent contact with rods and for drainage as required.
- .14 Contractor will correct any hanging or skewed tie that is a result of his tamping and raising the track. Tie plates will be positioned so that the shoulder is against the outside base of rail for the entire length of the shoulder.
- .1 Contractor will plug and re-drive all high or loose spikes and will plug and replace all spikes removed.
- .2 Contractor will replace and/or adjust all tie plates and rail anchors knocked off or that worked loose or were damaged during the surfacing and regulating. The

anchors must remain matched across from each other on each rail. Tie plates must remain square to the tie.

- .15 Contractor will provide the ballast section as shown in the Typical Track Section in drawings. No dirt or foreign materials will be allowed into the ballast section.
- .16 After track has been brought to true surface, elevation, and grade it shall be given a final lining and placed in true alignment conforming to design and the ballast shall be trimmed neatly to the dimensions and widths of the Typical Track Section shown on drawings.
 - .1 Cribs shall be filled to top of tie.
 - .2 No ballast will be left on top of ties, spikes, fasteners and plates.
- .17 A TSO of 25 mph must be applied until appropriate tonnage has operated over the disturbed track, without the track being further disturbed.
- .18 Surplus ballast shall be spread evenly along the ballast slopes. Dressing of the ballast by placing earth higher than the toe and thus preventing proper drainage will not be permitted. After all ballast placement has been completed, the track shall be given a complete power broom finish with approved machinery. Contractor shall insure that the top of ballast rock matches the top of tie surface and that no excess ballast remains on either the top of rail, top of tie, base of rail, or top of tie plate, spike or anchor or roadway crossing surface.
- .20 Contractor shall exercise caution while regulating ballast shoulders so as to avoid track misalignments and to avoid obstructing adjacent drainage ditches, structures, or culverts with ballast, dirt, vegetation, or other material.
 - .1 If Contractor obstructs an adjacent drainage ditch, structure, or culvert, he will have to initiate the cleaning of those as soon as possible.
 - .2 Contractor is responsible to ensure that the partially ballasted track in his work area does not buckle out of alignment. If a misalignment of the track occurs as a result of the Contractor's operations, he must correct at his expense.

5.2 Execution – Ballast Replacement

- .1 A provision has been made, in addition to the tie replacement program, for tie replacement during the ballast replacement operation. When applicable, these ties are to be replaced as per Section 3.3 of this Technical Specification. When ties become loose or do not remain in track during the ballast replacement operation they are to be replaced. A provision has been made for ties required or replaced, as directed by ONR.
- .2 Prior to undertaking the ballast replacement operation at all locations, the Contractor shall employ a ballast regulator to pull the shoulders into the track. This will ensure that recuperation of acceptable ballast is optimized during the ballast replacement operation.

- .3 Ballast replacement operations shall involve the removal of eight (8) inches of material below the bottom of tie in all locations. Ballast, conforming to Section 02235 of these Technical Specifications, whether recuperated or supplied new by the Contractor, shall be replaced in track to provide eight (8) inches of clean material below bottom of tie following compaction and a standard shoulder and ballast profile in line with CN TS-2205 for continuous welded rail. By assuming a normal profile in line with TS-2205 the Contractor shall ensure that all ballast is replaced to the above-mentioned prescribed depth. The Contractor shall ensure, by using appropriate staking methods, that ballast section standards are maintained and end-result rail elevations are not altered and that upon ballast replacement and surfacing, the track is returned to its original locations and alignment.
- .4 If the Contractor wishes to employ a sled operation or any other equivalent as the chosen means of ballast replacement at any of the locations, the Contractor shall submit an alternative price for said location(s) in the section entitled "Alternative Prices" in the Form of Tender.
- .5 Crossings, bridges, turnouts and adjacent track must not be affected and the Contractor must adhere to all pertinent and applicable Standards, Guidelines and Track Safety Rules.
- .6 The Contractor shall ensure that the track contains eight (8) inches of clean ballast, meeting the requirements of Section 02235, below bottom of tie after compaction.
- .7 It should be noted that some ballast replacement will be performed in curved track. It shall be the Contractor's responsibility, using proper and approved staking methods, to return the track to its original super-elevation, location and alignment.
- .8 ONR shall remove and replace all farm and private crossings that are affected by the Work. The Contractor is responsible to replace farm and private crossing approach material removed by the ballast replacement operation with clean, new Granular "A" material as per Section 02701 of these Technical Specifications prior to the completion of the day's work. It can be assumed that farm and private crossings are 20ft in width.
- .9 On completion of ballast replacement, tie replacement and prior to CWR replacement, the Contractor shall mechanically line, resurface, compact with a dynamic stabilizer and broom all disturbed track, adding sufficient ballast to ensure that cribs are full and shoulders are trimmed to standard for CWR rail installation as specified under Part 5 – Ballasting and Surfacing of this Specification. This Work shall be considered part of the ballast replacement operation.
- .10 Waste generated by the ballast replacement operation may be disposed on the ONR right-of-way, however, the Contractor shall be responsible to spread that material so that it does not inhibit drainage or impede operations or sightlines in any way. Material shall be spread with a bull dozer or similar equipment and shall be at the cost of the Contractor. The Contractor shall ensure that the waste material does not interfere with crossings, bridges, waterways, switches, ditches, culverts, platforms, signage or any other important feature along the right-of-way or outside of the right-of-way.

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PART 6 - MEASUREMENT AND PAYMENT

6.1 Measurement

- .1 No measurement for payment will be made for Track Reconstruction.

6.2 Payment

- .1 Payment for the Work of this Section shall be included in the lump sum items for the removal and re-installation of track included in the Schedule of Quantities and Prices. Payment will be full compensation for material, labour, use of equipment, tools and incidentals necessary to complete the Work of this section.

END OF SECTION

PART 3 – RFP SPECIFICATIONS
SCHEDULE 3-A-2
CONTRACT DRAWINGS, REFERENCE DRAWINGS AND REPORTS

Refer to the contract drawings and reference drawings prepared by blank, as outlined below, and which are attached to this Schedule 3-A-2.

CONTRACT DRAWINGS

69.6 Kapuskasing

Drawing No.	Description	Date
KAP-69.6-3.1	General Arrangement	February 2024
KAP-69.6-3.2	Concrete Demolition – South Abutment Bridge Seat	February 2024
KAP-69.6-3.3	Rebars & Concrete – South Abutment Bridge Seat	February 2024
KAP-69.6-3.4	Concrete Demolition – North Abutment Bridge Seat	February 2024
KAP-69.6-3.5	Rebars & Concrete – North Abutment Bridge Seat	February 2024
KAP-69.6-3.6	Concrete Demolition – Pier Bridge Seat	February 2024
KAP-69.6-3.7	Rebars & Concrete – Pier Bridge Seat	February 2024
KAP-69.6-3.8	Concrete Demolition – South Abutment	February 2024
KAP-69.6-3.9	Rebars & Concrete – South Abutment	February 2024
KAP-69.6-3.10	Rebars & Concrete - Details – South Abutment	February 2024
KAP-69.6-3.11	Concrete Demolition – North Abutment	February 2024
KAP-69.6-3.12	Rebars & Concrete – North Abutment	February 2024
KAP-69.6-3.13	Reinforcing Bar List – South Abutment	February 2024
KAP-69.6-3.14	Concrete Demolition – Pier	February 2024
KAP-69.6-3.15	Rebars & Concrete – Pier	February 2024
KAP-69.6-3.16	Reinforcing Bar List – North Abutment & Pier	February 2024
KAP-69.6-4.1	Bridge Superstructure Replacement G A (1 of 2)	2024/02/23
KAP-69.6-4.2	Bridge Superstructure Replacement G A (2 of 2)	2024/02/23
KAP-69.6-4.3	B. S. R. - 30.48m DPG (Sheet 1 of 2)	2024/02/23
KAP-69.6-4.4	B. S. R. - 30.48m DPG (Sheet 2 of 2)	2024/02/23
KAP-69.6-4.5	B. S. R. - 30.48m DPG Span - Details	2024/02/23
KAP-69.6-4.6	B. S. R. – Bearing Details	2024/02/23
KAP-69.6-4.7	B. S. R. – Interim Bearing Details	2024/02/23
KAP-69.6-4.8	B. S. R. – Steel Pedestal Details	2024/02/23
KAP-69.6-4.9	B. S. R. – Extra Deck Tie Drawings (1 of 2)	2024/03/12
KAP-69.6-4.10	B. S. R. – Extra Deck Tie Drawings (2 of 2)	2024/03/12

69.7 Kapuskasing

Drawing No.	Description	Date
KAP-69.7-3.1	General Arrangement	February 2024
KAP-69.7-3.2	Concrete Demolition – South Abutment Bridge Seat	February 2024
KAP-69.7-3.3	Rebars & Concrete – South Abutment Bridge Seat	February 2024
KAP-69.7-3.4	Concrete Demolition – North Abutment Bridge Seat	February 2024
KAP-69.7-3.5	Rebars & Concrete – North Abutment Bridge Seat	February 2024
KAP-69.7-3.6	Concrete Demolition – Pier 1 & 2 Bridge Seat	February 2024
KAP-69.7-3.7	Rebars & Concrete – Pier 1 & 2 Bridge Seat	February 2024
KAP-69.7-3.8	Concrete Demolition – South Abutment	February 2024

KAP-69.7-3.9	Rebars & Concrete – South Abutment	February 2024
KAP-69.7-3.10	Rebars & Concrete - Details – South Abutment	February 2024
KAP-69.7-3.11	Concrete Demolition – North Abutment	February 2024
KAP-69.7-3.12	Rebars & Concrete – North Abutment	February 2024
KAP-69.7-3.13	Reinforcing Bar List – South Abutment	February 2024
KAP-69.7-3.14	Concrete Demolition – Pier 1 & 2	February 2024
KAP-69.7-3.15	Rebars & Concrete – Pier 1 & 1	February 2024
KAP-69.7-3.16	Reinforcing Bar List – North Abutment	February 2024
KAP-69.7-4.1	Bridge Superstructure Replacement G A (1 of 2)	2024/03/14
KAP-69.7-4.2	Bridge Superstructure Replacement G A (2 of 2)	2024/03/14
KAP-69.7-4.3	B. S. R. – 32.00m DPG Skew Span (Sheet 1 of 2)	2024/03/14
KAP-69.7-4.4	B. S. R. – 32.00m DPG Skew Span (Sheet 2 of 2)	2024/03/14
KAP-69.7-4.5	B. S. R. – 30.47m DPG Skew Span (Sheet 1 of 2)	2024/03/14
KAP-69.7-4.6	B. S. R. – 30.47m DPG Skew Span (Sheet 2 of 2)	2024/03/14
KAP-69.7-4.7	B. S. R. - DPG Spans – Details (1 of 2)	2024/03/14
KAP-69.7-4.8	B. S. R. - DPG Spans – Details (2 of 2)	2024/03/14
KAP-69.7-4.9	B. S. R. – Bearing Details	2024/03/14
KAP-69.7-4.10	B. S. R. – Interim Bearing Details	2024/03/14
KAP-69.7-4.11	B. S. R. – Steel Pedestal Details	2024/03/14
KAP-69.7-4.12	B. S. R. – Extra Deck Tie Drawings (1 of 2)	2024/03/12
KAP-69.7-4.13	B. S. R. – Extra Deck Tie Drawings (2 of 2)	2024/03/12

REFERENCE DRAWINGS

69.6 Kapuskasing

Drawing No.	Description	Date
ONR-69.6 Kap-001	Laterals-Cross Frames-Pier Members	Mar. 22, 1911
ONR-69.6 Kap-013	Girders	Mar. 17, 1911
1010 1/3	General Diagram	Mar. 23, 1911
AA 221-69.6-1.3	100' Spans	Feb. 7, 1911
C-21452	Steel Repairs – Top Flange Angles	May 15, 1969
C-20624	Steel Repairs	June 19, 1964
C19845	Steel Repairs	July 27, 1960
A-6288	New Bridge Timbers	January 2011
KAP-69.6-2.1	General Arrangement Span 2	10/29/13
KAP-69.6-2.2	General Arrangement Span 1	10/29/13
KAP-69.6-2.3	Details 1	10/29/13
KAP-69.6-2.4	Details 2	10/29/13
KAP-69.6-2.5	Details of Ties	10/29/13
KAP-69.6-2.6	Details Refuge Bay	10/29/13

69.7 Kapuskasing

Drawing No.	Description	Date
AA221-69.7-2.9	95', 100', 105' Spans	Feb. 9, 1911
1011-1	General Diagram	Mar. 27, 1911
1011-2	Girders – 100'-0" Skew	Mar. 27, 1911

1011-4	Girders – 95'-0" Skew	Mar. 29, 1911
1011-5	Girders – 95'-0" Skew	Mar. 31, 1911
1011-6	Girders – 105'-0" Skew	April 4, 1911
1011-7	Girders – 105'-0" Skew	April 6, 1911
1011-8	Laterals, Frames + Pier Members	April 9, 1911
BR.C10-701	Similar Abutments from Bridge 90.1 Kap	April 22, 1910
A-6287	New Bridge Timbers	January 2011
KAP-69.7-2.1	General Arrangement Span 3	10/29/13
KAP-69.7-2.2	General Arrangement Span 2	10/29/13
KAP-69.7-2.3	General Arrangement Span 1	10/29/13
KAP-69.7-2.4	Details 1	10/29/13
KAP-69.7-2.5	Details 2	10/29/13
KAP-69.7-2.6	Details Refuge Bay	10/29/13

REFERENCE REPORTS

69.7 Kapuskasing

Report No.	Description	Date
BLM: 21-054	Underwater Inspection Report – Kapuskasing 69.70	June 29 th , 2021

Report Description

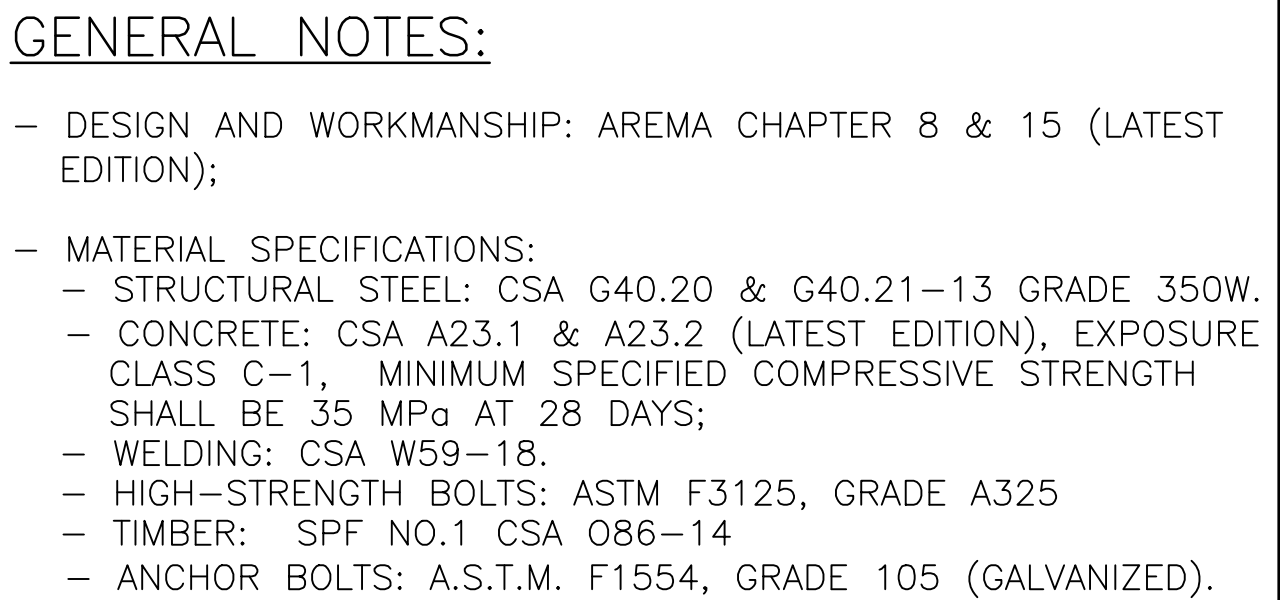
ONR Miles 69.6 & 69.7 Kapuskasing Subdivision Rail Rehabilitation Project – Environmental and Fisheries Assessment : Site Description, Summary of Work and Fish Habitat Assessment

REFERENCE DRAWINGS

Other Drawings

Drawing No.	Description	Date
R5A-8.1	CN L-Shaped Precast Concrete Ballast Retaining Wall	
ONR S1m	SAM Welded Joints for Flanges, Web, Stiffeners & Plates	
ONR S2m	Stiffeners	
ONR S3m	Anchor Bolt	
ONR S4m	Floor Beam Connections	
ONR S6m	Beam Copes	
ONR S7m	Lateral Bracing for DPG Spans	
ONR S20m	Metallizing Area for Beam Spans, DPG & TPG Spans	

69.6 Kapuskasing Contract Drawings



NOTES:

- REFERENCES: CONCRETE REPAIRS ARE BASED ON HATCH INSPECTION REPORT (2021);
- NEAREST STATION: KAPUSKASING MILLE 69.4 KAPUSKASING;
- TRACK ALIGNMENT AND RAIL PROFILE ARE AS SHOWN ON GROMA TECHNICAL SERVICES SURVEY;
- CONTRACTOR SHALL SURVEY TOP OF RAIL PROFILE INCLUDING 500ft APPROACH OF BOTH ENDS OF BRIDGE AT MAXIMUM 30ft INTERVALS FROM CENTERLINE OF EXISTING NORTH ABUTMENT BEARING AND CONFIRM ALL PROPOSED ELEVATIONS SHOWN ON DRAWING WITH ONR AND ENGINEER PRIOR TO CONSTRUCTION;

UTILITIES:
 - LOCATION OF ANY BURIED FIBRE-OPTICS CABLE AND COMMUNICATION LINES TO BE CONFIRMED IN FIELD. OTHER BURIED UTILITIES MAY EXIST ALONG THE RAILWAY RIGHTS-OF-WAY. ALL UTILITIES MUST BE LOCATED IN THE FIELD BY THE CONTRACTOR PRIOR TO START OF CONSTRUCTION.

FIELD LAYOUT:

- CONTRACTOR SHALL CONFIRM IN FIELD ALL DIMENSIONS, ELEVATIONS AND DETAILS SHOWN ON PLANS AND REPORT ANY DISCREPANCIES IN A TIMELY MANNER TO THE ENGINEER FOR RESOLUTION, PRIOR TO SUBSTRUCTURE CONSTRUCTION.

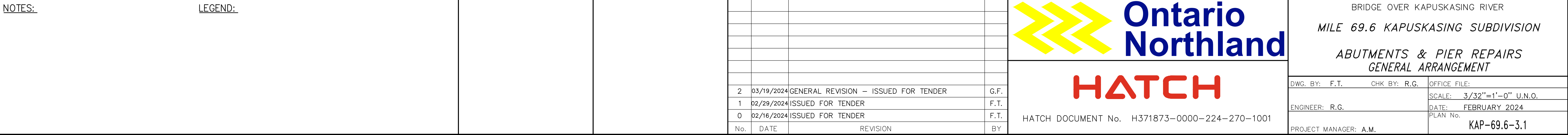
- CONTRACTOR TO DETERMINE CORRECT TOP OF PEDESTAL ELEVATION BASED ON PROPER TOP OF RAIL PROFILE.

LIST OF CONCRETE REPAIR DRAWINGS:

- | | |
|---------------|---|
| KAP-69.6-3.1 | - GENERAL ARRANGEMENT; |
| KAP-69.6-3.2 | - CONCRETE DEMOLITION - SOUTH ABUTMENT BRIDGE SEAT; |
| KAP-69.6-3.3 | - REBARS & CONCRETE - SOUTH ABUTMENT BRIDGE SEAT; |
| KAP-69.6-3.4 | - CONCRETE DEMOLITION - NORTH ABUTMENT BRIDGE SEAT; |
| KAP-69.6-3.5 | - REBARS & CONCRETE - NORTH ABUTMENT BRIDGE SEAT; |
| KAP-69.6-3.6 | - CONCRETE DEMOLITION - PIER BRIDGE SEAT; |
| KAP-69.6-3.7 | - REBARS & CONCRETE - PIER BRIDGE SEAT; |
| KAP-69.6-3.8 | - CONCRETE DEMOLITION - SOUTH ABUTMENT; |
| KAP-69.6-3.9 | - REBARS & CONCRETE - SOUTH ABUTMENT; |
| KAP-69.6-3.10 | - REBAR & CONCRETE - DETAILS - SOUTH ABUTMENT; |
| KAP-69.6-3.11 | - CONCRETE DEMOLITION - NORTH ABUTMENT; |
| KAP-69.6-3.12 | - REBARS & CONCRETE - NORTH ABUTMENT; |
| KAP-69.6-3.13 | - REINFORCING BAR LIST - SOUTH ABUTMENT; |
| KAP-69.6-3.14 | - CONCRETE DEMOLITION - PIER; |
| KAP-69.6-3.15 | - REBARS & CONCRETE - PIER; |
| KAP-69.6-3.16 | - REINFORCING BAR LIST - NORTH ABUTMENT & PIER; |

QUANTITIES: (ON THIS DRAWING)

- CN L-SHAPED PRECAST CONCRETE BALLAST _____ 2 EA.
 RETAINING WALL 4'-0"x4'-0"x10'-0"
 - BALLAST RETAINING PLATE ASSEMBLIES _____ 338 LBS
 - HILTI KWIK BOLTS 3/4" dia. x 4" LONG _____ 14 EA.



- FOR GENERAL NOTES AND SPECIFICATIONS SEE DRAWING 3.1;
- THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING 3.3;
- FOR CONCRETE NOTES SEE DRAWING 3.8;
- THIS DRAWING IS BASED ON THE PROCEDURE OF REPLACING THE EXISTING STEEL SPANS BEFORE UNDERTAKING THE CONCRETE REPAIRS. IF NOT THE CASE, REVIEW WITH THE ENGINEER.

- DEMOLISH AND REMOVE EXISTING CONCRETE ON EITHER SIDE OF SPAN AS SHOWN IN "HALF SECTION OF DEMOLITION (STEP No. 1)";

- RE-INSTALL BEARING SHIPPING PLATES;
- LIFT THE NEW SPAN ON JACKS SUCH THAT GAP JUST STARTS TO OPEN UNDER SHOE PLATES, MAXIMUM TRAVEL OF 1/2";
- INSTALL SAFETY BLOCKING UNDER JACKING BEAM TO PREVENT LOWERING;
- CUT ANCHOR BOLTS FLUSH WITH CONCRETE;
- DEMOLISH AND REMOVE EXISTING CONCRETE UNDER EACH BEARING LOCATION AS SHOWN IN "HALF SECTION OF DEMOLITION (STEP No. 1)";
- REMOVE THE TEMPORARY BEARING SHIMS;
- DRILL THE NEW ANCHOR BOLT HOLES FOR THE PEDESTALS INTO THE CONCRETE;
- CONNECT THE NEW PEDESTALS UNDER SPAN USING ANCHOR BOLTS;
- LOWER SPAN TO EXACT POSITION TO ACHIEVE BASE OF RAIL ELEVATION. AS DETERMINED BY CONTRACTOR SURVEY;
- INJECT "SIKAGROUT-428 FS CA" OR APPROVED EQUIVALENT UNDER NEW PEDESTALS;
- ALLOW FOR GROUT TO CURE;
- REMOVE BEARING SHIPPING PLATES;
- INSTALL F1554 ANCHOR BOLTS FOR PEDESTALS;
- REMOVE JACKS AND BLOCKING.

- DEMOLISH AND REMOVE REMAINING CONCRETE OF BRIDGE SEAT AS SHOWN IN "HALF-SECTION OF DEMOLITION (STEP No. 2)";
- DRILL HOLES IN BRIDGE SEAT AS REQUIRED FOR REINFORCING DOWELS.



NOTES:	LEGEND:																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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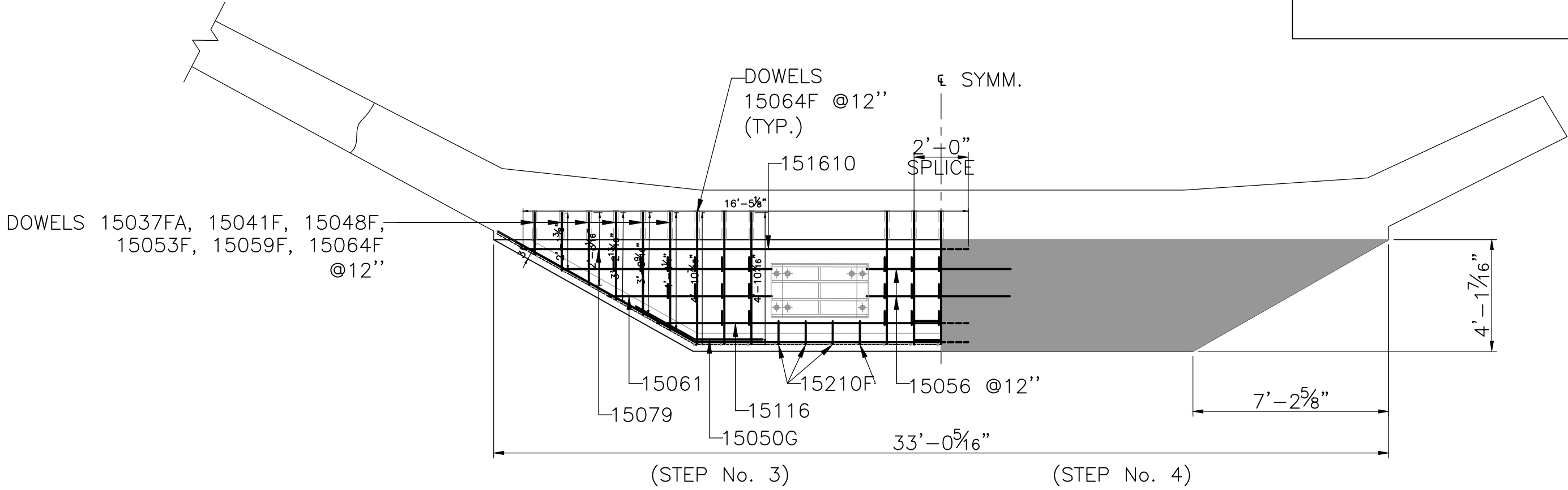
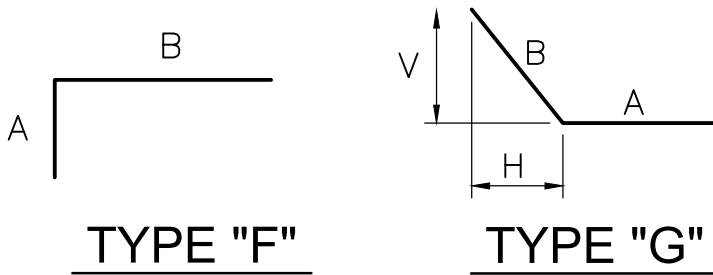
MILE 69.6 REINFORCING BAR LIST SOUTH ABUTMENT BRIDGE SEAT								
QTY	SIZE	MARK	LENGTH	A	B	H	V	WEIGHT LBS
2	15M	15037FA	3'-7"	2'-0"	1'-7"			7.6
2	15M	15041F	4'-1"	2'-0"	2'-1"			8.6
2	15M	15048F	4'-8"	2'-0"	2'-8"			9.8
2	15M	15053F	5'-3"	2'-0"	3'-3"			11.1
2	15M	15059F	5'-9"	2'-0"	3'-9"			12.1
2	15M	15064F	6'-4"	2'-0"	4'-4"			13.4
11	15M	15610F	6'-10"	2'-0"	4'-10"			79.3
39	15M	15037F	3'-7"	6"	3'-1"			147.4
8	15M	15024F	2'-4"	1'-6"	10"			19.7
6	15M	15050G	5'-0"	2'-6"	2'-6"	2'-2 3/16"	1'-2 5/8"	31.7

CONTINUATION...

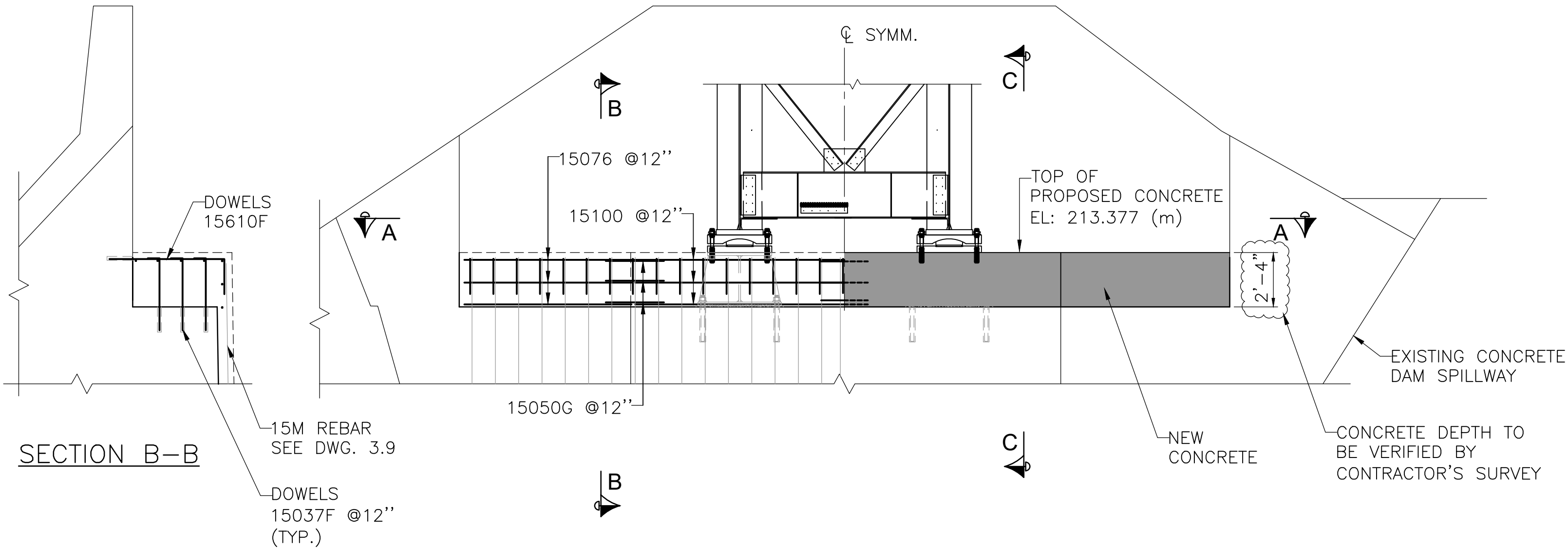
2	15M	15056	5'-6"	STRAIGHT BAR		11.6
2	15M	15116	11'-6"			24.3
2	15M	15061	6'-1"			12.8
2	15M	15079	7'-9"			16.4
2	15M	151610	16'-10"			35.5
6	15M	15100	10'-0"			63.3
6	15M	15076	7'-6"			47.5
98	TOTAL REINFORCING STEEL ON THIS TABLE					552.0

ALL DIMENSIOS ARE OUT TO OUT OF BARS

ALL BARS ARE SPACED AT 12" C/C IN ALL DIRECTIONS U.N.O.



SECTION A-A



HALF SECTION OF DEMOLITION
(STEP No. 3)

HALF SECTION OF DEMOLITION
(STEP No. 4)

REBAR & CONCRETE DETAIL

NOTES:

- FOR GENERAL NOTES AND SPECIFICATIONS SEE DRAWING 3.1;
- THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING 3.2;
- FOR CONCRETE NOTES SEE DRAWING 3.8;
- POUR CONCRETE FOR ABUTMENT AND ABUTMENT BRIDGE SEAT CONSECUTIVELY. SEE DRAWING 3.12;
- CONTRACTOR SHALL CONFIRM ALL DIMENSIONS ON SITE WITH THE ENGINEER PRIOR TO COMMENCING WORK.

PROCEDURE:

- DRILL HOLES DIAMETER AS REQUIRED FOR 15M DOWELS;
- AIR BLAST HOLES CLEAN BEFORE INSTALLING DOWELS;
- INSTALL DOWELS USING "SIKAGROUT 212" OR APPROVED EQUIVALENT;
- INSTALL ALL REINFORCING BARS AS SHOWN IN "HALF SECTION OF REBAR (STEP No.3)";
- BEFORE INSTALLING FORMWORK, REMOVE LOOSE CONCRETE AND/OR DEBRIS USING OIL FREE COMPRESSED AIR OR LIGHT SANDBLAST;
- APPLY TWO COATS OF "SKIATOP ARMATEC 110 EPOCEM" OR EQUIVALENT TO ALL REINFORCING STEEL;
- INSTALL FORMWORK AS REQUIRED, SEE "HALF SECTION OF CONCRETE (STEP No.4)";
- JUST BEFORE POUR, WET CONCRETE SUBSTRATE TO OBTAIN A SATURATED SURFACE AND REMOVE EXCESS WATER;

RAILWAY TRAFFIC CLOSURE

- POUR CONCRETE AS SPECIFIED;
- ALLOW FOR INITIAL SETTING OF NEW CONCRETE;

RESUME TRAFFIC

- ALLOW FOR FINAL CURING OF NEW CONCRETE;
- APPLY SEALANT "SIKAGARD A50" OR EQUIVALENT AS PER MANUFACTURER'S RECOMMENDATIONS ONCE THE CURING PROCESS IS COMPLETED.

QUANTITIES: (ON THIS DRAWING)

- CONCRETE REMOVAL _____ \approx 225 ft³
- REINFORCING STEEL _____ 552 LBS
- CAST IN PLACE CONCRETE _____ \approx 249 ft³
- SIKAGARD A50 _____ \approx 188 ft²

NOTES:

LEGEND:

1	03/19/2024	GENERAL REVISION - ISSUED FOR TENDER	G.F.		
0	02/16/2024	ISSUED FOR TENDER	F.T.		
No.	DATE	REVISION	BY		

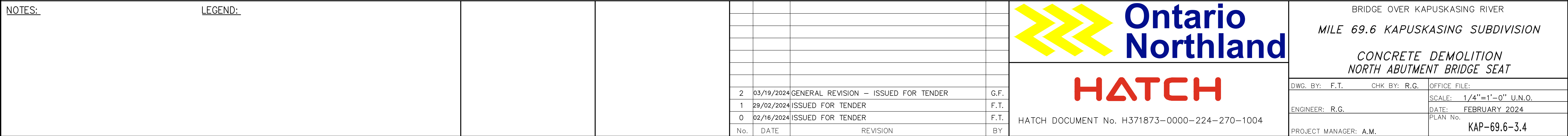
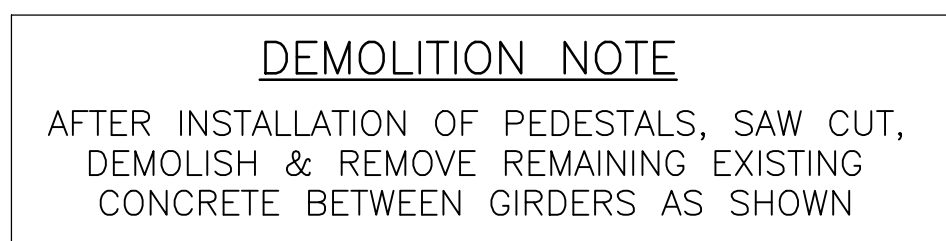


HATCH DOCUMENT No. H371873-0000-224-270-1003

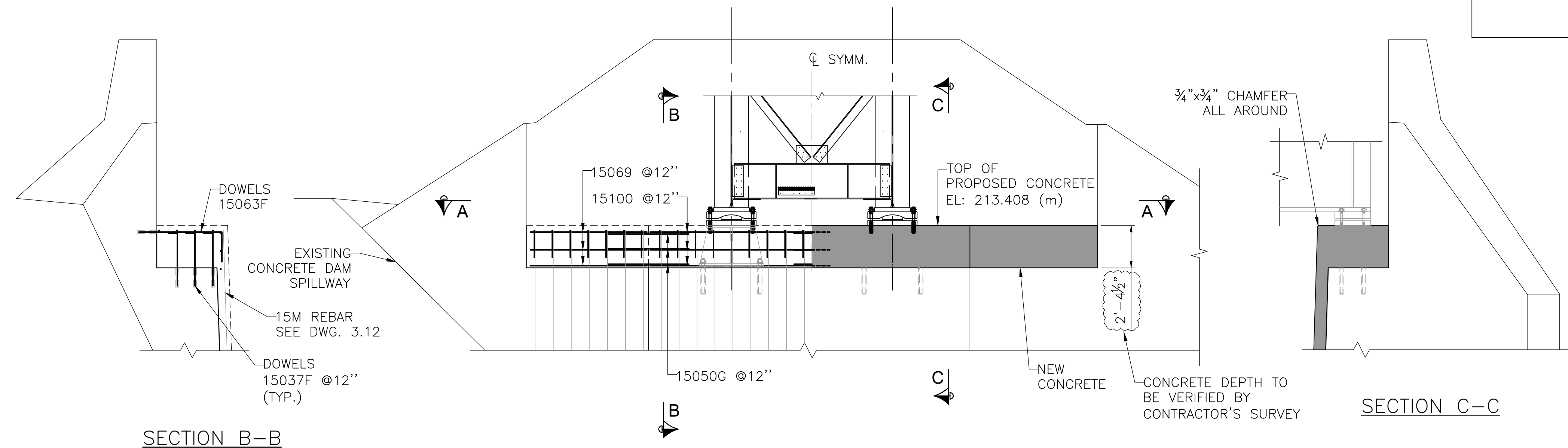
BRIDGE OVER KAPUSKASING RIVER
MILE 69.6 KAPUSKASING SUBDIVISION
REBARS & CONCRETE
SOUTH ABUTMENT BRIDGE SEAT

DWG. BY: F.T.	CHK BY: R.G.	OFFICE FILE:
		SCALE: 1/4"=1'-0" U.N.O.
ENGINEER: R.G.		DATE: FEBRUARY 2024
		PLAN No. KAP-69.6-3.3
PROJECT MANAGER: A.M.		

- FOR GENERAL NOTES AND SPECIFICATIONS SEE DRAWING 3.1;
- THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING 3.5;
- FOR CONCRETE NOTES SEE DRAWING 3.8;
- FOR PROCEDURE SEE DRAWING 3.2;
- THIS DRAWING IS BASED ON THE PROCEDURE OF REPLACING THE EXISTING STEEL SPANS BEFORE UNDERTAKING THE CONCRETE REPAIRS. IF NOT THE CASE, REVIEW WITH THE ENGINEER.



- FOR GENERAL NOTES AND SPECIFICATIONS SEE DRAWING 3.1;
- THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING 3.4;
- FOR CONCRETE NOTES SEE DRAWING 3.8;
- POUR CONCRETE FOR ABUTMENT AND ABUTMENT BRIDGE SEAT CONSECUTIVELY. SEE DRAWING 3.9;
- FOR PROCEDURE SEE DRAWING 3.3.



ALL DIMENSIO S ARE OUT TO OUT OF BARS
ALL BARS ARE SPACED AT 12" C/C IN ALL DIRECTIONS U.N.O.



- CONCRETE REMOVAL _____	≈ 211 ft ³
- REINFORCING STEEL _____	575 LBS
- CAST IN PLACE CONCRETE _____	≈ 239 ft ³
- SIKAGARD A50 _____	≈ 182 ft ²

LEGEND:

2	03/19/2024	GENERAL REVISION – ISSUED FOR TENDER	G.F.
1	02/29/2024	ISSUED FOR TENDER	F.T.
0	02/16/2024	ISSUED FOR TENDER	F.T.
No.	DATE	REVISION	BY



HATCH DOCUMENT No. H371873-0000-224-270-1005

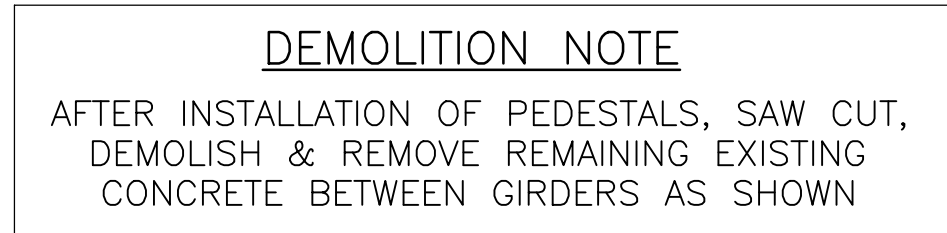
BRIDGE OVER KAPUSKASING RIVER



MILE 69.6 KAPUSKASING SUBDIVISION

REBARS & CONCRETE
NORTH ABUTMENT BRIDGE SEAT

DWG. BY: F.T.	CHK BY: R.G.	OFFICE FILE:
		SCALE: 1/4"=1'-0" U.N.O.
ENGINEER: R.G.		DATE: FEBRUARY 2024
PROJECT MANAGER: A.M.		PLAN No. KAP-69.6-3.5

- FOR GENERAL NOTES AND SPECIFICATIONS SEE DRAWING 3.1;
- THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING 3.7;
- FOR CONCRETE NOTES SEE DRAWING 3.8;
- FOR PROCEDURE SEE DRAWING 3.2;
- CONTRACTOR SHALL CONFIRM ALL DIMENSIONS ON SITE WITH THE ENGINEER PRIOR TO COMMENCING WORK.

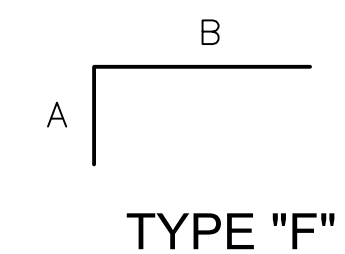


NOTES:	LEGEND:							BRIDGE OVER KAPUSKASING RIVER		
								MILE 69.6 KAPUSKASING SUBDIVISION		
								CONCRETE DEMOLITION PIER BRIDGE SEAT		
							HATCH DOCUMENT No. H371873-0000-224-270-1006	DWG. BY: F.T.	CHK BY: R.G.	OFFICE FILE:
1	03/19/2024	GENERAL REVISION – ISSUED FOR TENDER			G.F.			SCALE: 1/4"=1'-0" U.N.O.		
0	02/16/2024	ISSUED FOR TENDER			F.T.			ENGINEER: R.G.	DATE: FEBRUARY 2024	
No.	DATE	REVISION			BY			PLAN No. KAP-69.6-3.6		

- FOR GENERAL NOTES AND SPECIFICATIONS SEE DRAWING 3.1;
- THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING 3.6;
- FOR CONCRETE NOTES SEE DRAWING 3.8;
- POUR CONCRETE FOR ABUTMENT AND ABUTMENT BRIDGE SEAT CONSECUTIVELY. SEE DRAWING 3.15;
- FOR PROCEDURE SEE DRAWING 3.3.



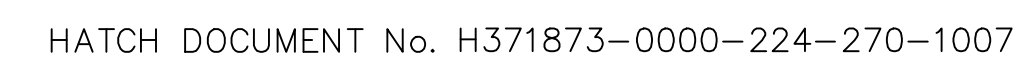
ALL DIMENSIOIS ARE OUT TO OUT OF BARS
ALL BARS ARE SPACED AT 12" C/C IN ALL DIRECTIONS U.N.O.



- CONCRETE REMOVAL _____	≈ 255 ft ³
- REINFORCING STEEL _____	705 LBS
- CAST IN PLACE CONCRETE _____	≈ 298 ft ³
- SIKAGARD A50 _____	≈ 240 ft ²

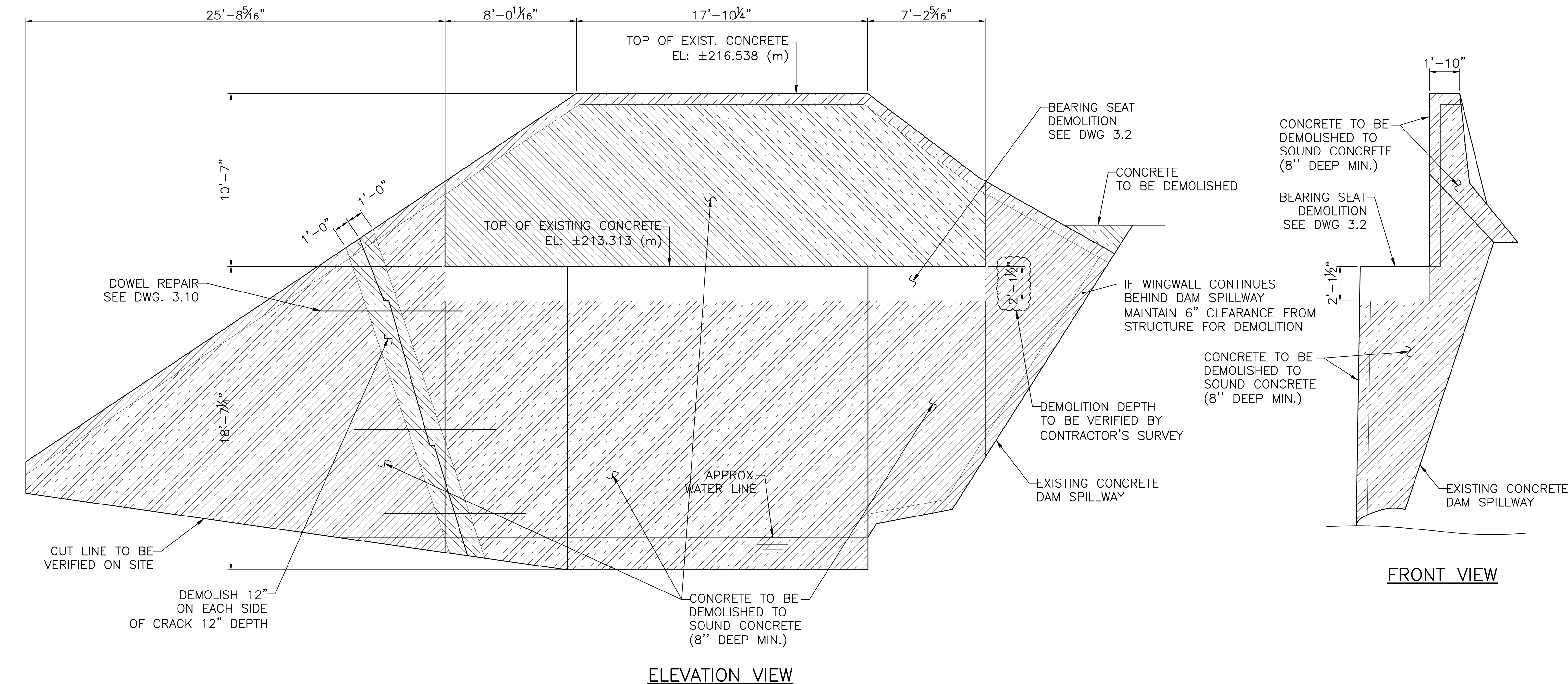
LEGEND:

1	03/19/2024	GENERAL REVISION – ISSUED FOR TENDER	G.F.
0	02/16/2024	ISSUED FOR TENDER	F.T.
No.	DATE	REVISION	BY



REBARS & CONCRETE
PIER BRIDGE SEAT

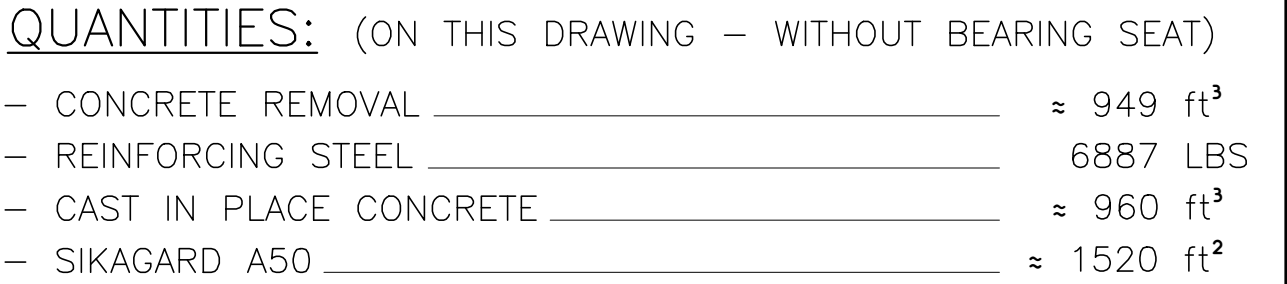
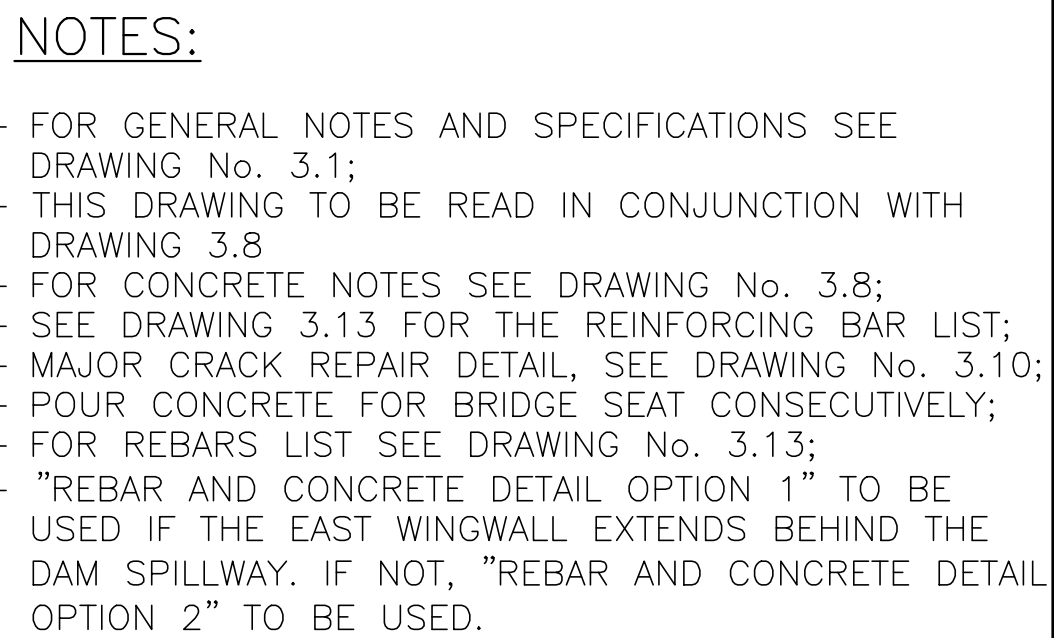
DWG. BY: F.T.	CHK BY: R.G.	OFFICE FILE:
		SCALE: 1/4"=1'-0" U.N.O.
ENGINEER: R.G.		DATE: FEBRUARY 2024
PROJECT MANAGER: A.M.		PLAN No. KAP-69.6-3.7



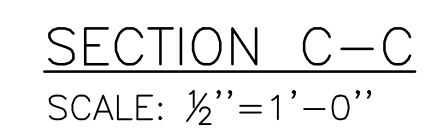
- SAW CUT ¾" DEEP ALL AROUND AND PERPENDICULAR TO THE SURFACE;
- USING A 15 LB JACKHAMMER CHIP CONCRETE SUBSTRATE TO SOUND CONCRETE OR TO A MINIMUM DEPTH OF 8", TO ACHIEVE A UNIFORM SURFACE AND PERPENDICULAR FACES ON THE PERIMETER. HEAVIER CHIPPING EQUIPMENT SHALL BE USED ONLY WITH THE APPROVAL OF THE ENGINEER;
- DRILL 1½" DIA x 12" DEEP HOLES FOR 15M DOWELS
NOTE: SPECIAL PRECAUTION SHOULD BE TAKEN WHEN DRILLING THE DOWELS AT THE TOP 5 FEET OF THE WING WALLS SO AS TO NOT DRILL THROUGH THE WALL. IF ON-SITE MEASUREMENTS AND INSPECTION ARE DIFFERENT THAN SHOWN IN THIS DRAWING, NOTIFY ENGINEER FOR INSTRUCTIONS BEFORE COMMENCING WORK;
- AIR BLAST ALL HOLES CLEAN BEFORE INSTALLING DOWELS;
- INSTALL DOWELS USING "SIKAGROUT 212" OR APPROVED EQUIVALENT;
- INSTALL ALL ADDITIONAL REINFORCING BARS;
- BEFORE INSTALLING FORMWORK REMOVE LOOSE CONCRETE AND / OR DEBRIS USING OIL FREE COMPRESSED AIR OR LIGHT SANDBLAST;
- APPLY TWO COATS OF "SIKATOP ARMATEC 110 EPOCEM" OR EQUIVALENT TO ALL REINFORCING STEEL;
- INSTALL ALL FORMWORK AS REQUIRED TO ACHIEVED THE DETAILED GEOMETRY LIMITS;
- JUST BEFORE CONCRETE POUR, WET CONCRETE SUBSTRATE TO OBTAIN A SATURATED SURFACE AND REMOVE EXCESS WATER;
- CURE CONCRETE FOR A MINIMUM OF FIVE (5) DAYS BY WET CURING PROCESS;
- APPLY SEALANT "SIKADUR A50" OR EQUIVALENT AS PER MANUFACTURERS RECOMMENDATIONS ONCE THE CURING PROCESS IS COMPLETED.

1	03/19/2024	GENERAL REVISION – ISSUED FOR TENDER	G.R.
0	02/16/2024	ISSUED FOR TENDER	F.T.
No.	DATE	REVISION	BY

DWG. BY: F.T.	CHK BY: R.G.	OFFICE FILE:
		SCALE: 1/4"=1'-0" U.N.O.
ENGINEER: R.G.		DATE: FEBRUARY 2024
PROJECT MANAGER: A.M.		PLAN No. KAP-69.6-3.8

[illegible]

— FOR GENERAL NOTES AND SPECIFICATIONS SEE DRAWING No. 3.1;



LEGEND:



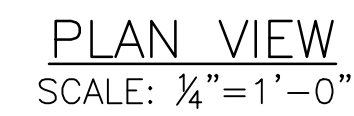
**Ontario
Northland**





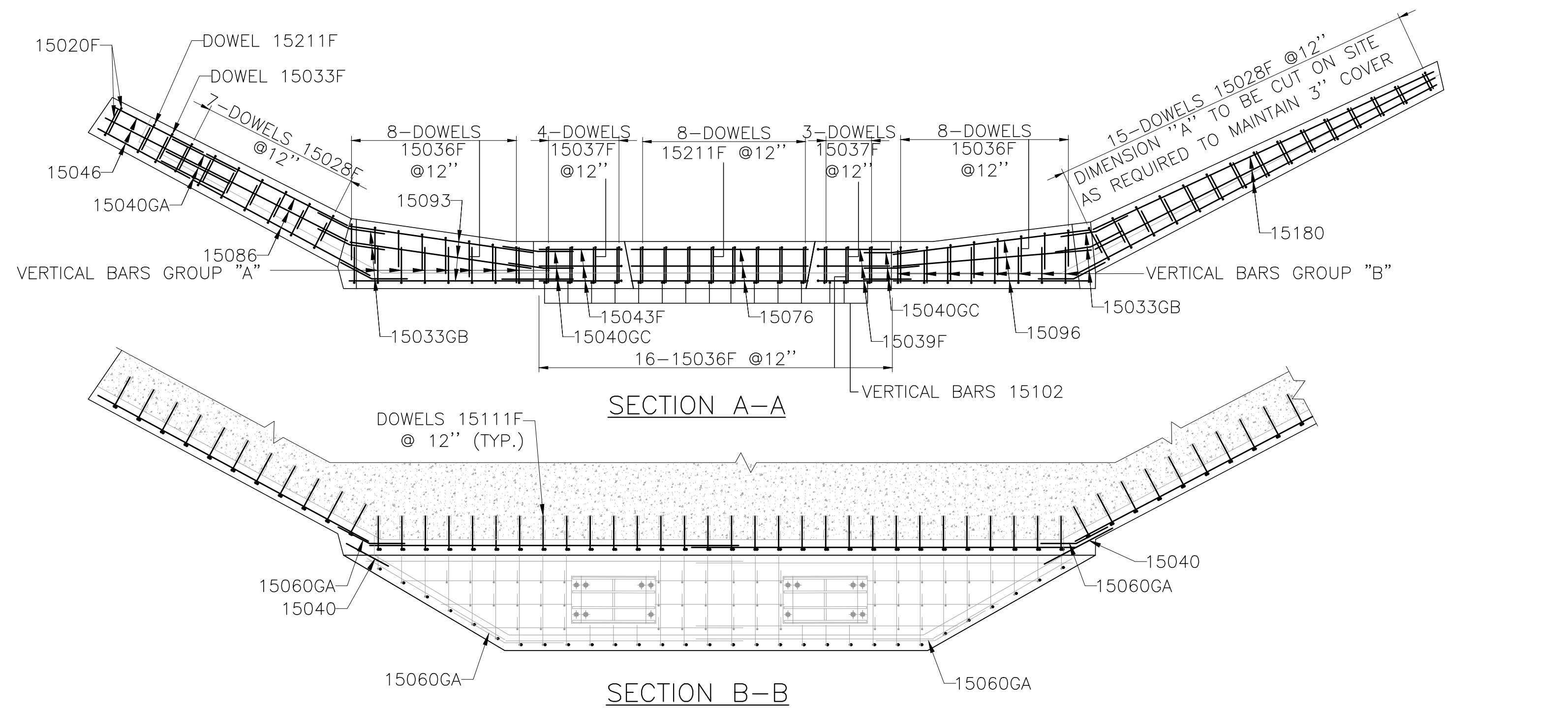
HATCH DOCUMENT No. H371873-0000-224-270-1010

DWG. BY: F.T.	CHK BY: R.G.	OFFICE FILE:
		SCALE: 1/4"=1'-0" U.N.O.
ENGINEER: R.G.		DATE: FEBRUARY 2024
PROJECT MANAGER: A.M.		PLAN No. KAP-69.6-3.10

- FOR GENERAL NOTES AND SPECIFICATIONS SEE DRAWING No. 3.1;
- FOR CONCRETE NOTES SEE DRAWING No. 3.8;
- THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING 3.12;
- ABUTMENT DIMENSIONS ARE APPROXIMATE AND TO BE VERIFIED ON SITE BY CONTRACTOR PRIOR TO FABRICATION & CONSTRUCTION;
- FOR REINFORCING SEE DWG. 3.12;
- CONTRACTOR TO INSPECT WINGWALL AND VERIFY IF IT CONTINUES BEHIND DAM SPILLWAY.

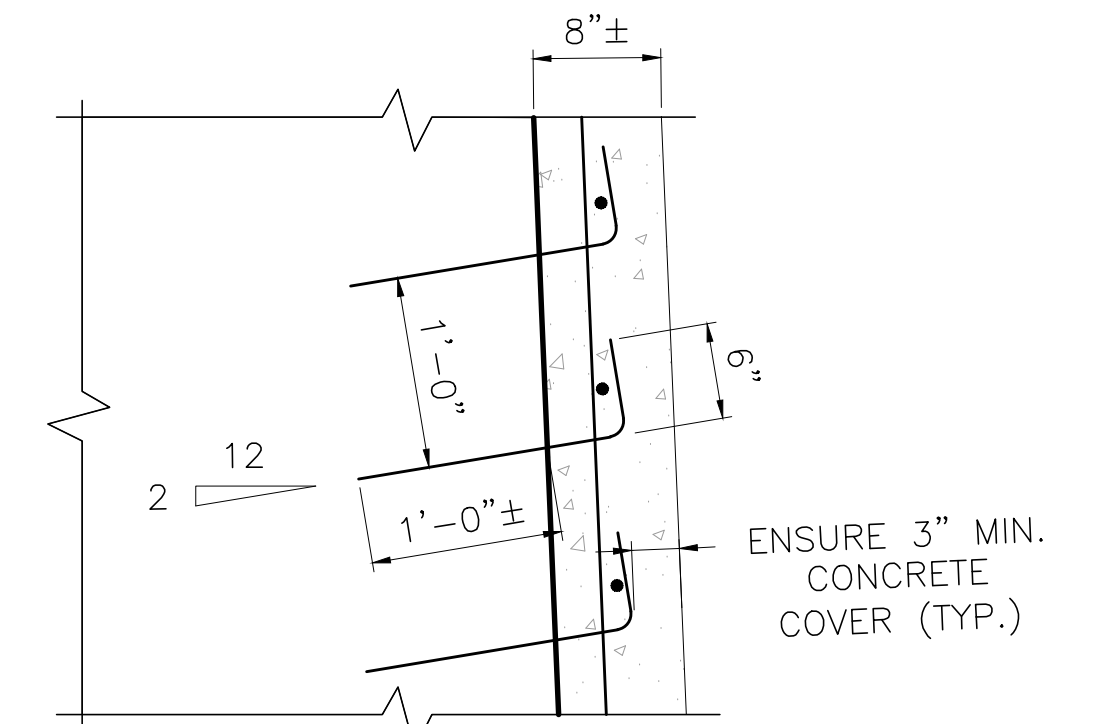
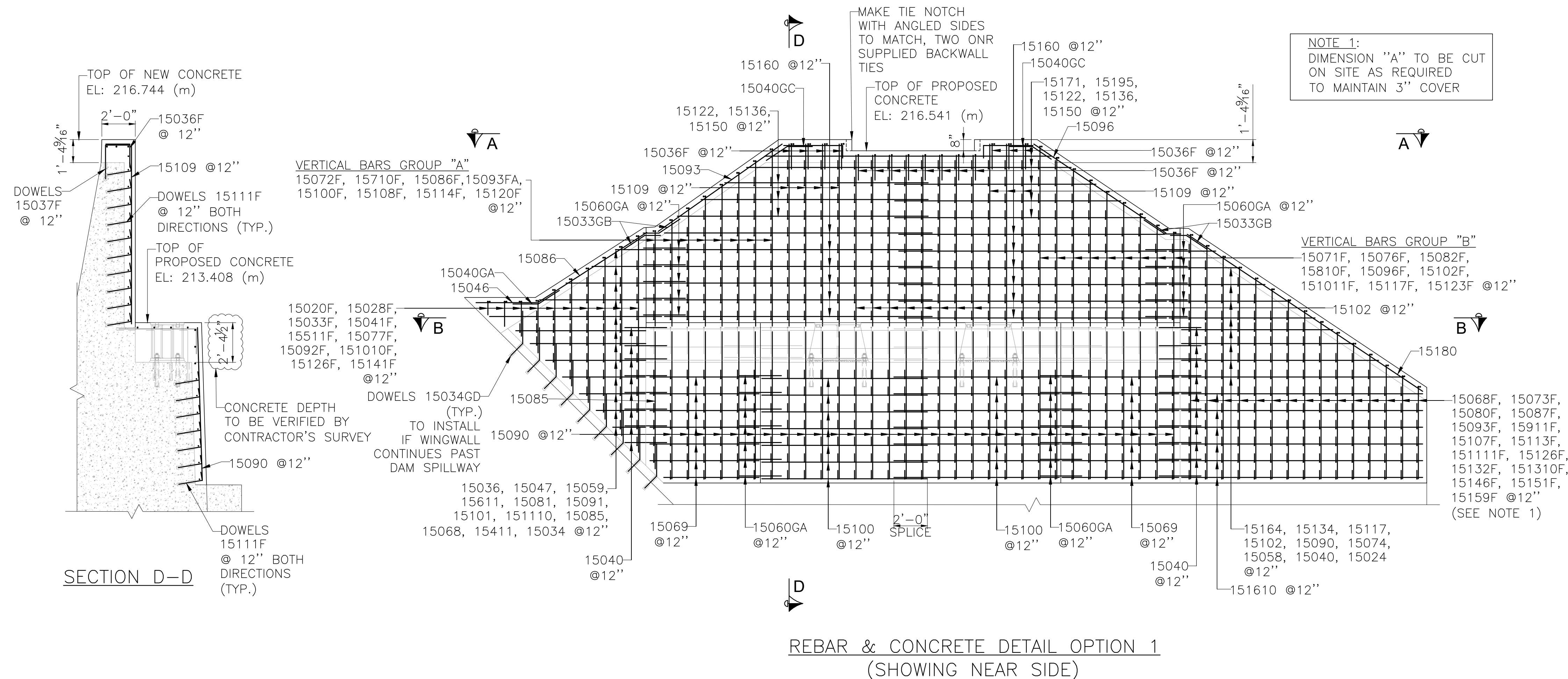


NOTES:	LEGEND:						  HATCH DOCUMENT No. H371873-0000-224-270-1011	BRIDGE OVER KAPUSKASING RIVER <i>MILE 69.6 KAPUSKASING SUBDIVISION</i> <i>CONCRETE DEMOLITION NORTH ABUTMENT</i>		
								DWG. BY: F.T.	CHK BY: R.G.	OFFICE FILE:
								SCALE: 1/4"=1'-0" U.N.O.		
								DATE: FEBRUARY 2024		
								PLAN No.		
								KAP-69.6-3.11		
1	03/19/2024	GENERAL REVISION – ISSUED FOR TENDER	G.F.							
O	02/16/2024	ISSUED FOR TENDER	F.T.							
No.	DATE	REVISION	BY							



NOTES:

- FOR GENERAL NOTES AND SPECIFICATIONS SEE DRAWING No. 3.1;
- THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING 3.11
- FOR CONCRETE NOTES SEE DRAWING No. 3.8;
- POUR CONCRETE FOR BRIDGE SEAT CONSECUTIVELY;
- FOR REBARS LIST SEE DRAWING No. 3.16;
- "REBAR AND CONCRETE DETAIL OPTION 1" TO BE USED IF THE EAST WINGWALL EXTENDS BEHIND THE DAM SPILLWAY. IF NOT, "REBAR AND CONCRETE DETAIL OPTION 2" ON DWG. 3.9 TO BE USED.



QUANTITIES: (ON THIS DRAWING – WITHOUT BEARING SEAT)

- CONCRETE REMOVAL $\approx 611 \text{ ft}^3$
- REINFORCING STEEL $\approx 3732 \text{ LBS}$
- CAST IN PLACE CONCRETE $\approx 622 \text{ ft}^3$
- SIKAGARD A50 $\approx 1006 \text{ ft}^2$

NOTES:

LEGEND:



HATCH DOCUMENT No. H371873-0000-224-270-1012

BRIDGE OVER KAPUSKASING RIVER MILE 69.6 KAPUSKASING SUBDIVISION		
REBAR & CONCRETE NORTH ABUTMENT		
DWG. BY: F.T.	CHK BY: R.G.	OFFICE FILE:
ENGINEER: R.G.		SCALE: 1/4"=1'-0" U.N.O.
PROJECT MANAGER: A.M.		DATE: FEBRUARY 2024
		PLAN No. KAP-69.6-3.12

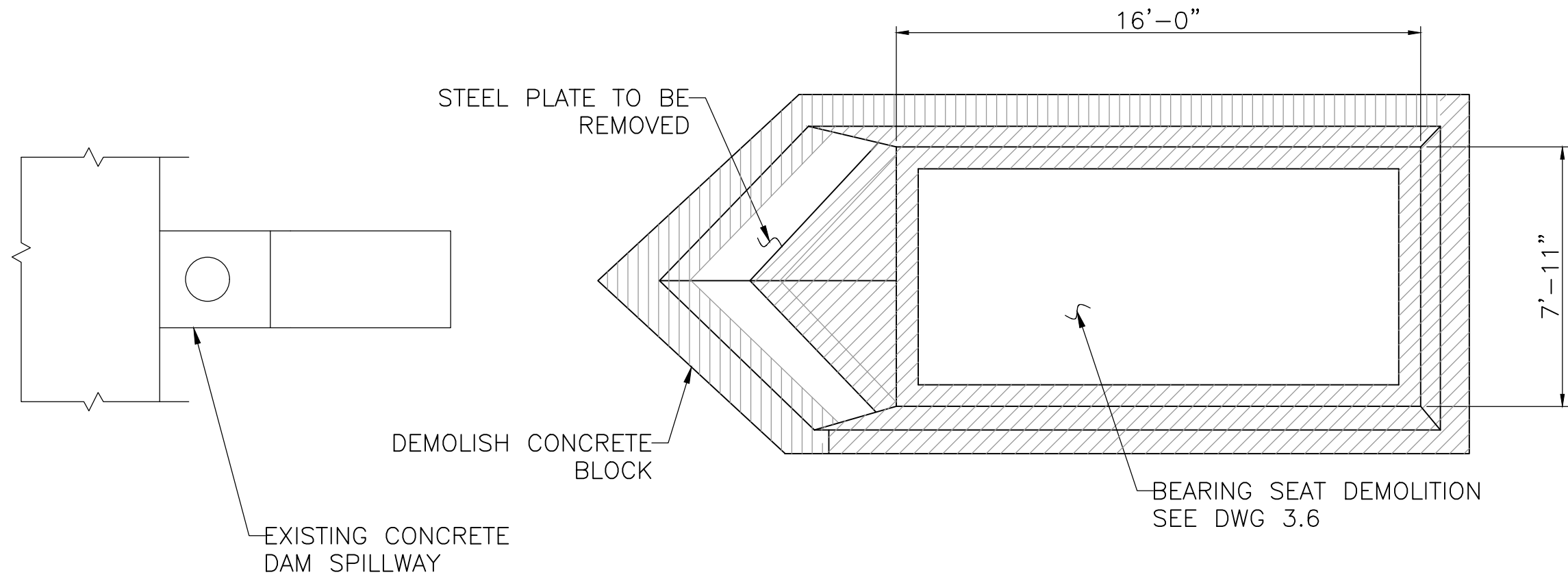
No.	DATE	REVISION	BY
1	03/19/2024	GENERAL REVISION – ISSUED FOR TENDER	G.F.
0	02/16/2024	ISSUED FOR TENDER	F.T.

NOTES:

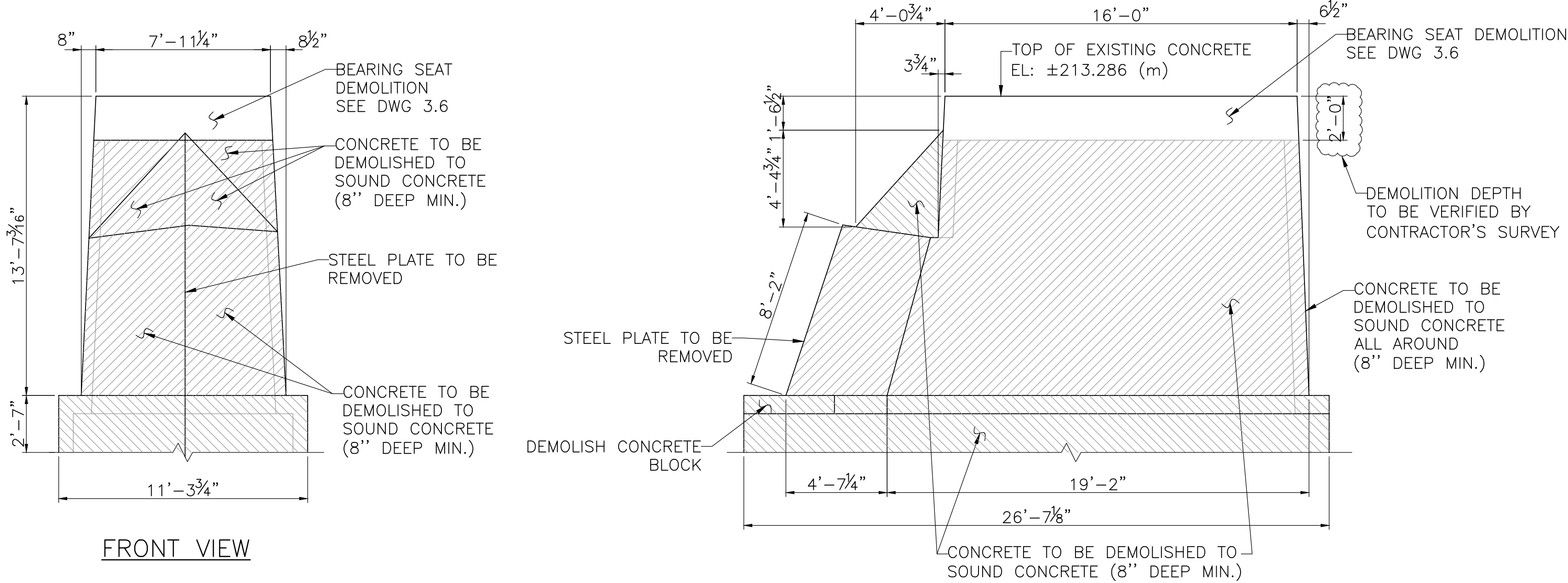
- FOR GENERAL NOTES AND SPECIFICATIONS SEE DRAWING 3.1;
- THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING 3.15;
- FOR CONCRETE NOTES AND REPAIR PROCEDURE SEE DRAWING 3.8;
- PIER DIMENSIONS ARE APPROXIMATE AND TO BE VERIFIED ON SITE BY CONTRACTOR PRIOR TO FABRICATION & CONSTRUCTION;
- FOR REINFORCING SEE DRAWING 3.15.

GENERAL REPAIR PROCEDURE :

- REMOVE STEEL PLATE AT PIER NOSE;
- SAW CUT ¾" DEEP ALL AROUND AND PERPENDICULAR TO THE SURFACE;
- USING A 15 LB JACKHAMMER CHIP CONCRETE SUBSTRATE TO SOUND CONCRETE OR TO A MINIMUM DEPTH OF 8", TO ACHIEVE A UNIFORM SURFACE AND PERPENDICULAR FACES ON THE PERIMETER. HEAVIER CHIPPING EQUIPMENT SHALL BE USED ONLY WITH THE APPROVAL OF THE ENGINEER;
- DRILL ½" DIA x 12" DEEP HOLES FOR 15M DOWELS
- AIR BLAST ALL HOLES CLEAN BEFORE INSTALLING DOWELS;
- INSTALL DOWELS USING "SIKAGROUT 212" OR APPROVED EQUIVALENT;
- INSTALL ALL ADDITIONAL REINFORCING BARS;
- BEFORE INSTALLING FORMWORK REMOVE LOOSE CONCRETE AND / OR DEBRIS USING OIL FREE COMPRESSED AIR OR LIGHT SANDBLAST;
- APPLY TWO COATS OF "SIKATOP ARMATEC 110 EPOCEM" OR EQUIVALENT TO ALL REINFORCING STEEL;
- INSTALL NEW STEEL PLATE AT PIER NOSE;
- INSTALL ALL FORMWORK AS REQUIRED TO ACHIEVED THE DETAILED GEOMETRY LIMITS;
- JUST BEFORE CONCRETE POUR, WET CONCRETE SUBSTRATE TO OBTAIN A SATURATED SURFACE AND REMOVE EXCESS WATER;
- CURE CONCRETE FOR A MINIMUM OF FIVE (5) DAYS BY WET CURING PROCESS;
- APPLY SEALANT "SIKAGARD A50" OR EQUIVALENT AS PER MANUFACTURERS RECOMMENDATIONS ONCE THE CURING PROCESS IS COMPLETED.



PLAN VIEW
SCALE: ¼"=1'-0"



FRONT VIEW

SOUTH ELEVATION

NOTES:

LEGEND:

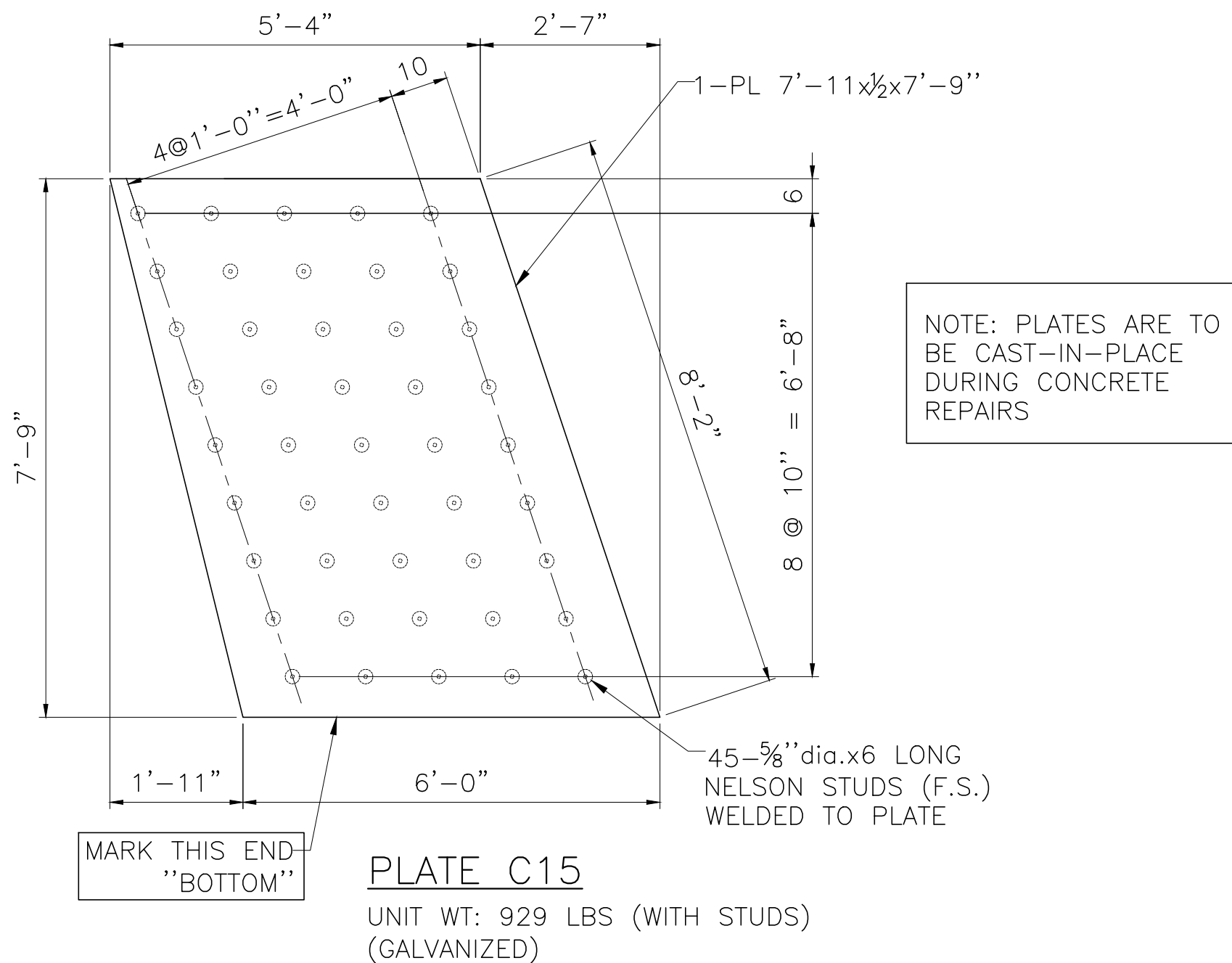
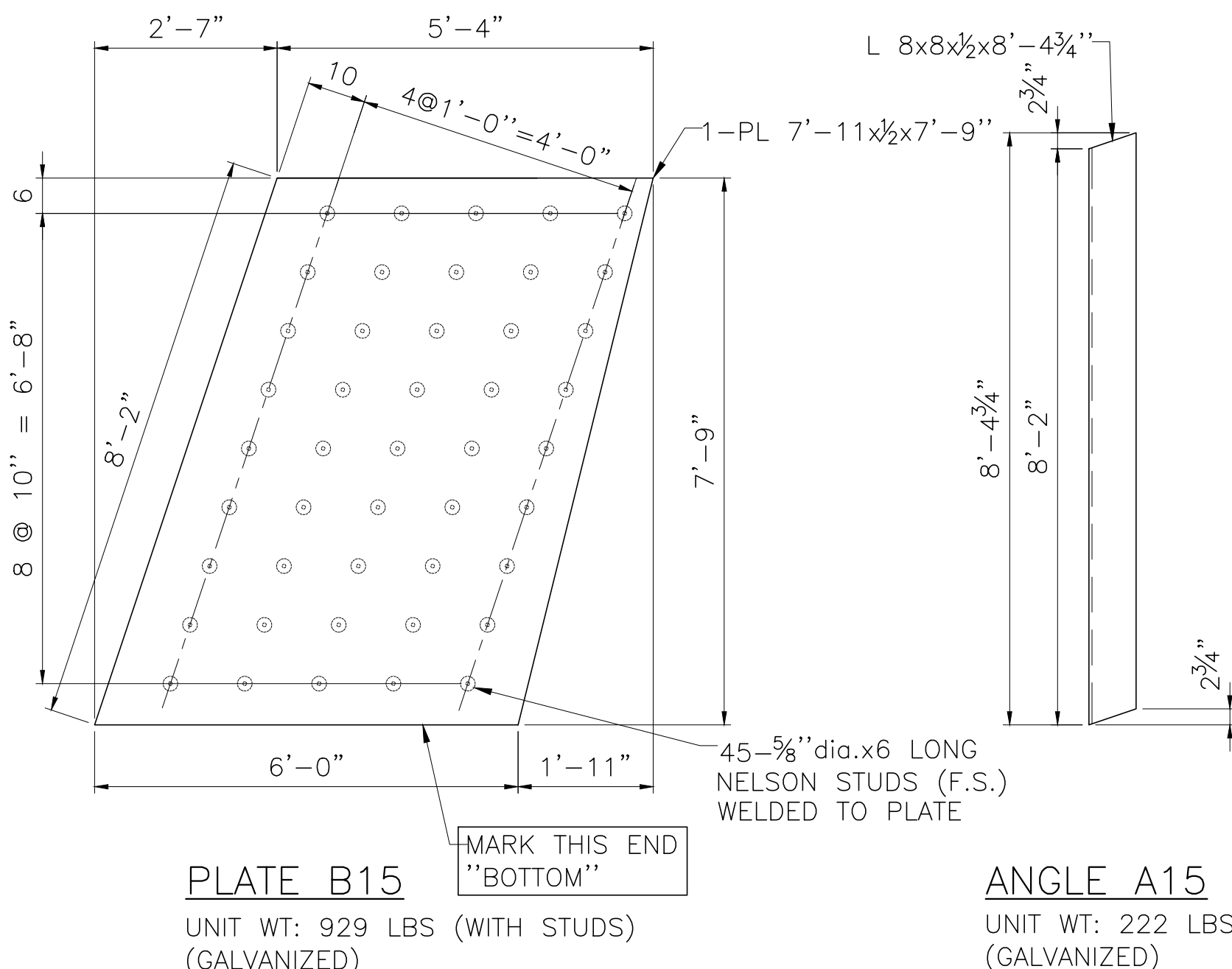
2	03/19/2024	GENERAL REVISION – ISSUED FOR TENDER	G.F.
1	29/02/2024	ISSUED FOR TENDER	F.T.
0	02/16/2024	ISSUED FOR TENDER	F.T.
No.	DATE	REVISION	BY



HATCH DOCUMENT No. H371873-0000-224-270-1014

BRIDGE OVER KAPUSKASING RIVER MILE 69.6 KAPUSKASING SUBDIVISION CONCRETE DEMOLITION PIER		
DWG. BY: F.T.	CHK BY: R.G.	OFFICE FILE:
ENGINEER: R.G.		SCALE: 1/4"=1'-0" U.N.O.
PROJECT MANAGER: A.M.		DATE: FEBRUARY 2024 PLAN No. KAP-69.6-3.14

- FOR GENERAL NOTES AND SPECIFICATIONS SEE DRAWING No. 3.1;
- THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING 3.14
- FOR CONCRETE NOTES SEE DRAWING No. 3.8;
- POUR CONCRETE FOR BRIDGE SEAT CONSECUTIVELY;
- FOR REBARS LIST SEE DRAWING No. 3.16;



- CONCRETE REMOVAL _____	≈ 587 ft ³
- REINFORCING STEEL _____	3452 LBS
- NOSING WITH STUDS _____	2080 LBS
- CAST IN PLACE CONCRETE _____	≈ 587 ft ³
- SIKAGARD A50 _____	≈ 880 ft ²

LEGEND:

1	03/19/2024	GENERAL REVISION – ISSUED FOR TENDER	G.F.
0	02/16/2024	ISSUED FOR TENDER	F.T.
No.	DATE	REVISION	BY

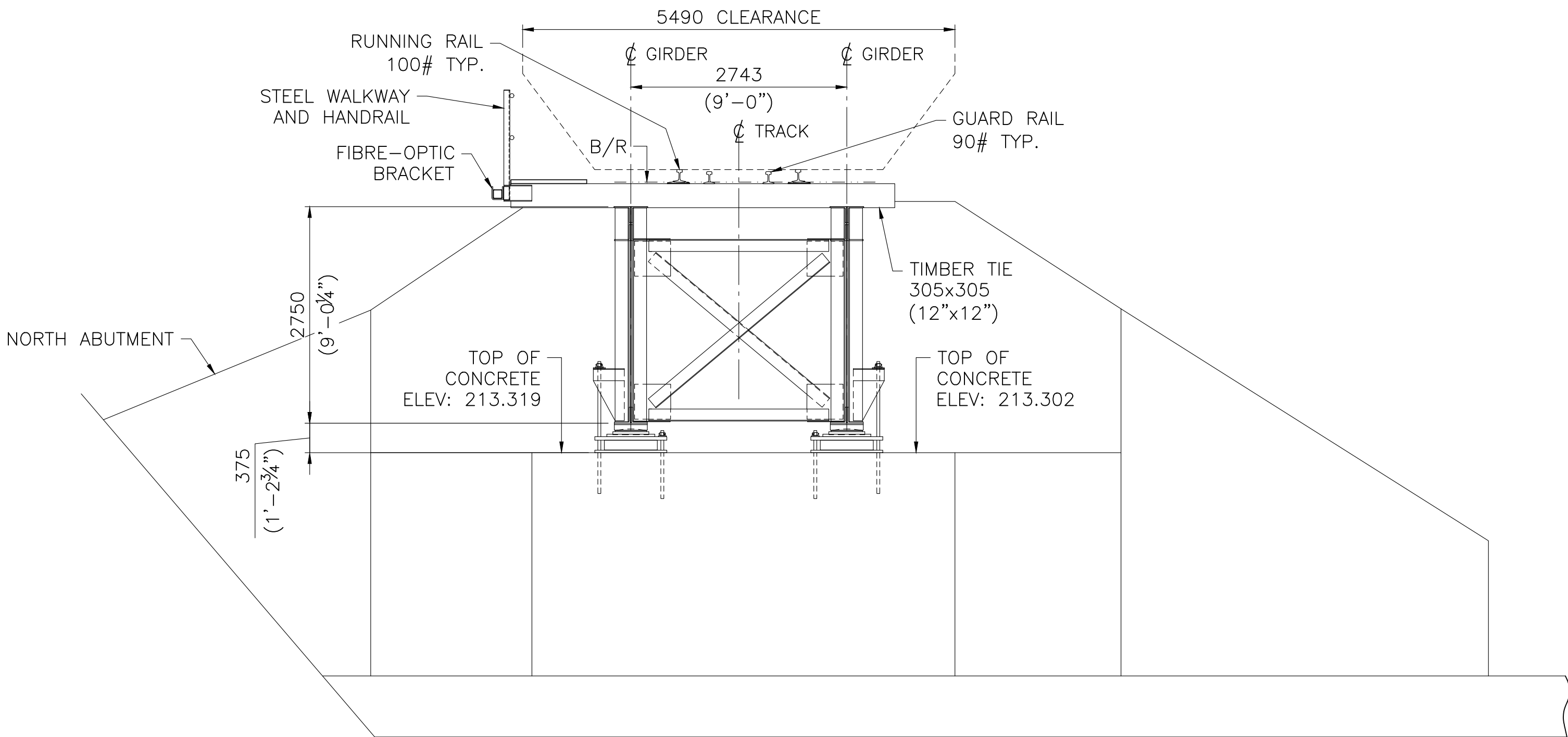


HATCH DOCUMENT No. H371873-0000-224-270-1015

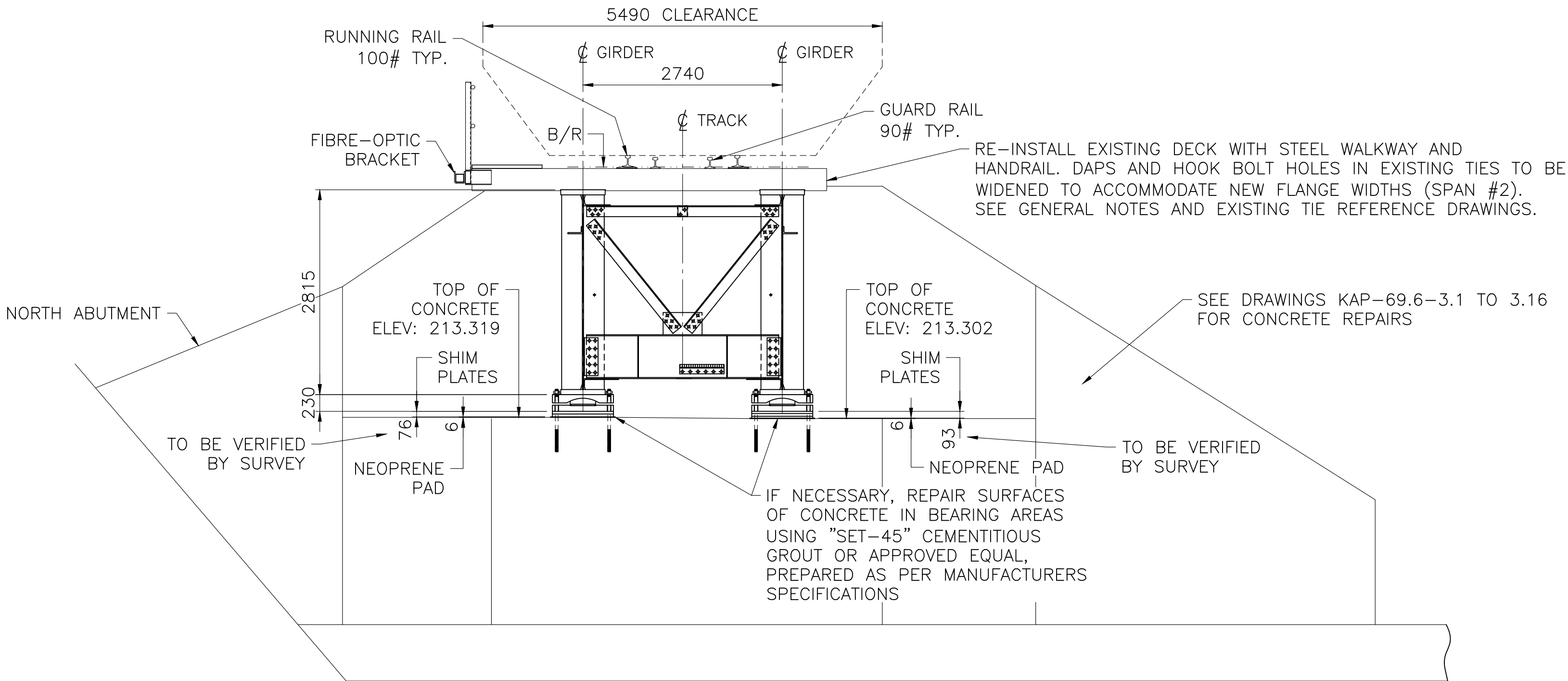
BRIDGE OVER KAPUSKASING RIVER
MILE 69.6 KAPUSKASING SUBDIVISION
REBARS & CONCRETE
PIER

DWG. BY: F.T.	CHK BY: R.G.	OFFICE FILE:
ENGINEER: R.G.		SCALE: 1/4"=1'-0" U.N.O.
PROJECT MANAGER: A.M.		DATE: FEBRUARY 2024 PLAN No. KAP-69.6-3.15

[illegible]



EXISTING SECTION "A-A" @ NORTH ABUTMENT
(SEE DWG.-4.1)



PROPOSED SECTION "B-B" @ NORTH ABUTMENT
(SEE DWG.-4.1)

GENERAL NOTES:

- IT IS PROPOSED TO REPLACE THE EXISTING OPEN DECK, DPG SPANS WITH 2 NEW OPEN DECK DPG SPANS SUPPORTED ON EXISTING ABUTMENTS AND PIERS.
- IT IS PROPOSED THAT THE CONTRACTOR SUPPLY ONE SPAN'S WORTH OF NEW TIES TO BE PRE-INSTALLED ON THE FIRST NEW SPAN INSTALLATION. AFTER THAT AND FOR THE BRIDGE AT 69.7 KAPUSKASING, THE TIES SHALL BE TAKEN OFF THE REMOVED SPANS AND THEN RE-INSTALLED (WITH DAP MODIFICATIONS) ON SUBSEQUENT SPANS. THE EXISTING HANDRAILINGS AND WALKWAY GRATING SHALL BE RE-INSTALLED ON THEIR CORRESPONDING SPANS AFTER THE EXISTING SPAN REMOVAL AND REPLACEMENT.
- TRACK ALIGNMENT AND BASE OF RAIL PROFILE WILL REMAIN UNCHANGED AFTER SPAN INSTALLATIONS.
- DESIGN LIVE LOAD: COOPER E90 WITH DIESEL IMPACT.
- 100# RAIL TO BE RE-INSTALLED ON BRIDGE.
- FIBER OPTIC CABLE RUNS ALONG THE WEST SIDE OF THE BRIDGE. CONDUIT SHALL BE RELOCATED OR PROTECTED DURING CONSTRUCTION, AND REATTACHED TO THE WEST SIDE OF NEW BRIDGE.
- CONTRACTOR SHALL SURVEY TOP OF RAIL PROFILE INCLUDING 152.4m (500ft) APPROACH OF BOTH ENDS OF THE BRIDGE AT MAXIMUM 9m (30ft) INTERVALS FROM CENTRELINE OF EXISTING NORTH ABUTMENT BEARING IN ORDER TO SET THE BEARING ELEVATION AND CONFIRM ALL OTHER ELEVATIONS SHOWN ON DRAWING WITH ONR AND ENGINEER PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL TAKE THE NECESSARY MEASUREMENTS TO VALIDATE AND ADJUST THE TOTAL BEARING SHIM THICKNESS REQUIRED TO MAINTAIN THE EXISTING TOR ELEVATION.
- CONTRACTOR TO DESIGN THE LIFTING APPARATUS FOR THE EXISTING SPANS REMOVAL AND TO VERIFY THE CONDITION OF THESE ATTACHMENT LOCATIONS BEFORE SPAN CHANGEOUT WORK BLOCKS.
- ALL DIMENSIONS SHOWN SHALL BE VERIFIED IN THE FIELD BEFORE START OF CONSTRUCTION.
- ENGINEER SHALL BE INFORMED OF ANY DISCREPANCIES FROM DIMENSIONS SHOWN ON DRAWINGS.
- NEAREST STATION: KAPUSKASING MILE 69.4 KAPUSKASING.
- FOR GUARD RAIL INSTALLATION REFER TO CN TRACK STANDARD DRAWING No. TS-1108.

MATERIAL SPECIFICATIONS:

- DESIGN AND WORKMANSHIP: _____ AREMA (2023) CHAPTERS 8 & 15
- STRUCTURAL STEEL: _____ CSA CAN3-G40.21. MATERIALS SOURCED FROM OUTSIDE N. AMERICA SHALL HAVE A TOTAL MAXIMUM BORON CONTENT BELOW 0.0008%.
- WELDING: _____ CSA W59 & AWS D1.5
- ANCHOR BOLTS: _____ ASTM F1554, GRADE 105 OR EQUIVALENT
- H.S. BOLTS: _____ ASTM F3125 GRADE A325, M22, TYPE 3 c/w HEAVY HEX NUT AND HARDENED ROUND WASHER U.N.O. NUTS TO BE TIGHTENED BY THE TURN OF NUT METHOD
- BOLT HOLES: _____ 24mm dia. (U.N.O.), DRILLED FULL SIZE OR SUB-PUNCHED AND REAMED
- GALVANIZING: _____ ASTM A123
- METALLIZING: _____ CSA G189
- NEOPRENE PADS: _____ SHALL CONFORM TO AREMA CHAP. 15, SECTION 5.6, ELASTOMERIC BEARINGS - DUROMETER 60

REFERENCES:

- EXISTING DRAWINGS ONR-69.6 KAP-001 TO -013 AND DECK TIE DRAWINGS A-6288 & KAP-69.6-2.1 TO -2.6.
- INSPECTION REPORT DATED: SEPTEMBER 11, 2021 AND OCTOBER 25, 2022.
- TECHNICAL SURVEY DONE BY "GROMA", DATED JULY 28, 2023.

NOTES:

LEGEND:



HATCH DOCUMENT No. H371873-0000-224-270-3001

BRIDGE OVER KAPUSKASING RIVER

69.60 KAPUSKASING SUBDIVISION

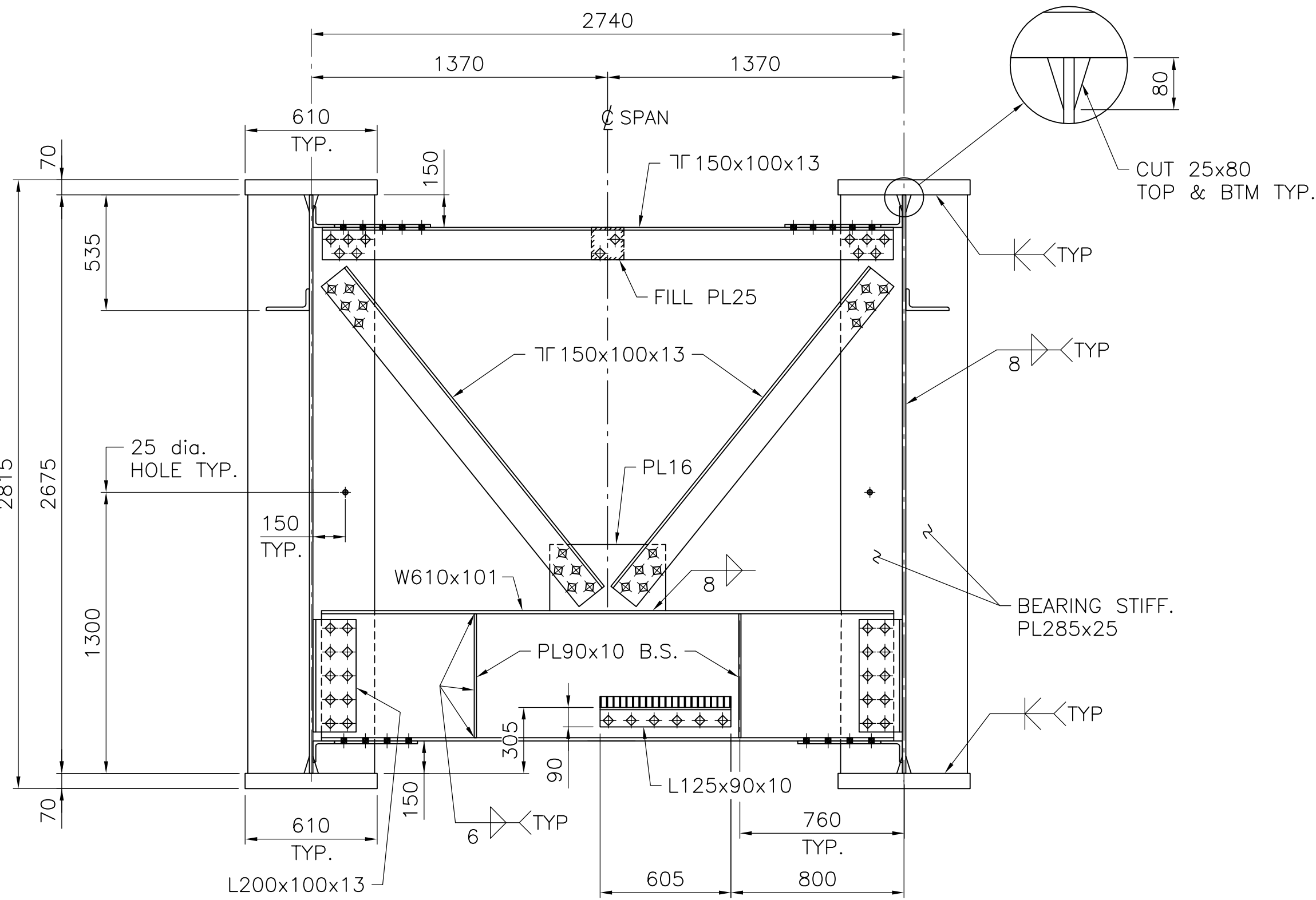
BRIDGE SUPERSTRUCTURE REPLACEMENT
GENERAL ARRANGEMENT (2 OF 2)

DWG. BY: T.Z.	CHK BY:	OFFICE FILE:
		SCALE: 1:50 (UNLESS NOTED)
ENGINEER:		DATE: 2024/02/23
		PLAN No.
PROJECT MANAGER: A.M.		KAP-69.60-4.2

0	24/02/23	ISSUED FOR TENDER	T.Z.
No.	DATE	REVISION	BY



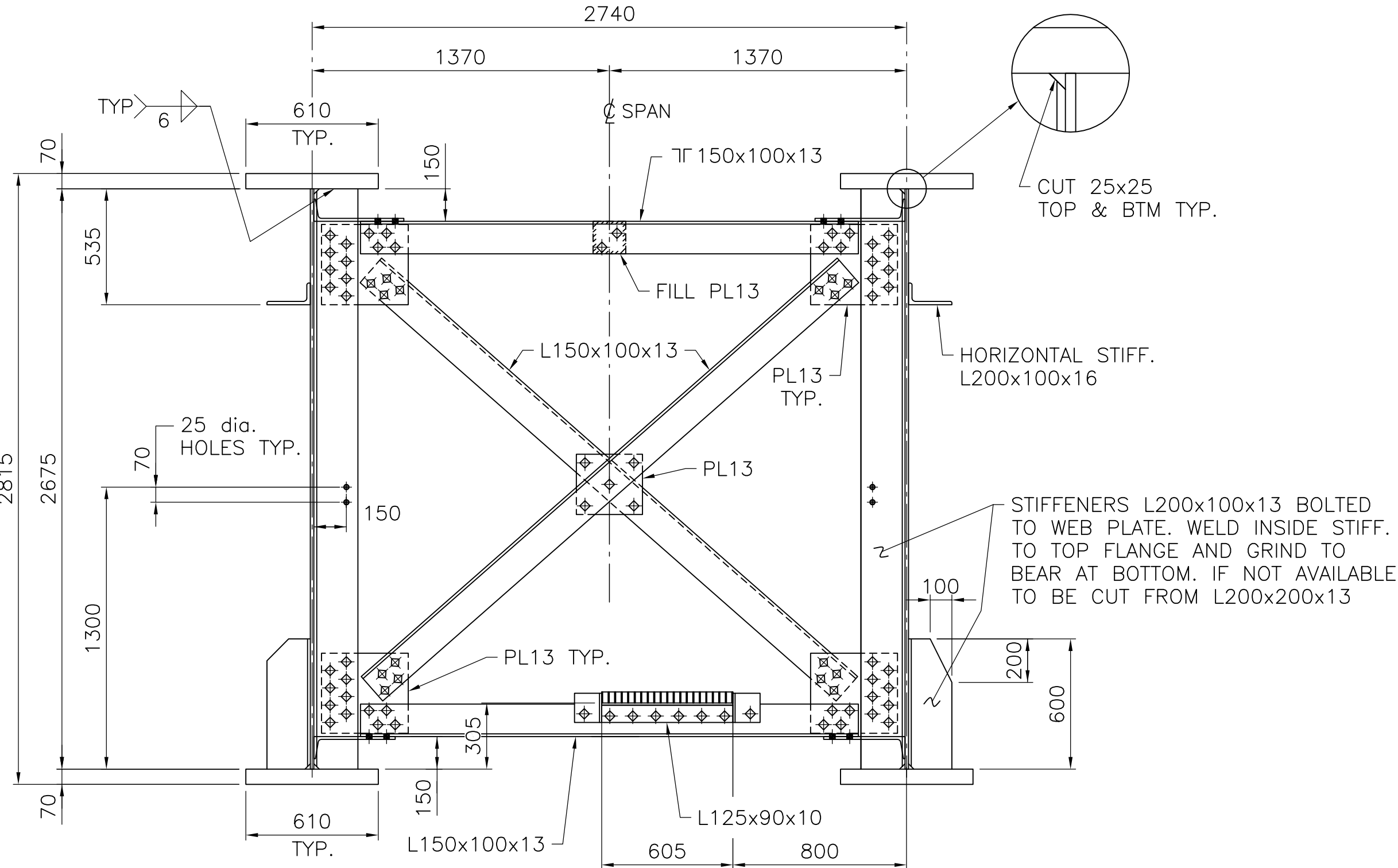
BRIDGE OVER KAPUSKASING RIVER		
69.60 KAPUSKASING SUBDIVISION		
BRIDGE SUPERSTRUCTURE REPLACEMENT 30.48m DPG SPAN (SHEET 1 of 2)		
DWG. BY: T.Z.	CHK BY:	OFFICE FILE:
		SCALE: 1:50 (UNLESS NOTED)
ENGINEER:		DATE: 2024/02/23
PROJECT MANAGER: A.M.		PLAN No. KAP-69.60-4.3



SECTION "B-B"

(SEE DWG.-4.3)

FOR ALL COPEs, FREE HAND FLAME CUTTING NOT PERMITTED; ROUGHNESS SHALL NOT EXCEED ANSI 1000.



SECTION "C-C"

(SEE DWG.-4.3)

STIFFENERS L200x100x13 BOLTED TO WEB PLATE. WELD INSIDE STIFF. TO TOP FLANGE AND GRIND TO BEAR AT BOTTOM. IF NOT AVAILABLE, TO BE CUT FROM L200x200x13

TABLE OF STRESSES

30.48m SPAN (c/c BRGS)

TOP FLANGE PLATE	610x70	AREA=42700mm ²
WEB PLATE	2675x16	AREA=42800mm ²
BOTTOM FLANGE PLATE	610x70	AREA=42700mm ²

$$S_x-x \text{ TOP}=132.45 \times 10^6 \text{ mm}^3 \quad I_x=186.43 \times 10^9 \text{ mm}^4$$

$$S_x-x \text{ BTM}=132.45 \times 10^6 \text{ mm}^3$$

	END REACTION kN	SHEAR STRESS MPa	BENDING MOMENT kN.m	BENDING STRESSES BTM FLANGE MPa
DEAD LOAD 18.64 kN/m	280.5	6.6	2137.2	16.2
LIVE LOAD E90	1501.3	35.1	9832.5	74.5
IMPACT 35.12%	535.7	12.5	3508.9	26.6
TOTAL GROUP "A"	2317.5	54.2	15478.6	117.3
ALLOWABLE STRESSES (BENDING AND SHEAR)	—	122.5	—	192.5
RATIO OF WORKING STRESS TO ALLOWABLE	—	0.46	—	0.63

DEFLECTION:

$$\frac{\Delta_{LL+I}}{\text{SPAN}} = \frac{1}{879}$$

FATIGUE:

ALLOWABLE STRESS RANGE FOR FATIGUE CATEGORY "B" FOR N > 2,000,000 CYCLES

$$S_{Rfat} = 110.3 \text{ MPa}$$

MAXIMUM DESIGN STRESS RANGE AT BOTTOM FLANGE TO WEB WELD AT MIDSPAN

$$89.1 \text{ MPa} < S_{Rfat}$$

$$\frac{\text{MAX. STRESS RANGE}}{\text{PERMISS. FATIGUE STRESS}} = 0.808$$

NOTES:

- FOR GENERAL NOTES, SEE DRAWING KAP-69.60-4.2.
- THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING KAP-69.60-4.3-4.5.
- FOR DETAILS OF BEARINGS, SEE DRAWING KAP-69.60-4.6.
- DESIGN AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH AREMA MANUAL (2023), CHAPTER 15.
- MATERIAL SHALL BE IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS:
 - STRUCTURAL STEEL: _____ CSA CAN3-G40.20/G40.21, GRADE 350AT, CATEGORY 3 (FCM) IN GIRDER WEBS & FLANGES. GRADE 350AT, CATEGORY 3 FOR STIFFENER PLATES. GRADE 350A FOR JACKING BEAMS, STIFFENER ANGLES AND ALL REMAINING PLATES. GRADE 300W FOR BEARING PLATES.
 - WELDING: _____ CSA CAN3-W59 / AWS D1.5
 - ANCHOR BOLTS: _____ ASTM F1554, GRADE 105
 - H.S. BOLTS: _____ ASTM F3125 GRADE A325, M22, TYPE 3 (OR EQUIVALENT)
 - METALLIZING: _____ CSA G189
 - GALVANIZING: _____ ASTM A123
 - PAINTING: _____ SEE SPECIFICATIONS
 - BRONZE PLATE: _____ ASTM B22, COPPER ALLOY UNS No. C86300
- ALL HOLES SHALL BE DRILLED OR SUB-PUNCHED AND REAMED.
- ALL H.S. BOLTS SHALL BE TIGHTENED BY THE TURN-OF-NUT METHOD.
- BOTTOM FLANGES OF GIRDERS OVER BEARINGS SHALL BE TRUE AND SQUARE; MAXIMUM MEASURED DEVIATION AT OUTSIDE OF EDGE OF BEARING PLATES SHALL NOT EXCEED 1mm.
- DEVIATION FROM STRAIGHTNESS OF MAIN GIRDERS SHALL NOT EXCEED 6mm.
- NEGATIVE CAMBER NOT PERMITTED.
- NO CAMBER REQUIRED.
- ALL NON-SLIDING SURFACES OF BEARING PLATES SHALL BE ZINC METALLIZED AS PER CSA SPEC. G189, ZINC METALLIZING SHALL NOT BE LESS THAN 0.25mm.
- SHOE PLATES AND BED PLATES SHALL BE HOT-DIP GALVANIZED AS PER CSA SPEC. G-164.
- SPAN SHALL BE ENTIRELY SHOP ASSEMBLED BEFORE SHIPPING. SEE SPECIFICATIONS FOR SHIPPING DETAILS.
- LIFTING LUG HAS BEEN DESIGNED TO VERTICALLY LIFT THE STEEL WEIGHT OF A FULLY ASSEMBLED SPAN, EXCLUDING THE WEIGHT OF THE TIMBER DECK AND THE TRAINMAN WALKWAY. CONTRACTOR TO PROVIDE LIFTING LUG DETAIL FOR DIFFERENT LIFTING ARRANGEMENT.
- STANDARD DRAWINGS S1m, S2m, S3m, S4m, S6m, S7m AND S20m ARE REFERENCED AND PROVIDED FOR ADDITIONAL INFORMATION NOT SHOWN ON THIS DRAWING.

ESTIMATED QUANTITIES:

- STRUCTURAL STEEL (WITHOUT BEARINGS AND GRATING) _____ 82720 kg
- INSPECTION WALKWAY GRATING _____ 18.5 m²
- LIFTING WEIGHT OF SPAN (WITH BEARINGS & GRATING) APPROX. _____ 87410 kg

NOTES:

LEGEND:

0	24/02/23	ISSUED FOR TENDER		T.Z.	
No.	DATE	REVISION		BY	



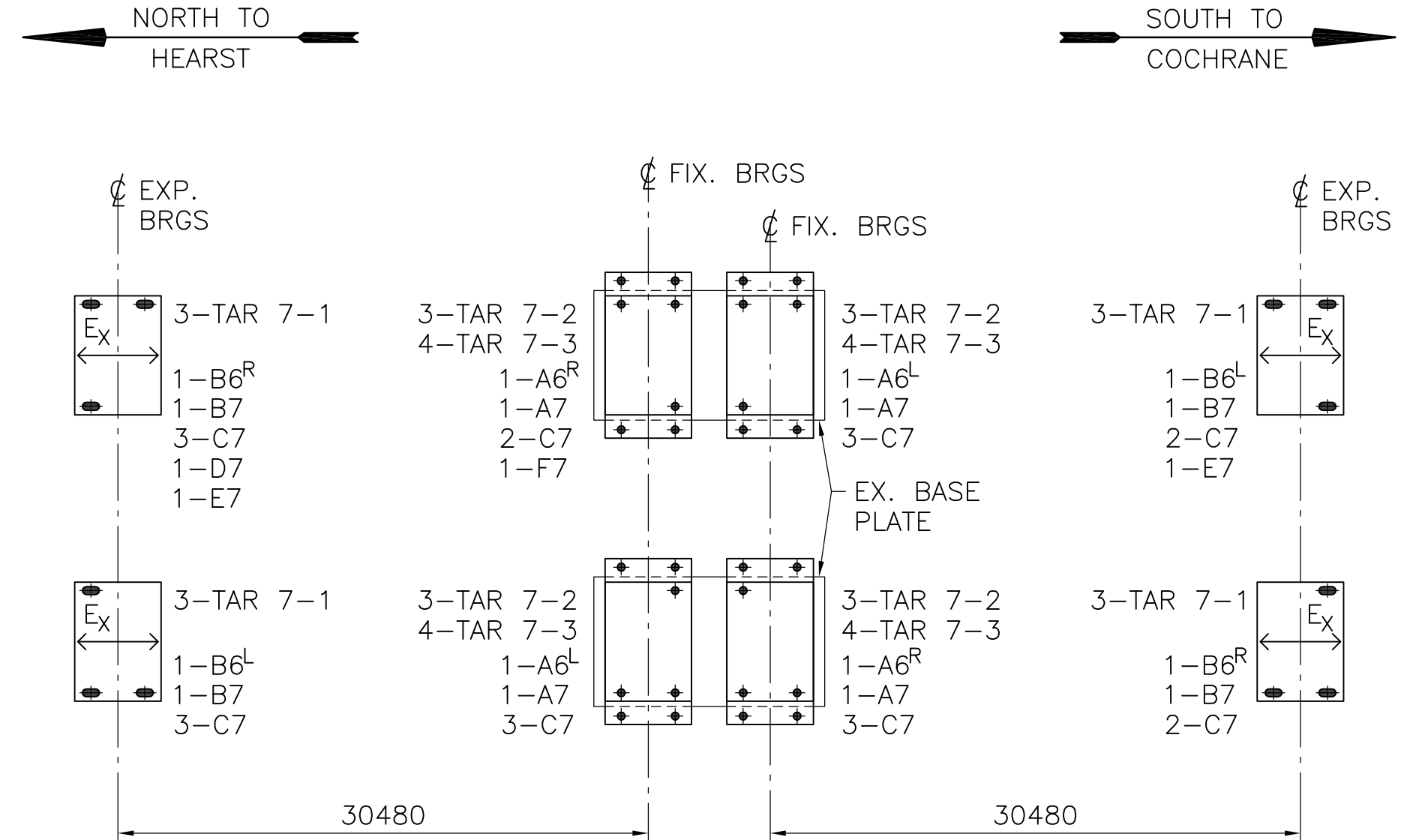
HATCH DOCUMENT No. H371873-0000-224-270-3001

BRIDGE OVER KAPUSKASING RIVER

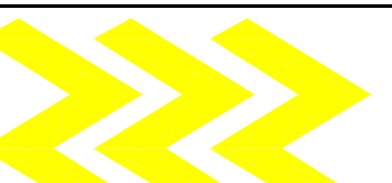
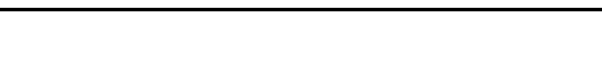
69.60 KAPUSKASING SUBDIVISION

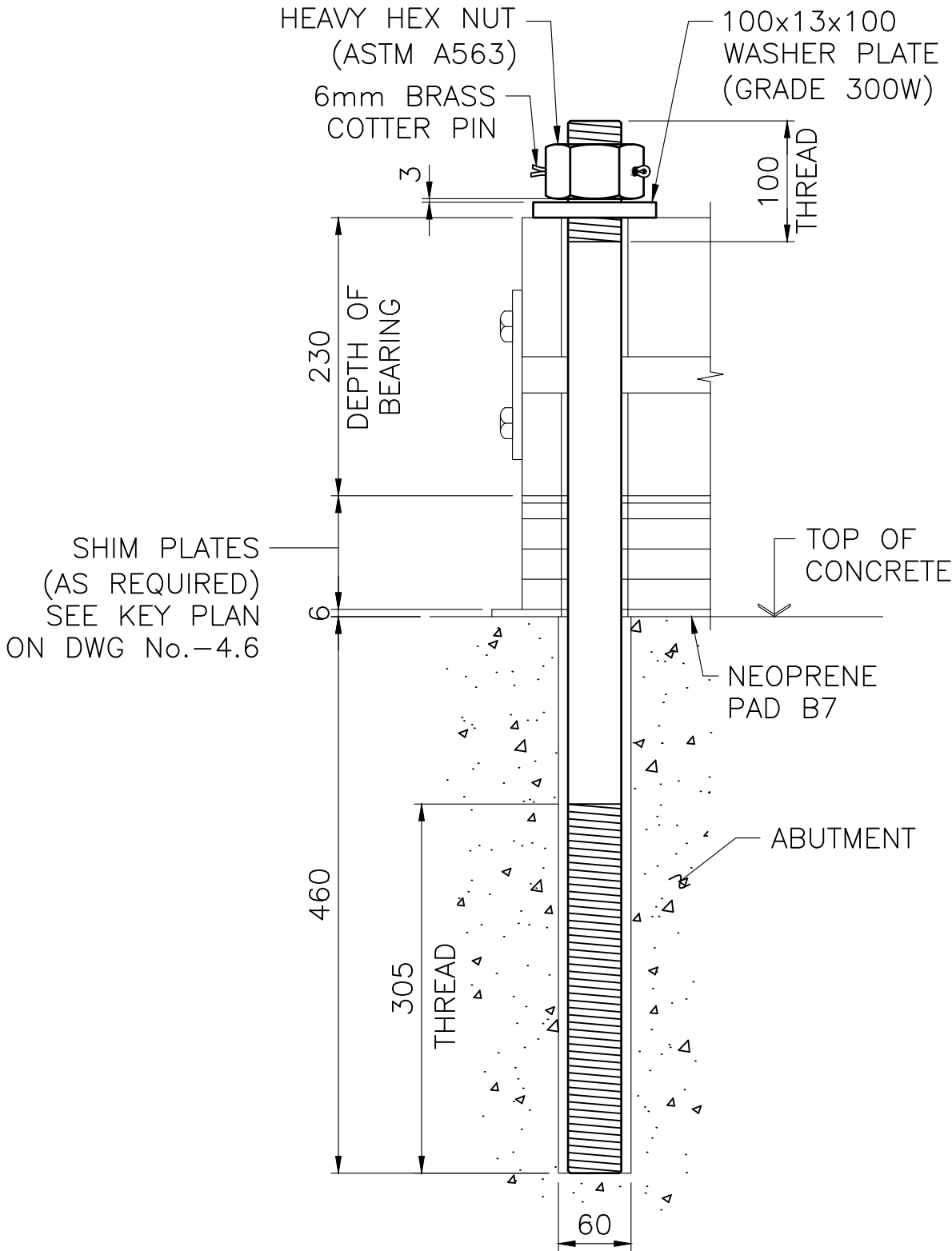
BRIDGE SUPERSTRUCTURE REPLACEMENT
30.48m DPG SPAN (SHEET 2 of 2)

DWG. BY: T.Z.	CHK BY:	OFFICE FILE:
ENGINEER:		SCALE: 1:20 (UNLESS NOTED)
		DATE: 2024/02/23
		PLAN No.
PROJECT MANAGER: A.M.		KAP-69.60-4.4



2 - EXPANSION BEARINGS - B6^R RIGHT (AS SHOWN)
2 - EXPANSION BEARINGS - B6^L LEFT (FROM SHOWN)

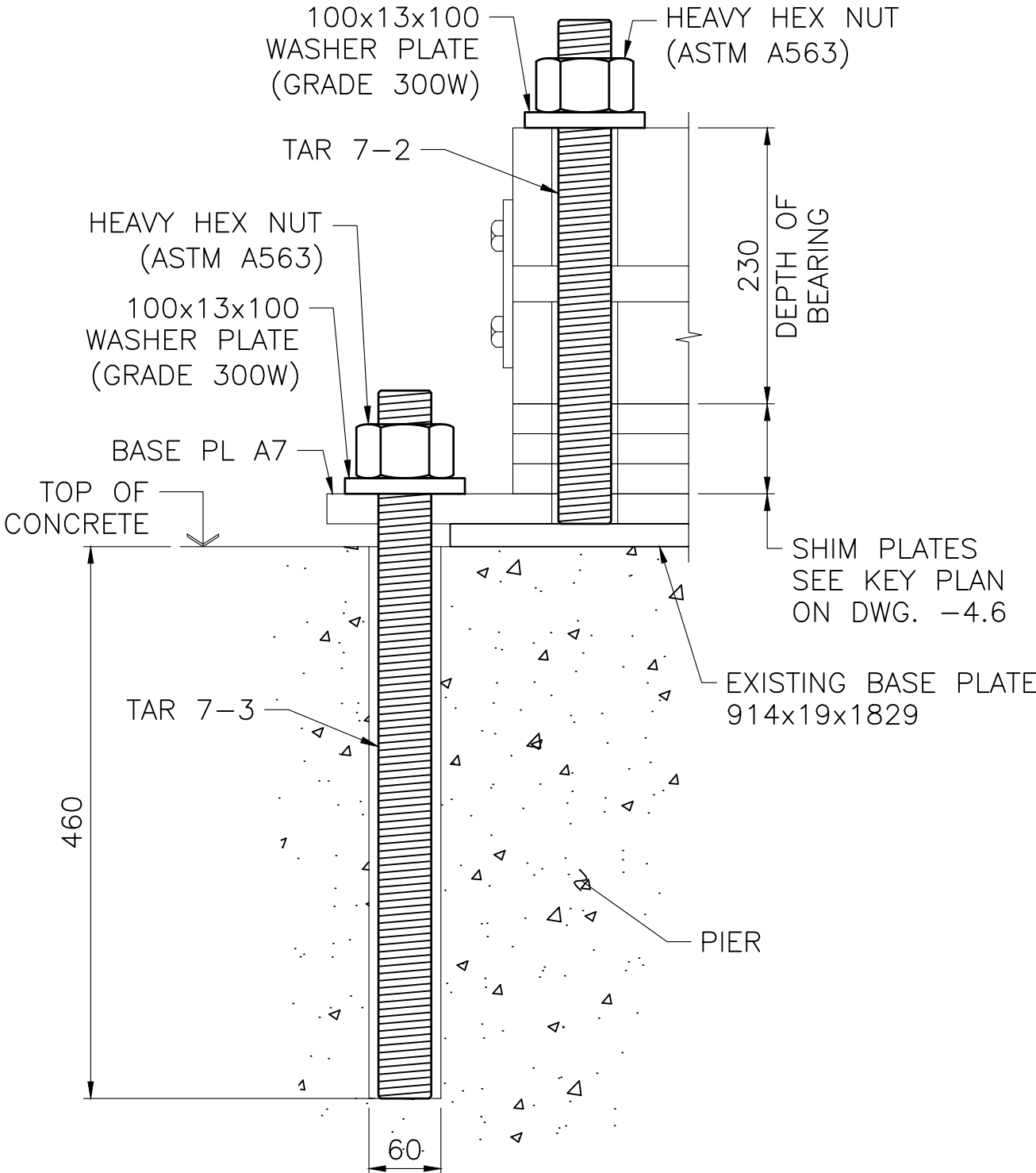
<u>NOTES:</u>							 <div>Ontario Northland</div>  <div>HATCH DOCUMENT No. H371873-0000-224-270-3001</div>	BRIDGE OVER KAPUSKASING RIVER			
								69.60 KAPUSKASING SUBDIVISION			
								BRIDGE SUPERSTRUCTURE REPLACEMENT BEARING DETAILS			
								DWG. BY: T.Z.		CHK BY:	OFFICE FILE:
								ENGINEER:		SCALE: 1:10 (UNLESS NOTED)	
										DATE: 2024/02/23	
										PLAN No.	
										KAP-69.60-4.6	
0	24/02/23	ISSUED FOR TENDER				T.Z.					
No.	DATE	REVISION				BY					



1-44mm dia.x870mm LONG
(ASTM F1554, GR 105) ANCHOR ROD
c/w 1-HEAVY HEX. NUT AND
1-100x13x100 WASHER PLATE

TEMPORARY ANCHOR ROD TAR 7-1

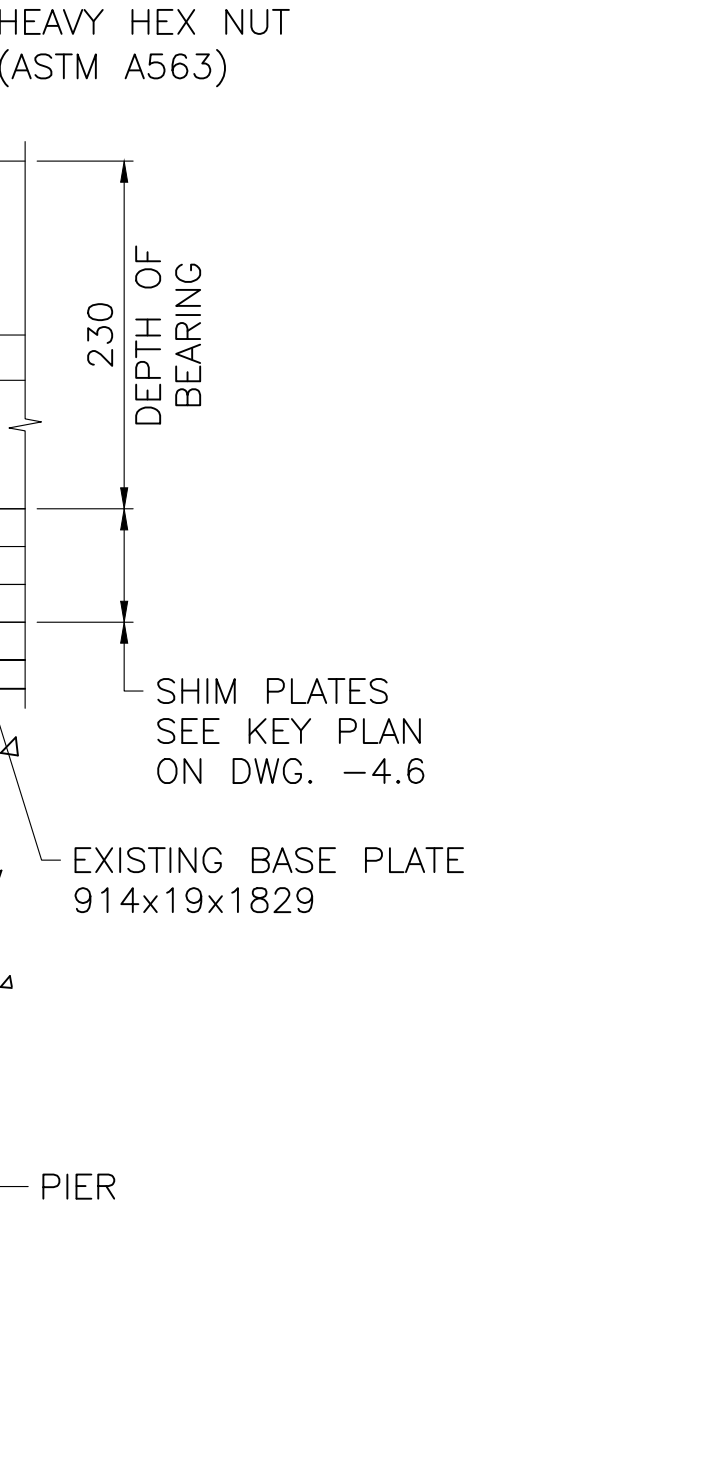
12-REQUIRED
UNIT WT: 11kg
SCALE 1:5



1-44mm dia.x590mm LONG
(ASTM F1554, GR 105) ANCHOR BOLT
c/w 1-HEAVY HEX NUT AND
1-100x13x100 WASHER PLATE

**TEMPORARY ANCHOR
ROD TAR 7-3**

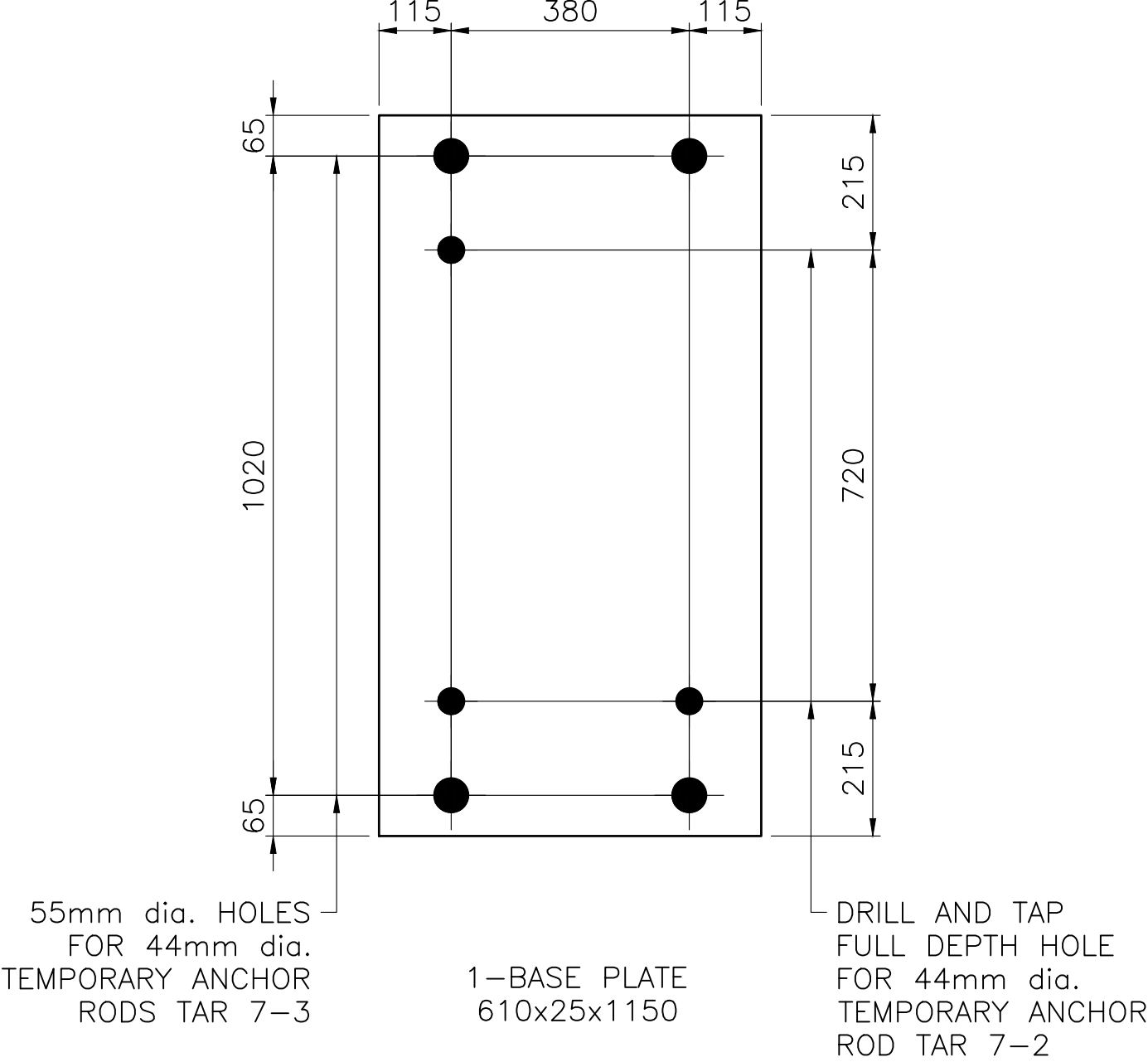
16-REQUIRED
UNIT WT: 8kg
SCALE 1:5



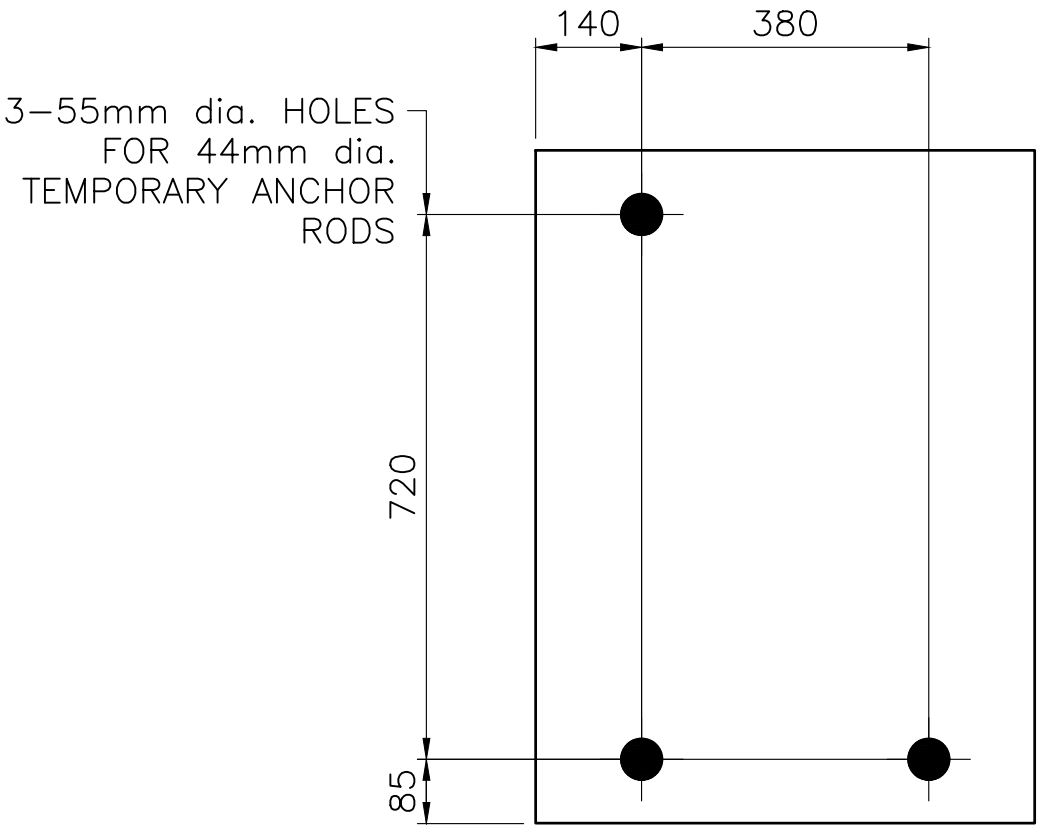
1-44mm dia.x420mm LONG
(ASTM F1554, GR 105) ANCHOR BOLT
c/w 1-HEAVY HEX NUT AND
1-100x13x100 WASHER PLATE

**TEMPORARY ANCHOR
ROD TAR 7-2**

12-REQUIRED
UNIT WT: 5kg
SCALE 1:5

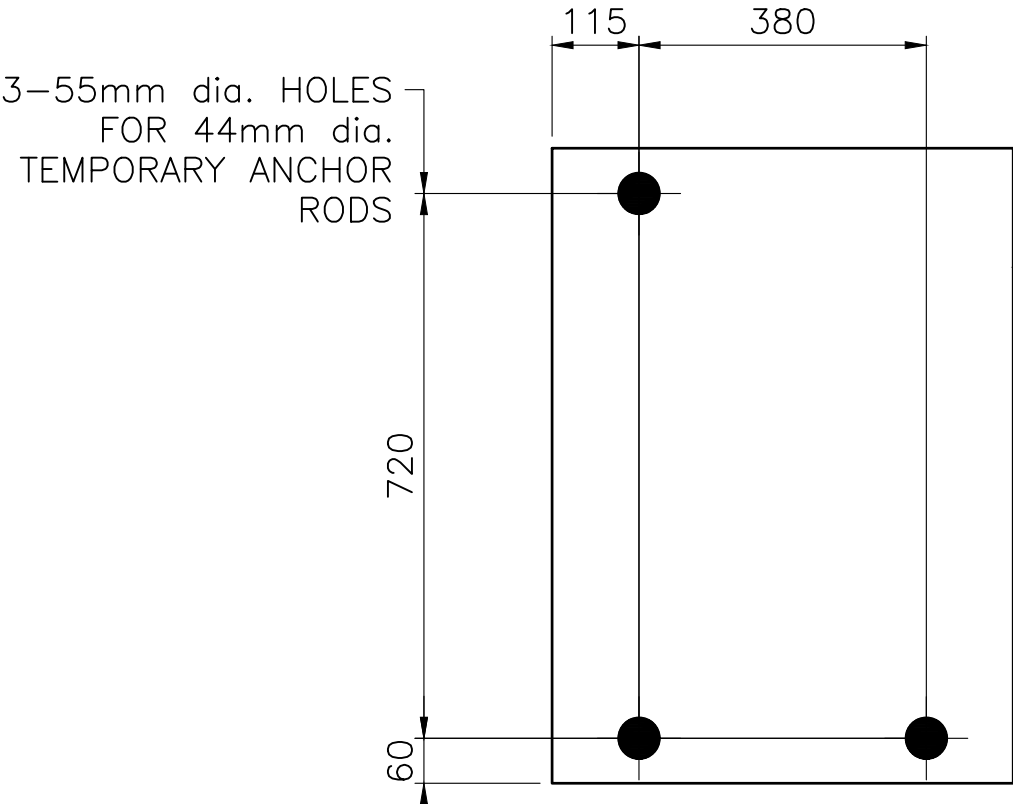


4 - A7
UNIT WT: 138kg



1-NEOPRENE PAD
660x6x890 (DUROMETER 60)

4 - B7



24 - C7

UNIT WT: 100kg

ONE - D7

UNIT WT: 52kg

6 - E7

UNIT WT: 24kg

4 - F7

UNIT WT: 12kg

NOTE:
ADDITIONAL SHIM PLATES
(3-C7; 4-E7; 3-F7)
TO BE FABRICATED FOR
ADJUSTMENT IF REQUIRED

NOTES:

- FOR GENERAL NOTES, SEE DRAWING KAP-69.60-4.2.
- READ THIS DRAWING IN CONJUNCTION WITH DRAWING KAP-69.60-4.6.

ESTIMATED QUANTITIES: (ON THIS DRAWING)

- STRUCTURAL STEEL _____ 3196 kg
- TEMPORARY ANCHOR ROD TAR 7-1 _____ 12 EACH
- TEMPORARY ANCHOR ROD TAR 7-2 _____ 12 EACH
- TEMPORARY ANCHOR ROD TAR 7-3 _____ 16 EACH

NOTES:

LEGEND:

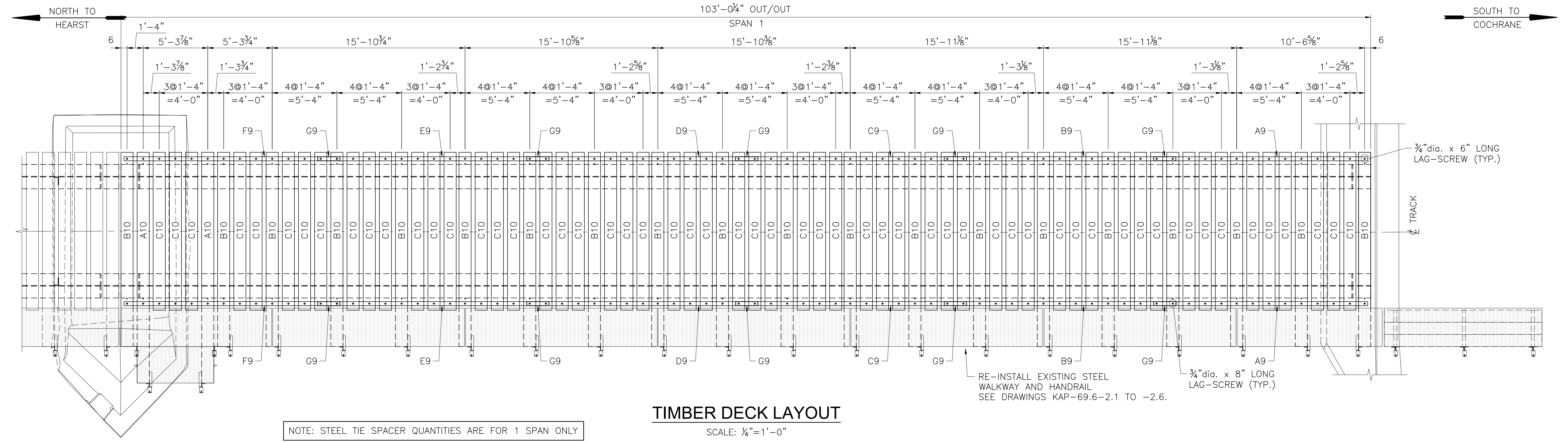


HATCH DOCUMENT No. H371873-0000-224-270-3001

BRIDGE OVER KAPUSKASING RIVER
69.60 KAPUSKASING SUBDIVISION
**BRIDGE SUPERSTRUCTURE REPLACEMENT
INTERIM BEARING DETAILS**

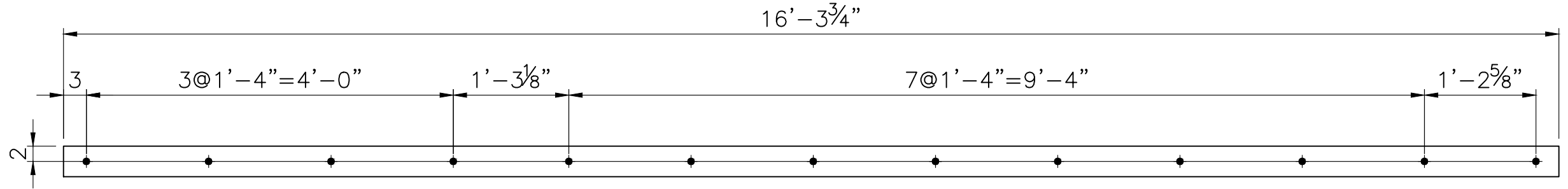
DWG. BY: T.Z. CHK BY: OFFICE FILE:
SCALE: 1:10 (UNLESS NOTED)
ENGINEER: DATE: 2024/02/23
PLAN No.
PROJECT MANAGER: A.M. **KAP-69.60-4.7**

0 24/02/23 ISSUED FOR TENDER T.Z.
No. DATE REVISION BY



TIMBER DECK LAYOUT

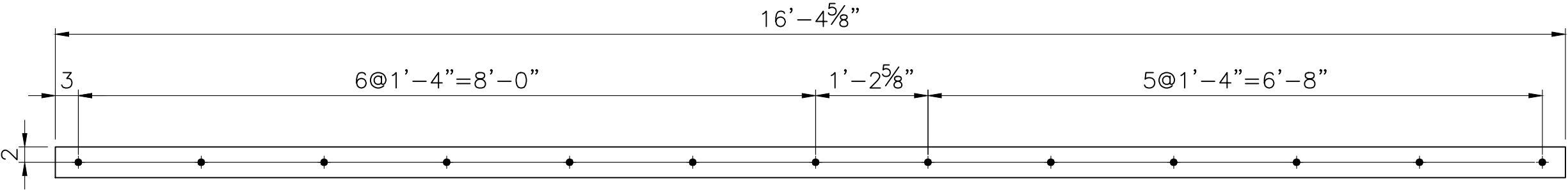
SCALE: 1/4"=1'-0"



MARK THIS END "NORTHWARD"

2 - A9

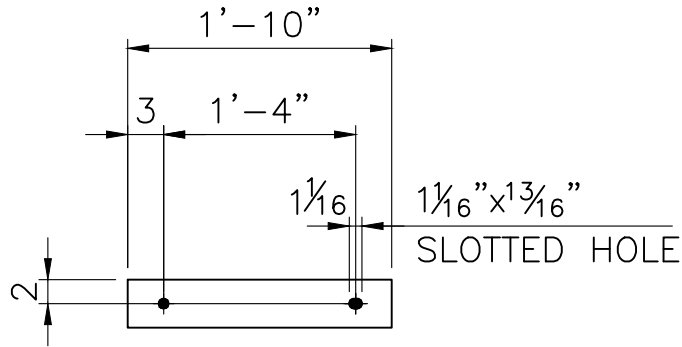
UNIT WT: 139 LBS



MARK THIS END "NORTHWARD"

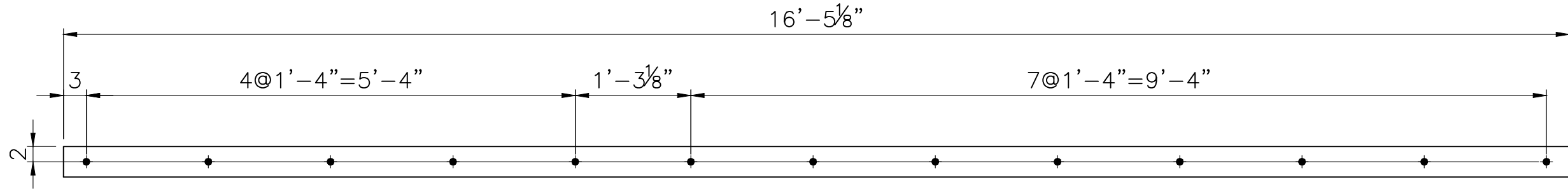
2 - D9

UNIT WT: 139 LBS



10 - G9

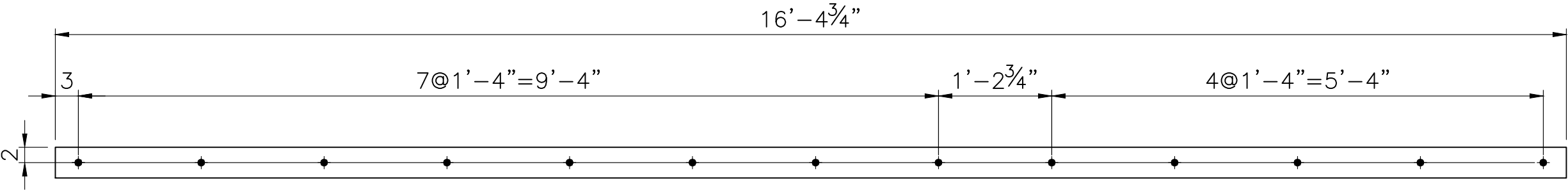
UNIT WT: 16 LBS



MARK THIS END "NORTHWARD"

2 - B9

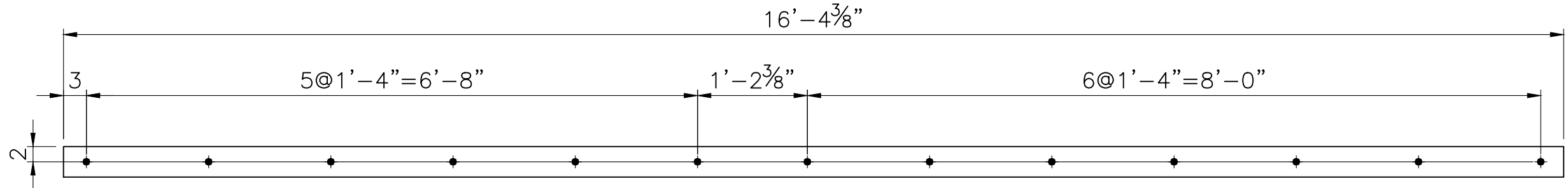
UNIT WT: 140 LBS



MARK THIS END "NORTHWARD"

2 - E9

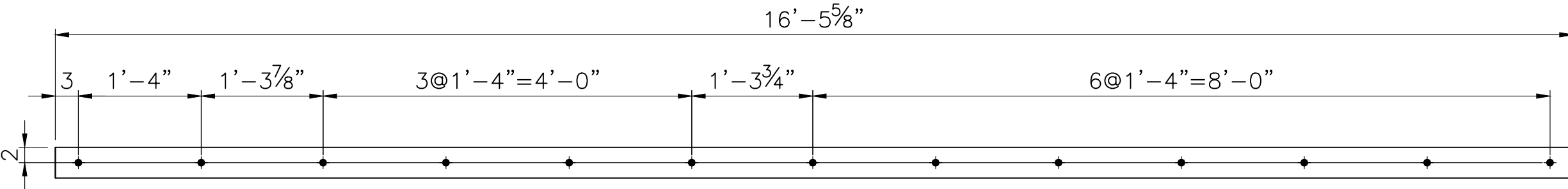
UNIT WT: 139 LBS



MARK THIS END "NORTHWARD"

2 - C9

UNIT WT: 139 LBS



MARK THIS END "NORTHWARD"

2 - F9

UNIT WT: 140 LBS

NOTES:

- FOR GENERAL NOTES, SEE DRAWING No. KAP-69.60-4.2.
- READ THIS DRAWING IN CONJUNCTION WITH DRAWING No. KAP-69.60-2.1 TO -2.6.

SPECIFICATIONS:

(FOR THE DECK ONLY)

- TIMBER: TREATED DOUGLAS FIR, CLASS L-57B NLGA 130B.
- ALL FIELD HOLES & CUTS IN TREATED TIMBER SHALL BE TREATED WITH OSMOSE COP-R-PLASTIC WOOD PRESERVING COMPOUND OR OTHER APPROVED PRESERVATION SYSTEM, DAPPING & DRILLING SHALL BE PREFERABLY BE DONE PRIOR TO TREATING.
- TREATED TIMBER SHALL BE STORED, HANDLED & FRAMED IN ACCORDANCE WITH CURRENT C.S.A. 080/AWPA M4 FOR THE HANDLING OF TREADED TIMBER. THE POINT OF PIKES, PEAVIES ETC. MUST NOT BE DRIVEN INTO SURFACES OF TREATED TIMBER.
- ALL TIES SHALL BE TREATED TIMBER, PRESERVATIVE TREATMENT OF THE TIES SHALL BE 8 LBS PER CUBIC FOOT OF CREOSOTE OR 10 LBS PER CUBIC FOOT OF 5% CREOSOTE/PETROLEUM AS PER CSA 080.2. RETENTIONS TO BE DETERMINED BY GAUGE READINGS.

NOTES:

LEGEND:



BRIDGE OVER KAPUSKASING RIVER

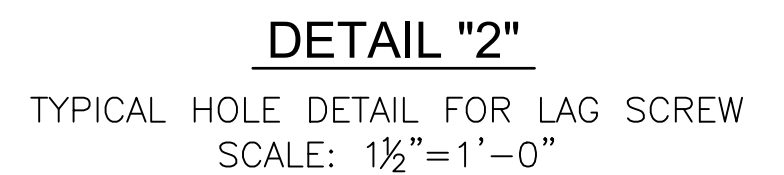
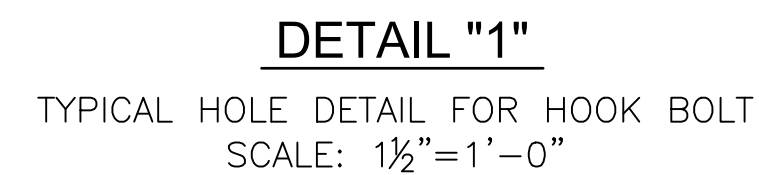
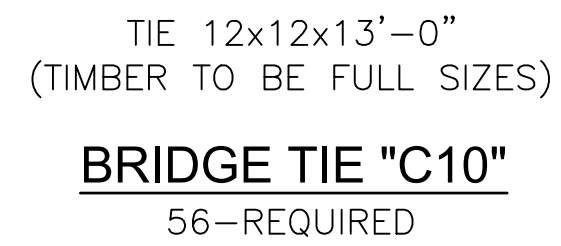
69.60 KAPUSKASING SUBDIVISION

BRIDGE SUPERSTRUCTURE REPLACEMENT
EXTRA DECK TIE DRAWINGS (1 OF 2)

DWG. BY: T.Z.	CHK BY:	OFFICE FILE:
ENGINEER:		SCALE: 3/4"=1'-0" (UNLESS NOTED)
PROJECT MANAGER: A.M.		DATE: 2024/03/12
		PLAN No. KAP-69.60-4.9

0	24/03/12	ISSUED FOR TENDER		T.Z.	
No.	DATE	REVISION		BY	

HATCH DOCUMENT No. H371873-0000-224-270-3001



NOTE: TIMBER TIE QUANTITIES SHOWN ARE FOR PRE-DECKING 1 SPAN ONLY OF 69.6 KAPUSKASING. CONTRACTOR TO DETERMINE SPAN INSTALLATION METHODOLOGY AND THEIR OWN QUANTITIES AND PROCESS TO MAXIMIZE THE RE-USE OF THE EXISTING DECK TIES AND WORK BLOCK EFFICIENCY.

NOTES:

- FOR GENERAL NOTES, SEE DRAWING No. KAP-69.60-4.2.
- READ THIS DRAWING IN CONJUNCTION WITH DRAWING No. KAP-69.60-4.9.

NOTES:

LEGEND:



HATCH DOCUMENT No. H371873-0000-224-270-3001

BRIDGE OVER KAPUSKASING RIVER

69.60 KAPUSKASING SUBDIVISION

BRIDGE SUPERSTRUCTURE REPLACEMENT
EXTRA DECK TIE DRAWINGS (2 OF 2)

DWG. BY: T.Z.	CHK BY:	OFFICE FILE:
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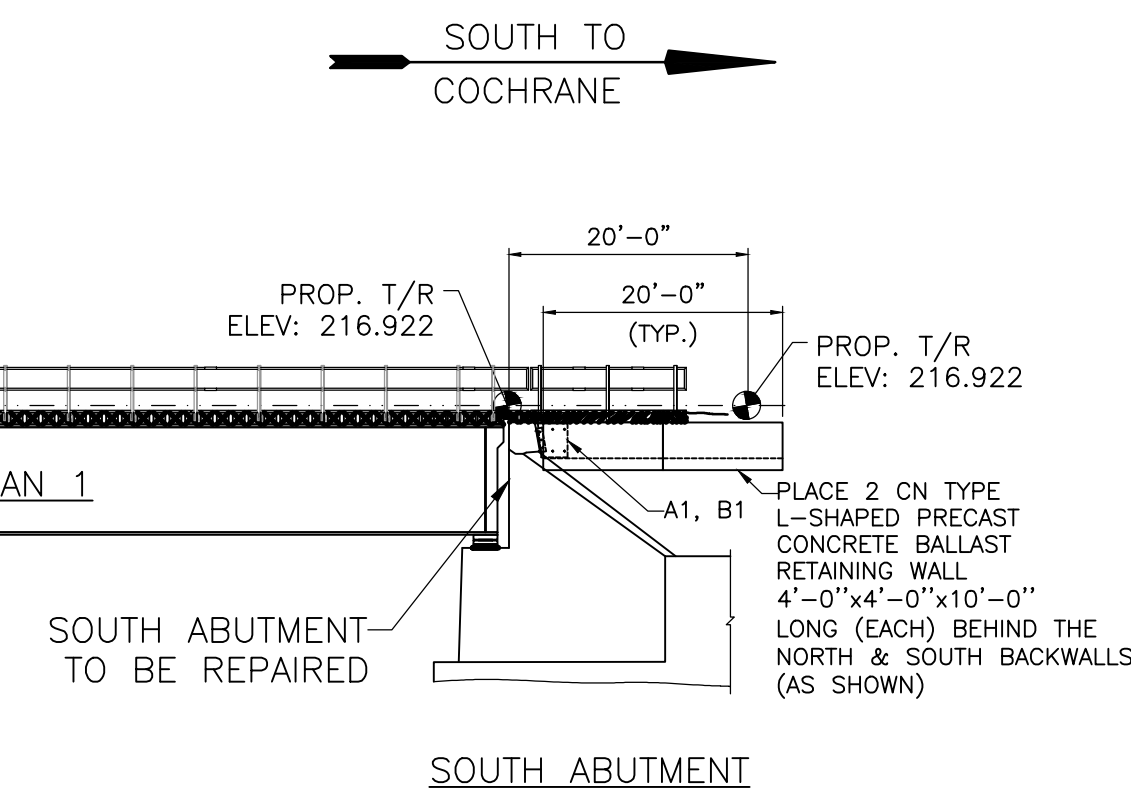
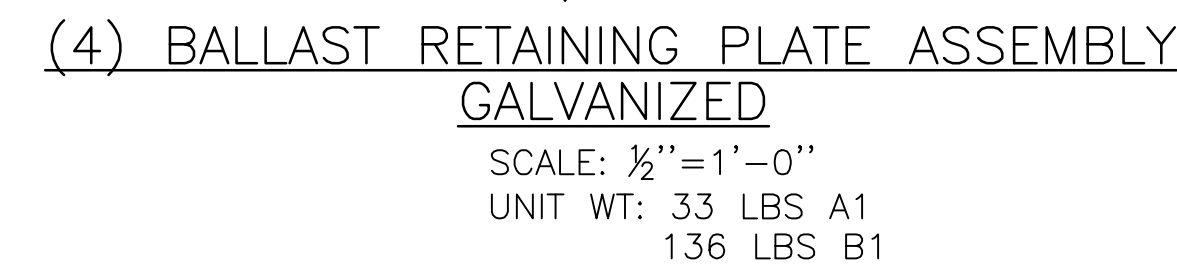
	SCALE: 3/4"=1'-0" (UNLESS NOTED)
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ENGINEER:	DATE: 2024/03/12
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PLAN No.	MA 200 00 00 00 00 00
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PROJECT MANAGER: A.M.	KAP-69.60-4.10
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69.7 Kapuskasing Contract Drawings



NOTES:	LEGEND:						  HATCH DOCUMENT No. H371873–0000–224–270–2001	BRIDGE OVER KAPUSKASING RIVER MILE 69.7 KAPUSKASING SUBDIVISION ABUTMENTS & PIER REPAIRS GENERAL ARRANGEMENT		
								DWG. BY: F.T.	CHK. BY: R.G.	OFFICE FILE:
								SCALE: 3/32"=1'-0 U.N.		
								ENGINEER: R.G.		DATE: FEBRUARY 2024
								PLAN No.		
								PROJECT MANAGER: A.M.		
								KAP-69.7-3.1		
1	03/19/2024	GENERAL REVISION – ISSUED FOR TENDER	G.F.							
0	02/16/2024	ISSUED FOR TENDER	F.T.							
No.	DATE	REVISION	BY							

- FOR GENERAL NOTES AND SPECIFICATIONS SEE DRAWING 3.1;
- THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING 3.3;
- FOR CONCRETE NOTES SEE DRAWING 3.8.
- THIS DRAWING IS BASED ON THE PROCEDURE OF REPLACING THE EXISTING STEEL SPANS BEFORE UNDERTAKING THE CONCRETE REPAIRS. IF NOT THE CASE, REVIEW WITH THE ENGINEER.

RAILWAY TRAFFIC CLOSURE

- RE-INSTALL BEARING SHIPPING PLATES;
- LIFT THE NEW SPAN ON JACKS SUCH THAT GAP JUST STARTS TO OPEN UNDER SHOE PLATES, MAXIMUM TRAVEL OF 1/2";
- INSTALL SAFETY BLOCKING UNDER JACKING BEAM TO PREVENT LOWERING;
- CUT ANCHOR BOLTS FLUSH WITH CONCRETE;
- DEMOLISH AND REMOVE EXISTING CONCRETE UNDER EACH BEARING LOCATION AS SHOWN IN "HALF SECTION OF DEMOLITION (STEP No. 1)";
- REMOVE THE TEMPORARY BEARING SHIMS;
- DRILL THE NEW ANCHOR BOLT HOLES FOR THE PEDESTALS INTO THE CONCRETE;
- CONNECT THE NEW PEDESTALS UNDER SPAN USING ANCHOR BOLTS;
- LOWER SPAN TO EXACT POSITION TO ACHIEVE BASE OF RAIL ELEVATION. AS DETERMINED BY CONTRACTOR SURVEY;
- INJECT "SIKAGROUT-428 FS CA" OR APPROVED EQUIVALENT UNDER NEW PEDESTALS;
- ALLOW FOR GROUT TO CURE;
- REMOVE BEARING SHIPPING PLATES;
- INSTALL F1554 ANCHOR BOLTS FOR PEDESTALS;
- REMOVE JACKS AND BLOCKING

RESUME TRAFFIC

- DEMOLISH AND REMOVE REMAINING CONCRETE OF BRIDGE SEAT AS SHOWN IN "HALF-SECTION OF DEMOLITION (STEP No. 2)";
- DRILL HOLES IN BRIDGE SEAT AS REQUIRED FOR REINFORCING DOWELS.



NOTE: WATER LEVEL IS APPROXIMATELY
2'-0" BELOW BEARING SEAT.
CONTRACTOR TO DETERMINE HOW
REPAIRS BELOW BEARING SEAT ARE
TO BE CARRIED OUT WITH EITHER
DIVERS OR WATER DISPLACING
COFFERDAMS OR OTHER REVIEWED
METHOD.

LEGEND:

NOTES:

1	03/19/2024	GENERAL REVISION – ISSUED FOR TENDER	G.
0	02/16/2024	ISSUED FOR TENDER	F.
No.	DATE	REVISION	



HATCH DOCUMENT No. H371873-0000-224-270-2002

BRIDGE OVER KAPUSKASING RIVER

MILE 69.7 KAPUSKASING SUBDIVISION

CONCRETE DEMOLITION
SOUTH ABUTMENT BRIDGE SEAT

DWG. BY: F.T.	CHK BY: R.G.	OFFICE FILE:
ENGINEER: R.G.		SCALE: 1/4"=1'-0" U.N.O.
PROJECT MANAGER: A.M.		DATE: FEBRUARY 2024 PLAN No. KAP-69.7-3.2

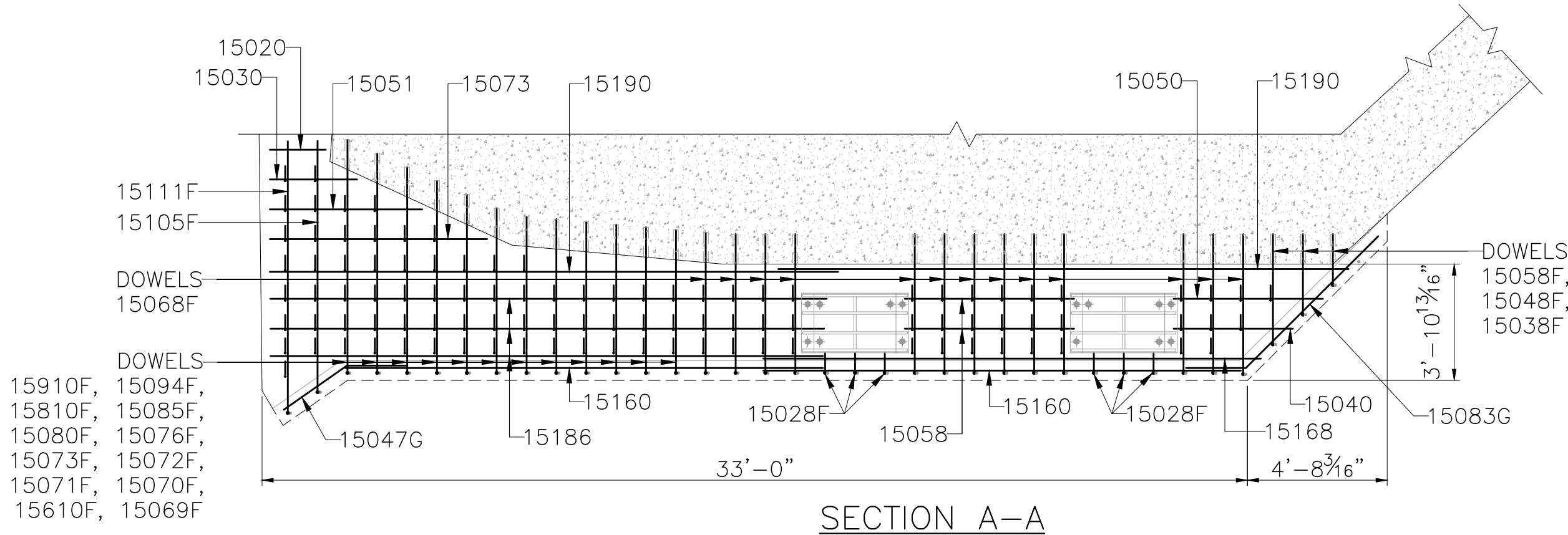
MILE 69.7 REINFORCING BAR LIST SOUTH ABUTMENT BRIDGE SEAT								
QTY	SIZE	MARK	LENGTH	A	B	H	V	WEIGHT LBS
109	15M	15036F	3'-6"	6"	3'-0"			402.5
3	15M	15047G	4'-7"	2'-7"	2'-0"			14.5
3	15M	15083G	8'-3"	6'-3"	2'-0"			26.1
13	15M	15068F	6'-8"	2'-0"	4'-8"			91.4
1	15M	15058F	5'-8"	2'-0"	3'-8"			6.0
1	15M	15048F	4'-2"	2'-0"	2'-8"			4.4
1	15M	15038F	3'-8"	2'-0"	1'-8"			3.9
1	15M	15111F	11'-1"	2'-0"	9'-1"			11.7
1	15M	15105F	10'-5"	2'-0"	8'-5"			11.0
1	15M	15910F	9'-10"	2'-0"	7'-10"			10.4
1	15M	15094F	8'-4"	2'-0"	7'-4"			8.8
1	15M	15810F	8'-10"	2'-0"	6'-10"			9.3
1	15M	15085F	8'-5"	2'-0"	6'-5"			8.9
1	15M	15080F	8'-0"	2'-0"	6'-0"			8.4
1	15M	15076F	7'-6"	2'-0"	5'-6"			7.9
1	15M	15073F	7'-3"	2'-0"	5'-3"			7.6
1	15M	15072F	7'-2"	2'-0"	5'-2"			7.6

CONTINUATION...

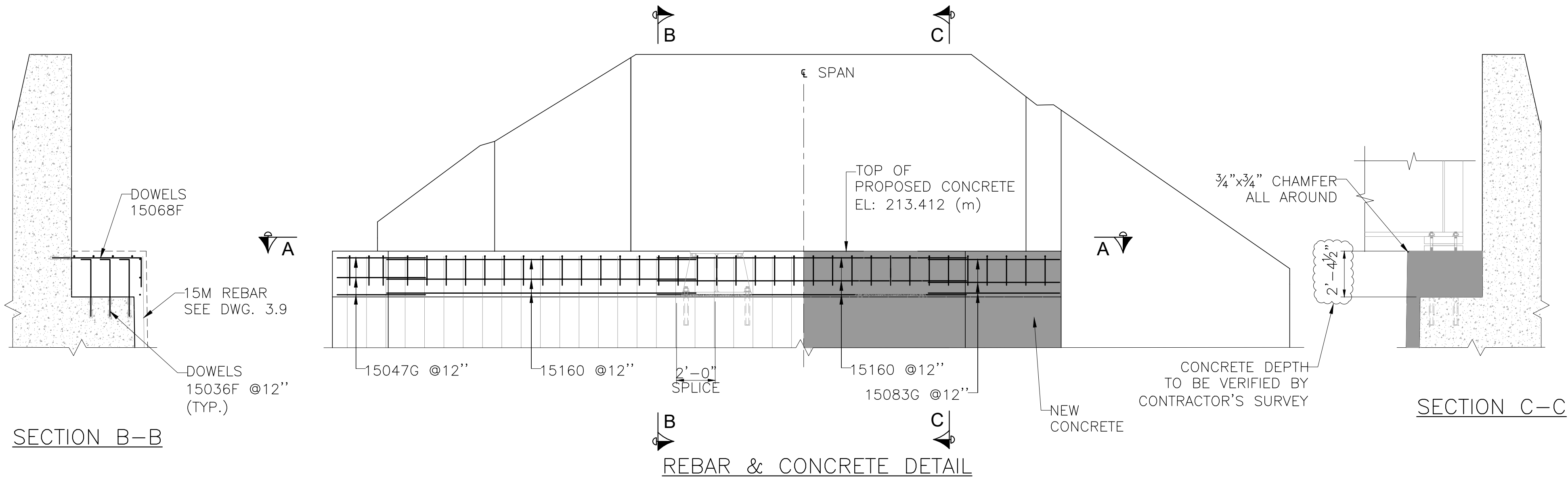
1	15M	15071F	7'-1"	2'-0"	5'-1"			7.5
1	15M	15070F	7'-0"	2'-0"	5'-0"			7.4
1	15M	15610F	6'-10"	2'-0"	4'-10"			7.2
1	15M	15069F	6'-9"	2'-0"	4'-9"			7.1
6	15M	15028F	2'-8"	2'-0"	8"			16.9
2	15M	15190	19'-0"	STRAIGHT BARS				40.1
1	15M	15050	5'-0"					5.3
1	15M	15040	4'-0"					4.2
1	15M	15168	16'-8"					17.6
6	15M	15160	16'-0"					101.3
2	15M	15058	5'-8"					12.0
3	15M	15186	18'-6"					58.6
1	15M	15073	7'-3"					7.6
1	15M	15051	5'-1"					5.4
1	15M	15030	3'-0"					3.2
1	15M	15020	2'-0"					2.1
171	TOTAL REINFORCING STEEL ON THIS TABLE							943.7

ALL DIMENSIOS ARE OUT TO OUT OF BARS

ALL BARS ARE SPACED AT 12" C/C IN ALL DIRECTIONS U.N.O.



SECTION A-A



REBAR & CONCRETE DETAIL

NOTES:

- FOR GENERAL NOTES AND SPECIFICATIONS SEE DRAWING 3.1;
- THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING 3.2;
- FOR CONCRETE NOTES SEE DRAWING 3.8;
- POUR CONCRETE FOR ABUTMENT AND ABUTMENT BRIDGE SEAT CONSECUTIVELY. SEE DRAWING 3.12;
- CONTRACTOR SHALL CONFIRM ALL DIMENSIONS ON SITE WITH THE ENGINEER PRIOR TO COMMENCING WORK.

PROCEDURE:

- DRILL HOLES DIAMETER AS REQUIRED FOR 15M DOWELS;
- AIR BLAST HOLES CLEAN BEFORE INSTALLING DOWELS;
- INSTALL DOWELS USING "SIKAGROUT 212" OR APPROVED EQUIVALENT;
- INSTALL ALL REINFORCING BARS AS SHOWN IN "HALF SECTION OF REBAR (STEP No.3)";
- BEFORE INSTALLING FORMWORK, REMOVE LOOSE CONCRETE AND/OR DEBRIS USING OIL FREE COMPRESSED AIR OR LIGHT SANDBLAST;
- APPLY TWO COATS OF "SKIATOP ARMATEC 110 EPOCEM" OR EQUIVALENT TO ALL REINFORCING STEEL;
- INSTALL FORMWORK AS REQUIRED, SEE "HALF SECTION OF CONCRETE (STEP No.4)";
- JUST BEFORE POUR, WET CONCRETE SUBSTRATE TO OBTAIN A SATURATED SURFACE AND REMOVE EXCESS WATER;

RAILWAY TRAFFIC CLOSURE

- POUR CONCRETE AS SPECIFIED;
- ALLOW FOR INITIAL SETTING OF NEW CONCRETE;

RESUME TRAFFIC

- ALLOW FOR FINAL CURING OF NEW CONCRETE;
- APPLY SEALANT "SIKAGARD A50" OR EQUIVALENT AS PER MANUFACTURER'S RECOMMENDATIONS ONCE THE CURING PROCESS IS COMPLETED.

QUANTITIES: (ON THIS DRAWING)

- CONCRETE REMOVAL _____ \approx 332 ft³
- REINFORCING STEEL _____ 918 LBS
- CAST IN PLACE CONCRETE _____ \approx 374 ft³
- SIKAGARD A50 _____ \approx 285 ft²

NOTES:

LEGEND:

1	03/19/2024	GENERAL REVISION - ISSUED FOR TENDER	G.F.		
0	02/16/2024	ISSUED FOR TENDER	F.T.		
No.	DATE	REVISION	BY		



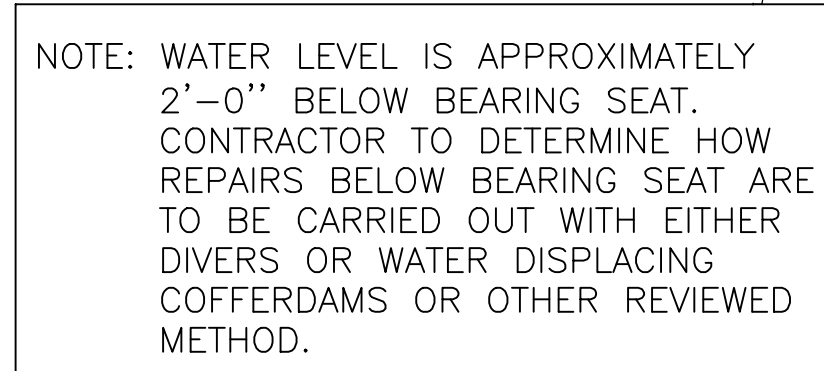
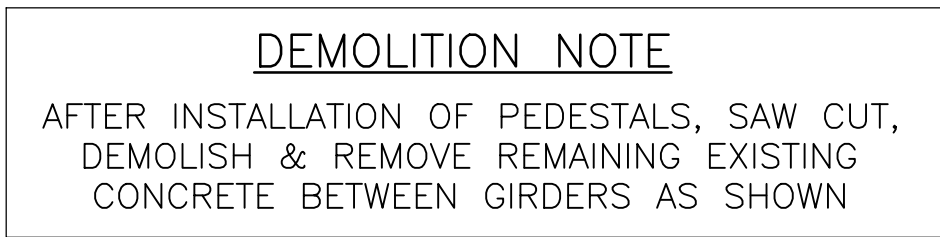
HATCH DOCUMENT No. H371873-0000-224-270-2003



BRIDGE OVER KAPUSKASING RIVER
MILE 69.7 KAPUSKASING SUBDIVISION

REBARS & CONCRETE
SOUTH ABUTMENT BRIDGE SEAT

DWG. BY: F.T.	CHK BY: R.G.	OFFICE FILE:
		SCALE: 1/4"=1'-0" U.N.O.
ENGINEER: R.G.		DATE: FEBRUARY 2024
		PLAN No. KAP-69.7-3.3
PROJECT MANAGER: A.M.		

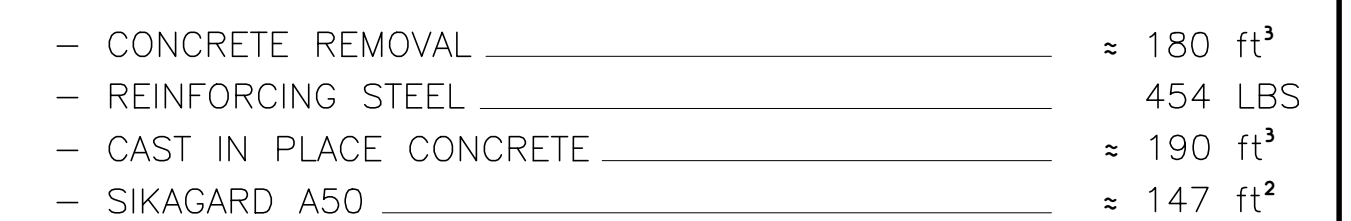
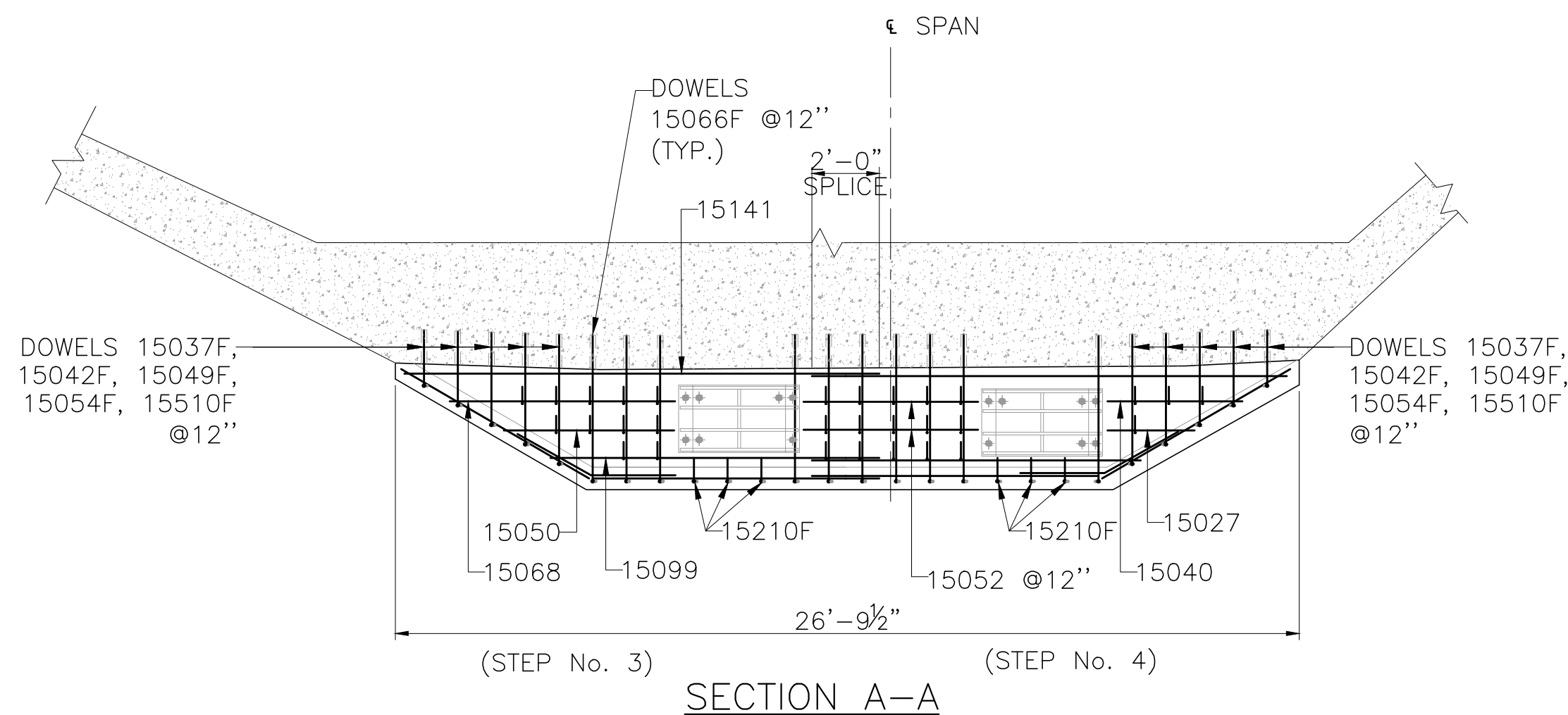
- FOR GENERAL NOTES AND SPECIFICATIONS SEE DRAWING 3.1;
- THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING 3.5;
- FOR CONCRETE NOTES SEE DRAWING 3.8;
- FOR PROCEDURE SEE DRAWING 3.2;
- THIS DRAWING IS BASED ON THE PROCEDURE OF REPLACING THE EXISTING STEEL SPANS BEFORE UNDERTAKING THE CONCRETE REPAIRS. IF NOT THE CASE, REVIEW WITH THE ENGINEER.



NOTES:	LEGEND:							  HATCH DOCUMENT No. H371873-0000-224-270-2004	BRIDGE OVER KAPUSKASING RIVER		
									MILE 69.7 KAPUSKASING SUBDIVISION		
									CONCRETE DEMOLITION		
									NORTH ABUTMENT BRIDGE SEAT		
									DWG. BY: F.T.	CHK BY: R.G.	OFFICE FILE:
									SCALE: 1/4"=1'-0" U.N.O.		
									DATE: FEBRUARY 2024		
									PLAN No. KAP-69.7-3.4		
									PROJECT MANAGER: A.M.		
1	03/19/2024	GENERAL REVISION — ISSUED FOR TENDER	G.F.								
0	02/16/2024	ISSUED FOR TENDER	F.T.								
No.	DATE	REVISION	BY								

- FOR GENERAL NOTES AND SPECIFICATIONS SEE DRAWING 3.1;
- THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING 3.4;
- FOR CONCRETE NOTES SEE DRAWING 3.8;
- POUR CONCRETE FOR ABUTMENT AND ABUTMENT BRIDGE SEAT CONSECUTIVELY. SEE DRAWING 3.9;
- FOR PROCEDURE SEE DRAWING 3.3.

ALL DIMENSIOIS ARE OUT TO OUT OF BARS
ALL BARS ARE SPACED AT 12" C/C IN ALL DIRECTIONS U.N.O.



LEGEND:

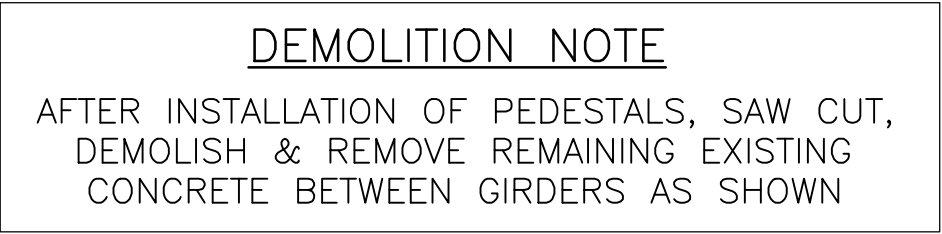


Ontario Northland

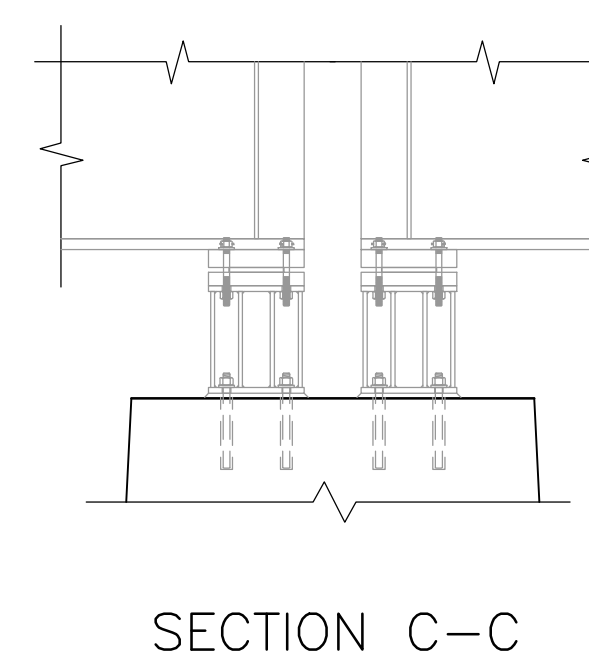


HATCH DOCUMENT No.
H371873-0000-224-270-2005

BRIDGE OVER KAPUSKASING RIVER <i>MILE 69.7 KAPUSKASING SUBDIVISION</i> <i>REBARS & CONCRETE</i> <i>NORTH ABUTMENT BRIDGE SEAT</i>		
DWG. BY: F.T.	CHK BY: R.G.	OFFICE FILE:
		SCALE: 1/4"=1'-0" U.N.O.
ENGINEER: R.G.	DATE: FEBRUARY 2024	
PROJECT MANAGER: A.M.		PLAN No. KAP-69.7-3.5



- FOR GENERAL NOTES AND SPECIFICATIONS SEE DRAWING 3.1;
- THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING 3.7;
- FOR CONCRETE NOTES SEE DRAWING 3.8;
- FOR PROCEDURE SEE DRAWING 3.2;
- CONTRACTOR SHALL CONFIRM ALL DIMENSIONS ON SITE WITH THE ENGINEER PRIOR TO COMMENCING WORK.



NOTES:			
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LEGEND:

HATCH DOCUMENT No. H371873-0000-224-270-2006

No.	DATE	REVISION	BY
1	03/19/2024	GENERAL REVISION – ISSUED FOR TENDER	G.F.
0	02/16/2024	ISSUED FOR TENDER	F.T.

BRIDGE OVER KAPUSKASING RIVER
MILE 69.7 KAPUSKASING SUBDIVISION

CONCRETE DEMOLITION
PIER 1 & 2 BRIDGE SEATS

DWG. BY: F.T.	CHK BY: R.G.	OFFICE FILE:
ENGINEER: R.G.		SCALE: 1/4"=1'-0" U.N.O. DATE: FEBRUARY 2024 PLAN No. KAP-69.7-3.6
PROJECT MANAGER: A.M.		

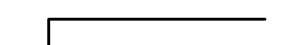
- FOR GENERAL NOTES AND SPECIFICATIONS SEE DRAWING 3.1;
- THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING 3.6;
- FOR CONCRETE NOTES SEE DRAWING 3.8;
- POUR CONCRETE FOR ABUTMENT AND ABUTMENT BRIDGE SEAT CONSECUTIVELY. SEE DRAWING 3.15;
- FOR PROCEDURE SEE DRAWING 3.3.



AFTER INSTALLATION OF PEDESTALS, SAW CUT,
DEMOLISH & REMOVE REMAINING EXISTING
CONCRETE BETWEEN GIRDERS AS SHOWN



- CONCRETE REMOVAL _____	≈ 378 ft ³
- REINFORCING STEEL _____	1090 LBS
- CAST IN PLACE CONCRETE _____	≈ 462 ft ³
- SIKAGARD A50 _____	≈ 347 ft ²

ALL DIMENSIOS ARE OUT TO OUT OF BARS
ALL BARS ARE SPACED AT 12" C/C IN ALL DIRECTIONS U.N.O.
 <p><u>TYPE "F"</u></p>

LEGEND:

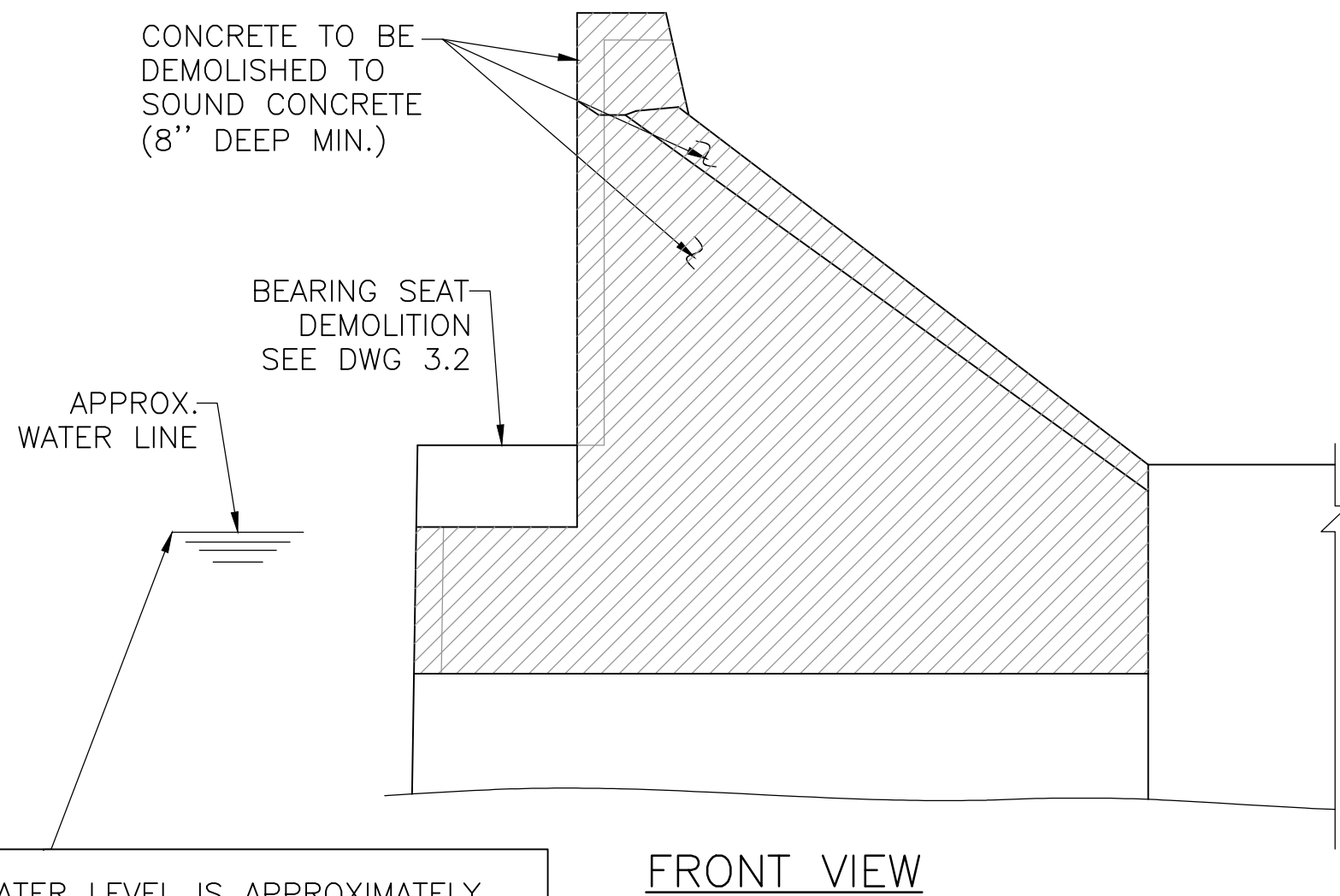
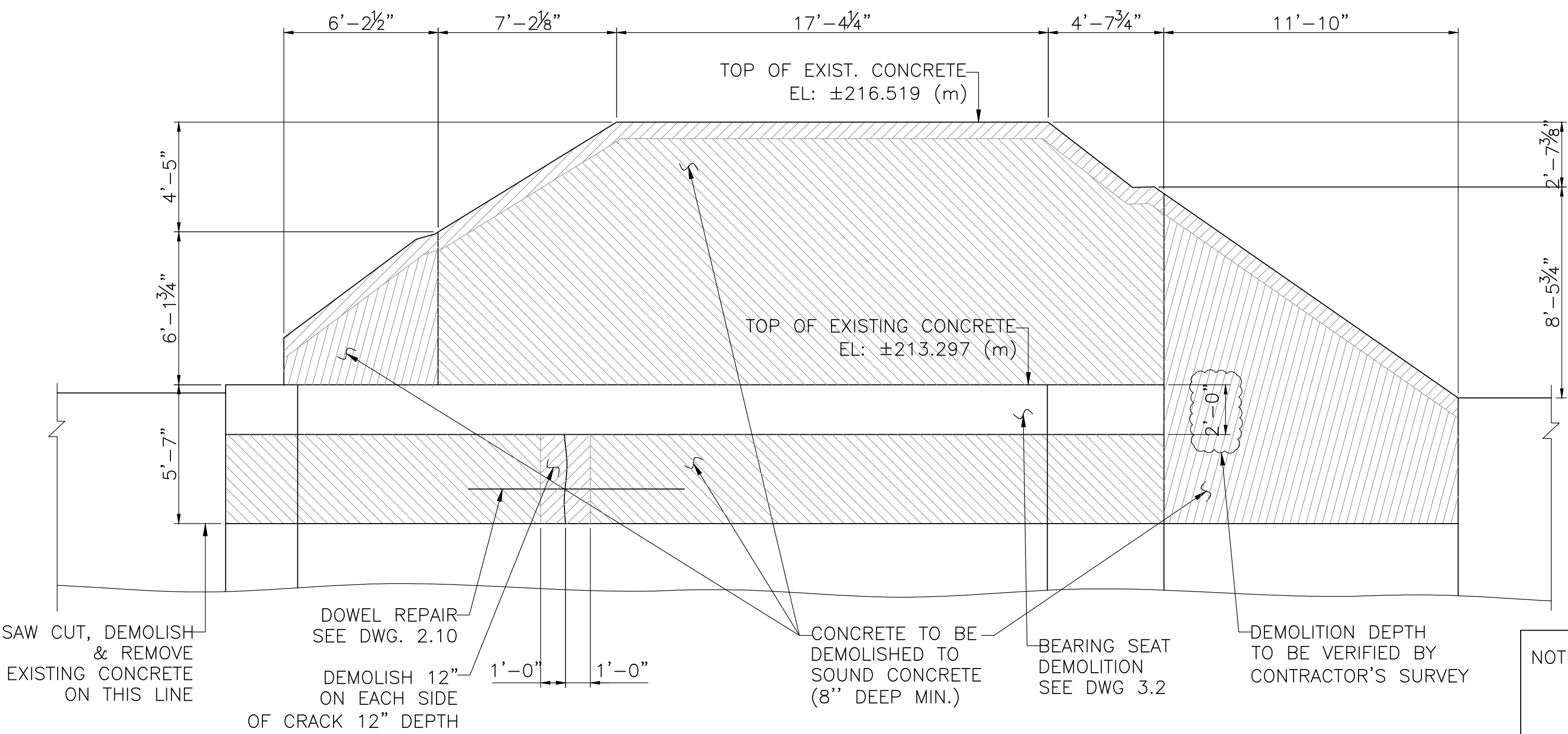
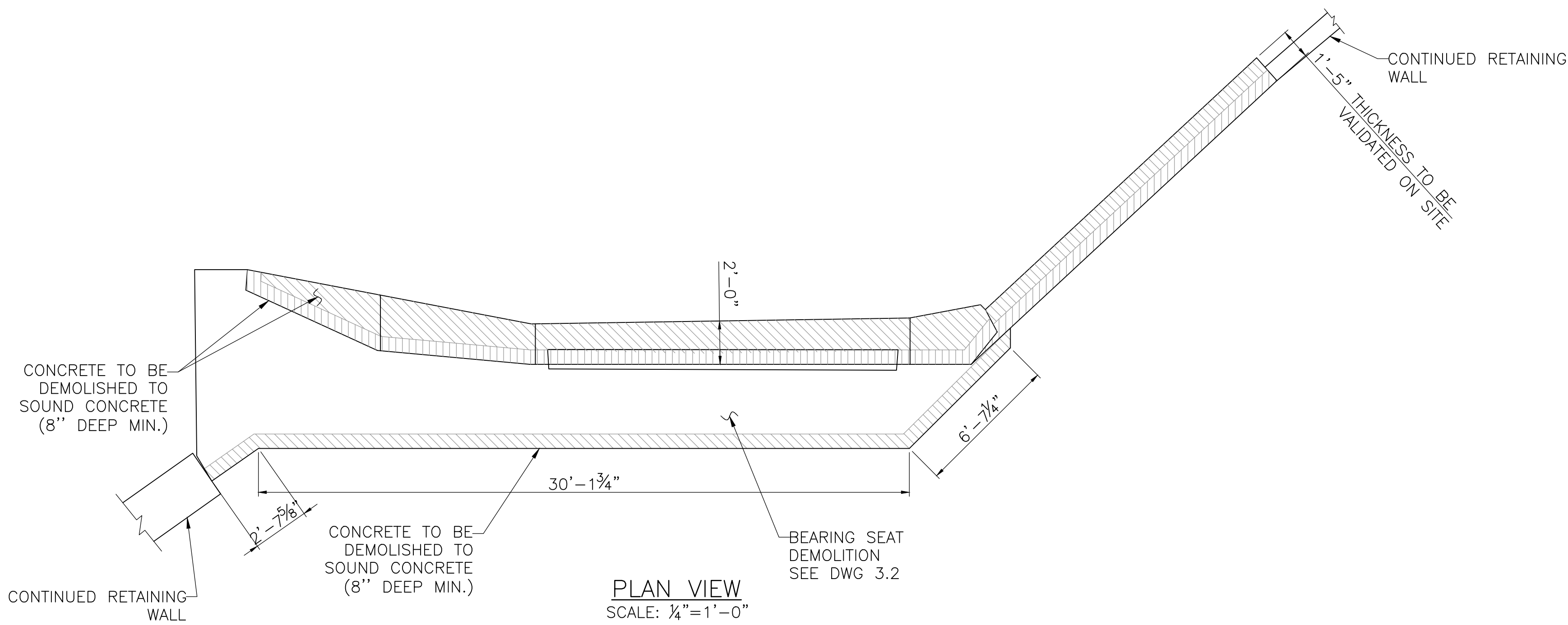
1	03/19/2024	GENERAL REVISION – ISSUED FOR TENDER	G.F.
0	02/16/2024	ISSUED FOR TENDER	F.T.
No.	DATE	REVISION	BY



HATCH DOCUMENT No. H371873-0000-224-270-2007

REBARS & CONCRETE
PIER 1 & 2 BRIDGE SEATS

DWG. BY: F.T.	CHK BY: R.G.	OFFICE FILE:
		SCALE: 1/4"=1'-0" U.N.O.
ENGINEER: R.G.		DATE: FEBRUARY 2024
PROJECT MANAGER: A.M.		PLAN No. KAP-69.7.-3.7



NOTE: WATER LEVEL IS APPROXIMATELY 2'-0" BELOW BEARING SEAT. CONTRACTOR TO DETERMINE HOW REPAIRS BELOW BEARING SEAT ARE TO BE CARRIED OUT WITH EITHER DIVERS OR WATER DISPLACING COFFERDAMS OR OTHER REVIEWED METHOD.

NOTES:

- FOR GENERAL NOTES AND SPECIFICATIONS SEE DRAWING No. 3.1;
- THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING 3.9;
- ABUTMENT DIMENSIONS ARE APPROXIMATE AND TO BE VERIFIED ON SITE BY CONTRACTOR PRIOR TO FABRICATION & CONSTRUCTION;
- FOR REINFORCING SEE DWG. 3.9;
- CONTRACTOR TO INSPECT WINGWALL AND VERIFY IF IT CONTINUES BEHIND DAM SPILLWAY.

CONCRETE NOTES :

- CONCRETE REPAIRS SHOWN ARE FOR ALL EXPOSED CONCRETE ABOVE WATER LEVEL. CONTRACTOR SHALL CONFIRM ALL DIMENSIONS ON SITE WITH THE ENGINEER PRIOR TO COMMENCING WORK;
- ALL DEMOLITION SHALL BE CARRIED OUT USING 15 lb. JACKHAMMERS OR CHIPPING HAMMER;
- IN AREAS WHERE THE CONCRETE HAS ALREADY SCALED OR SPALLED TO A DEPTH GREATER THAN 8" THE CONTRACTOR SHALL ONLY REMOVE ALL LOOSE AND UNSOUND CONCRETE AS DESIGNATED BY THE ENGINEER;
- CLASS OF CONCRETE TO BE C-1 AS PER CSA -A23.1 (LATEST EDITION), 35 MPa AT 28 DAYS;
- REINFORCING STEEL SHALL BE NEW BILLET STEEL GRADE 400 MPa, MEETING THE REQUIREMENT OF CSA STANDARD CAN/CSA G30.18-13;
- ALL REINFORCEMENT SHALL HAVE A MINIMUM 3" CONCRETE COVER;
- ALL EXPOSED EDGES, UNLESS OTHERWISE INDICATED, SHALL BE GIVEN A 3/4" x 3/4" CHAMFERS;
- ALL CONCRETE SHALL BE WET CURED FOR A MINIMUM OF SEVEN (7) DAYS FOLLOWING INITIAL SET UP OR ALTERNATIVELY, USE "W.R. MEADOWS 1220" WHITE PIGMENTED CURING COMPOUND OR EQUIVALENT;
- FINISH THE NEW CONCRETE SURFACE, AFTER THE CURING PERIOD, WITH "SIKAGARD A50" OR EQUIVALENT;
- ALL CEMENTITIOUS GROUT SHALL BE SIKAGROUT 212 OR APPROVED EQUAL;
- CRACKS IN CONCRETE SHALL BE REPAIRED BY EPOXY INJECTION USING SIKADUR 35 HI-MOD LV. PRODUCT SHALL BE PRESSURE INJECTED AS PER MANUFACTURERS GUIDLINES;
- SIDES OF NEW CONCRETE EXPOSED TO SOIL SHALL RECEIVE BAKOR 700-01 OR BAKOR 710-11 DAMP-PROOFING.

GENERAL REPAIR PROCEDURE :

- SAW CUT 3/4" DEEP ALL AROUND AND PERPENDICULAR TO THE SURFACE;
- USING A 15 LB JACKHAMMER CHIP CONCRETE SUBSTRATE TO SOUND CONCRETE OR TO A MINIMUM DEPTH OF 8", TO ACHIEVE A UNIFORM SURFACE AND PERPENDICULAR FACES ON THE PERIMETER. HEAVIER CHIPPING EQUIPMENT SHALL BE USED ONLY WITH THE APPROVAL OF THE ENGINEER;
- DRILL 1 1/2" DIA x 12" DEEP HOLES FOR 15M DOWELS
- NOTE: SPECIAL PRECAUTION SHOULD BE TAKEN WHEN DRILLING THE DOWELS AT THE TOP 5 FEET OF THE WING WALLS SO AS TO NOT DRILL THROUGH THE WALL. IF ON-SITE MEASUREMENTS AND INSPECTION ARE DIFFERENT THAN SHOWN IN THIS DRAWING, NOTIFY ENGINEER FOR INSTRUCTIONS BEFORE COMMENCING WORK;
- AIR BLAST ALL HOLES CLEAN BEFORE INSTALLING DOWELS;
- INSTALL DOWELS USING "SIKAGROUT 212" OR APPROVED EQUIVALENT;
- INSTALL ALL ADDITIONAL REINFORCING BARS;
- BEFORE INSTALLING FORMWORK REMOVE LOOSE CONCRETE AND / OR DEBRIS USING OIL FREE COMPRESSED AIR OR LIGHT SANDBLAST;
- APPLY TWO COATS OF "SIKATOP ARMATEC 110 EPOCEM" OR EQUIVALENT TO ALL REINFORCING STEEL;
- INSTALL ALL FORMWORK AS REQUIRED TO ACHIEVED THE DETAILED GEOMETRY LIMITS;
- JUST BEFORE CONCRETE POUR, WET CONCRETE SUBSTRATE TO OBTAIN A SATURATED SURFACE AND REMOVE EXCESS WATER;
- CURE CONCRETE FOR A MINIMUM OF FIVE (5) DAYS BY WET CURING PROCESS;
- APPLY SEALANT "SIKAGARD A50" OR EQUIVALENT AS PER MANUFACTURERS RECOMMENDATIONS ONCE THE CURING PROCESS IS COMPLETED.

NOTES:

LEGEND:

1	03/19/2024	GENERAL REVISION - ISSUED FOR TENDER	G.F.		
0	02/16/2024	ISSUED FOR TENDER	F.T.		
No.	DATE	REVISION	BY		



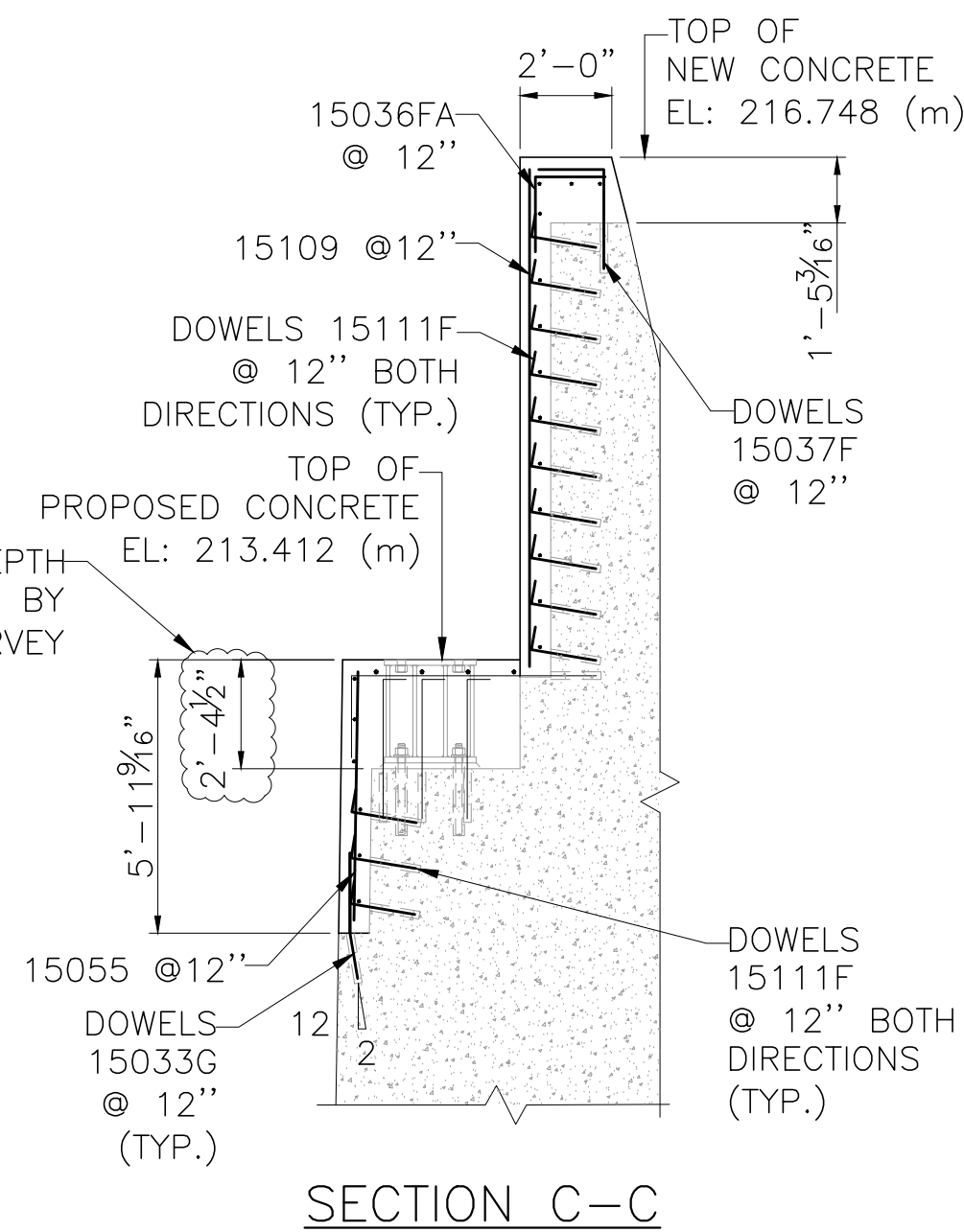
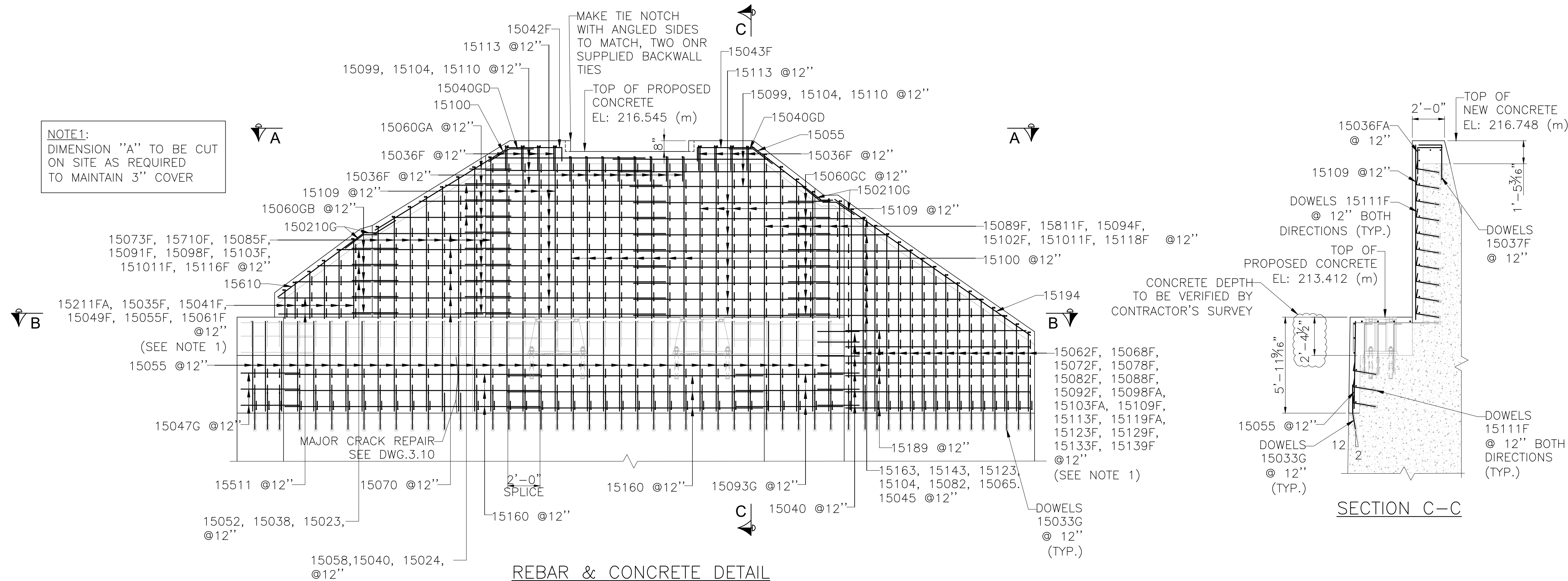
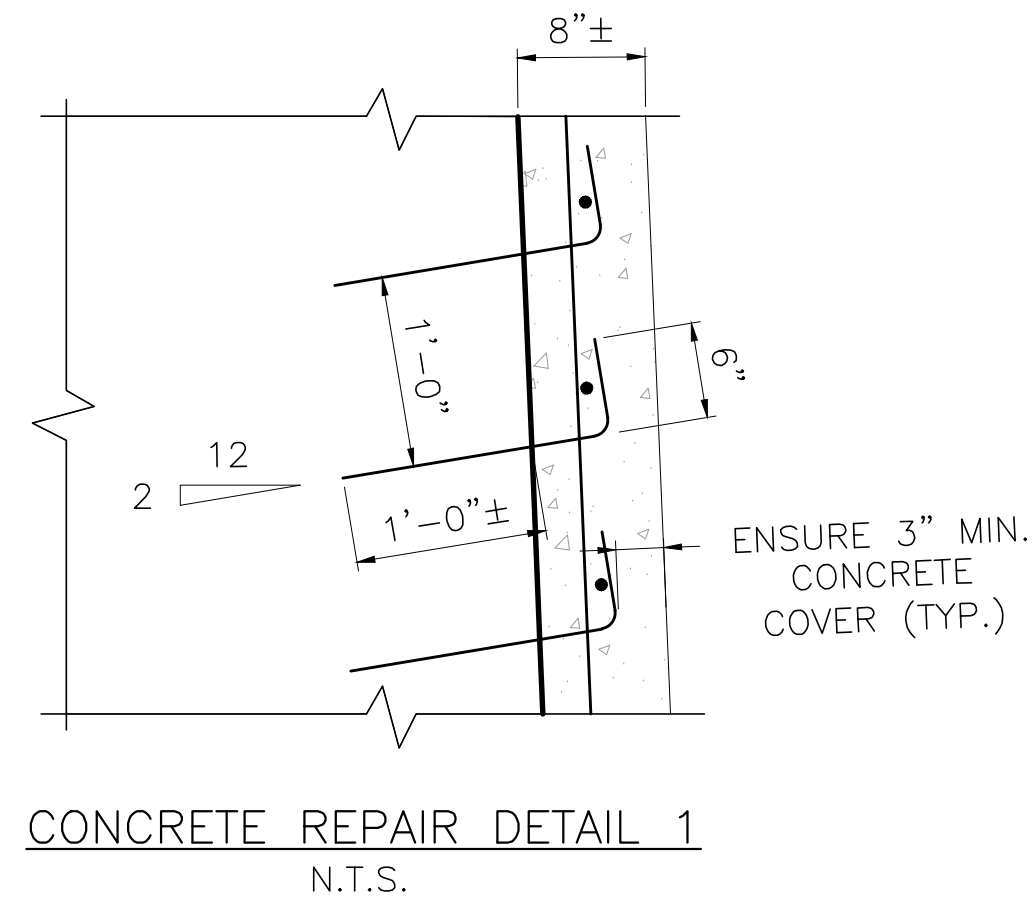
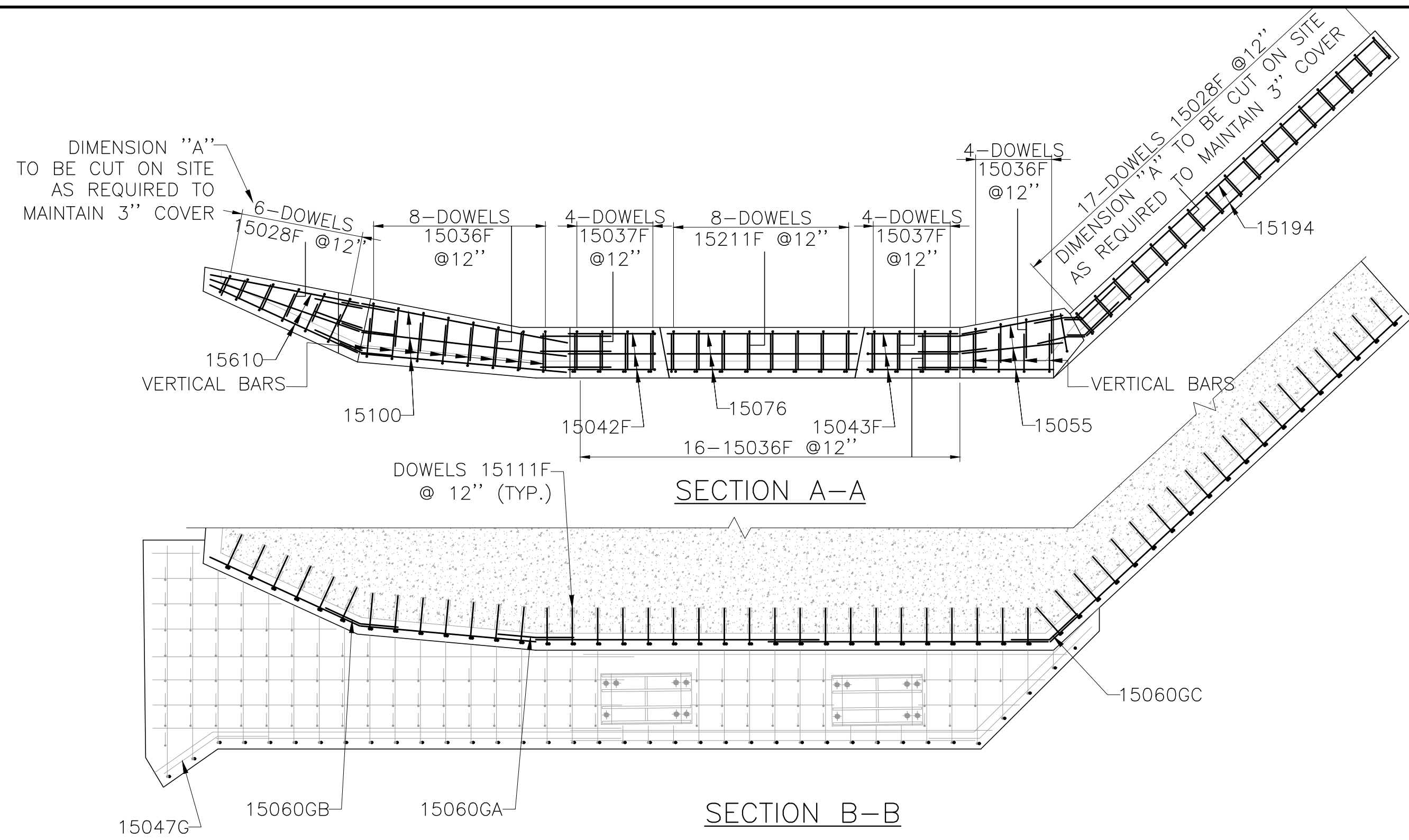
HATCH DOCUMENT No. H371873-0000-224-270-2008

BRIDGE OVER KAPUSKASING RIVER

MILE 69.7 KAPUSKASING SUBDIVISION

CONCRETE DEMOLITION
SOUTH ABUTMENT

DWG. BY: F.T.	CHK BY: R.G.	OFFICE FILE:
		SCALE: 1/4"=1'-0" U.N.O.
ENGINEER: R.G.		DATE: FEBRUARY 2024
		PLAN No.
PROJECT MANAGER: A.M.		KAP-69.7-3.8



- NOTES:
- FOR GENERAL NOTES AND SPECIFICATIONS SEE DRAWING No. 3.1;
 - THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING 3.8
 - FOR CONCRETE NOTES SEE DRAWING No. 3.8;
 - MAJOR CRACK REPAIR DETAIL, SEE DRAWING No. 3.10;
 - POUR CONCRETE FOR BRIDGE SEAT CONSECUTIVELY;
 - FOR REBARS LIST SEE DRAWING No. 3.13;

QUANTITIES: (ON THIS DRAWING - WITHOUT BEARING SEAT)

- CONCRETE REMOVAL	≈ 460 ft ³
- REINFORCING STEEL	3425 LBS
- CAST IN PLACE CONCRETE	≈ 472 ft ³
- SIKAGARD A50	≈ 776 ft ²

NOTES:

LEGEND:

1	03/19/2024	GENERAL REVISION - ISSUED FOR TENDER	G.F.
0	02/16/2024	ISSUED FOR TENDER	F.T.
No.	DATE	REVISION	BY

HATCH DOCUMENT No. H371873-0000-224-270-2009

BRIDGE OVER KAPUSKASING RIVER

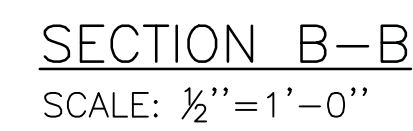
MILE 69.7 KAPUSKASING SUBDIVISION

REBAR & CONCRETE

SOUTH ABUTMENT

DWG. BY: F.T.	CHK BY: R.G.	OFFICE FILE:
ENGINEER: R.G.	DATE: FEBRUARY 2024	SCALE: 1/4"=1'-0" U.N.O.
PROJECT MANAGER: A.M.	PLAN No.	KAP-69.7-3.9

— FOR GENERAL NOTES AND SPECIFICATIONS SEE DRAWING No. 3.1;



LEGEND:



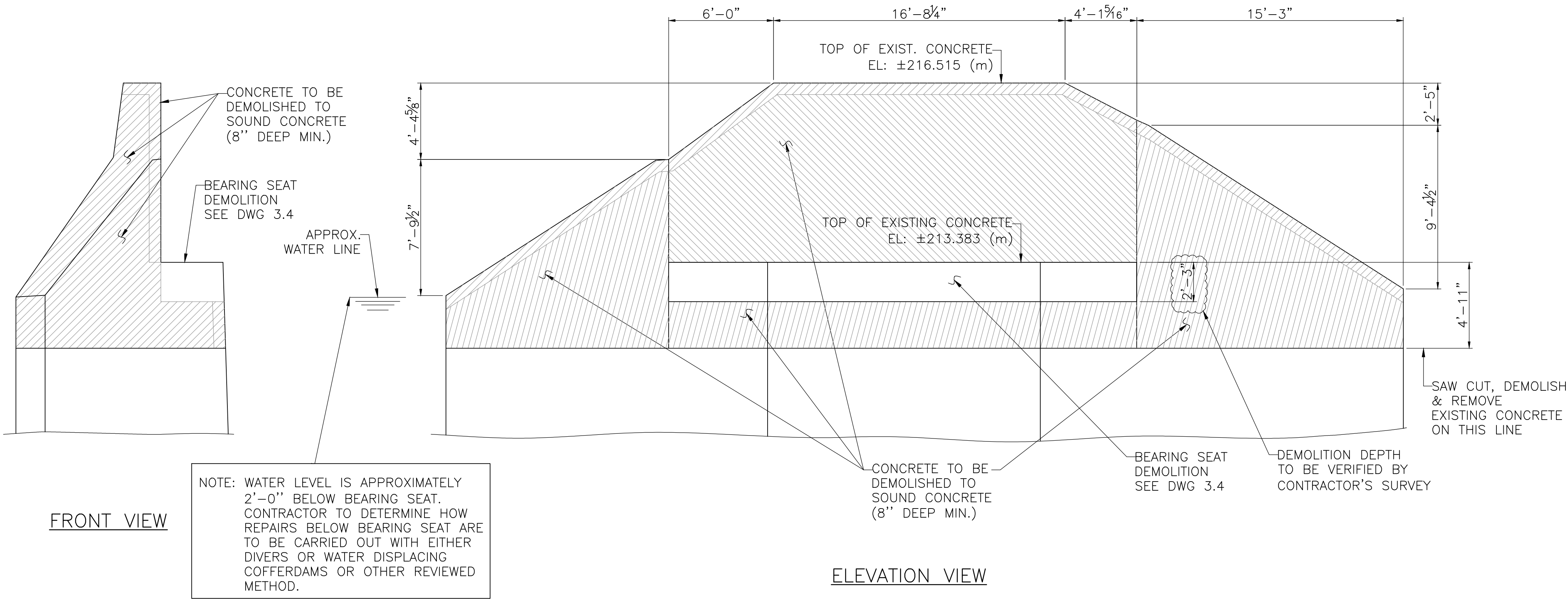
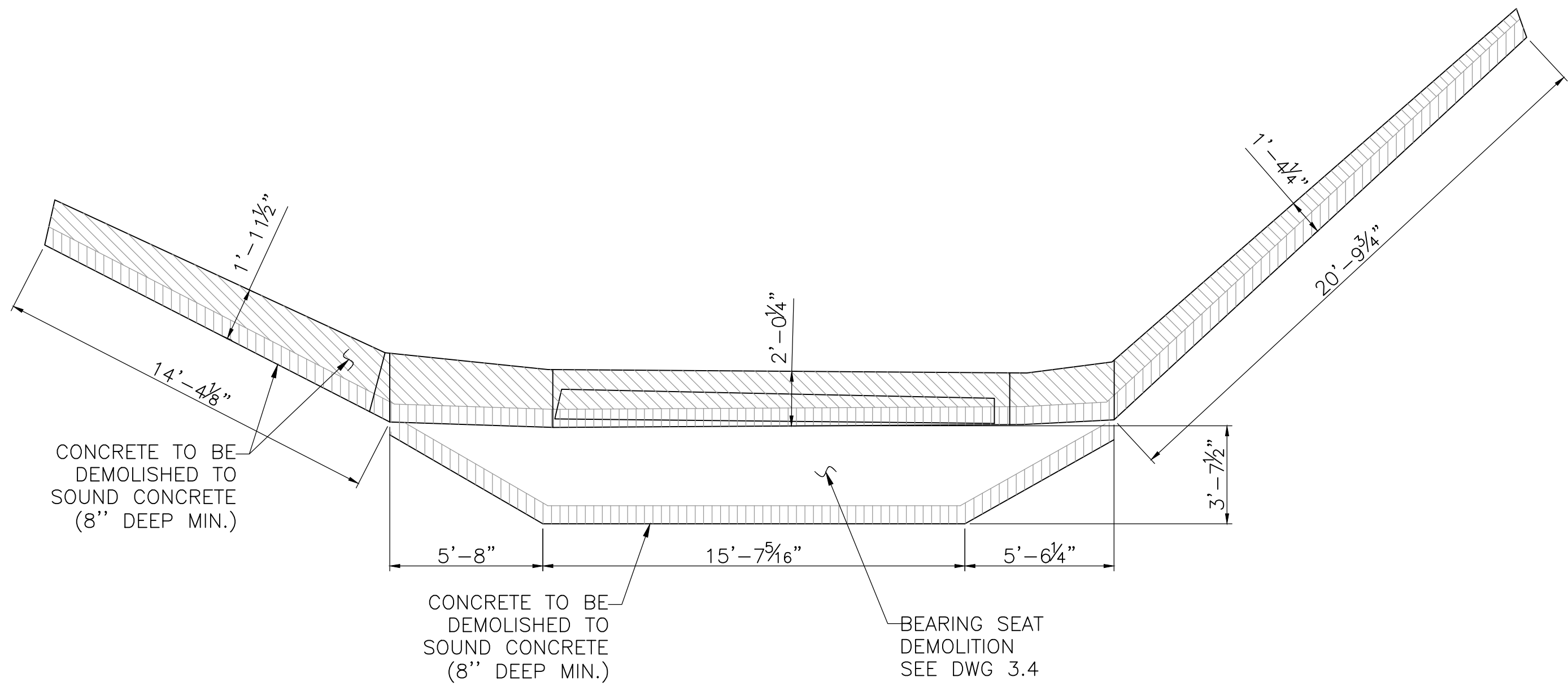
Ontario Northland
HATCH

BRIDGE OVER KAPUSKASING RIVER
MILE 69.7 KAPUSKASING SUBDIVISION
REBAR & CONCRETE
SOUTH ABUTMENT

DWG. BY: F.T.	CHK BY: R.G.	OFFICE FILE:
		SCALE: 1/4"=1'-0" U.N.O.
ENGINEER: R.G.		DATE: FEBRUARY 2024
PROJECT MANAGER: A.M.		PLAN No. KAP-69.7-3.10

NOTES:

- FOR GENERAL NOTES AND SPECIFICATIONS SEE DRAWING No. 3.1;
- FOR CONCRETE NOTES SEE DRAWING No. 3.8;
- THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING 3.12;
- ABUTMENT DIMENSIONS ARE APPROXIMATE AND TO BE VERIFIED ON SITE BY CONTRACTOR PRIOR TO FABRICATION & CONSTRUCTION;
- FOR REINFORCING SEE DWG. 3.12;



NOTE: WATER LEVEL IS APPROXIMATELY 2'-0" BELOW BEARING SEAT. CONTRACTOR TO DETERMINE HOW REPAIRS BELOW BEARING SEAT ARE TO BE CARRIED OUT WITH EITHER DIVERS OR WATER DISPLACING COFFERDAMS OR OTHER REVIEWED METHOD.

NOTES:

LEGEND:

1	03/19/2024	GENERAL REVISION - ISSUED FOR TENDER	G.F.		
0	02/16/2024	ISSUED FOR TENDER	F.T.		
No.	DATE	REVISION	BY		



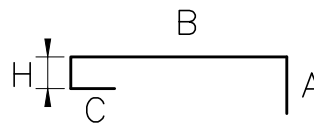
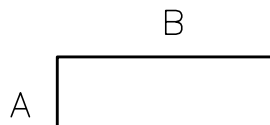
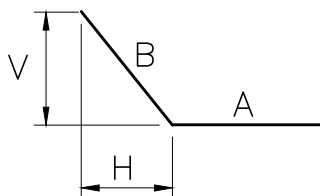
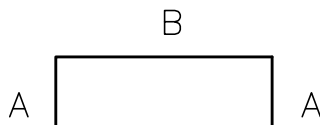
HATCH DOCUMENT No. H371873-0000-224-270-2011

BRIDGE OVER KAPUSKASING RIVER
MILE 69.7 KAPUSKASING SUBDIVISION
CONCRETE DEMOLITION
NORTH ABUTMENT

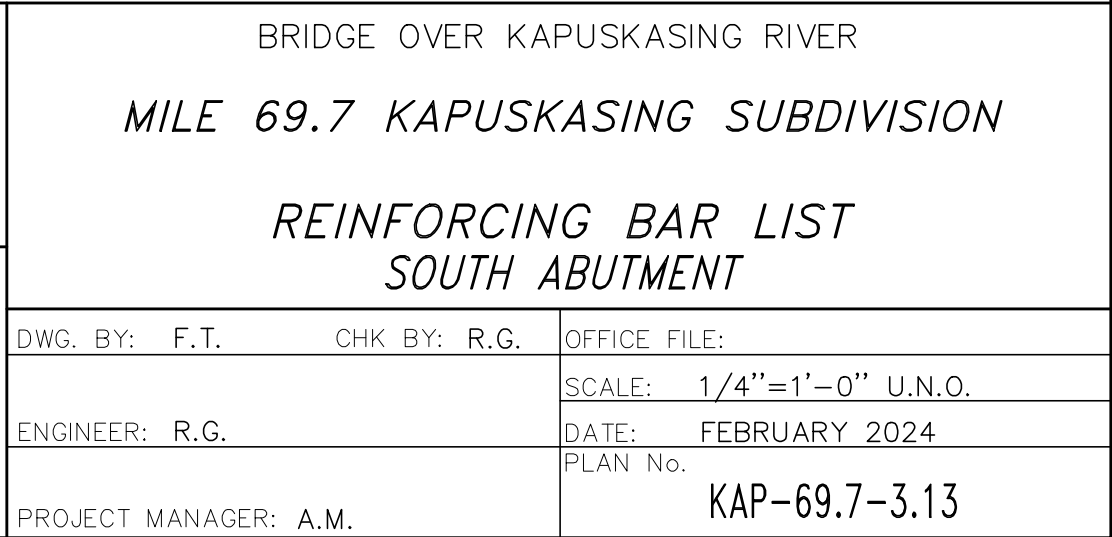
DWG. BY: F.T.	CHK BY: R.G.	OFFICE FILE:
		SCALE: 3/32"=1'-0 U.N.
ENGINEER: R.G.		DATE: FEBRUARY 2024
		PLAN No. KAP-69.7-3.11
PROJECT MANAGER: A.M.		

MILE 69.7 REINFORCING BAR LIST									
SOUTH ABUTMENT									
SEE DWG 3.9									
QTY	SIZE	MARK	LENGTH	A	B	C	H	V	WEIGHT LBS
550	15M	15111F	1'-11"	6"	1'-5"				1,112.1
23	15M	15028F	2'-8"	1'-2"	1'-6"				64.7
28	15M	15036F	3'-6"	1'-6"	2'-6"				103.4
8	15M	15037F	3'-7"	1'-6"	2'-1"				30.2
8	15M	15211F	2'-11"	1'-6"	1'-5"				24.6
1	15M	15062F	6'-2"	1'-2"	5'-0"				6.5
1	15M	15068F	6'-8"	1'-2"	5'-6"				7.0
1	15M	15072F	7'-2"	1'-2"	6'-0"				7.6
1	15M	15078F	7'-8"	1'-2"	6'-6"				8.1
1	15M	15082F	8'-2"	1'-2"	7'-0"				8.6
1	15M	15088F	8'-8"	1'-2"	7'-6"				9.1
1	15M	15092F	9'-2"	1'-2"	8'-0"				9.7
1	15M	15098FA	9'-8"	1'-2"	8'-6"				10.2
1	15M	15103FA	10'-3"	1'-2"	9'-1"				10.8
1	15M	15109F	10'-9"	1'-2"	9'-7"				11.3
1	15M	15113F	11'-3"	1'-2"	10'-1"				11.9
1	15M	15119FA	11'-9"	1'-2"	10'-7"				12.4
1	15M	15123F	12'-3"	1'-2"	11'-1"				12.9
1	15M	15129F	12'-9"	1'-2"	11'-7"				13.5
1	15M	15133F	13'-3"	1'-2"	12'-1"				14.0
1	15M	15139F	13'-9"	1'-2"	12'-7"				14.5
1	15M	15211FA	2'-11"	1'-2"	1'-9"				3.1
1	15M	15035F	3'-5"	1'-2"	2'-3"				3.6
1	15M	15041F	4'-1"	1'-2"	2'-11"				4.3
1	15M	15049F	4'-9"	1'-2"	3'-7"				5.0
1	15M	15055F	5'-5"	1'-2"	4'-3"				5.7
1	15M	15061F	6'-1"	1'-2"	4'-11"				6.4
1	15M	15073F	7'-3"	1'-6"	5'-9"				7.6
1	15M	15710F	7'-10"	1'-6"	6'-4"				8.3
1	15M	15085F	8'-5"	1'-6"	6'-11"				8.9
1	15M	15091F	9'-1"	1'-6"	7'-7"				9.6
1	15M	15098F	9'-8"	1'-6"	8'-2"				10.2
1	15M	15103F	10'-3"	1'-6"	8'-9"				10.8
2	15M	151011F	10'-11"	1'-6"	9'-5"				23.0
1	15M	15116F	11'-6"	1'-6"	10'-0"				12.1
1	15M	15089F	8'-9"	1'-6"	7'-3"				9.2
1	15M	15811F	8'-11"	1'-6"	7'-5"				9.4
1	15M	15094F	9'-4"	1'-6"	7'-10"				9.8
1	15M	15102F	10'-2"	1'-6"	8'-8"				10.7
1	15M	15118F	11'-8"	1'-6"	10'-2"				12.3
3	15M	15042F	4'-2"	9"	3'-5"				13.2
3	15M	15043F	4'-3"	9"	3'-6"				13.5
10	15M	15060GA	6'-0"	3'-0"	3'-0"		2'-2 3/8"	2'- 01/2"	63.3
5	15M	15060GB	6'-0"	3'-0"	3'-0"		2'-10"	1'-0"	31.7
8	15M	15060GC	4'-0"	3'-0	3'-0"		2'-0 1/2"	2'-2 1/2"	33.8
6	15M	15040GD	4'-0"	2'-0"	2'-0"		1'-8 1/2"	1'-0 1/2"	25.3
4	15M	150210G	2'-10"	10"	2'-0"		1'-7 3/4"	1'-1 1/2"	12.0
53	15M	15033G	3'-3"	2'-3"	1'-0"		11 13/16"	2"	181.7
3	15M	15047G	4'-7"	2'-7"	2'-0"		2'-1 1/2"	1'-5 3/4"	14.5
3	15M	15093G	9'-3"	6'-3"	2'-0"		2'-1"	2'-1 1/4"	29.3

- FOR GENERAL NOTES AND SPECIFICATIONS SEE DRAWING No. 3.1;
- FOR CONCRETE NOTES SEE DRAWING No. 3.11.

QTY	SIZE	MARK	LENGTH	A	B	C	H	V	WEIGHT LBS
10	25M	25030F	3'-0"	1'-8"	1'-4"				79.1
5	15M	15024J	2'-4"	4"	1'-6"	2"	4"		12.3
3	25M	25063	6'-3"	STRAIGHT BARS					49.4
4	15M	15032	3'-2"						13.4
40	15M	15055	5'-5"						228.6
8	15M	15109	10'-9"						90.7
11	15M	15100	10'-0"						116.1
16	15M	15113	11'-3"						189.9
2	15M	15099	9'-9"						20.6
3	15M	15104	10'-4"						32.7
2	15M	15110	11'-0"						23.2
6	15M	15160	16'-0"						101.3
7	15M	15040	4'-0"						29.5
3	15M	15610	6'-10"						21.6
2	15M	15194	19'-4"						40.8
3	15M	15076	7'-6"						23.7
6	15M	15189	18'-9"						118.7
1	15M	15163	16'-3"						17.1
1	15M	15143	14'-3"						15.0
1	15M	15123	12'-3"						12.9
1	15M	15082	8'-2"						8.6
1	15M	15065	6'-5"						6.8
1	15M	15045	4'-5"						4.7
2	15M	15511	5'-11"						12.5
6	15M	15070	7'-0"						44.3
1	15M	15052	5'-2"						5.5
1	15M	15038	3'-8"						3.9
1	15M	15023	2'-3"	2.4					
1	15M	15058	5'-8"	6.0					
1	15M	15024	2'-4"	2.5					
901	TOTAL REINFORCING STEEL ON THIS DRAWING								3,425.3
ALL DIMENSIOIS ARE OUT TO OUT OF BARS									
ALL BARS ARE SPACED AT 12" C/C IN ALL DIRECTIONS U.N.O.									
<div>     </div> <div> <div>TYPE "J"</div> <div>TYPE "F"</div> <div>TYPE "G"</div> <div>TYPE "S"</div> </div>									

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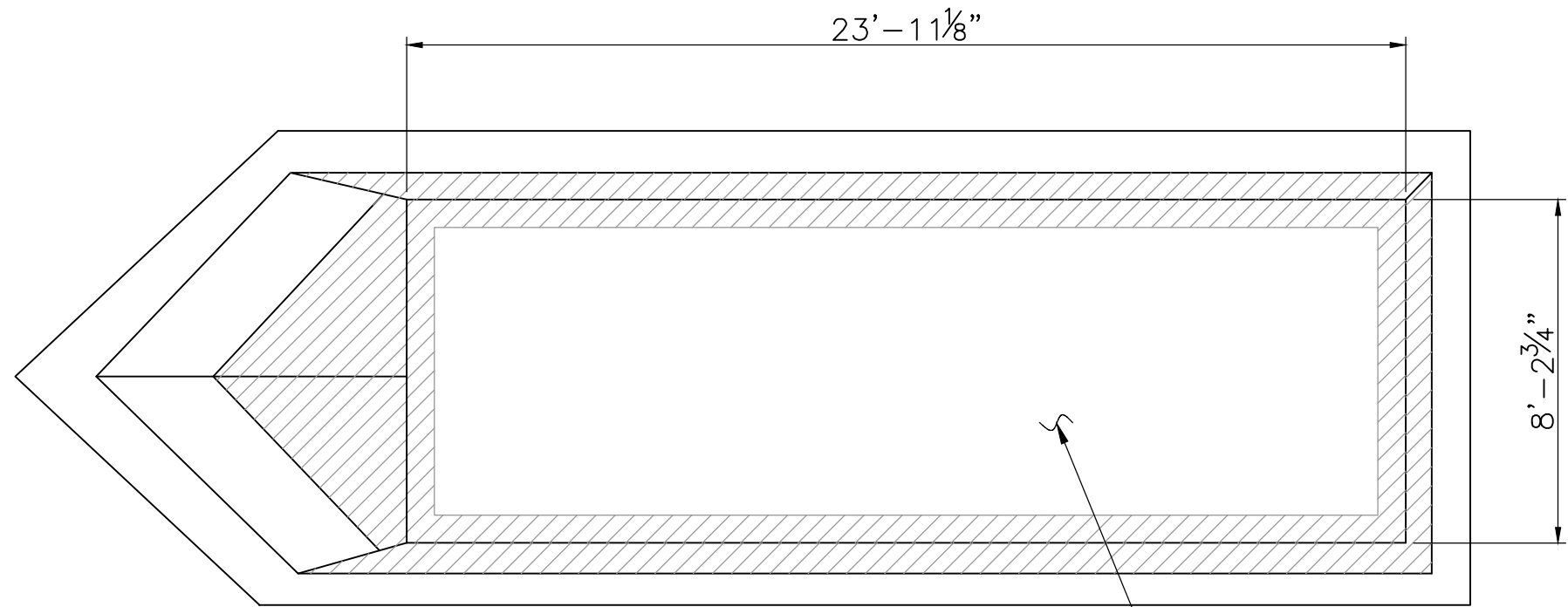


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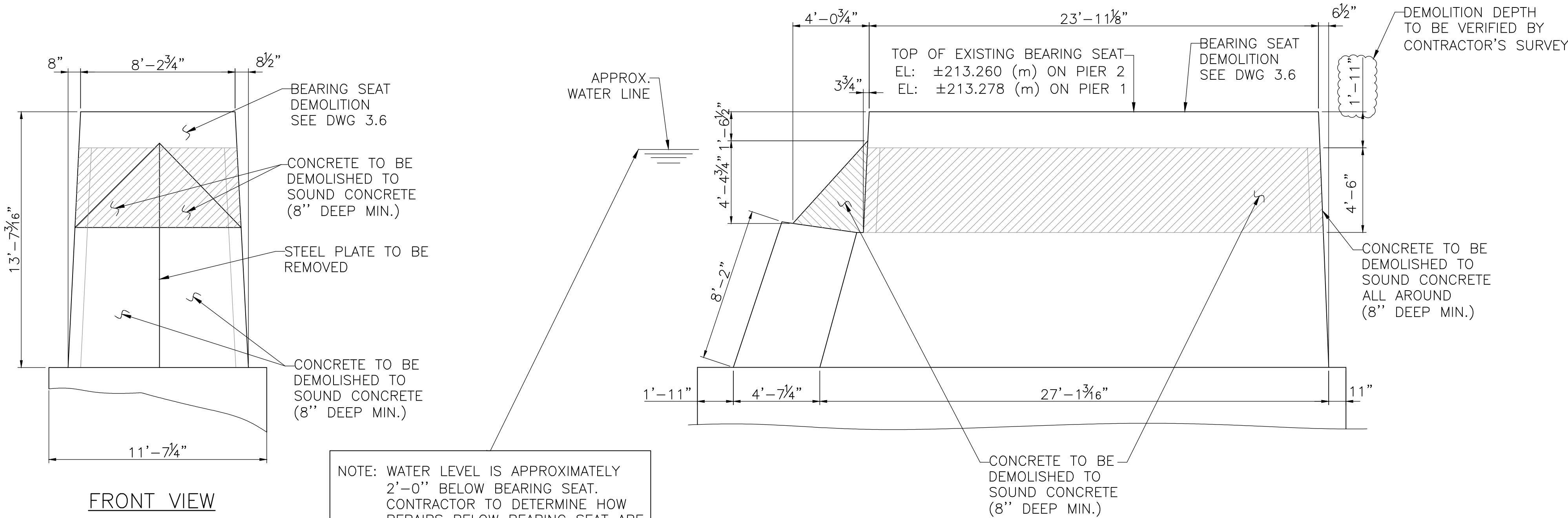
- FOR GENERAL NOTES AND SPECIFICATIONS SEE DRAWING 3.1;
- THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING 3.15;
- FOR CONCRETE NOTES AND REPAIR PROCEDURE SEE DRAWING 3.8;
- PIER DIMENSIONS ARE APPROXIMATE AND TO BE VERIFIED ON SITE BY CONTRACTOR PRIOR TO FABRICATION & CONSTRUCTION;
- FOR REINFORCING SEE DRAWING 3.15.

GENERAL REPAIR PROCEDURE :

- SAW CUT 3/4" DEEP ALL AROUND AND PERPENDICULAR TO THE SURFACE;
- USING A 15 LB JACKHAMMER CHIP CONCRETE SUBSTRATE TO SOUND CONCRETE OR TO A MINIMUM DEPTH OF 8", TO ACHIEVE A UNIFORM SURFACE AND PERPENDICULAR FACES ON THE PERIMETER. HEAVIER CHIPPING EQUIPMENT SHALL BE USED ONLY WITH THE APPROVAL OF THE ENGINEER;
- DRILL 1½" DIA x 12" DEEP HOLES FOR 15M DOWELS
- AIR BLAST ALL HOLES CLEAN BEFORE INSTALLING DOWELS;
- INSTALL DOWELS USING "SIKAGROUT 212" OR APPROVED EQUIVALENT;
- INSTALL ALL ADDITIONAL REINFORCING BARS;
- BEFORE INSTALLING FORMWORK REMOVE LOOSE CONCRETE AND / OR DEBRIS USING OIL FREE COMPRESSED AIR OR LIGHT SANDBLAST;
- APPLY TWO COATS OF "SIKATOP ARMATEC 110 EPOCEM" OR EQUIVALENT TO ALL REINFORCING STEEL;
- INSTALL ALL FORMWORK AS REQUIRED TO ACHIEVED THE DETAILED GEOMETRY LIMITS;
- JUST BEFORE CONCRETE POUR, WET CONCRETE SUBSTRATE TO OBTAIN A SATURATED SURFACE AND REMOVE EXCESS WATER;
- CURE CONCRETE FOR A MINIMUM OF FIVE (5) DAYS BY WET CURING PROCESS;
- APPLY SEALANT "SIKAGARD A50" OR EQUIVALENT AS PER MANUFACTURERS RECOMMENDATIONS ONCE THE CURING PROCESS IS COMPLETED.



PLAN VIEW
SCALE: 1/4"=1'-0"



ELEVATION VIEW
(PIER 1 SHOWN)

NOTES:

LEGEND:

1	03/19/2024	GENERAL REVISION – ISSUED FOR TENDER			G.F.
0	02/16/2024	ISSUED FOR TENDER			F.T.
No.	DATE	REVISION			BY



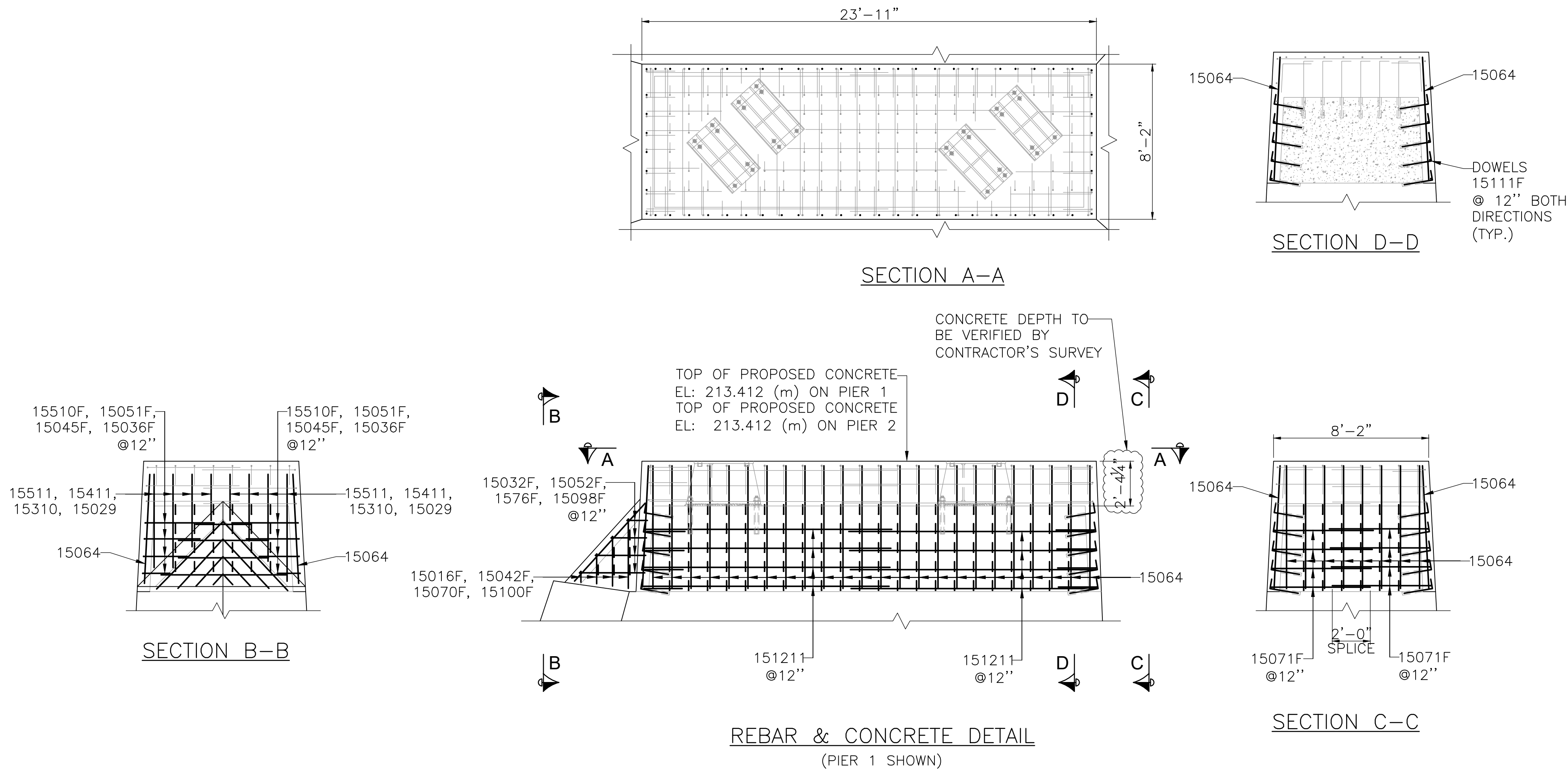
HATCH DOCUMENT No. H371873-0000-224-270-2014

BRIDGE OVER KAPUSKASING RIVER MILE 69.7 KAPUSKASING SUBDIVISION CONCRETE DEMOLITION PIER 1 & 2		
DWG. BY: F.T.	CHK BY: R.G.	OFFICE FILE:
ENGINEER: R.G.		SCALE: 1/4"=1'-0" U.N.O.
		DATE: FEBRUARY 2024
		PLAN No. KAP-69.7-3.14
PROJECT MANAGER: A.M.		

NOTES:

- FOR GENERAL NOTES AND SPECIFICATIONS SEE DRAWING No. 3.1;
- THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING 3.14
- FOR CONCRETE NOTES SEE DRAWING No. 3.8;
- POUR CONCRETE FOR BRIDGE SEAT CONSECUTIVELY;

MILE 69.7 REINFORCING BAR LIST PIER (FOR PIER 1 OR PIER 2)								
QTY	SIZE	MARK	LENGTH	A	B	H	V	WEIGHT LBS
274	15M	15111F	1'-11"	6"	1'5"			554.1
1	15M	15032F	3'-2"	1'-7"	1'-7"			3.3
1	15M	15052F	5'-2"	2'-7"	2'-7"			5.5
1	15M	15076F	7'-6"	3'-9"	3'-9"			7.9
1	15M	15098F	9'-8"	4'-10"	4'-10"			10.2
2	15M	15510F	5'-10"	2'-6"	3'-4"			12.3
2	15M	15051F	5'-1"	2'-6"	2'-7"			10.7
2	15M	15045F	4'-5"	2'-6"	1'-11"			9.3
2	15M	15036F	3'-6"	2'-6"	1'-0"			7.4
1	15M	15016F	1'-6"	9"	9"			1.6
1	15M	15042F	4'-2"	2'-1"	2'-1"			4.4
1	15M	15070F	7'-0"	3'-6"	3'-6"			7.4
1	15M	15100F	10'-0"	5'-0"	5'-0"			10.6
8	15M	15071F	7'-1"	2'-0"	5'-1"			59.8
16	15M	151211	12'-11"	STRAIGHT BARS				218.0
2	15M	15511	5'-11"					12.5
2	15M	15411	4'-11"					10.4
2	15M	15310	3'-10"					8.1
2	15M	15029	2'-9"					5.8
56	15M	15064	6'-4"					374.2
378	TOTAL REINFORCING STEEL ON THIS TABLE							1,333.3
ALL DIMENSIOIS ARE OUT TO OUT OF BARS								
ALL BARS ARE SPACED AT 12" C/C IN ALL DIRECTIONS U.N.O.								
<div><div><div>A</div><div>B</div><div>TYPE "F"</div></div><div><div><div>V</div><div>B</div><div>A</div><div>H</div></div><div>TYPE "G"</div></div></div>								



QUANTITIES: (ON THIS DRAWING - WITHOUT BEARING SEAT)
(FOR ONE PIER)

- CONCRETE REMOVAL _____ ≈ 300 ft³
- REINFORCING STEEL _____ 1333 LBS
- CAST IN PLACE CONCRETE _____ ≈ 300 ft³
- SIKAGARD A50 _____ ≈ 450 ft²

NOTES:

LEGEND:

1	03/19/2024	GENERAL REVISION - ISSUED FOR TENDER	G.F.		
0	02/16/2024	ISSUED FOR TENDER	F.T.		
No.	DATE	REVISION	BY		



HATCH DOCUMENT No. H371873-0000-224-270-2015

BRIDGE OVER KAPUSKASING RIVER MILE 69.7 KAPUSKASING SUBDIVISION REBARS & CONCRETE PIER 1 & 2		
DWG. BY: F.T.	CHK BY: R.G.	OFFICE FILE:
ENGINEER: R.G.		SCALE: 1/4"=1'-0" U.N.O.
		DATE: FEBRUARY 2024
		PLAN No. KAP-69.7-3.15
PROJECT MANAGER: A.M.		

MILE 69.7 REINFORCING BAR LIST NORTH ABUTMENT SEE DWG 3.12								
QTY	SIZE	MARK	LENGTH	A	B	H	V	WEIGHT LBS
591	15M	15111F	1'-11"	6"	1'-5"			1,195.1
33	15M	15028F	2'-8"	1'-2"	1'-6"			92.8
27	15M	15036F	3'-6"	2'-0"	1'-6"			99.7
7	15M	15037F	3'-7"	1'-6"	2'-1"			26.5
8	15M	15211F	2'-11"	1'-6"	1'-5"			24.6
1	15M	15043F	4'-3"	1'-2"	3'-1"			4.5
1	15M	15049F	4'-9"	1'-2"	3'-7"			5.0
1	15M	15052F	5'-2"	1'-2"	4'-0"			5.5
1	15M	15058F	5'-8"	1'-2"	4'-6"			6.0
1	15M	15062F	6'-2"	1'-2"	5'-0"			6.5
1	15M	15067F	6'-7"	1'-2"	5'-5"			6.9
1	15M	15071F	7'-1"	1'-2"	5'-11"			7.5
2	15M	15077F	7'-7"	1'-2"	6'-5"			16.0
1	15M	15080F	8'-0"	1'-2"	6'-10"			8.4
1	15M	15086F	8'-6"	1'-2"	7'-4"			9.0
1	15M	15811F	8'-11"	1'-2"	7'-9"			9.4
1	15M	15095F	9'-5"	1'-2"	8'-3"			9.9
1	15M	15911F	9'-11"	1'-2"	8'-9"			10.5
1	15M	15104F	10'-4"	1'-2"	9'-2"			10.9
1	15M	151010F	10'-10"	1'-2"	9'-8"			11.4
1	15M	15114F	11'-4"	1'-2"	10'-2"			12.0
1	15M	151110F	11'-10"	1'-2"	10'-8"			12.5
1	15M	15123F	12'-3"	1'-2"	11'-1"			12.9
1	15M	15129F	12'-9"	1'-2"	11'-7"			13.5
1	15M	15133F	13'-3"	1'-2"	12'-1"			14.0
1	15M	15138F	13'-8"	1'-2"	12'-6"			14.4
1	15M	15042F	4'-2"	1'-2"	3'-0"			4.4
1	15M	15048F	4'-8"	1'-2"	3'-6"			4.9
1	15M	15053F	5'-3"	1'-2"	4'-1"			5.5
1	15M	15510F	5'-10"	1'-2"	4'-8"			6.2
1	15M	15066F	6'-6"	1'-2"	5'-4"			6.9
1	15M	15070F	7'-0"	1'-2"	5'-10"			7.4
1	15M	15077FA	7'-7"	1'-6"	6'-1"			8.0
1	15M	15082F	8'-2"	1'-2"	7'-0"			8.6
1	15M	15089F	8'-9"	1'-2"	7'-7"			9.2
1	15M	15094F	9'-4"	1'-2"	8'-2"			9.8
1	15M	15910F	9'-10"	1'-2"	8'-8"			10.4
1	15M	15105F	10'-5"	1'-2"	9'-3"			11.0
1	15M	15110F	11'-0"	1'-2"	9'-10"			11.6
1	15M	15116F	11'-6"	1'-2"	10'-4"			12.1
1	15M	15098F	9'-8"	1'-6"	8'-2"			10.2
1	15M	15102F	10'-2"	1'-6"	8'-8"			10.7
1	15M	15108F	10'-8"	1'-6"	9'-5"			11.3
1	15M	15113F	11'-3"	1'-6"	9'-9"			11.9
1	15M	15118F	11'-8"	1'-6"	10'-2"			12.3
1	15M	15082FA	8'-4"	1'-6"	6'-10"			8.8
1	15M	15811FA	9'-0"	1'-6"	7'-6"			9.5
2	15M	15098FA	9'-9"	1'-6"	8'-3"			20.6
1	15M	15105FA	10'-6"	1'-6"	9'-0"			11.1
1	15M	15111FA	11'-3"	1'-6"	9'-9"			11.9
1	15M	151110FA	12'-0"	1'-6"	10'-6"			12.7
1	15M	15075F	7'-5"	1'-6"	5'-11"			7.8
3	15M	15044F	4'-4"	9"	3'-7"			13.7
3	15M	15035F	3'-5"	9"	2'-8"			10.8

CONTINUATION...

QTY	SIZE	MARK	LENGTH	A	B	H	V	WEIGHT LBS				
6	15M	15060GA	6'-0"	3'-0"	3'-0"	2'-7 3/8"	1'-6"	38.0				
8	15M	15060GB	6'-0"	3'-0"	3'-0"	2'-2 1/2"	2'-0 1/2"	50.6				
6	15M	15040GC	4'-0"	2'-0"	2'-0"	1'-21/2"	1'-7 3/8"	25.3				
2	15M	15040GD	4'-0"	2'-0"	2'-0"	1'-1 3/16"	1'-0 1/4"	8.4				
6	15M	15060GE	6'-0"	3'-0"	3'-0"	2'-7 1/2"	1'-5 3/4"	38.0				
6	15M	150210G	2'-10"	10"	2'-0"	1'-8 1/4"	1'-1"	17.9				
60	15M	15033G	3'-3"	2'-3"	1'-0"	11 13/16"	2"	205.7				
27	15M	15047	4'-7"	STRAIGHT BARS				130.6				
12	15M	15142	14'-2"					179.4				
1	15M	151610	16'-10"					17.8				
2	15M	151310	13'-10"					29.2				
2	15M	15132	13'-2"					27.8				
3	15M	15124	12'-4"					39.0				
12	15M	15040	4'-0"					50.6				
6	15M	15090	9'-0"					57.0				
6	15M	15066	6'-6"					41.1				
4	15M	15140	14'-0"					59.1				
4	15M	15208	20'-8"					87.2				
1	15M	15191	19'-1"					20.1				
1	15M	151611	16'-11"					17.8				
1	15M	15149	14'-9"					15.6				
1	15M	15107	10'-7"					11.2				
4	15M	15086	8'-6"					35.9				
1	15M	15064	6'-4"					6.7				
1	15M	15043	4'-3"					4.5				
1	15M	15129	12'-9"					13.5				
1	15M	15138	13'-8"					14.4				
1	15M	15101	10'-1"					10.6				
1	15M	15410	4'-10"					5.1				
1	15M	15034	3'-4"					3.5				
8	15M	15100	10'-0"					84.4				
9	15M	15108	10'-8"					101.3				
3	15M	15154	15'-4"					48.5				
4	15M	151110	11'-10"					49.9				
4	15M	15061	6'-1"					25.7				
3	15M	15076	7'-6"					23.7				
1	15M	15068	6'-8"					7.0				
1	15M	151111	11'-11"					12.6				
942	TOTAL REINFORCING STEEL ON THIS DRAWING							3,539.3				
ALL DIMENSIOIS ARE OUT TO OUT OF BARS												
ALL BARS ARE SPACED AT 12" C/C IN ALL DIRECTIONS U.N.O.												
<div><div><div>A</div><div>B</div><div>TYPE "F"</div></div><div><div><div>V</div><div>B</div><div>A</div><div>H</div></div><div>TYPE "G"</div></div></div>												

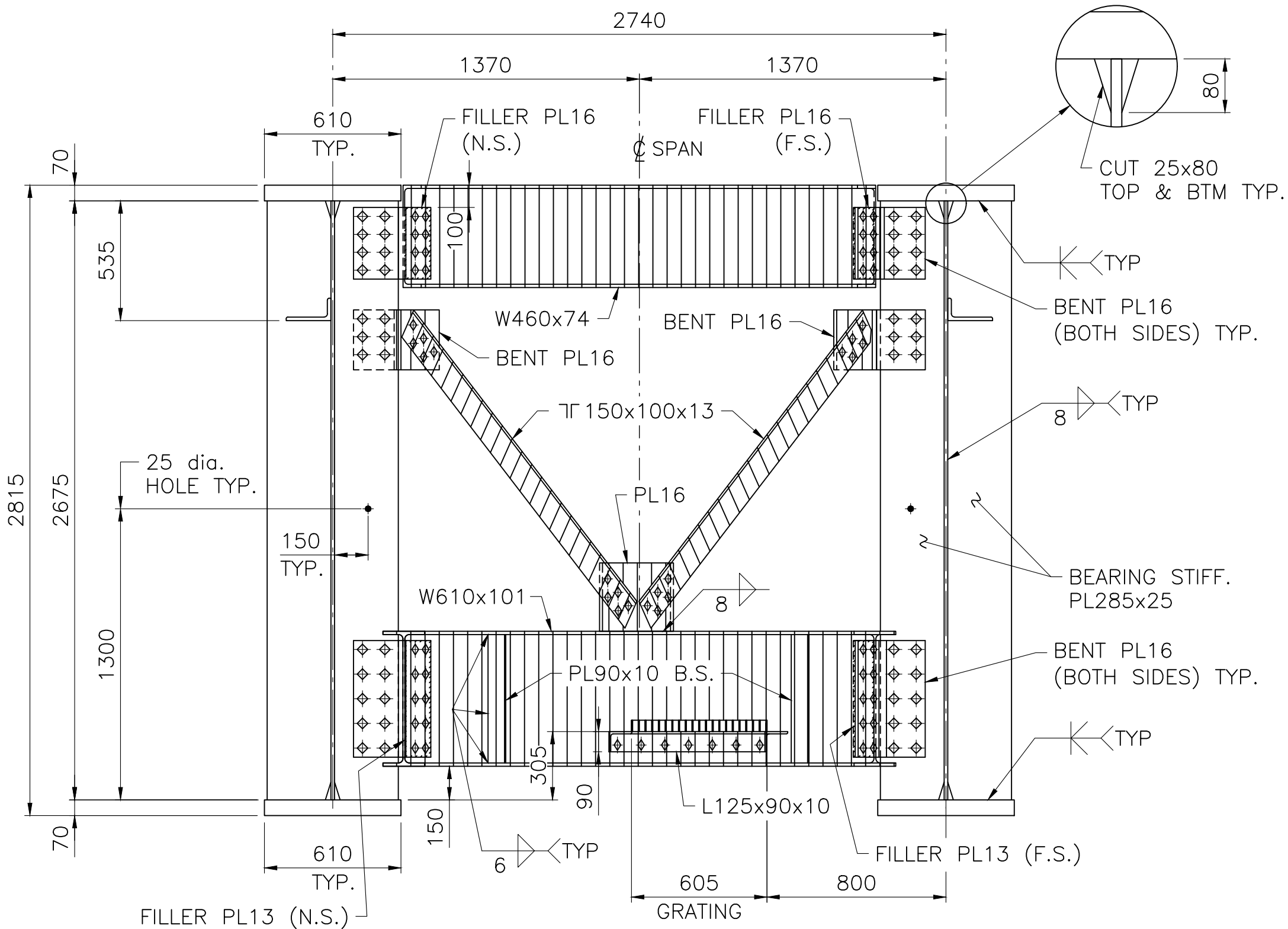
- NOTES:
- FOR GENERAL NOTES AND SPECIFICATIONS SEE DRAWING No. 3.1;
 - FOR CONCRETE NOTES SEE DRAWING No. 3.8.

NOTES:	LEGEND:																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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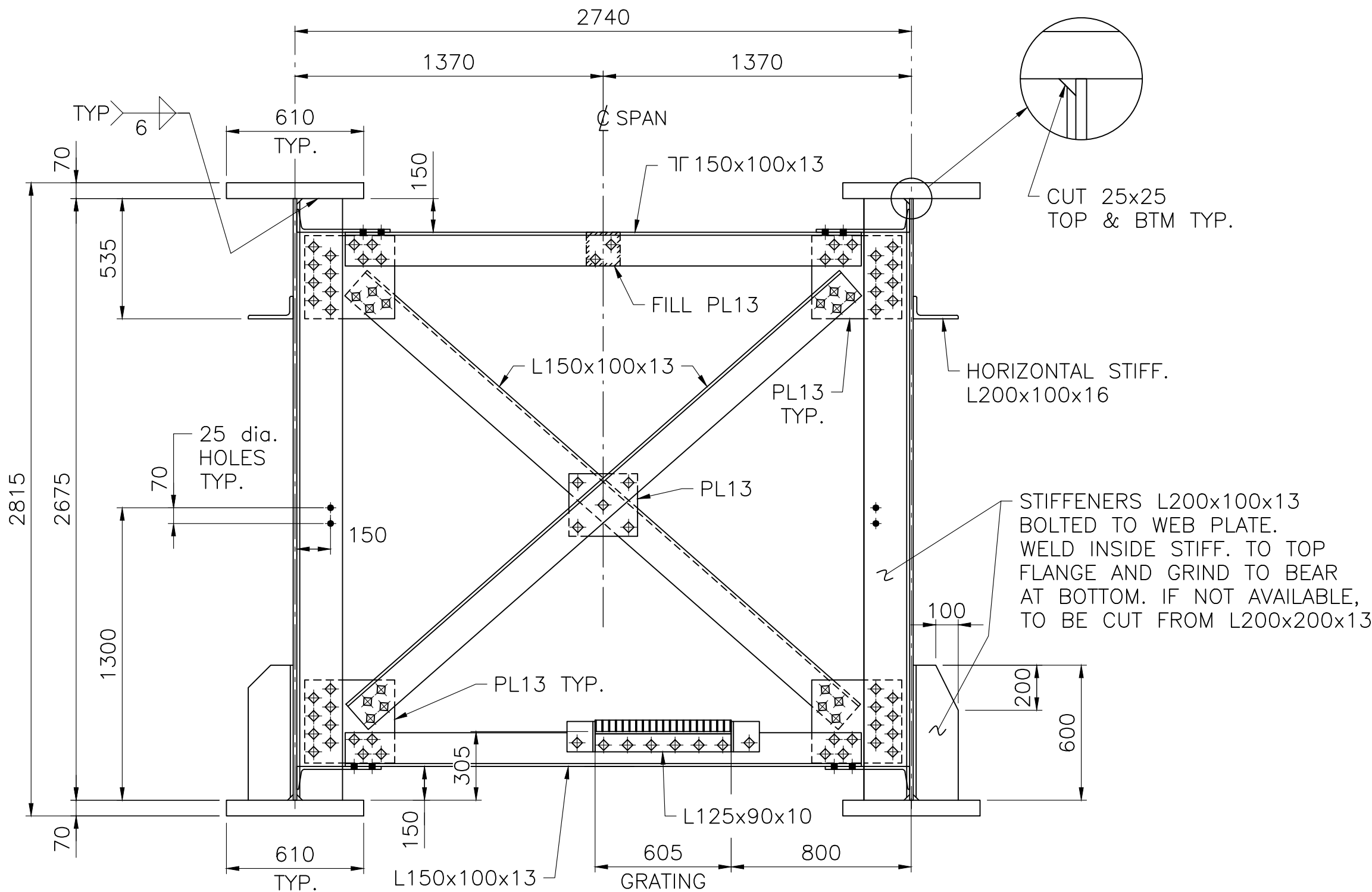
- EXISTING DRAWINGS ONR-69.7 KAP-001 TO -011 AND DECK TIE DRAWINGS A-6288 & KAP-69.7-2.1 TO -2.6.
- INSPECTION REPORT DATED: SEPTEMBER 11, 2021 AND JUNE 29, 2022.
- TECHNICAL SURVEY DONE BY "GROMA", DATED JULY 28, 2023.

[illegible]



SECTION "C-C"
(SEE DWG. -4.5)

FOR ALL COPES, FREE HAND FLAME CUTTING
NOT PERMITTED; ROUGHNESS SHALL NOT
EXCEED ANSI 1000.



SECTION "D-D"
(SEE DWG. -4.5)

TABLE OF STRESSES

30.47m SPAN (c/c BRGS)

TOP FLANGE PLATE	610x70	AREA=42700mm ²
WEB PLATE	2675x16	AREA=42800mm ²
BOTTOM FLANGE PLATE	610x70	AREA=42700mm ²
S _{x-x} TOP=1.32x10 ⁸ mm ³ I _x =1.86x10 ¹¹ mm ⁴		
S _{x-x} BTM=1.32x10 ⁸ mm ³		

	END REACTION kN	SHEAR STRESS MPa	BENDING MOMENT kN.m	BENDING STRESSES BTM FLANGE MPa
DEAD LOAD 18.64 kN/m	280.5	6.6	2137.2	16.2
LIVE LOAD E90	1501.3	35.1	9832.5	74.5
IMPACT 35.69%	535.7	12.5	3508.9	26.6
TOTAL GROUP "A"	2317.5	54.2	15478.6	117.3
ALLOWABLE STRESSES (BENDING AND SHEAR)		122.5		192.5
RATIO OF WORKING STRESS TO ALLOWABLE		0.46		0.63

DEFLECTION:

$$\frac{\Delta_{LL+I}}{\text{SPAN}} = \frac{1}{879}$$

FATIGUE:

ALLOWABLE STRESS RANGE FOR FATIGUE CATEGORY "B"
FOR N > 2,000,000 CYCLES

$$S_{\text{Rfat}} = 110.32 \text{ MPa}$$

MAXIMUM DESIGN STRESS RANGE AT BOTTOM FLANGE
TO WEB WELD AT MIDSPAN

$$80.57 \text{ MPa} < S_{\text{Rfat}}$$

$$\frac{\text{MAX. STRESS RANGE}}{\text{PERMISS. FATIGUE STRESS}} = 0.73$$

NOTES:

- FOR GENERAL NOTES, SEE DRAWING KAP-69.70-4.2.
- THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING KAP-69.70-4.5;-4.7;-4.8.
- FOR DETAILS OF BEARINGS, SEE DRAWING KAP-69.70-4.9.
- DESIGN AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH AREMA MANUAL (2023), CHAPTER 15.
- MATERIAL SHALL BE IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS:
 - STRUCTURAL STEEL: _____ CSA CAN3-G40.20/G40.21, GRADE 350AT, CATEGORY 3 (FCM) IN GIRDER WEBS & FLANGES. GRADE 350AT, CATEGORY 3 FOR STIFFENER PLATES. GRADE 350A FOR JACKING BEAMS, STIFFENER ANGLES AND ALL REMAINING PLATES. GRADE 300W FOR BEARING PLATES.
 - WELDING: _____ CSA CAN3-W59 / AWS D1.5
 - ANCHOR BOLTS: _____ ASTM F1554, GRADE 105
 - H.S. BOLTS: _____ ASTM F3125 GRADE A325, M22, TYPE 3 (OR EQUIVALENT)
 - METALLIZING: _____ CSA G189
 - GALVANIZING: _____ ASTM A123
 - PAINTING: _____ SEE SPECIFICATIONS
 - BRONZE PLATE: _____ ASTM B22, COPPER ALLOY UNS No. C86300
- ALL HOLES SHALL BE DRILLED OR SUB-PUNCHED AND REAMED.
- ALL H.S. BOLTS SHALL BE TIGHTENED BY THE TURN-OF-NUT METHOD.
- BOTTOM FLANGES OF GIRDERS OVER BEARINGS SHALL BE TRUE AND SQUARE; MAXIMUM MEASURED DEVIATION AT OUTSIDE OF EDGE OF BEARING PLATES SHALL NOT EXCEED 1mm.
- DEVIATION FROM STRAIGHTNESS OF MAIN GIRDERS SHALL NOT EXCEED 6mm.
- NEGATIVE CAMBER NOT PERMITTED.
- NO CAMBER REQUIRED.
- ALL NON-SLIDING SURFACES OF BEARING PLATES SHALL BE ZINC METALLIZED AS PER CSA SPEC. G189, ZINC METALLIZING SHALL NOT BE LESS THAN 0.25mm.
- SHOE PLATES AND BED PLATES SHALL BE HOT-DIP GALVANIZED AS PER CSA SPEC. G-164.
- SPAN SHALL BE ENTIRELY SHOP ASSEMBLED BEFORE SHIPPING. SEE SPECIFICATIONS FOR SHIPPING DETAILS.
- LIFTING LUG HAS BEEN DESIGNED TO VERTICALLY LIFT THE STEEL WEIGHT OF A FULLY ASSEMBLED SPAN, EXCLUDING THE WEIGHT OF THE TIMBER DECK AND THE TRAINMAN WALKWAY. CONTRACTOR TO PROVIDE LIFTING LUG DETAIL FOR DIFFERENT LIFTING ARRANGEMENT.
- STANDARD DRAWINGS S1m, S2m, S3m, S4m, S6m, S7m AND S20m ARE REFERENCED AND PROVIDED FOR ADDITIONAL INFORMATION NOT SHOWN ON THIS DRAWING.

ESTIMATED QUANTITIES:

- STRUCTURAL STEEL (WITHOUT BEARINGS AND GRATING) _____ 82980 kg
- INSPECTION WALKWAY GRATING _____ 18.50 m²
- LIFTING WEIGHT OF SPAN (WITH BEARINGS & GRATING) APPROX. _____ 87810 kg

NOTES:

LEGEND:

0	24/03/14	ISSUED FOR TENDER	T.Z.		
No.	DATE	REVISION	BY		



HATCH DOCUMENT No. H371873-0000-224-270-4001

BRIDGE OVER KAPUSKASING RIVER

69.70 KAPUSKASING SUBDIVISION

BRIDGE SUPERSTRUCTURE REPLACEMENT
30.47m DPG SKEW SPAN (SHEET 2 of 2)

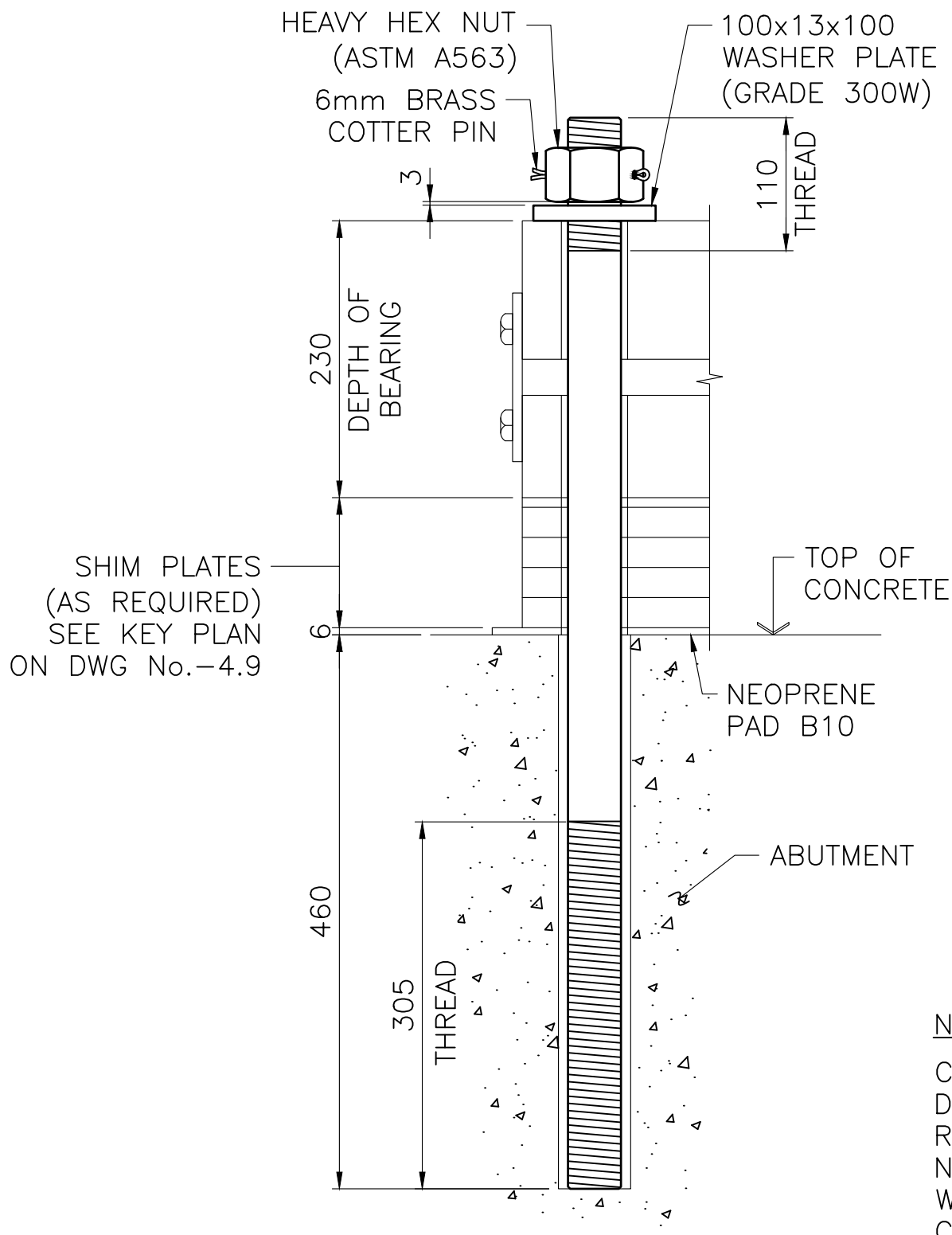
DWG. BY: T.Z.	CHK BY:	OFFICE FILE:
		SCALE: 1:20 (UNLESS NOTED)
ENGINEER:		DATE: 2024/03/14
		PLAN No.
PROJECT MANAGER: A.M.		KAP-69.70-4.6

BRIDGE OVER KAPUSKASING RIVER

69.70 KAPUSKASING SUBDIVISION

BRIDGE SUPERSTRUCTURE REPLACEMENT
DPG SPANS – DETAILS (2 of 2)

DWG. BY: T.Z.	CHK BY:	OFFICE FILE:
		SCALE: 1:10 (UNLESS NOTED)
ENGINEER:		DATE: 2024/03/14
		PLAN No.
PROJECT MANAGER: A.M.		KAP-69.70-4.8

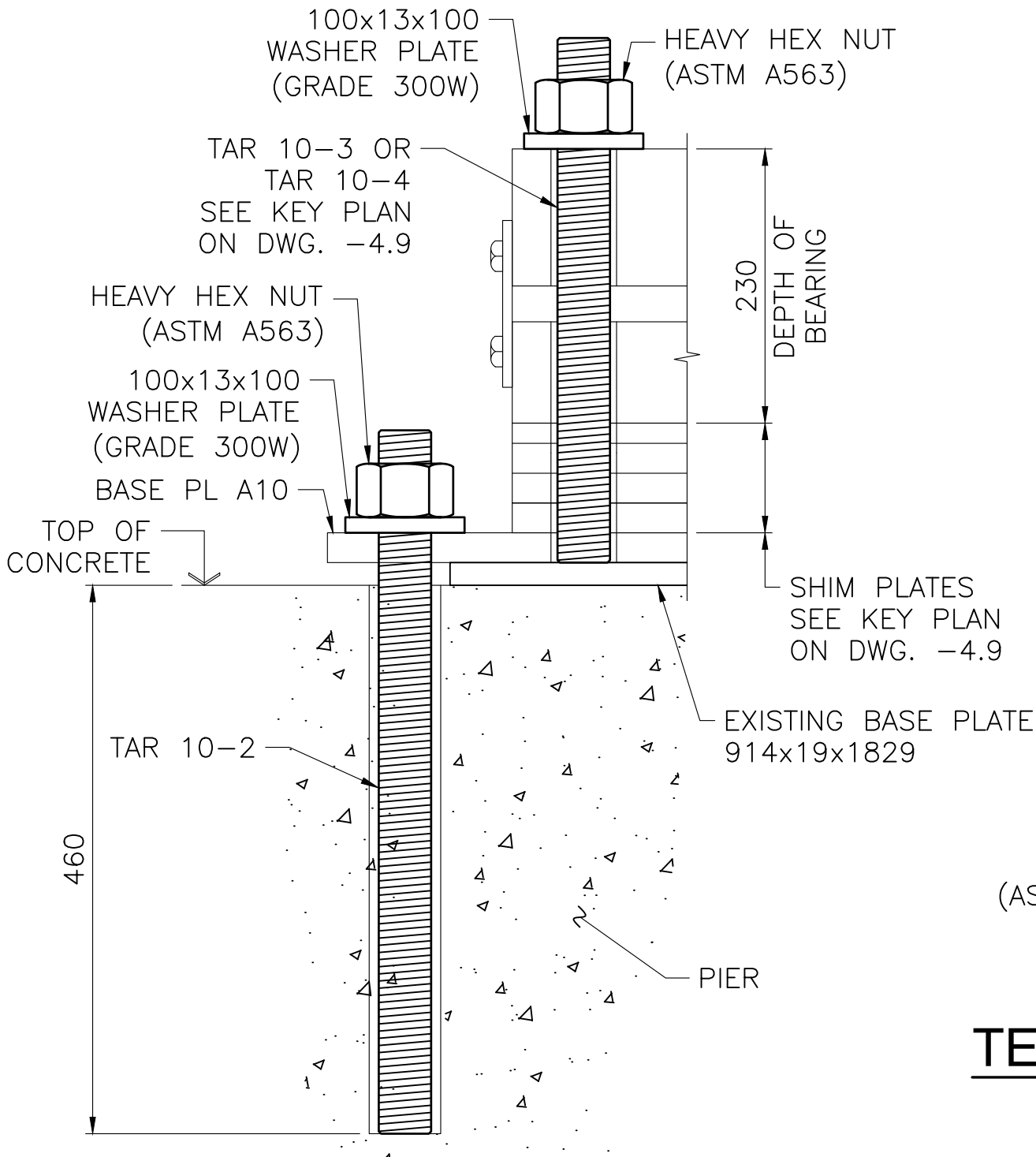


NOTES:
CONCRETE TO BE DRILLED AFTER DETERMINING ANCHOR ROD LOCATION. RODS TO BE GROUTED USING NON-SHRINK GROUT. RODS, NUTS & WASHERS SHALL BE FULLY GALVANIZED. CORE DIAMETER TO BE VERIFIED FOR GROUT REQUIREMENTS.

1-44mm dia.x890mm LONG
(ASTM F1554, GR 105) ANCHOR ROD
c/w 1-HEAVY HEX. NUT AND
1-100x13x100 WASHER PLATE

TEMPORARY ANCHOR ROD TAR 10-1

12-REQUIRED
UNIT WT: 11kg
SCALE 1:5



1-44mm dia.x590mm LONG
(ASTM F1554, GR 105) ANCHOR BOLT
c/w 1-HEAVY HEX NUT AND
1-100x13x100 WASHER PLATE

TEMPORARY ANCHOR ROD TAR 10-2

24-REQUIRED
UNIT WT: 8kg
SCALE 1:5

1-44mm dia.x440mm LONG
(ASTM F1554, GR 105) ANCHOR BOLT
c/w 1-HEAVY HEX NUT AND
1-100x13x100 WASHER PLATE

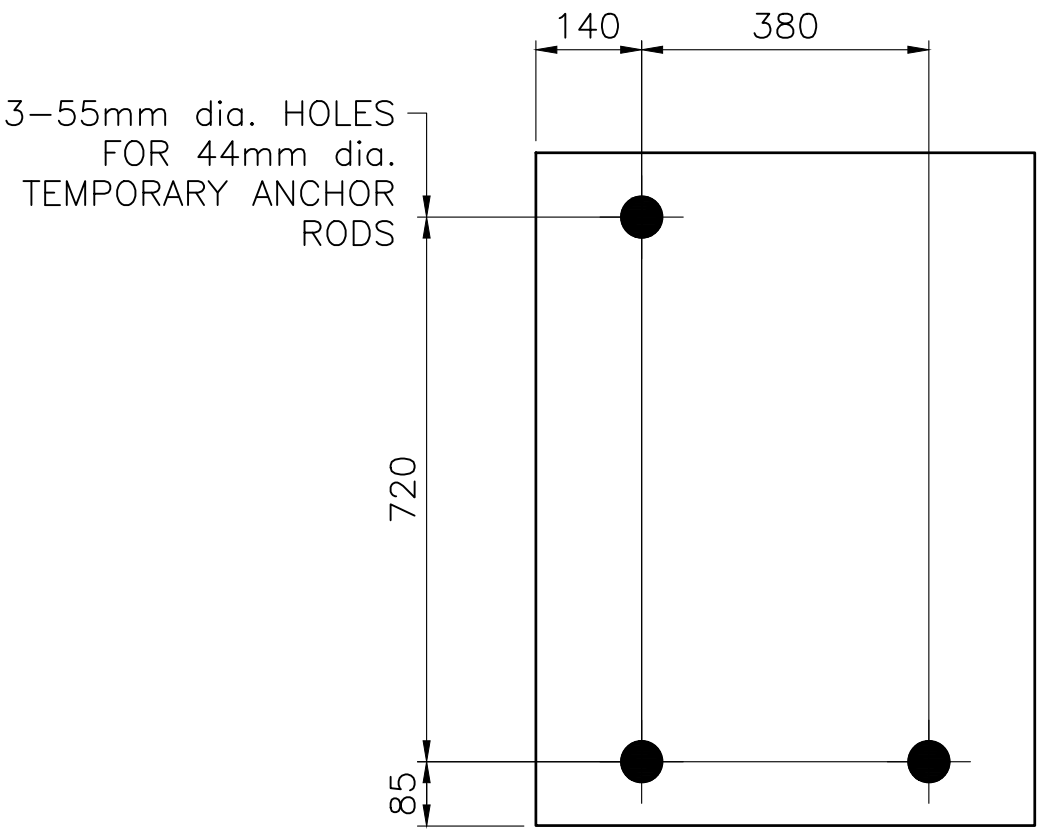
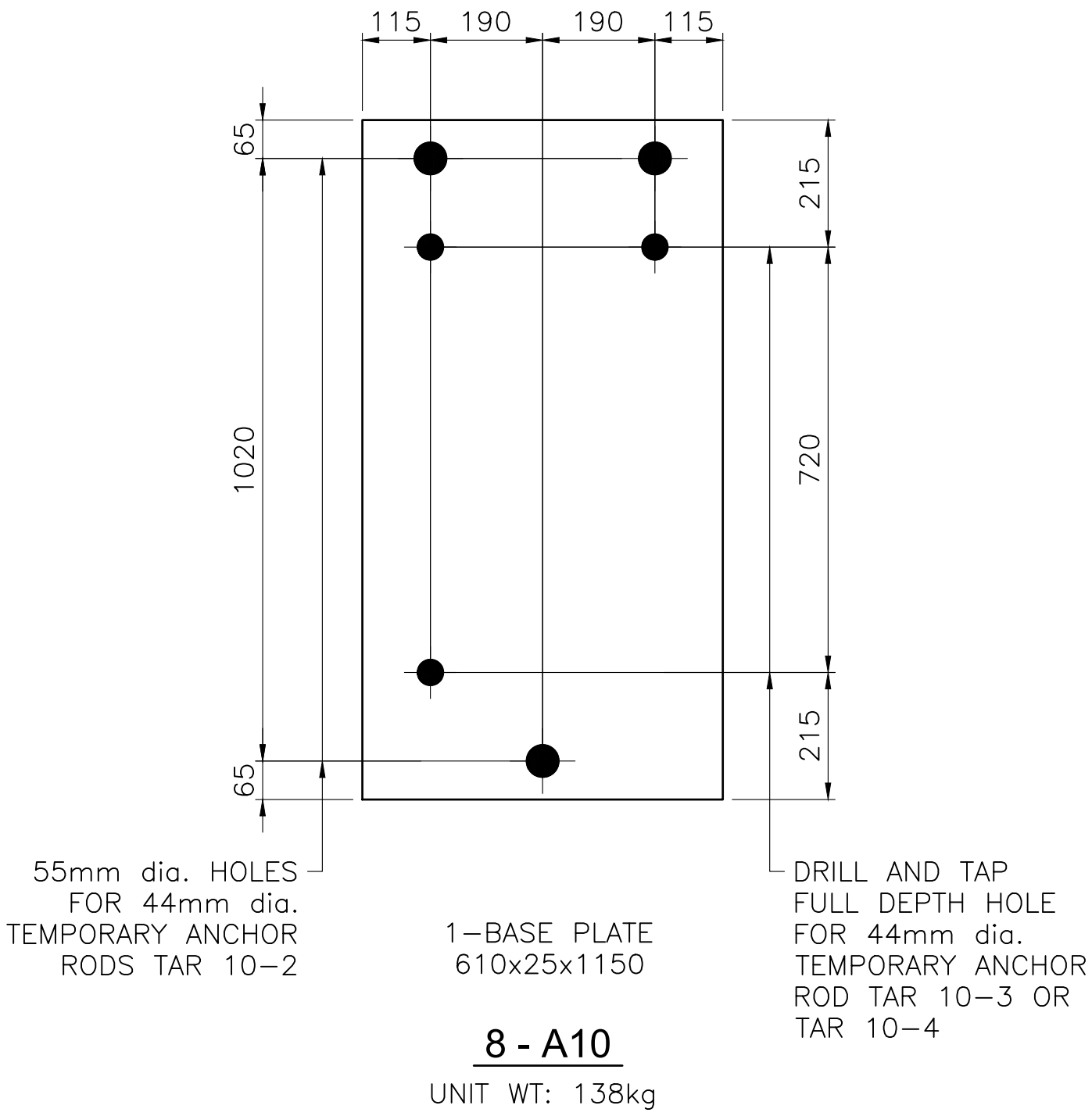
TEMPORARY ANCHOR ROD TAR 10-3

12-REQUIRED
UNIT WT: 6kg
SCALE 1:5

1-44mm dia.x480mm LONG
(ASTM F1554, GR 105) ANCHOR BOLT
c/w 1-HEAVY HEX NUT AND
1-100x13x100 WASHER PLATE

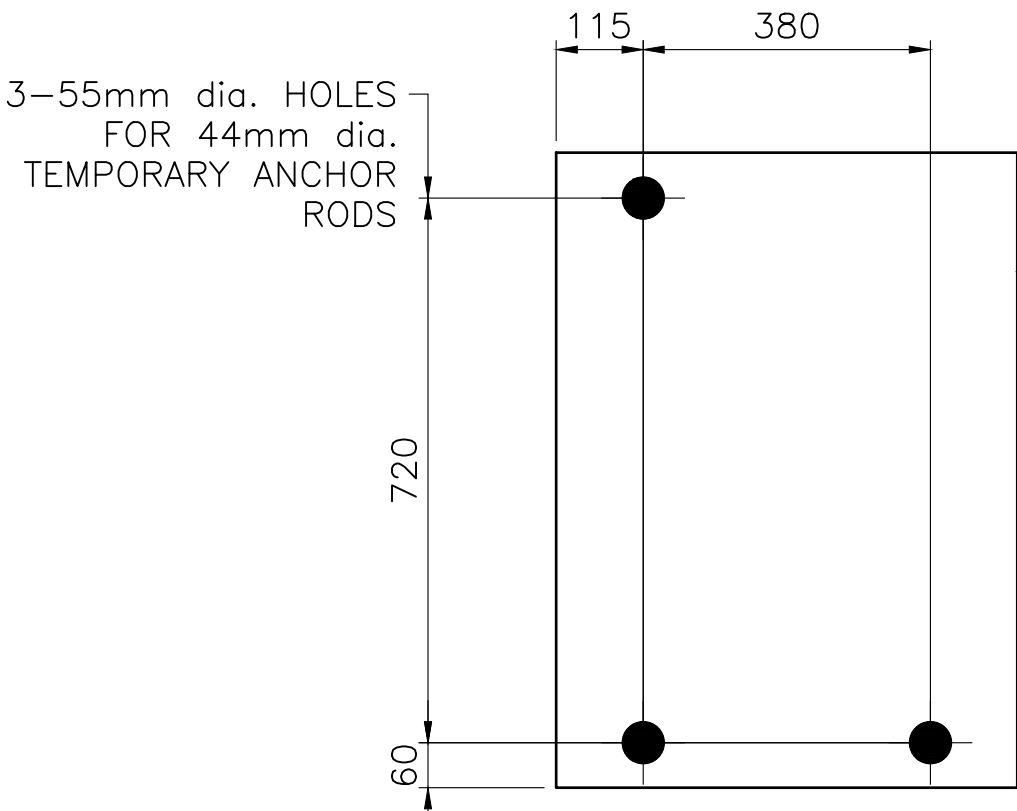
TEMPORARY ANCHOR ROD TAR 10-4

12-REQUIRED
UNIT WT: 6kg
SCALE 1:5



1-NEOPRENE PAD
660x6x890 (DUROMETER 60)

4 - B10



1-SHIM PLATE
610x25x840 (C10)
1-SHIM PLATE
610x19x840 (D10)
1-SHIM PLATE
610x16x840 (E10)
1-SHIM PLATE
610x3x840 (F10)

47 - C10 **6 - D10**

UNIT WT: 100kg UNIT WT: 76kg

5 - E10 **12 - F10**

UNIT WT: 64kg UNIT WT: 12kg

NOTE:
SHIM PLATES (12-F10)
TO BE FABRICATED FOR
ADJUSTMENT IF REQUIRED

NOTES:

- FOR GENERAL NOTES, SEE DRAWING KAP-69.70-4.2.
- READ THIS DRAWING IN CONJUNCTION WITH DRAWING KAP-69.70-4.9.

ESTIMATED QUANTITIES: (ON THIS DRAWING)

- STRUCTURAL STEEL _____ 6724 kg
- TEMPORARY ANCHOR ROD TAR 10-1 _____ 12 EACH
- TEMPORARY ANCHOR ROD TAR 10-2 _____ 24 EACH
- TEMPORARY ANCHOR ROD TAR 10-3 _____ 12 EACH
- TEMPORARY ANCHOR ROD TAR 10-4 _____ 12 EACH

NOTES:

LEGEND:



HATCH DOCUMENT No. H371873-0000-224-270-4001

BRIDGE OVER KAPUSKASING RIVER

69.70 KAPUSKASING SUBDIVISION

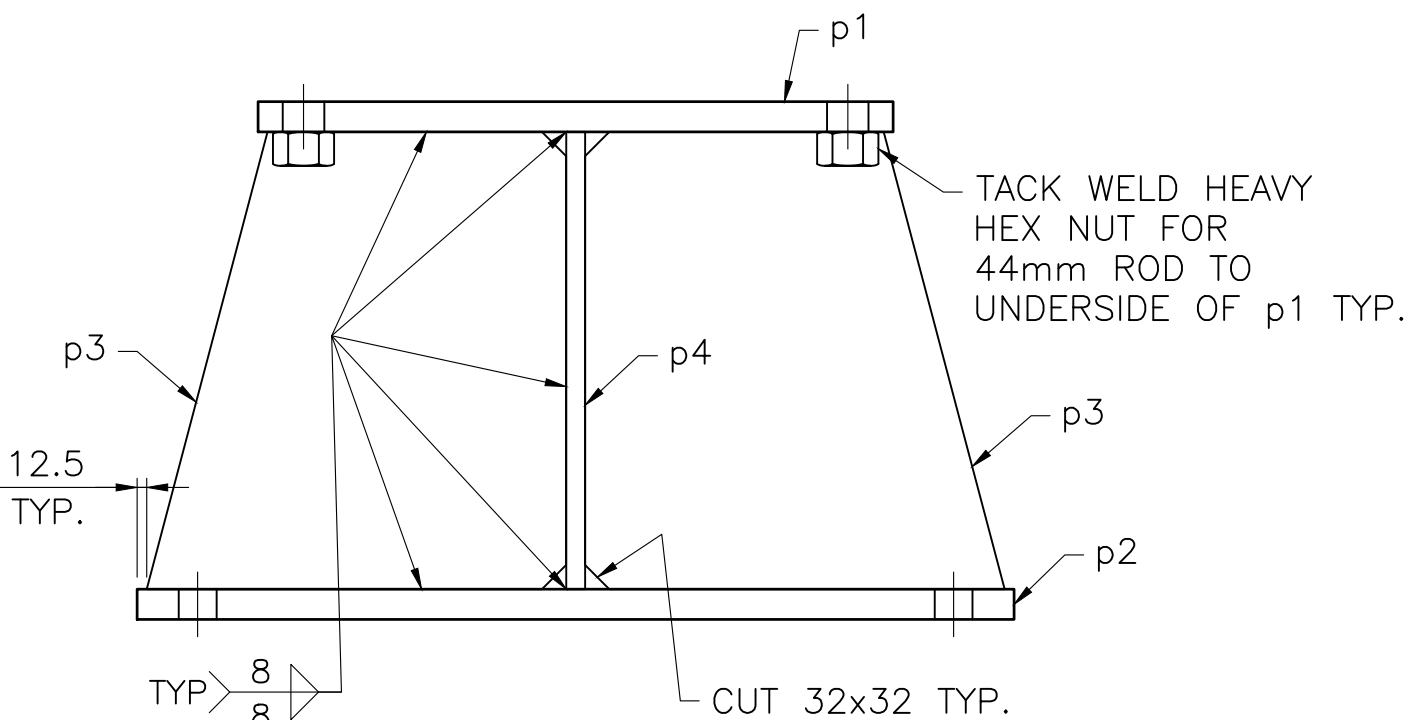
BRIDGE SUPERSTRUCTURE REPLACEMENT
INTERIM BEARING DETAILS

DWG. BY: T.Z. CHK BY: OFFICE FILE:

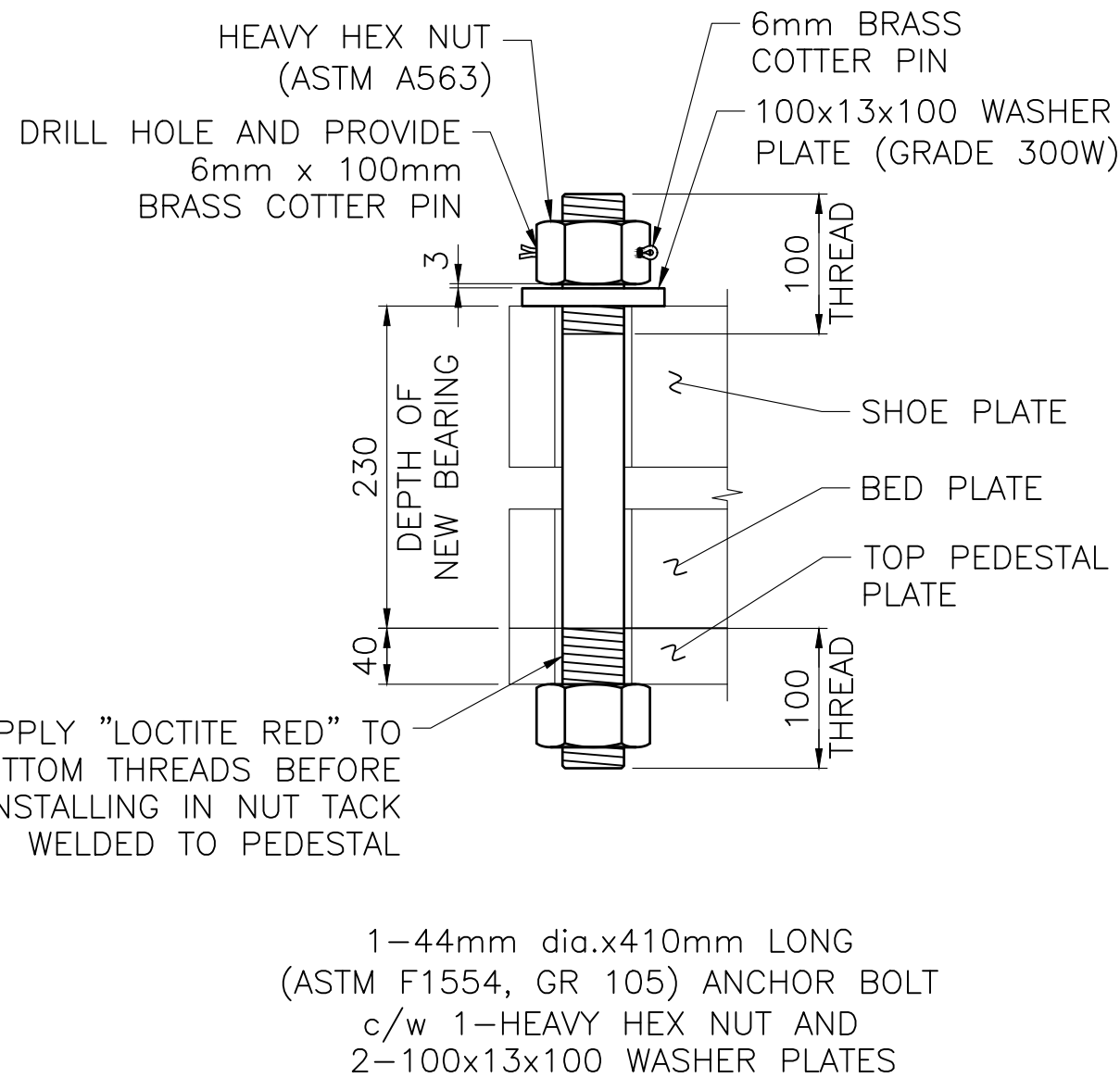
SCALE: 1:10 (UNLESS NOTED)

ENGINEER: DATE: 2024/03/14

PLAN No. PROJECT MANAGER: A.M. KAP-69.70-4.10

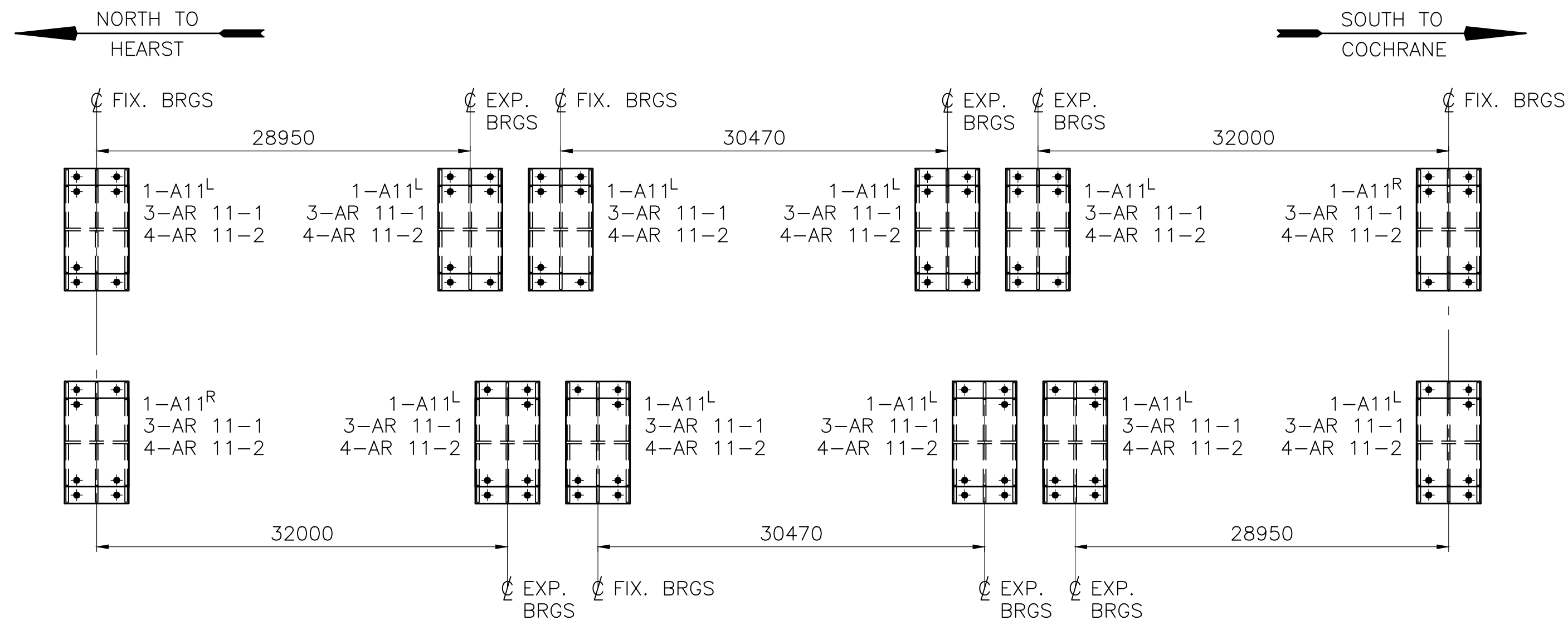


2 - A11^R RIGHT (AS SHOWN)
10 - A11^L LEFT (FROM SHOWN)
 UNIT WT: 792kg



ANCHOR ROD AR 11-1

36—REQUIRED
GALVANIZED
UNIT WT: 6kg
SCALE 1:5

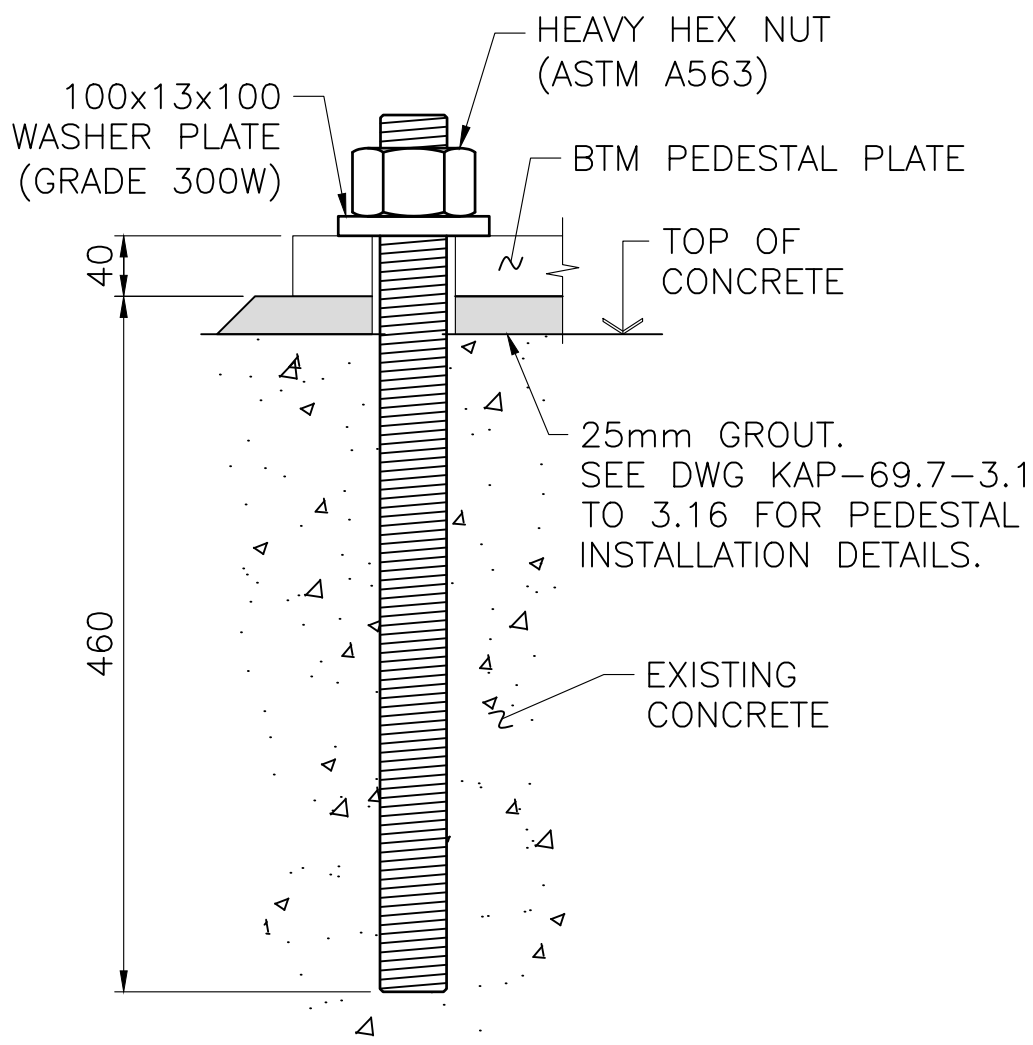


KEY PLAN

NOT TO SCALE

NOTES:

CONCRETE TO BE DRILLED AFTER
DETERMINING ANCHOR ROD LOCATION.
RODS TO BE GROUTED USING
NON-SHRINK GROUT. RODS, NUTS
& WASHERS SHALL BE FULLY
GALVANIZED.



1-44mm dia.x580mm LONG
(ASTM F1554, GR 105) ANCHOR ROD
c/w 1-HEAVY HEX NUT AND
1-100x13x100 WASHER PLATE

ANCHOR ROD AR 11-2

48—REQUIRED
GALVANIZED
UNIT WT: 8kg
SCALE 1:5

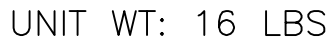
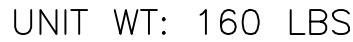
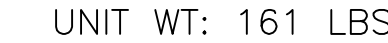
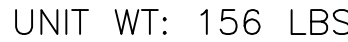
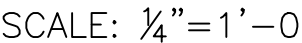
NOTES:

- DESIGN AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH AREMA (2023) CHAPTER 15
- MATERIAL SHALL BE IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS:
 - STRUCTURAL STEEL: ____ CSA CAN3-G40.21, GRADE 350W
 - ANCHOR RODS: _____ ASTM F1554, GRADE 105
 - WELDING: _____ CSA W59 & AWS D1.5
 - METALLIZING: _____ CSA G189
- TOP PLATE OF PEDESTAL SHALL BE METALLIZED.
- SEE CONCRETE REPAIR DRAWINGS KAP-69.7-3.1 TO 3.16 FOR PLACEMENT OF PEDESTALS.

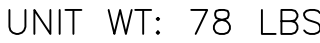
ESTIMATED QUANTITIES: (ON THIS DRAWING)

- STRUCTURAL STEEL _____ 9504 kg
- ANCHOR ROD AR 11-1 _____ 36 EACH
- ANCHOR ROD AR 11-2 _____ 48 EACH

NOTES:	LEGEND:																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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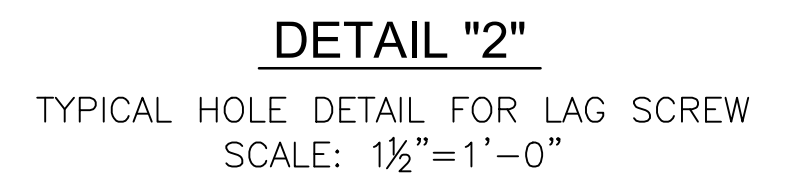
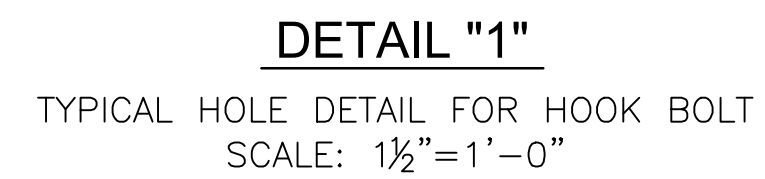
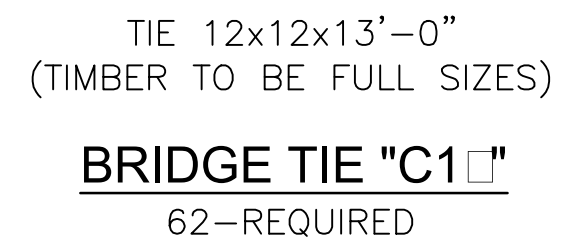
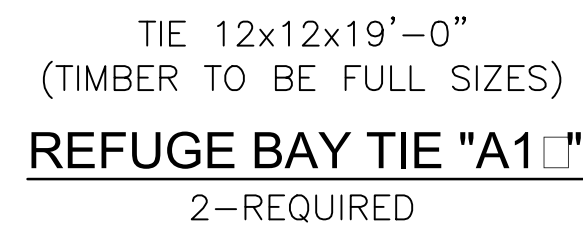


NOTE: STEEL TIE SPACER QUANTITIES ARE FOR 1 SPAN ONLY



DWG. BY: T.Z.	CHK BY:	OFFICE FILE:
ENGINEER:		SCALE: 3/4"=1'-0" (UNLESS NOTED)
PROJECT MANAGER: A.M.		DATE: 2024/03/12
		PLAN No. KAP-69.70-4.12

1	24/04/02	QUANTITIES UPDATE	
0	24/03/12	ISSUED FOR TENDER	T.Z.
No.	DATE	REVISION	BY



NOTES:

- FOR GENERAL NOTES, SEE DRAWING No. KAP-69.70-4.2.
- READ THIS DRAWING IN CONJUNCTION WITH DRAWING No. KAP-69.70-4.12.

LEGEND:

1	24/04/02	QUANTITIES UPDATE	
0	24/03/12	ISSUED FOR TENDER	T.Z.
No.	DATE	REVISION	BY



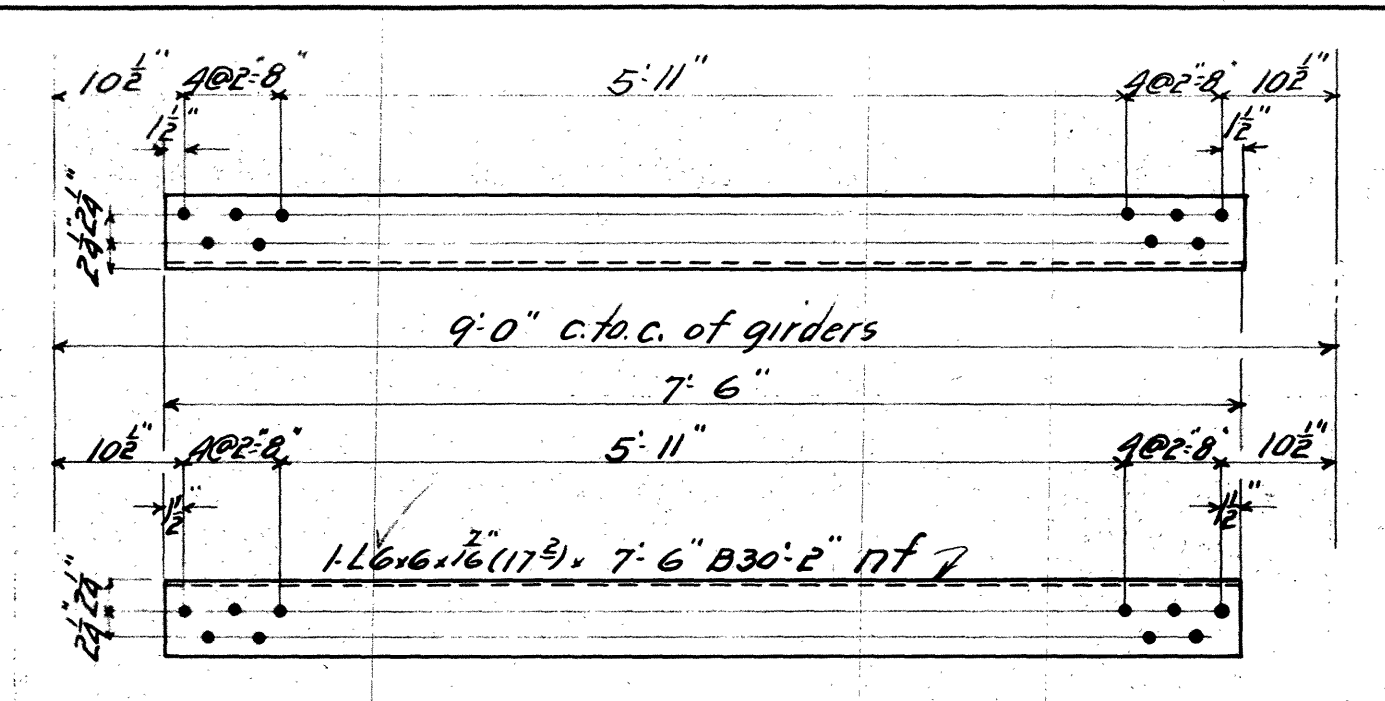
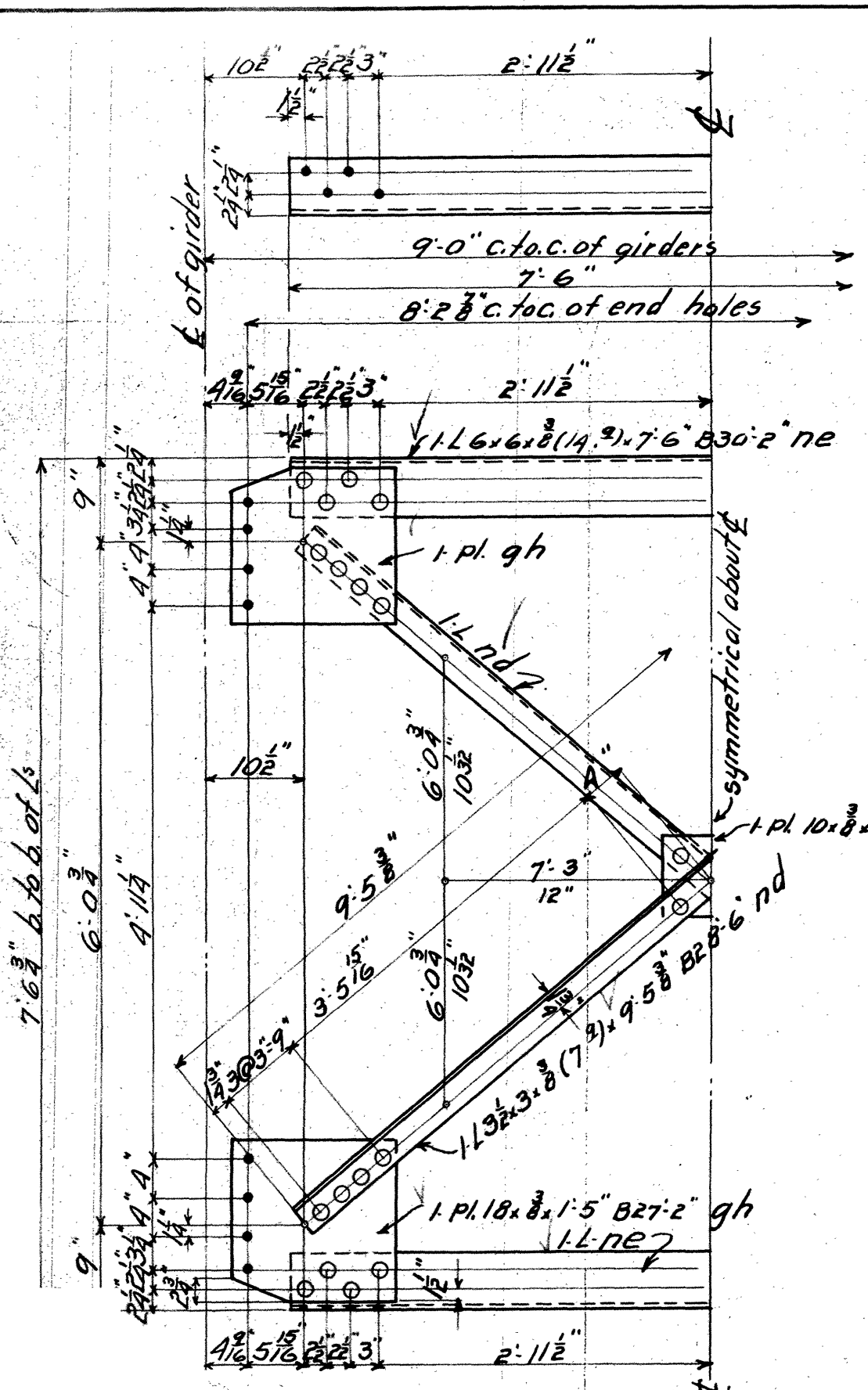
HATCH DOCUMENT No. H371873-0000-224-270-4001

69.70 KAPUSKASING SUBDIVISION

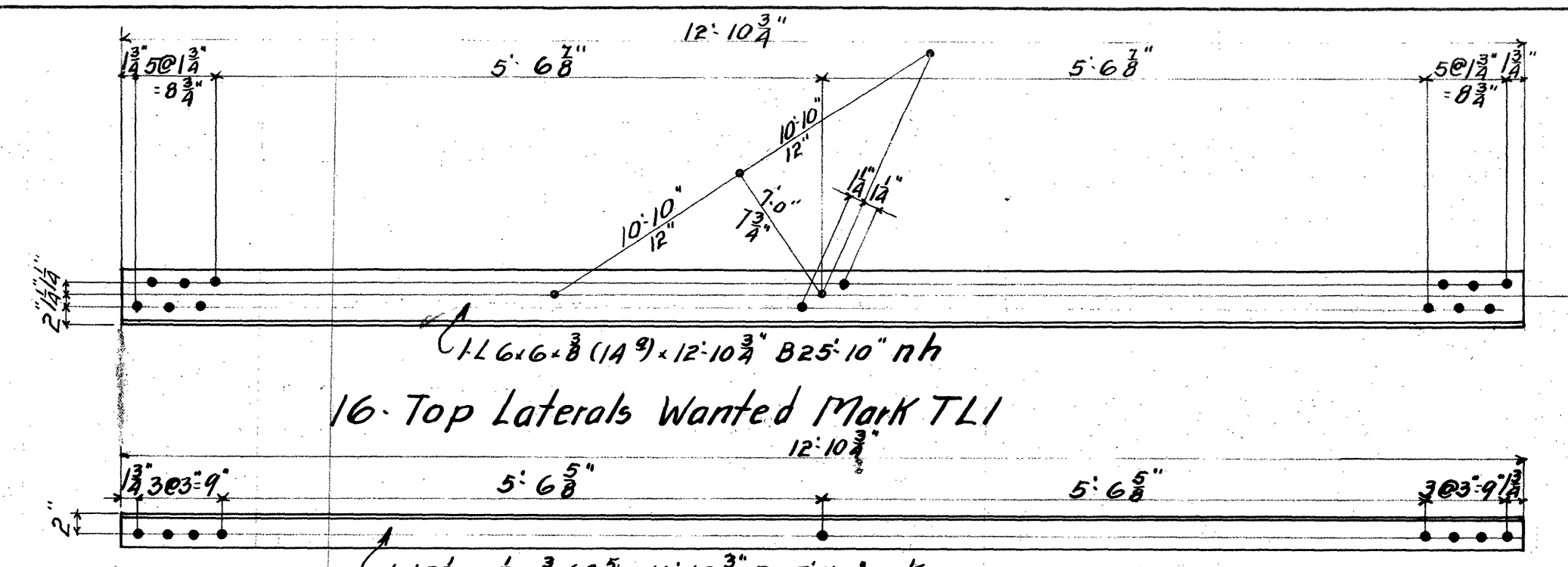
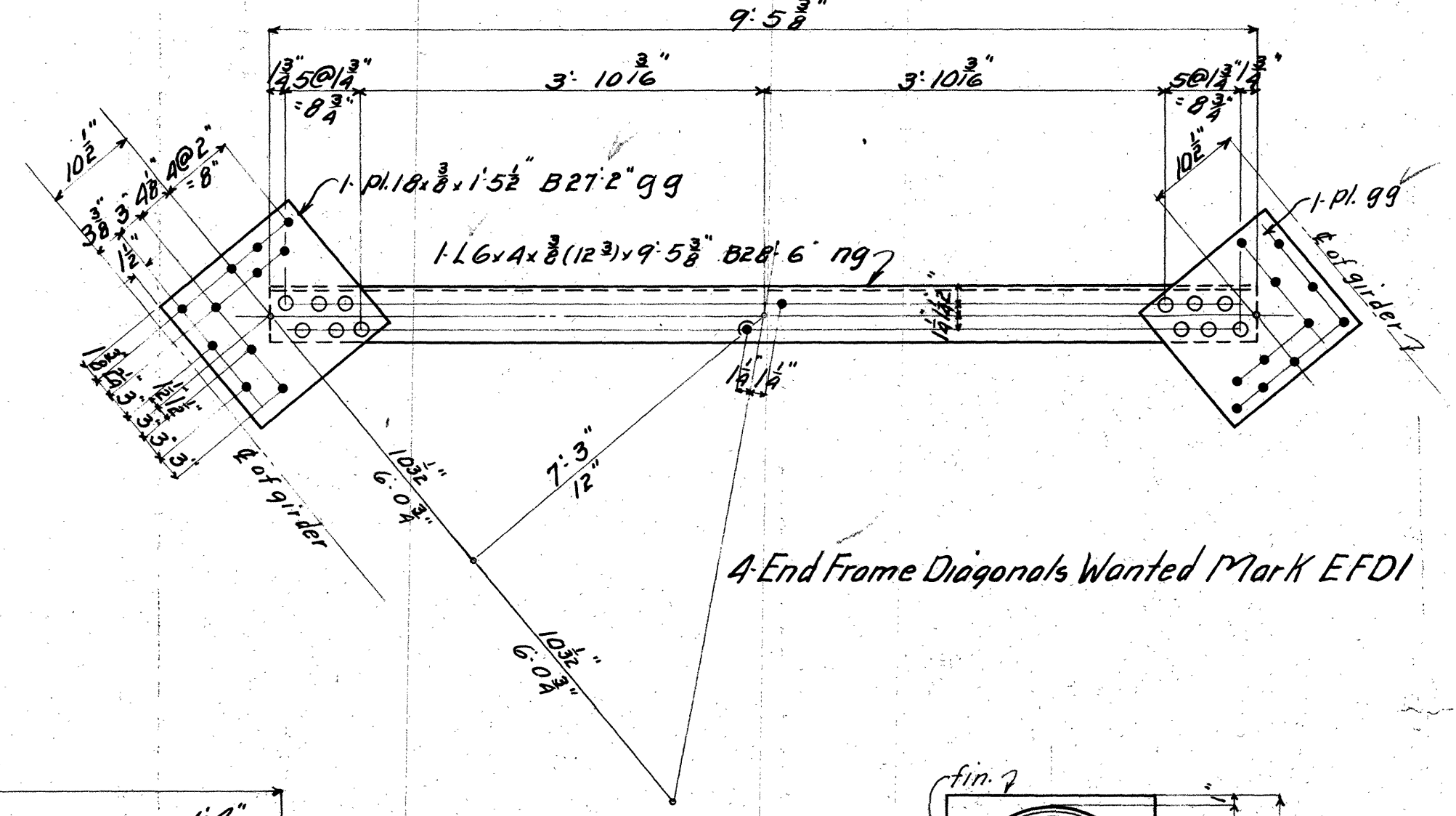
BRIDGE SUPERSTRUCTURE REPLACEMENT
EXTRA DECK TIE DRAWINGS (2 OF 2)

1	DWG. BY: T.Z.	CHK BY:	OFFICE FILE:
			SCALE: 3/4"=1'-0" (UNLESS NOTED)
	ENGINEER:		DATE: 2024/03/12
	PROJECT MANAGER: A.M.		PLAN No. KAP-69.70-4.13

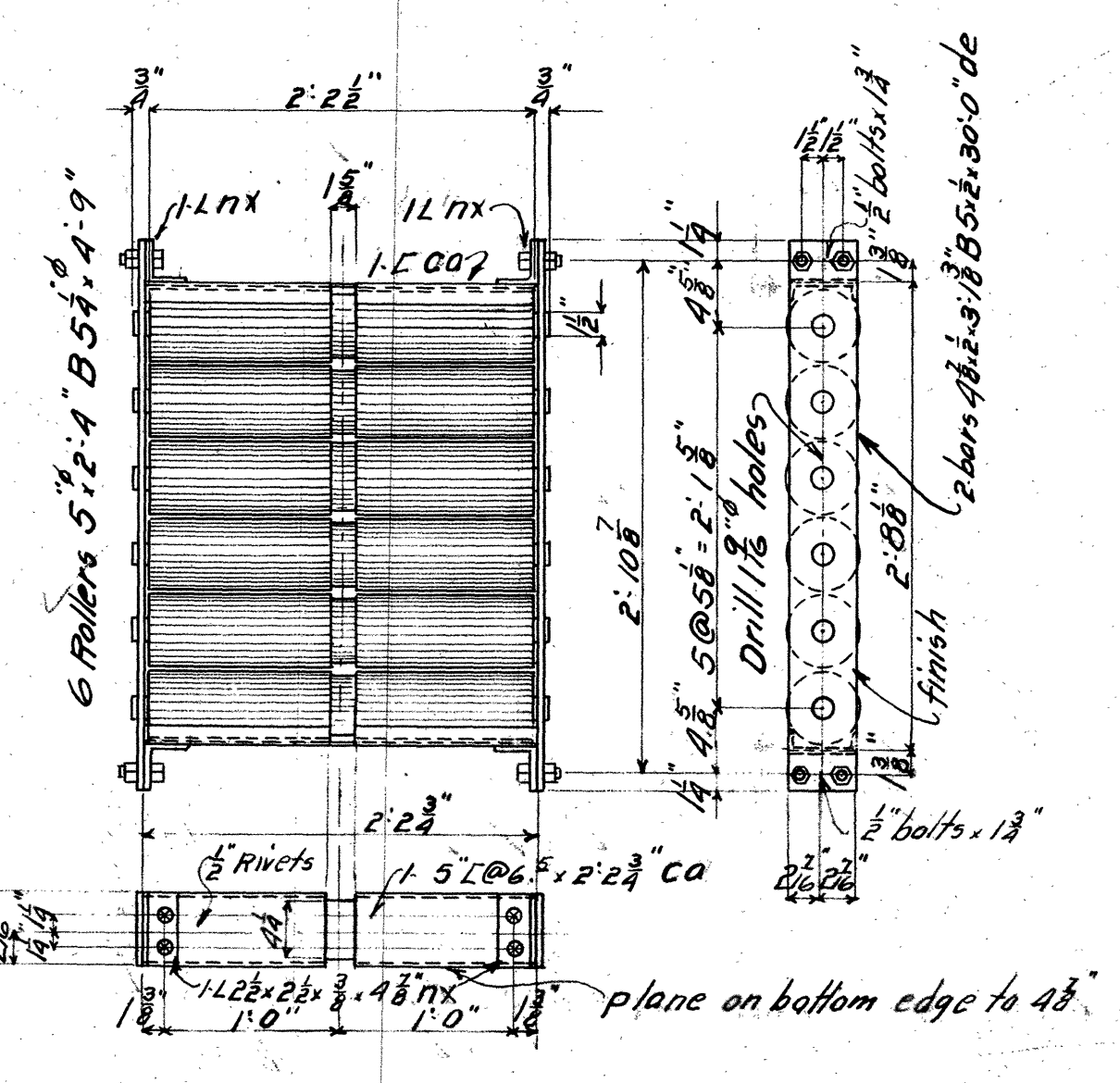
69.6 Kapuskasing Reference Drawings



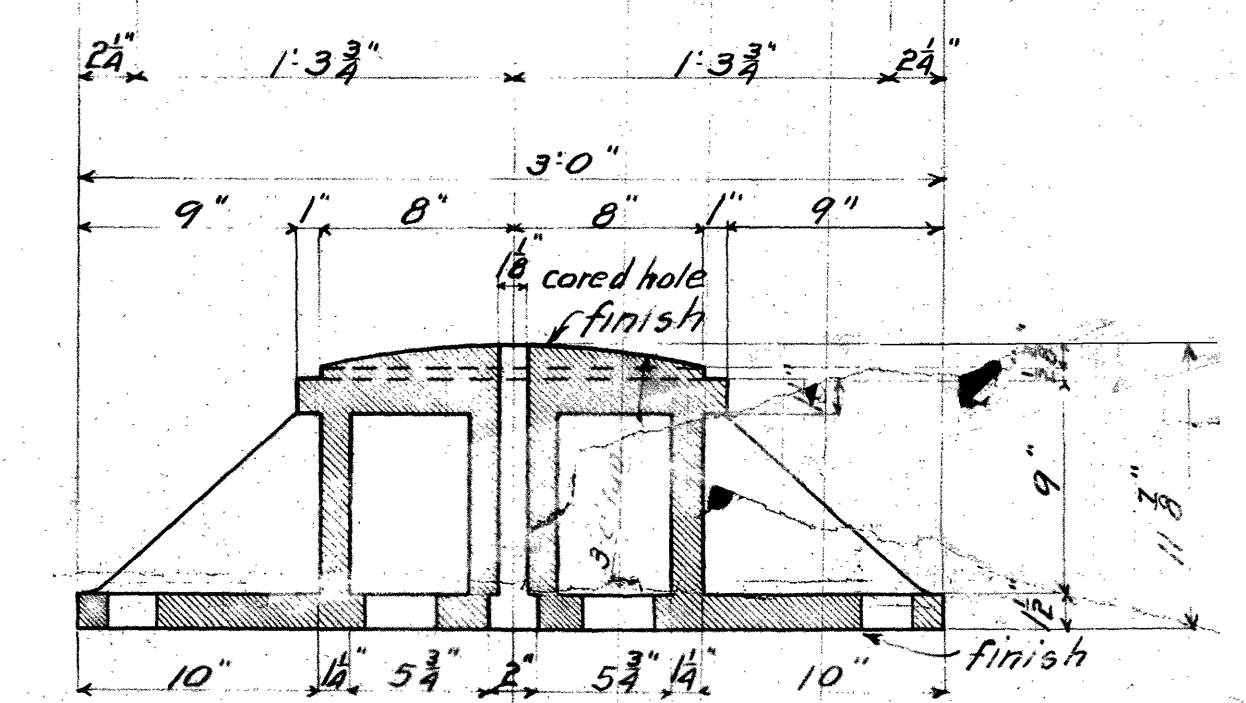
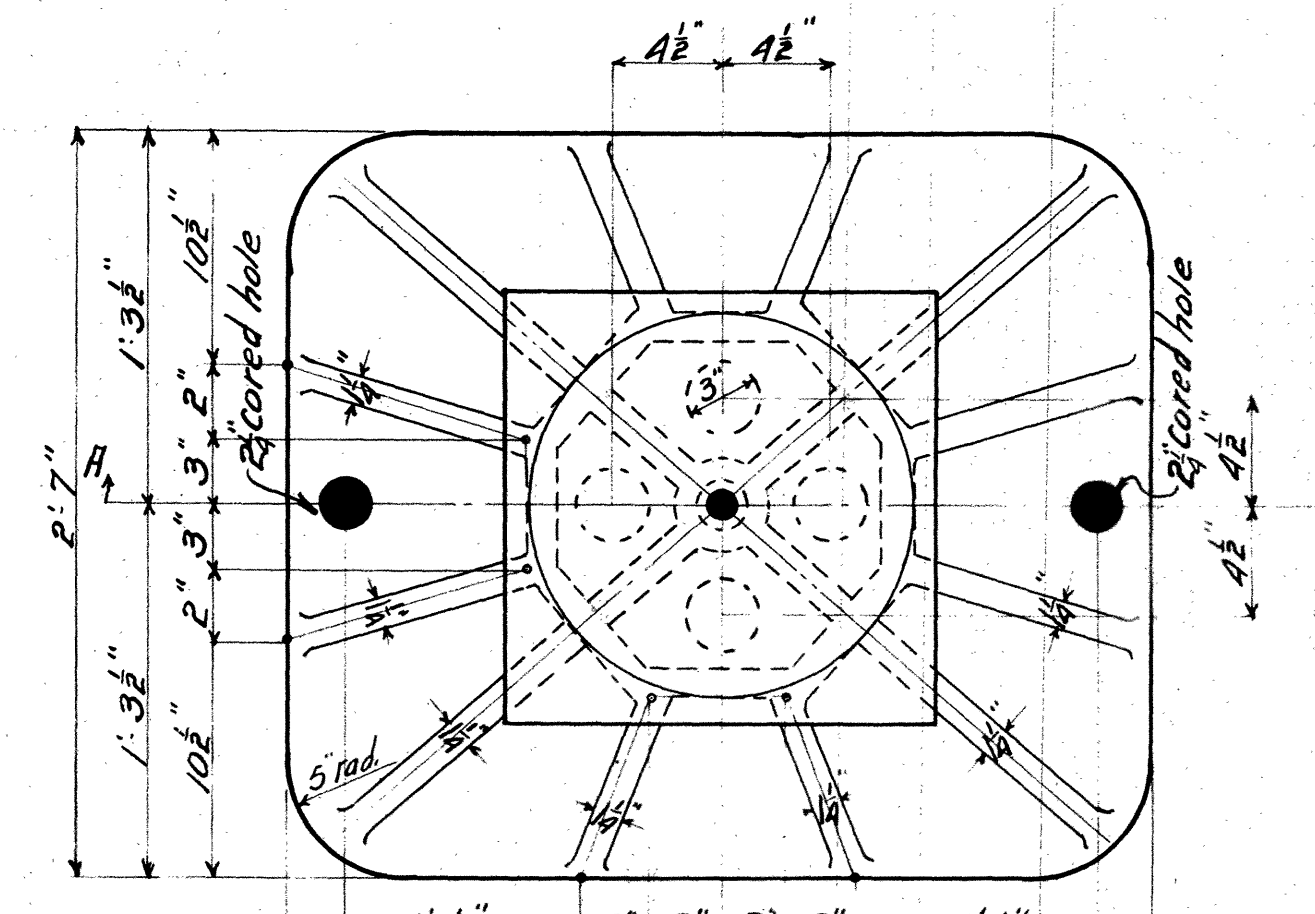
4 End Frame Struts Wanted Mark EFSI



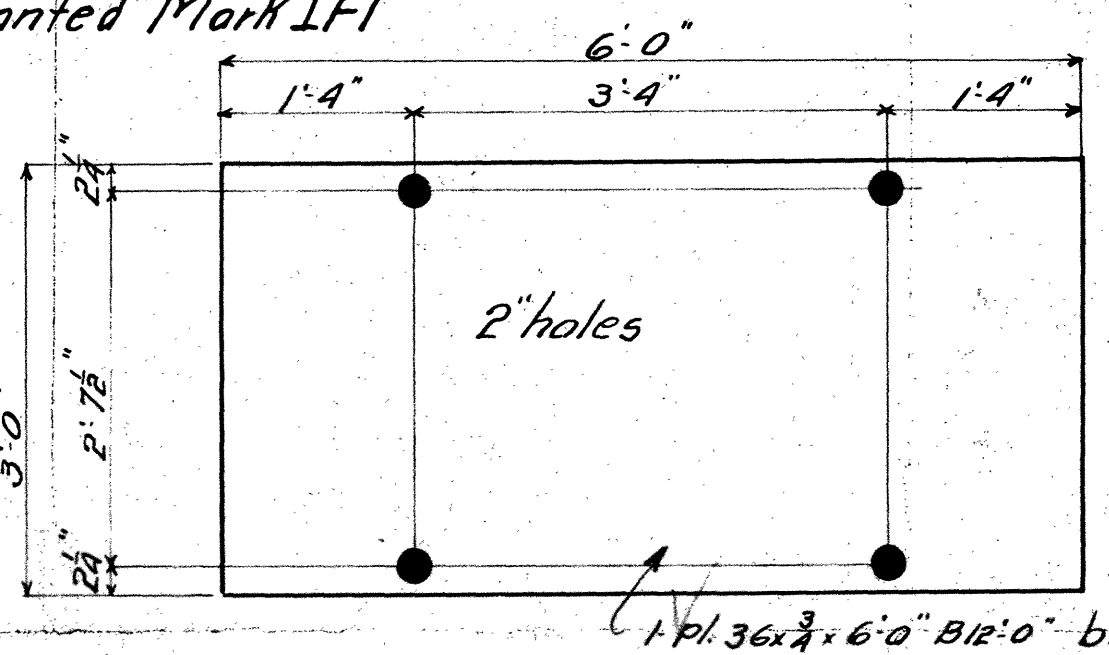
16 Bottom Laterals Wanted Mark BL1



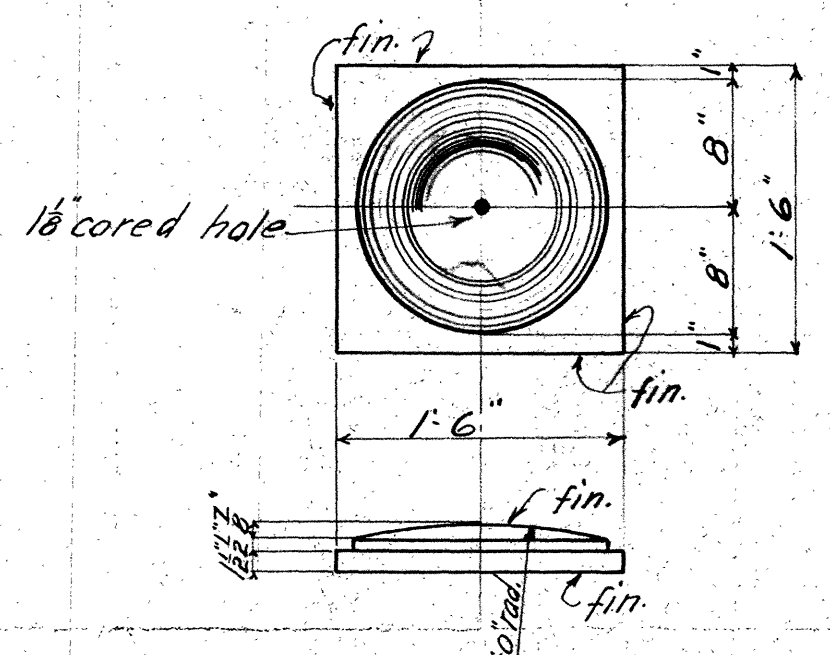
2 Roller Plates Wanted Mark RPI



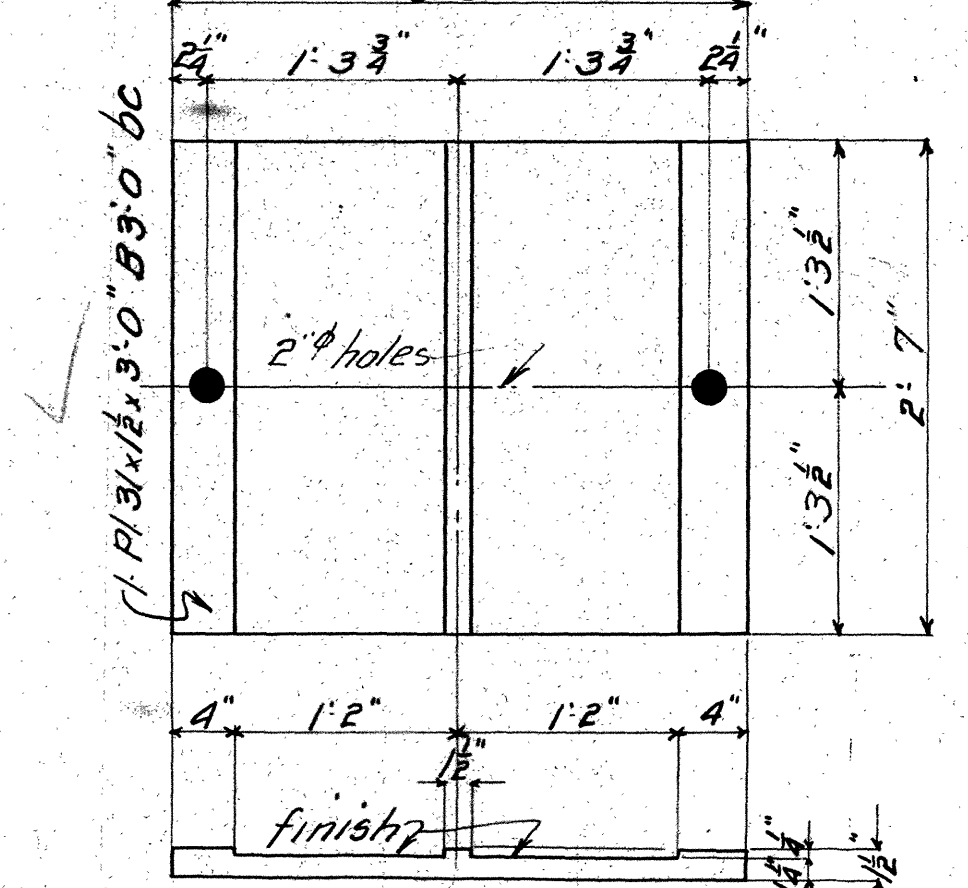
2 Wall Plates Wanted Mark WP2



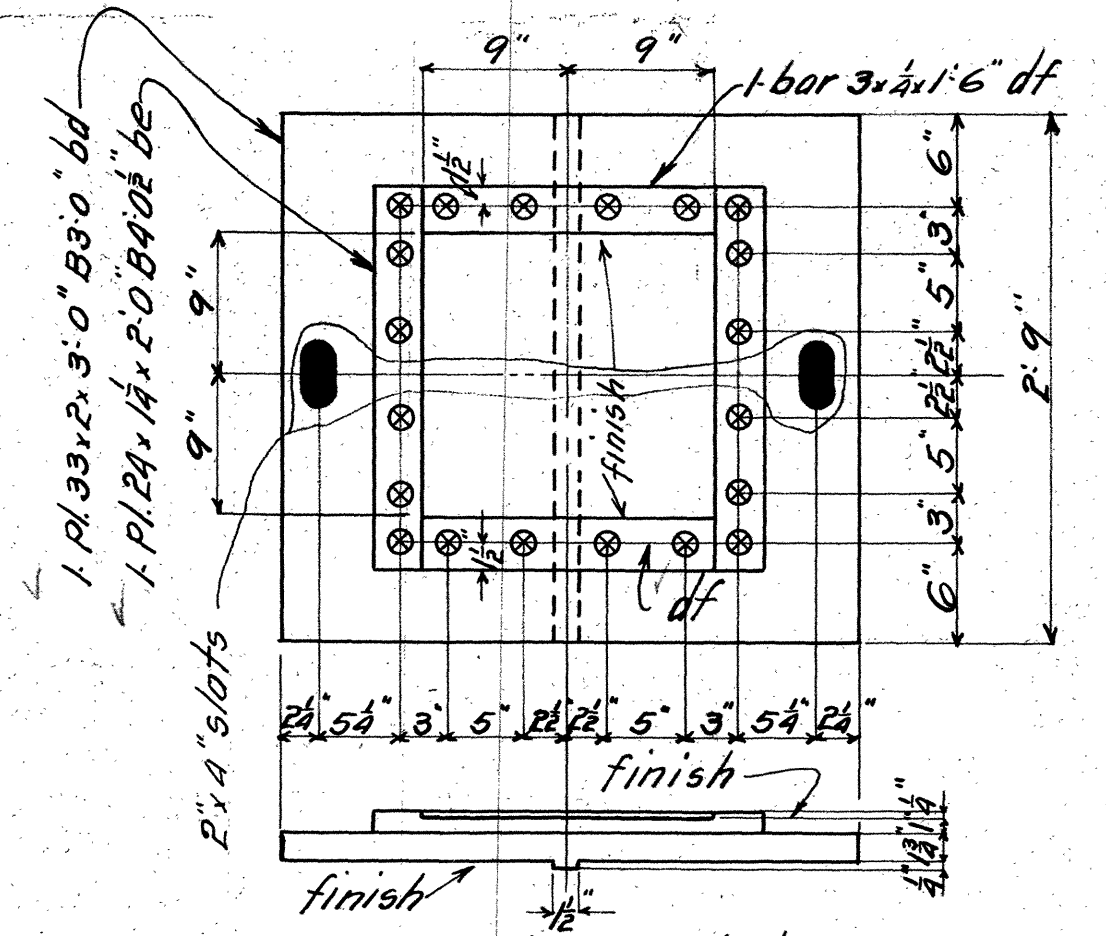
2 Wall Plates Wanted Mark WP3 for Contract 1010 only



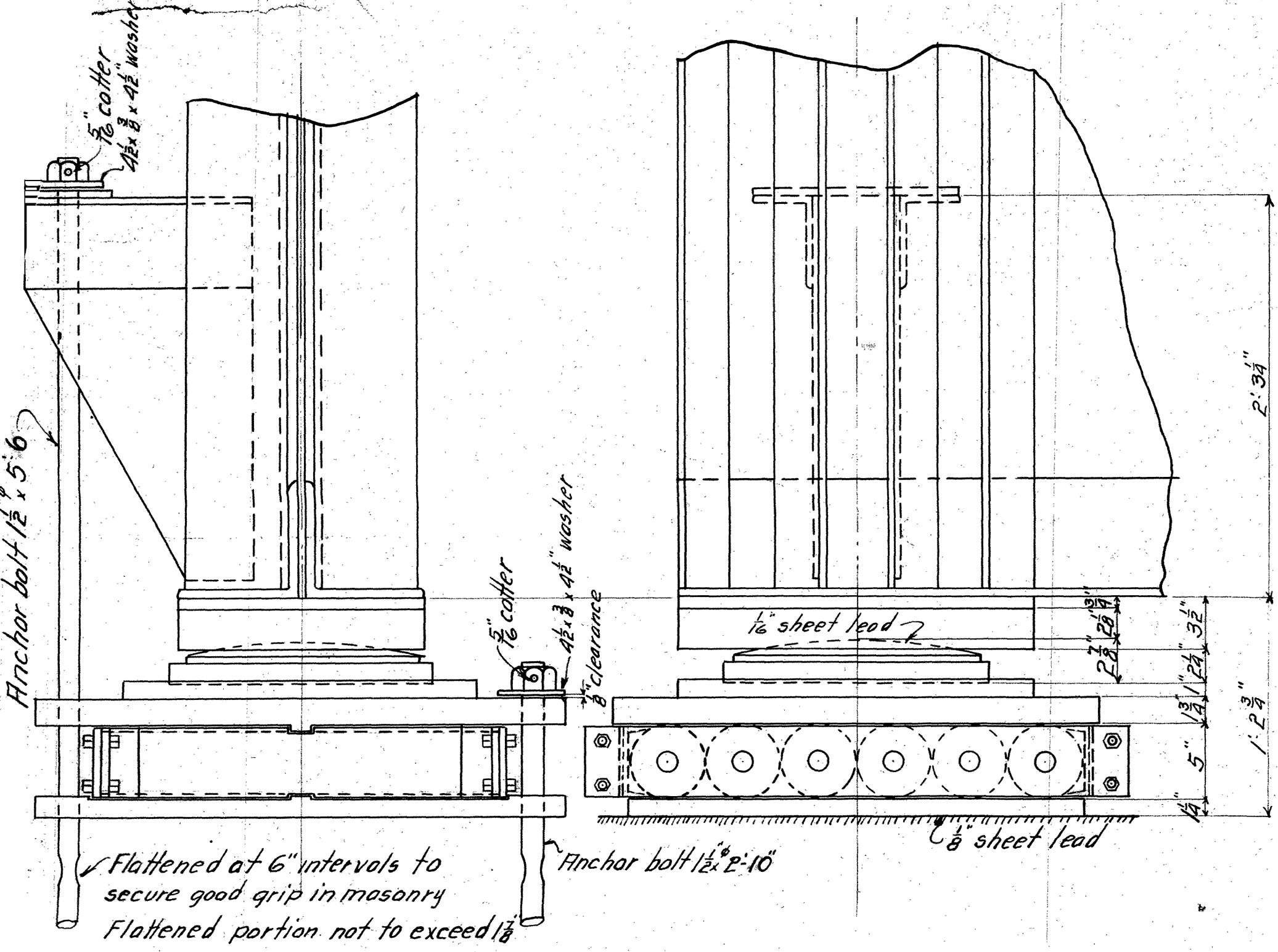
2 Wall Plates Wanted Mark WP2



2 Wall Plates Wanted Mark WP2



2 Wall Plates Wanted Mark WP2



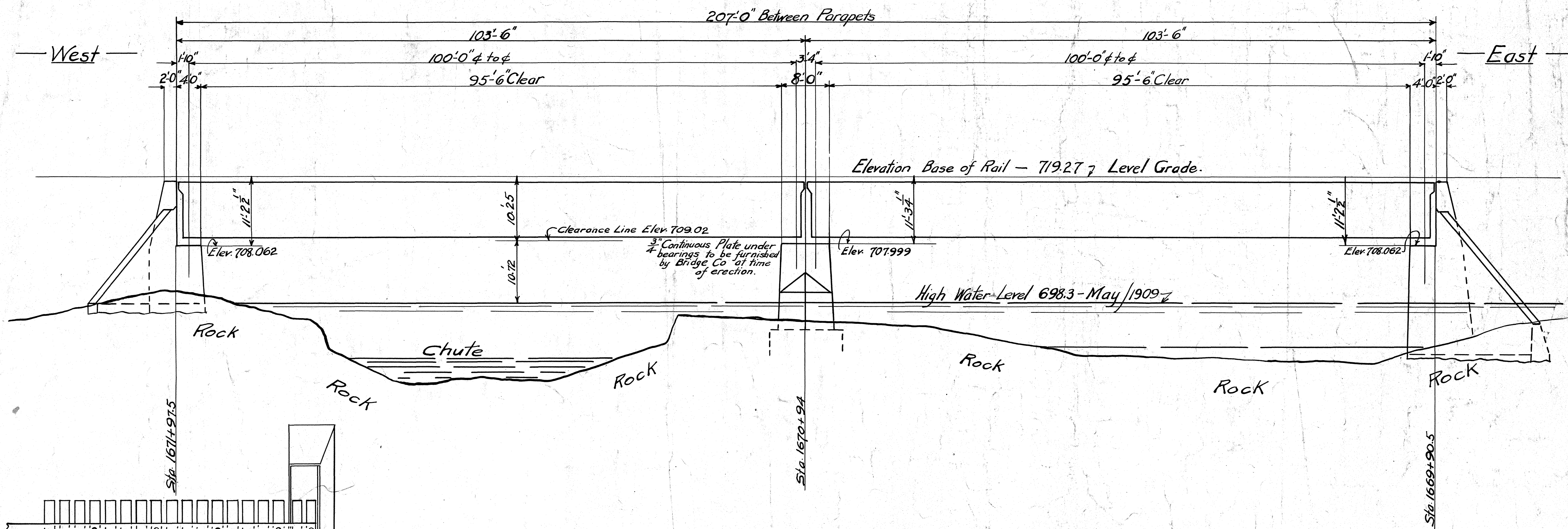
2 Wall Plates Wanted Mark WP2

Note: Material called for is for one span only except for Wall WP3 which is Material Med. Q.H. Steel unless noted. Rivets 3" unless noted.

2 pieces of Sheet lead 33 x 3 x 3/8
4 " " " 18 x 6 x 1/2
2 " " " 38 x 8 x 6/8 under WP3 Cont. 1010 only.

National Transcontinental Railway 1-100'-0" S.T. Deck Plate Girder Span **LATERALS-CROSS FRAMES-PIER MEMBERS**

Span	Crossing	Division	Dist.	Mileage	Date	Cont.	Dr. No.
2	East Branch Knapokasing River	Eastern	D	173 from East end of Dist.	1010	3	
1	Lost River	Eastern	D	166 from East end of Dist.	1012	3	
1	Mathowishawia River	Eastern	D	230.25 from East end of Dist.	1019	3	
1	Peter Brown Creek	Eastern	C	115.16 from East end of Dist.	1030	3	

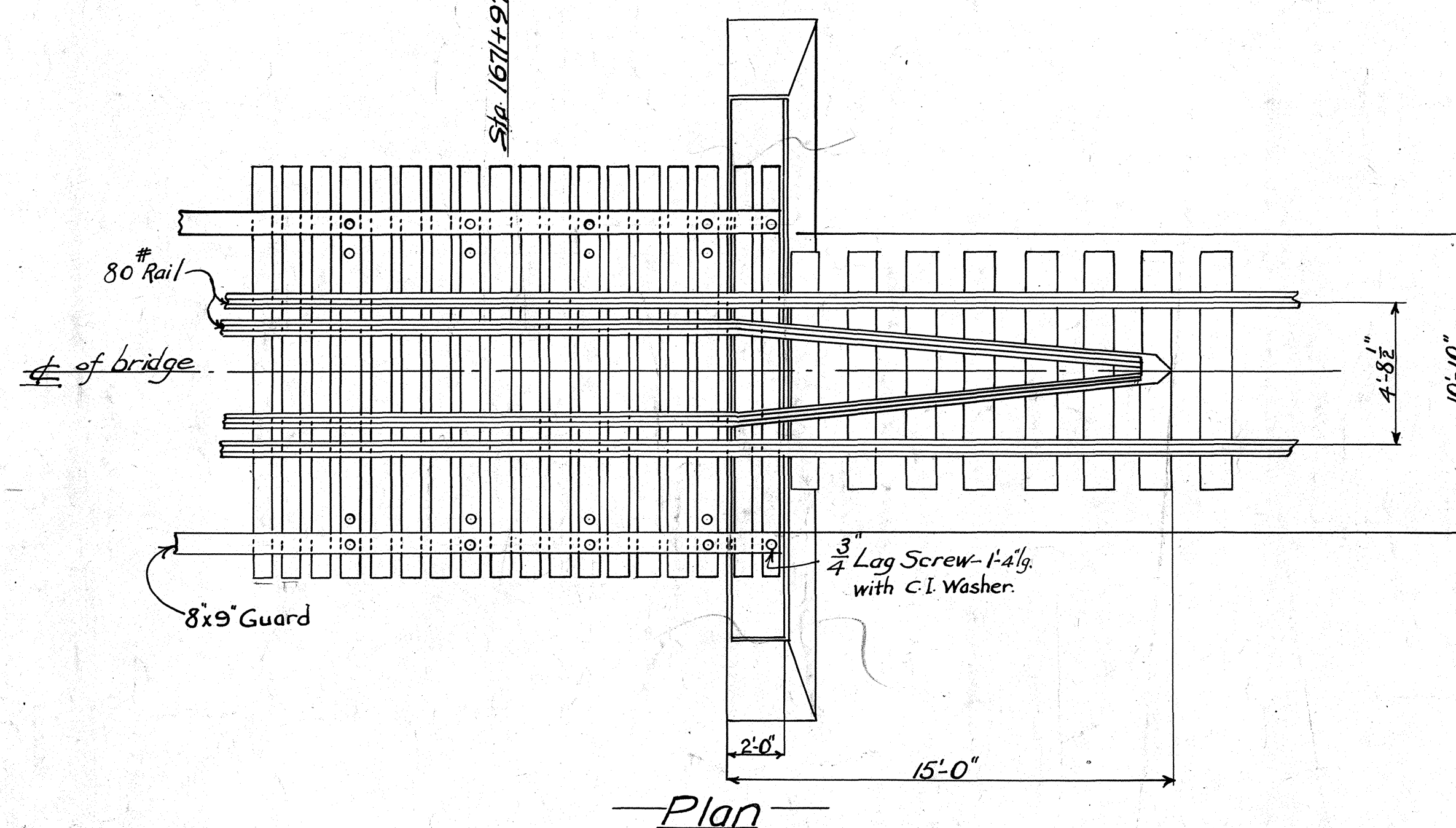


BILL OF TIMBER

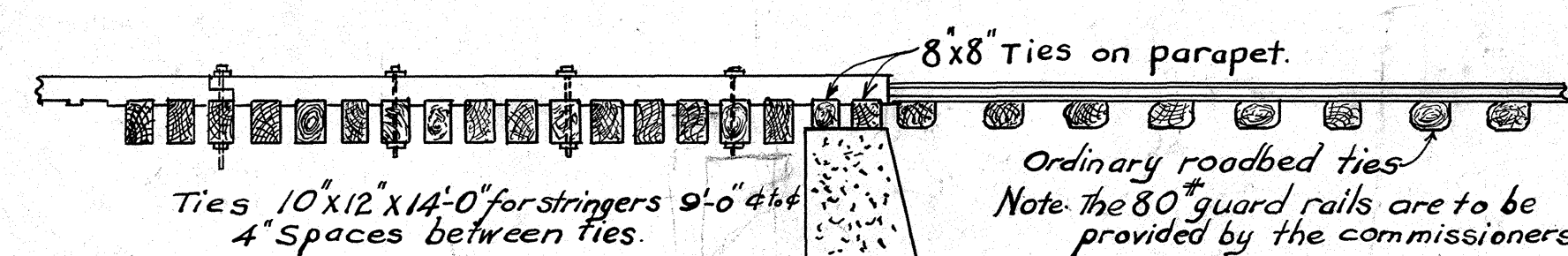
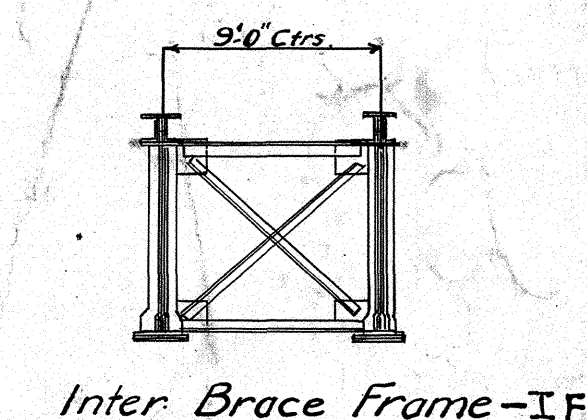
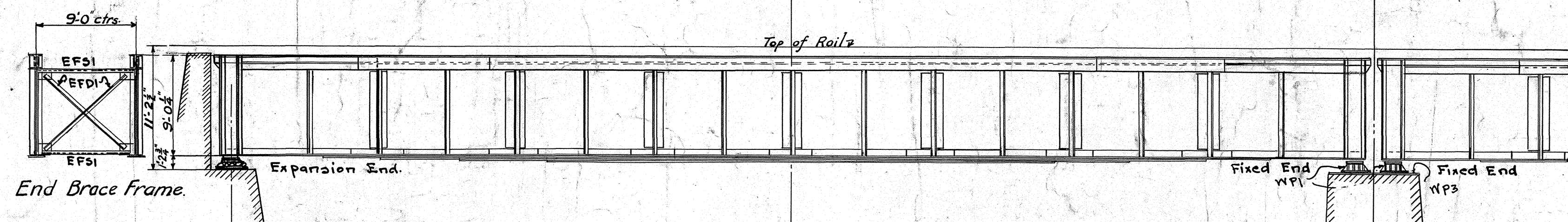
No.	Description	Size	Length	F.B.M.
4	Ties	8x8	14'-0"	299
180	Ties	10x12	14'-0"	25200
28	Guards	8x9	16'-0"	2688
				28187

BILL OF BOLTS

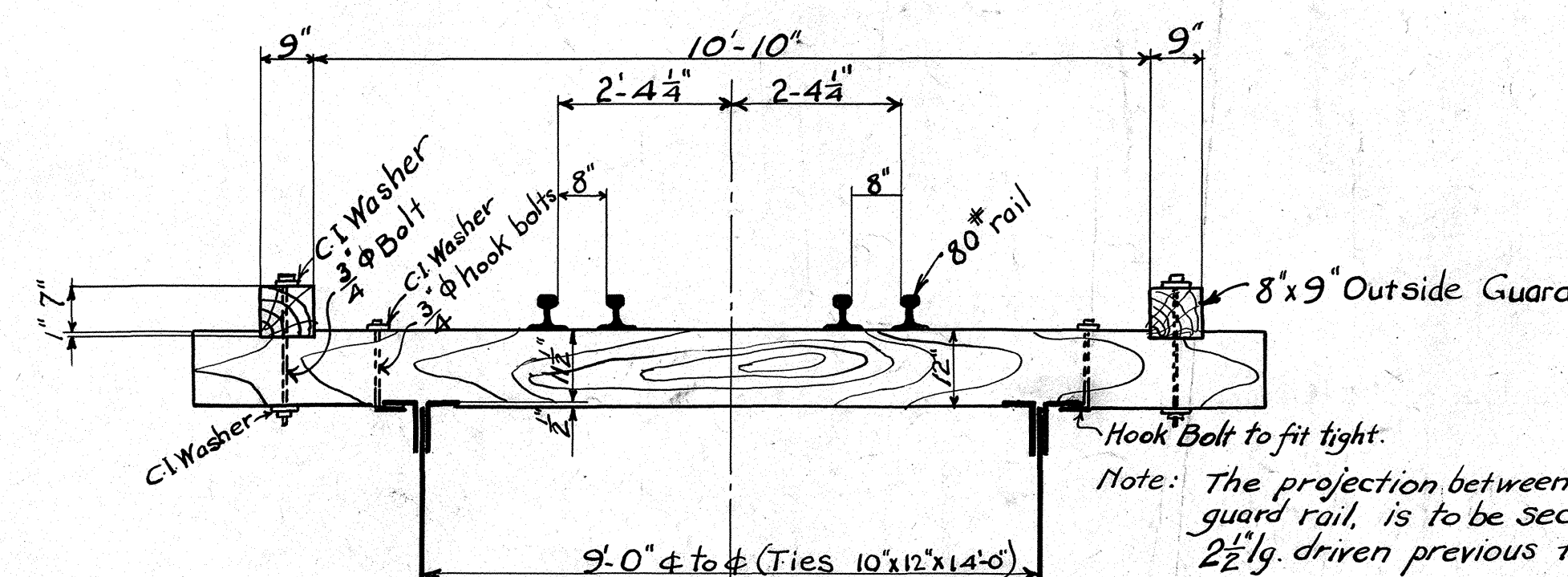
No.	Location	Size	Length	Nuts	Washers
100	Guard Rail To Ties	$\frac{3}{4}$ " ϕ	1'-9 $\frac{1}{2}$ "	1	2
100	Ties to String	$\frac{3}{4}$ " ϕ	Hook Bolts 1'-2 $\frac{1}{2}$ "	1	1
4	Guard Rail to Ties	$\frac{3}{4}$ " ϕ	Lag Screws 1'-4"		1
20	Projections in Guard Rail	Nails (Wire)	2 $\frac{1}{2}$ "		



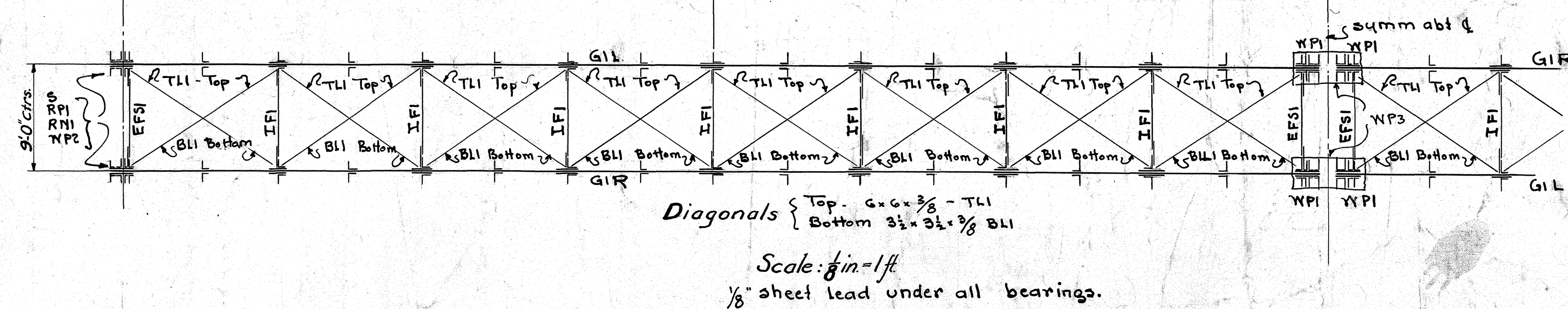
Elevation
Scale: $\frac{1}{10}$ " = 1'



Side Elevation
Scale: $\frac{1}{4}$ " = 1'



Section
Scale: $\frac{1}{2}$ " = 1'



PAINTING :-

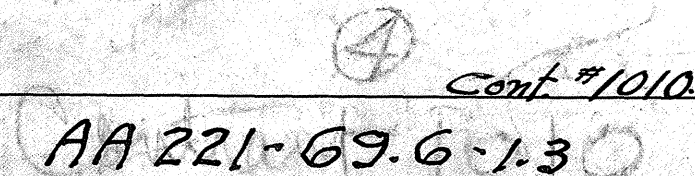
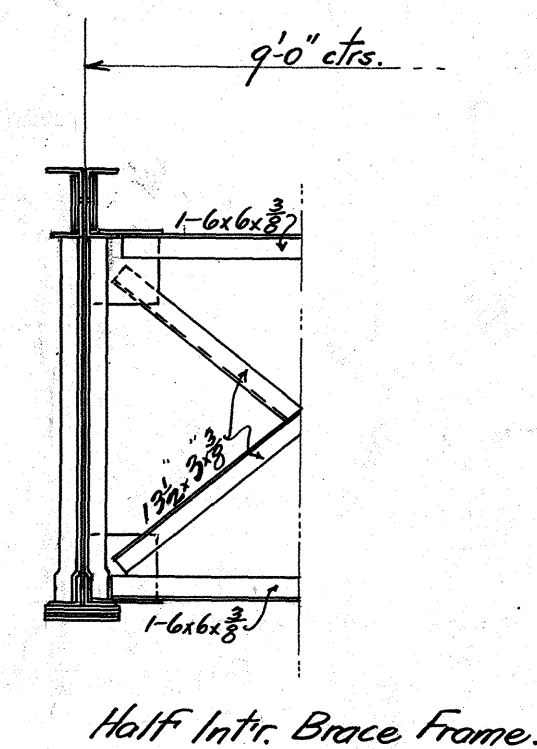
Shop Paint:-
Parts inaccessible after assembling - 1 coat, and all other parts - 1 coat
of "Black Steel Grapho."
Parts inaccessible after erection - 1 coat "Brown Girbro."
Plated Surfaces - 1 coat White Lead & tallow.
Field Paint:-
2 coats:- 1st "Brown Girbro."
2nd "Black Girder Jet."
Use Canada Paint Co's. "Elephant Brand" paint.

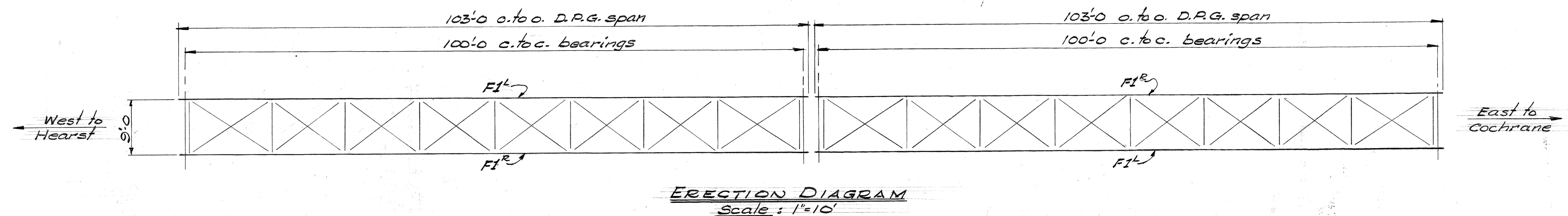
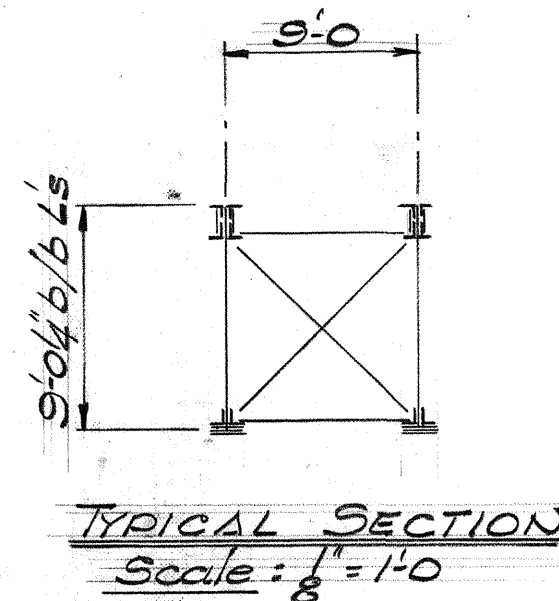
National Transcontinental Railway
Eastern Division, District D.
Mile 173 from East End of District
KAPUSKASING RIVER CROSSING
EASTERN BRANCH
GENERAL DIAGRAM
2-100 ft. S.T. Deck Plate Girder Spans.
Scales: As noted Mar. 23, 1911.
The Canadian Bridge Co. Ltd.
Walkerville - Ont.

O.K. Rev. March 30, 1911.

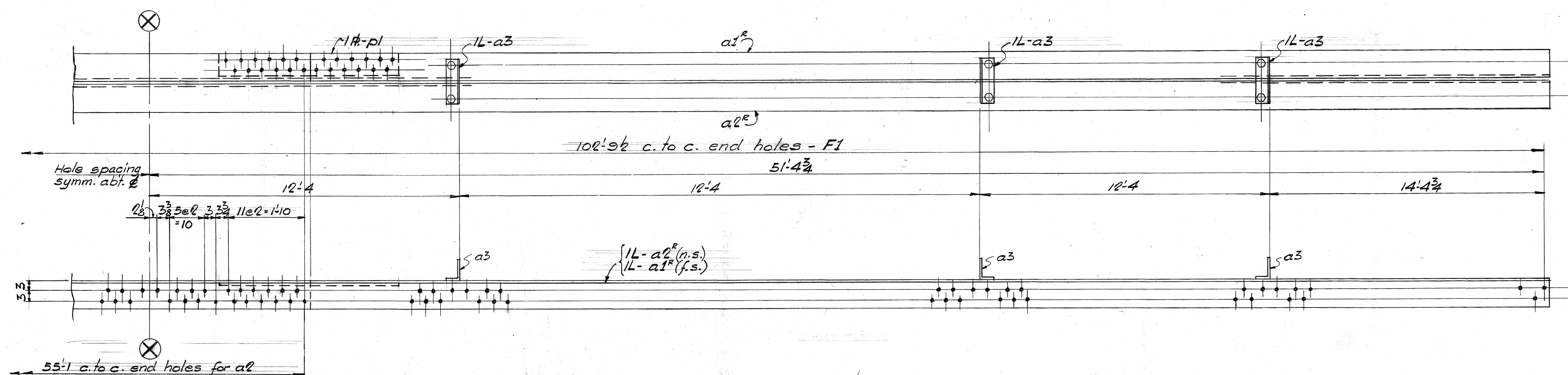
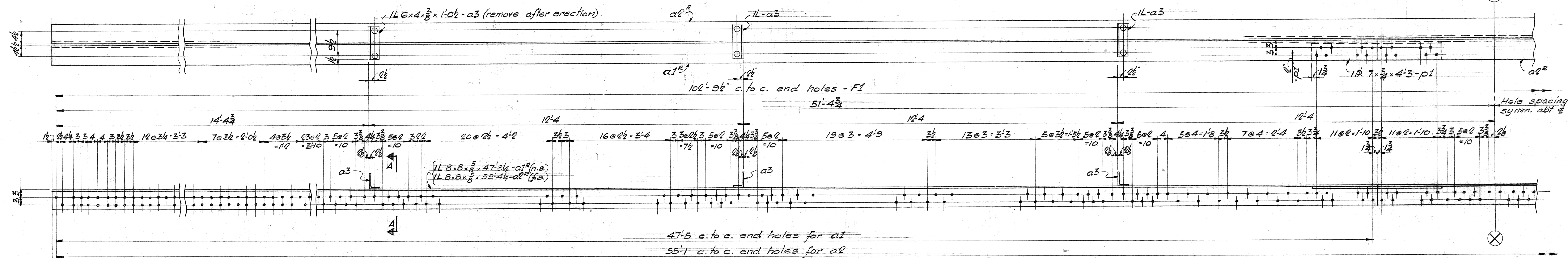
T-4-3

1010-1/3





NOTE:
SIDE PLATES, SPLICE PLATES, ETC. ARE
NOT TO BE DAMAGED PRIOR TO OR
DURING ERECTION OF F1%.

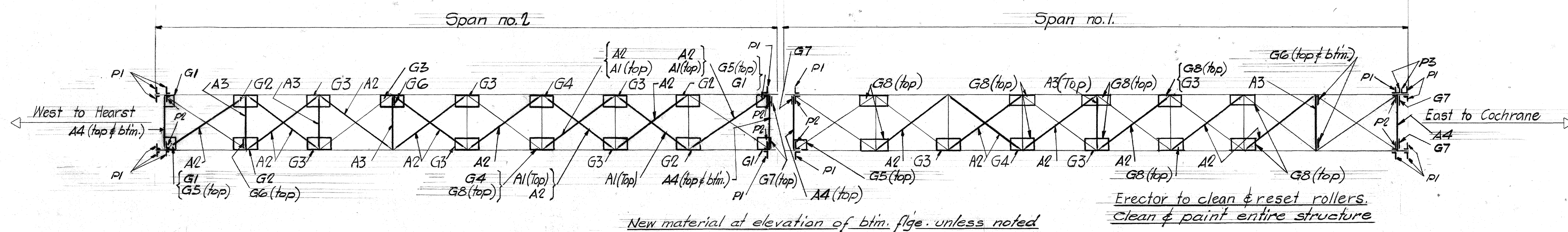


2 GIRDER FLANGES REQ'D. - F1^R
2 DO. DO. DO. - F1^L

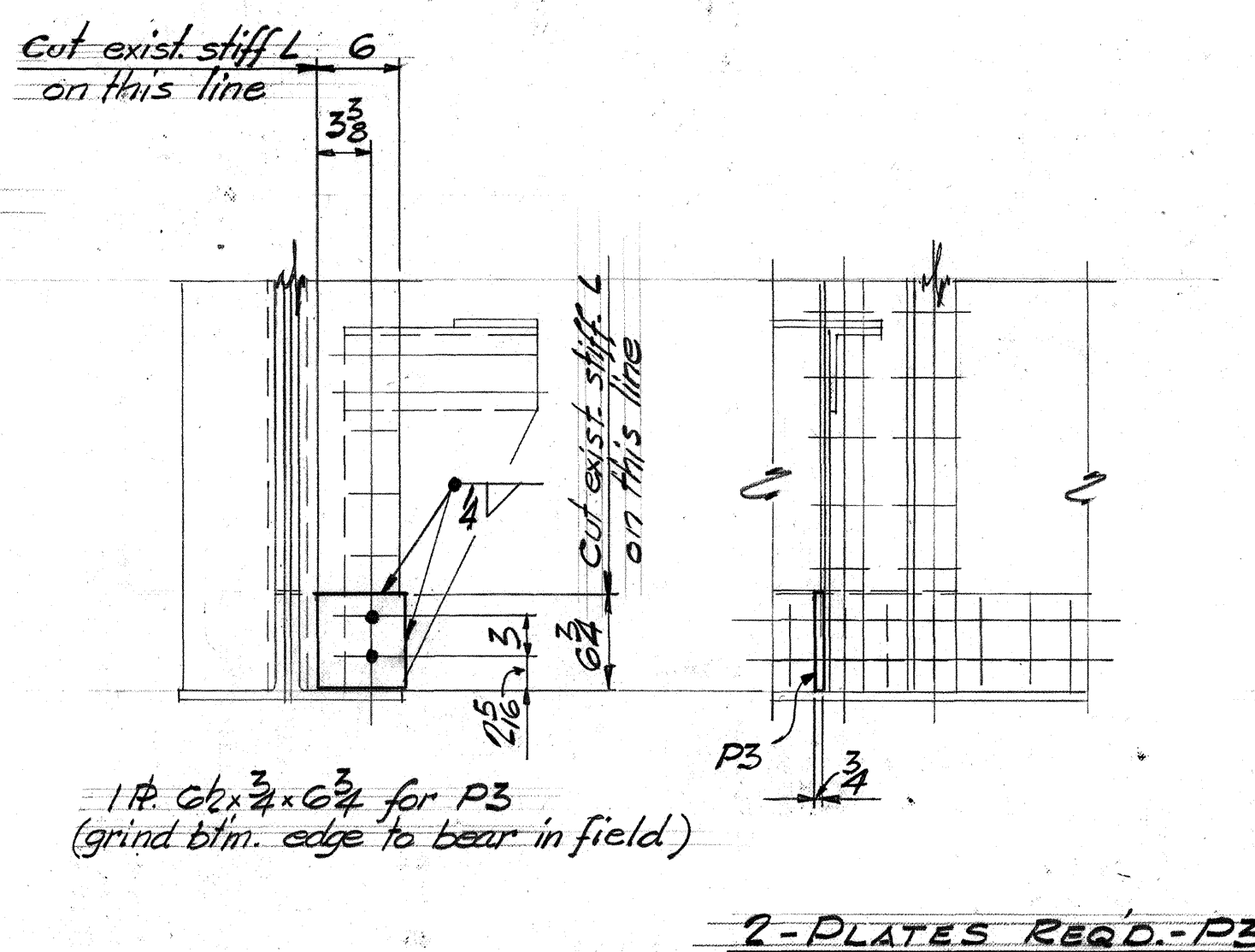
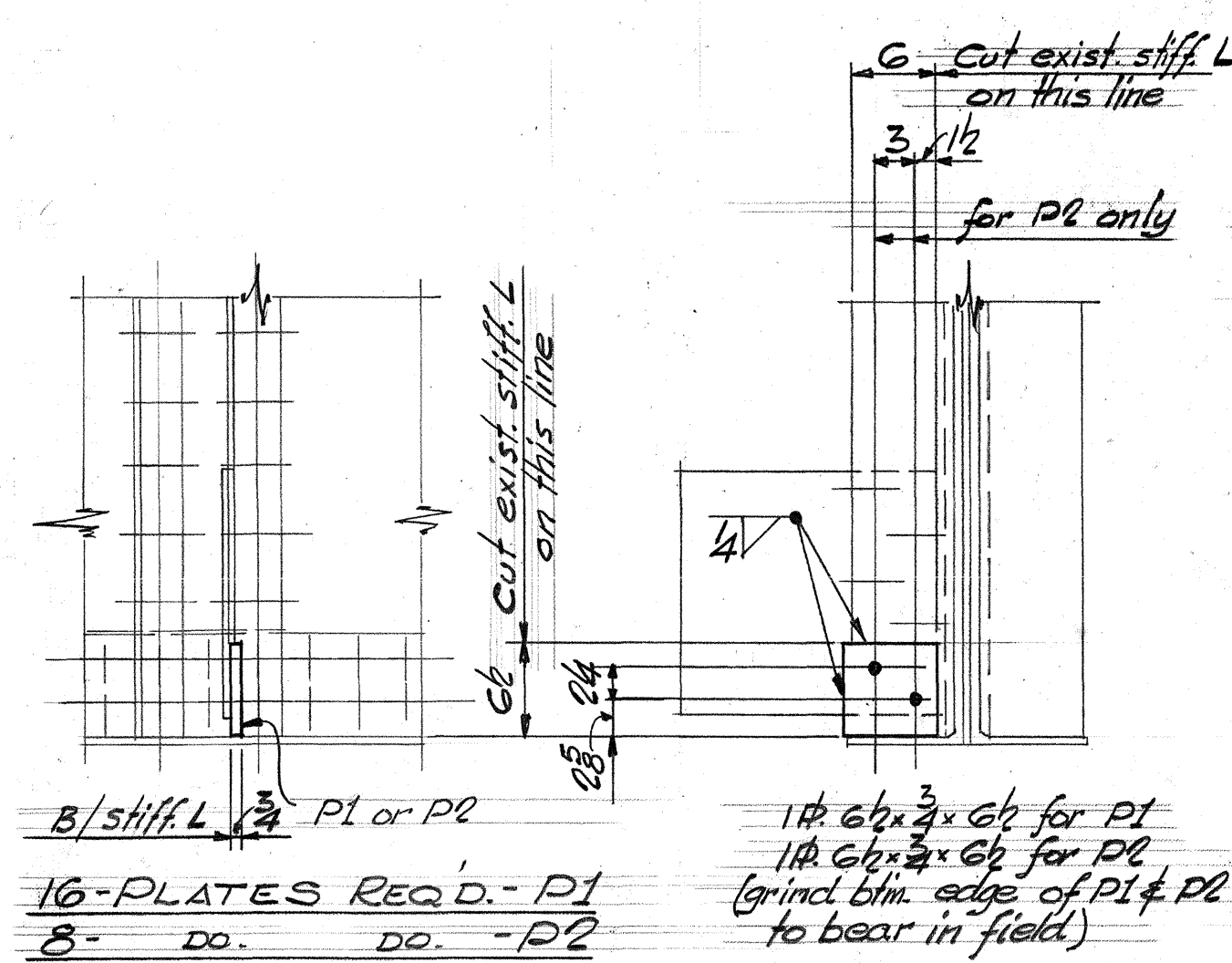
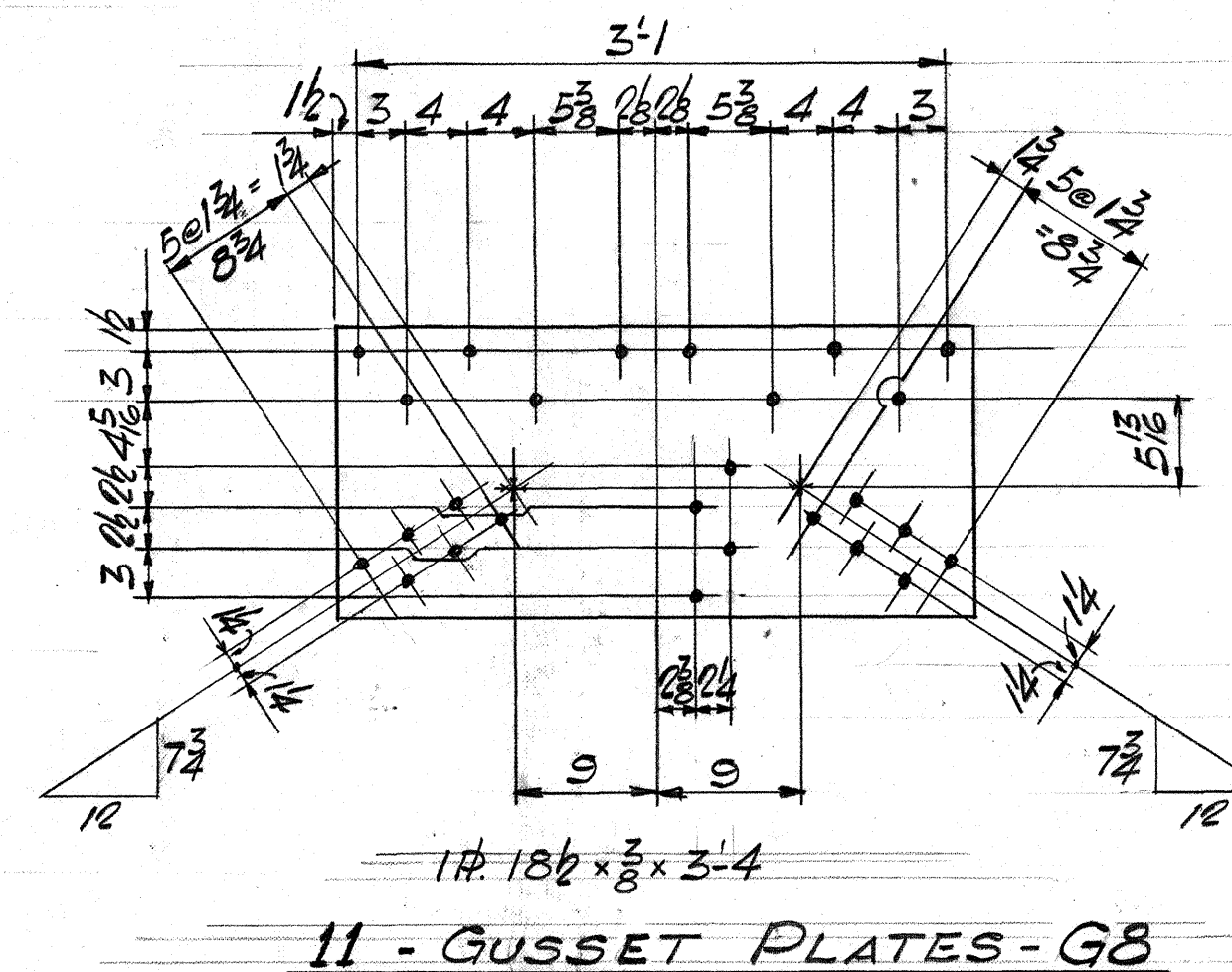
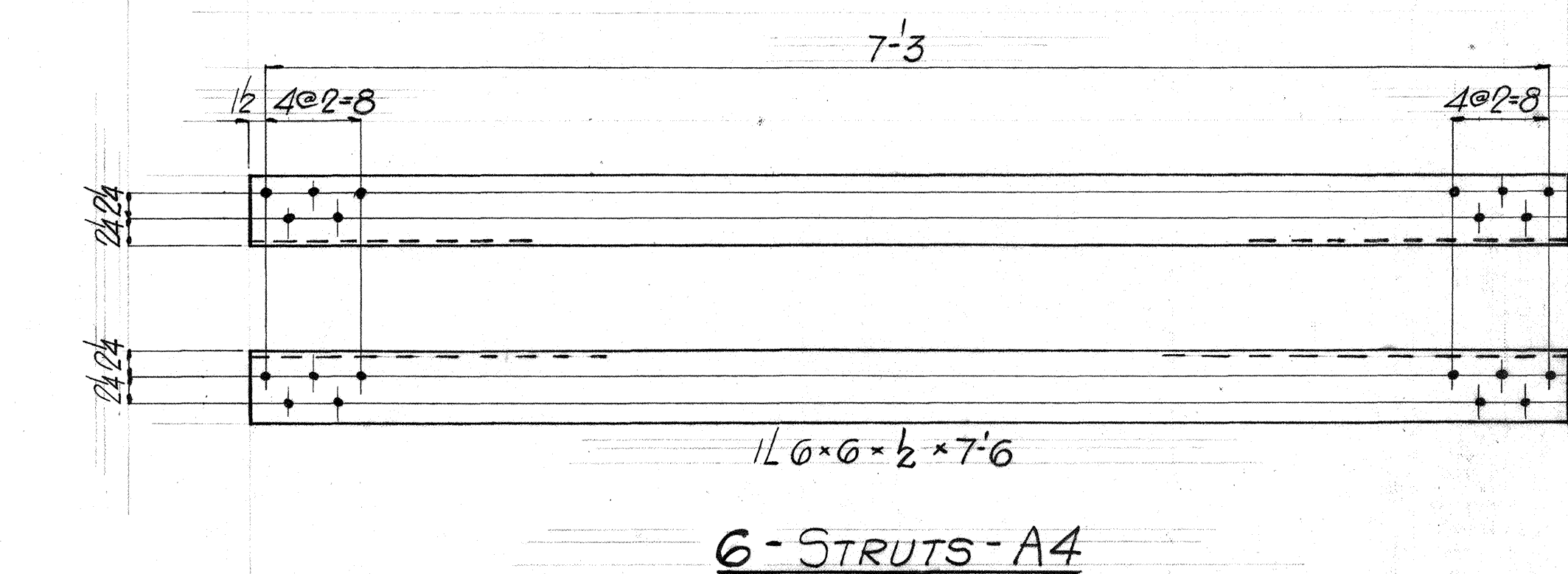
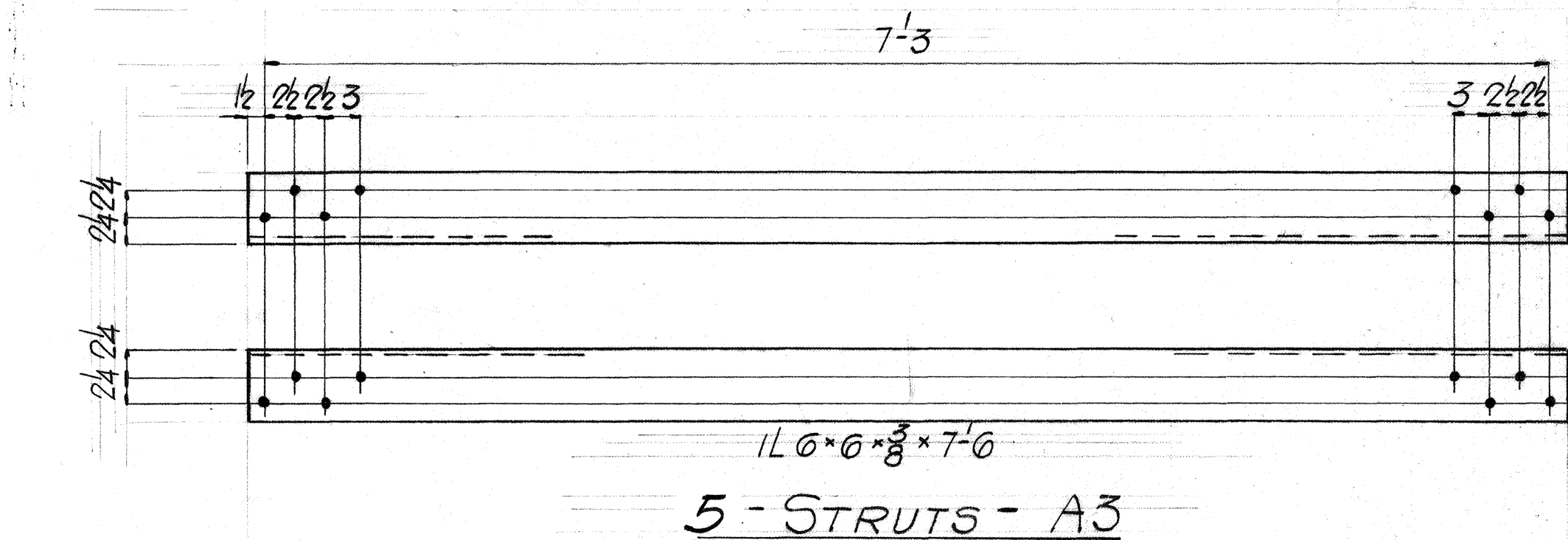
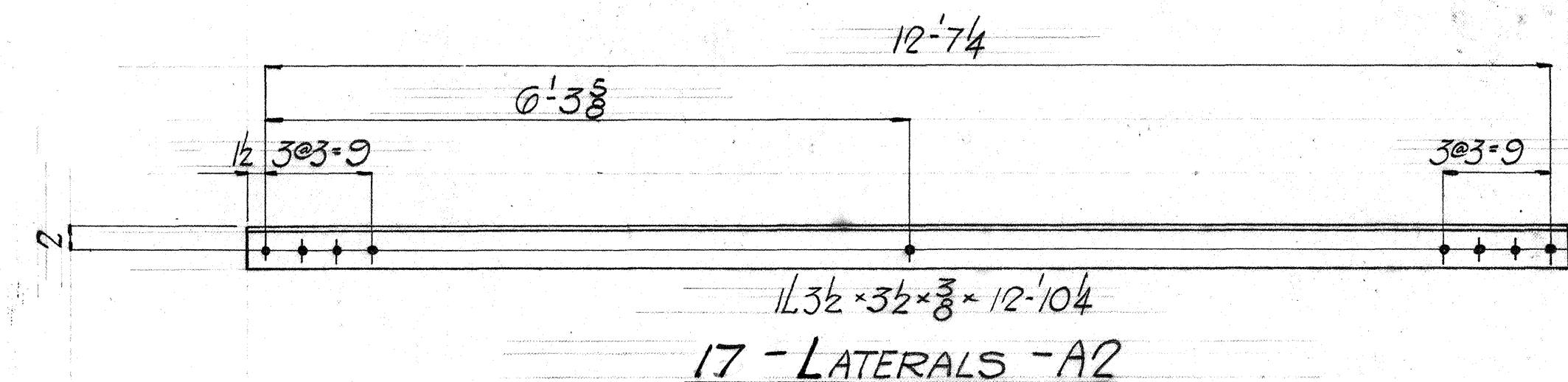
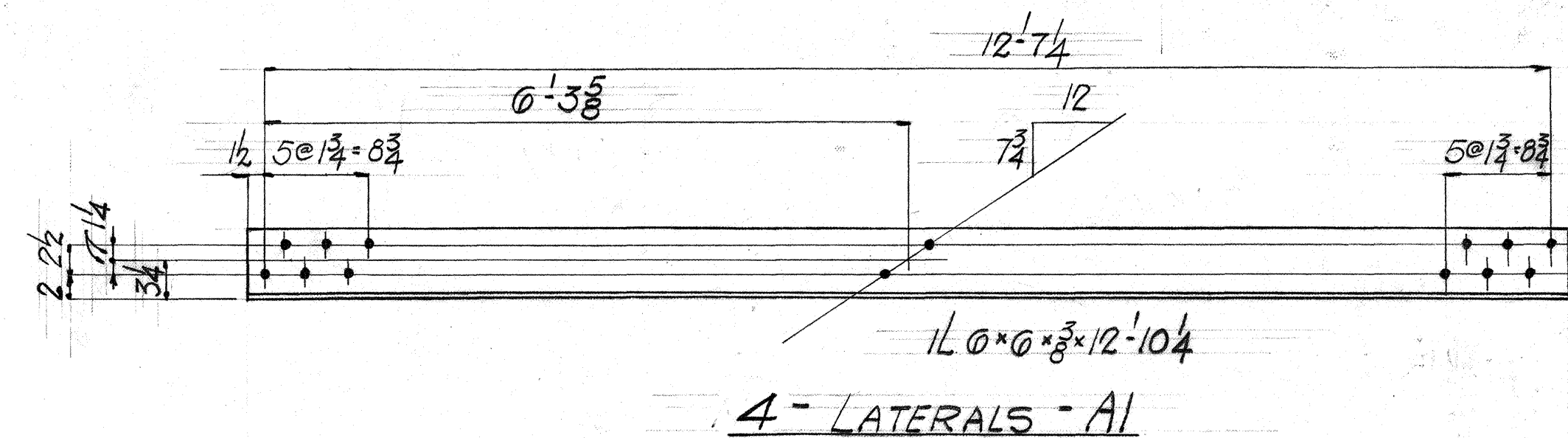
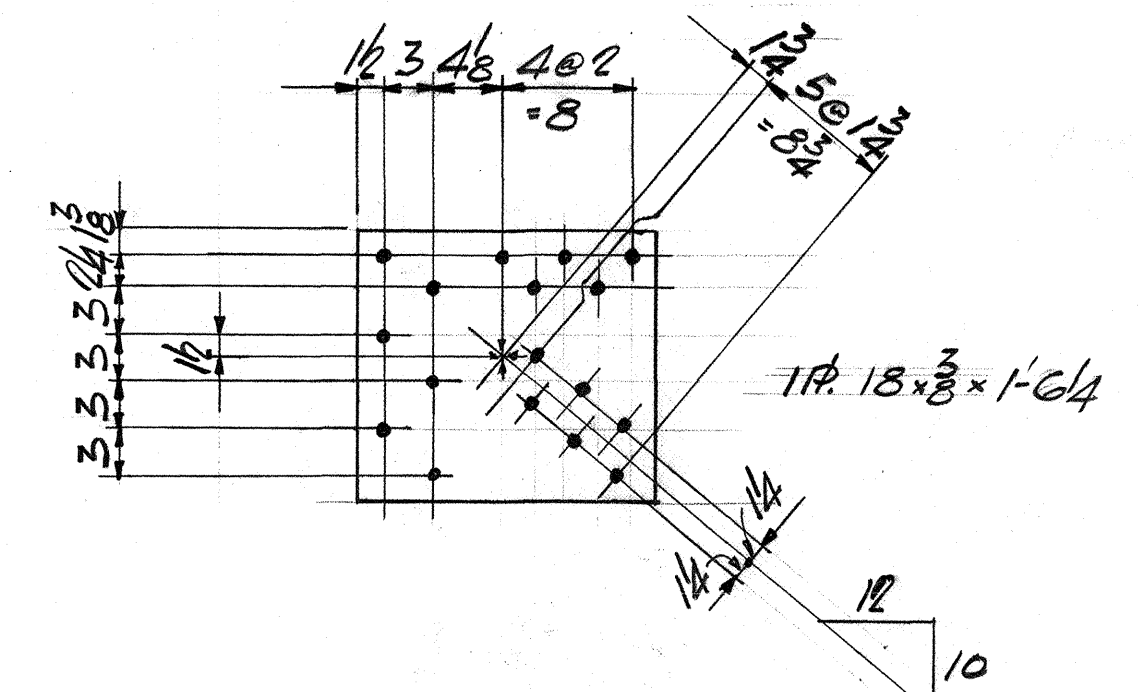
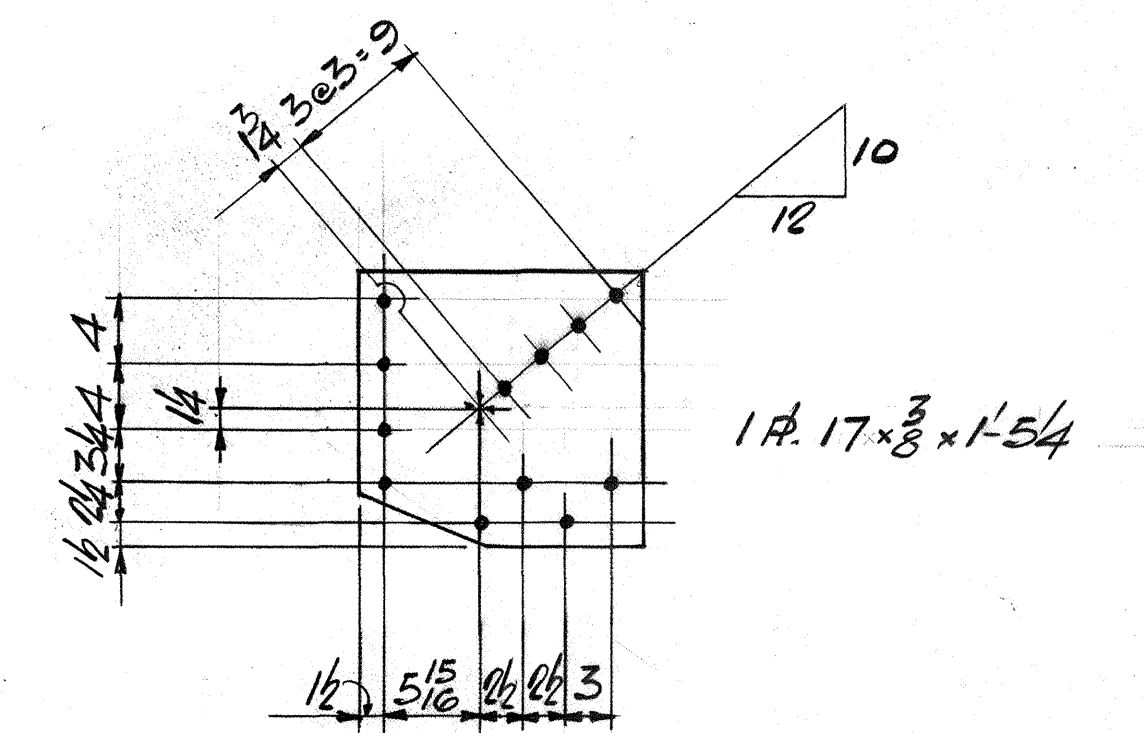
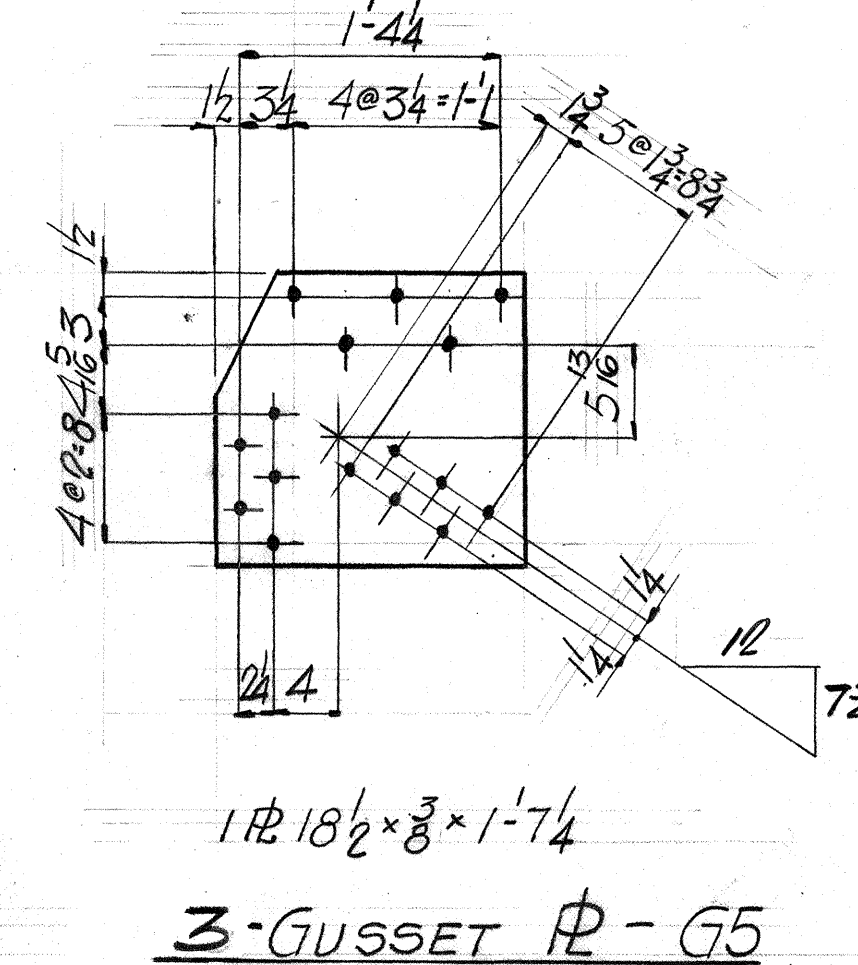
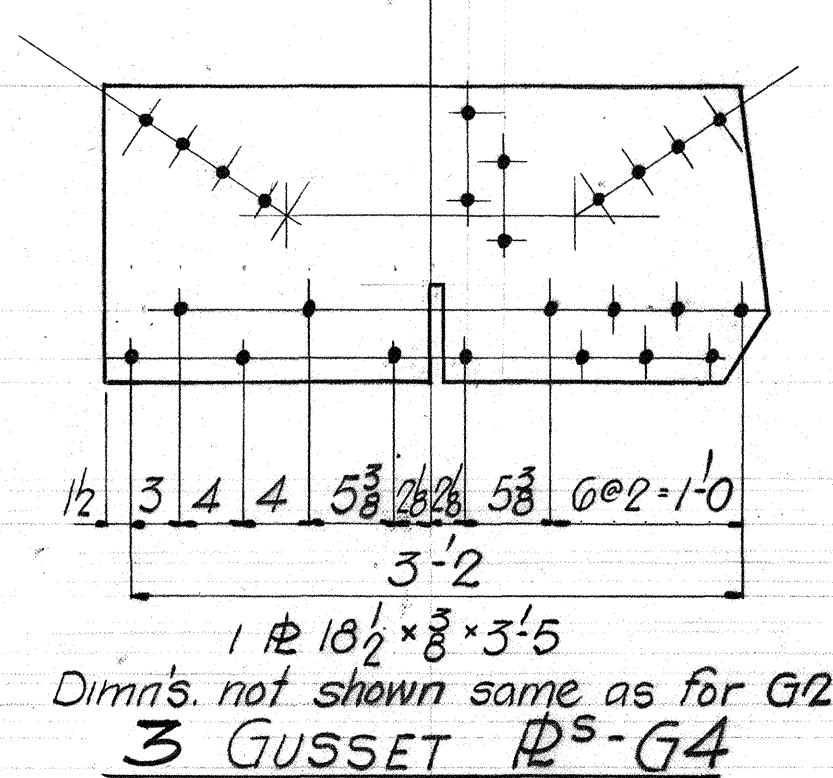
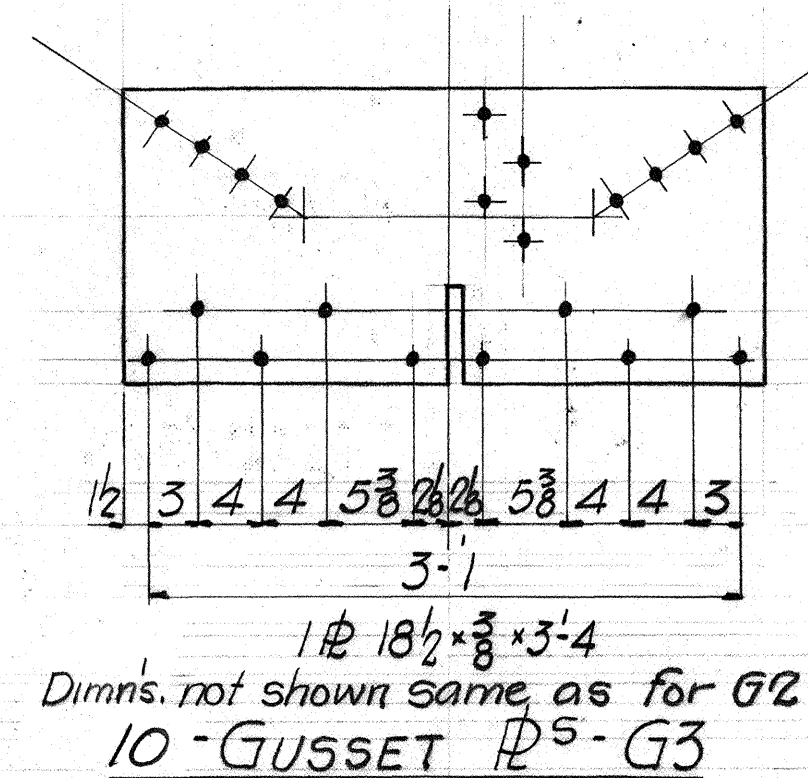
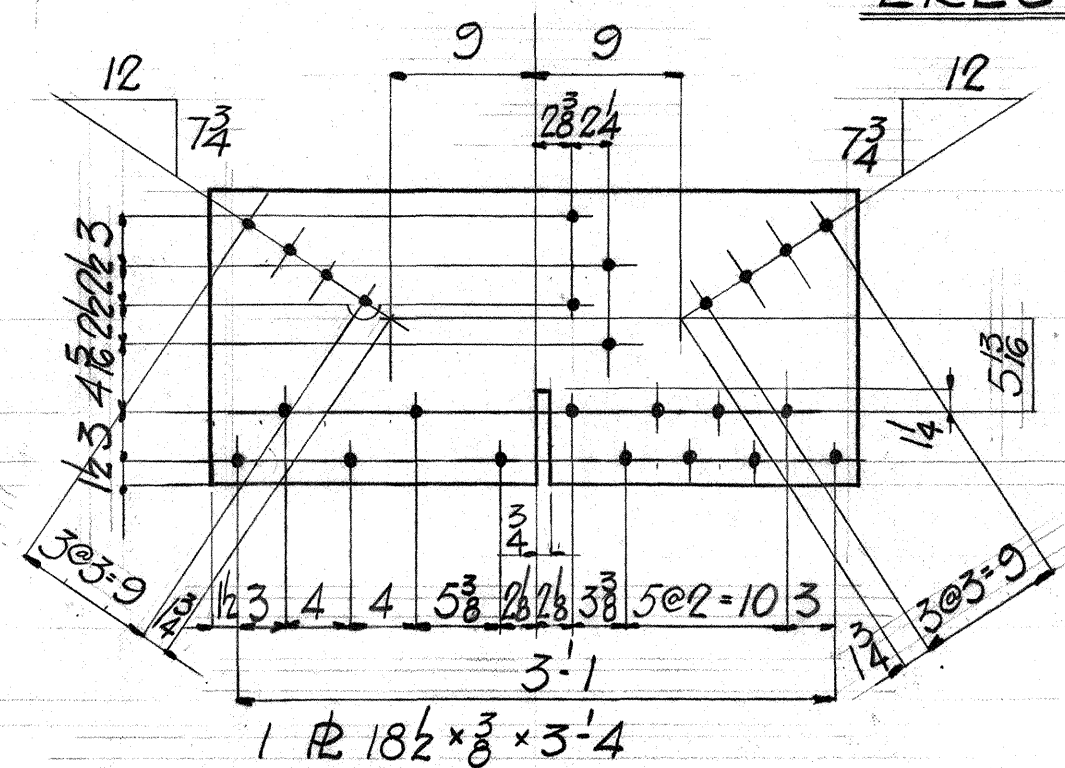
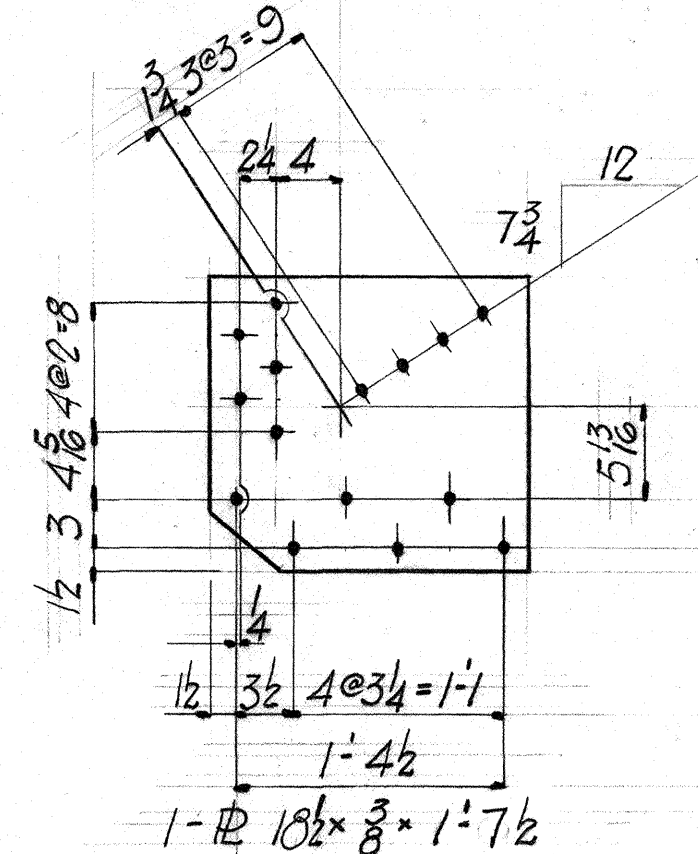
STEEL REPAIRS TO BE IN ACCORDANCE WITH STEEL INSPECTION
REPORT(S), DATED May 31, 1967 & May 1, 1969.
GENERAL SPECIFICATIONS: C.N.R. STANDARD SPECIFICATIONS #40-1148 AND #1 (1966)
STEEL SPECIFICATIONS: NEW STRUCTURAL STEEL TO BE IN ACCORDANCE
WITH C.S.A. STANDARD SPECIFICATIONS G40.4 OR OR A.S.T.M. A36
PAINT SPECIFICATIONS: C.N.R. STANDARD SPECIFICATIONS #470-1148 AND 470-1154
1 COAT: TYPE I. RED LEAD (RED) (SHOP)
1 COAT: TYPE II. RED LEAD (BROWN) (FIELD)
1 COAT: STANDARD BLACK GRAPHITE (FIELD)
BOLTS: 7/8" H.S. - ASTM - A328
RIVETS: NONE
OPEN HOLES: 1/8"
WELDING: SHALL CONFORM TO C.S.A. SPECIFICATION W59. - NONE
REFERENCE DRAWINGS: B/E-1
ESTIMATED WEIGHT: 28,000 LBS.
WEIGHT OF HEAVIEST PIECE: 20,000 LBS (F1)
SHIP TO: Kapuskasing, Ont.
MI. 6914

Work this drawing with drawing C-20624.

SCALES: $\frac{3}{4}'' = 1'-0''$ UNLESS NOTED				GREAT LAKES REGION		<div>CN</div> <div>Canadian National Railways</div>
DESIGNED: CHKD.				AREA <i>NORTHERN ONTARIO</i>		
DRAWN: <i>K.C.</i> CHKD. <i>F.T.P.</i>				SUBDIV. <i>KAPUSKASING</i>		
MK	DATE	REVISION	BY	MILE <i>69-6</i>		
				<div><i>KAPUSKASING RIVER BRIDGE-EAST BR</i></div> <div><u><i>STEEL REPAIRS</i></u></div> <div><u><i>TOP FLANGE ANGLES</i></u></div>		
REVIEWED: <i>R. L. Widdell</i> Structural Design Engineer				APPROVED: <i>[Signature]</i> Bridges and Structures Engineer		
OFFICE OF BRIDGES AND STRUCTURES						
TORONTO		MAY 15, 1969		DWG. NO. C-21452		



ERECTION DIAGRAM



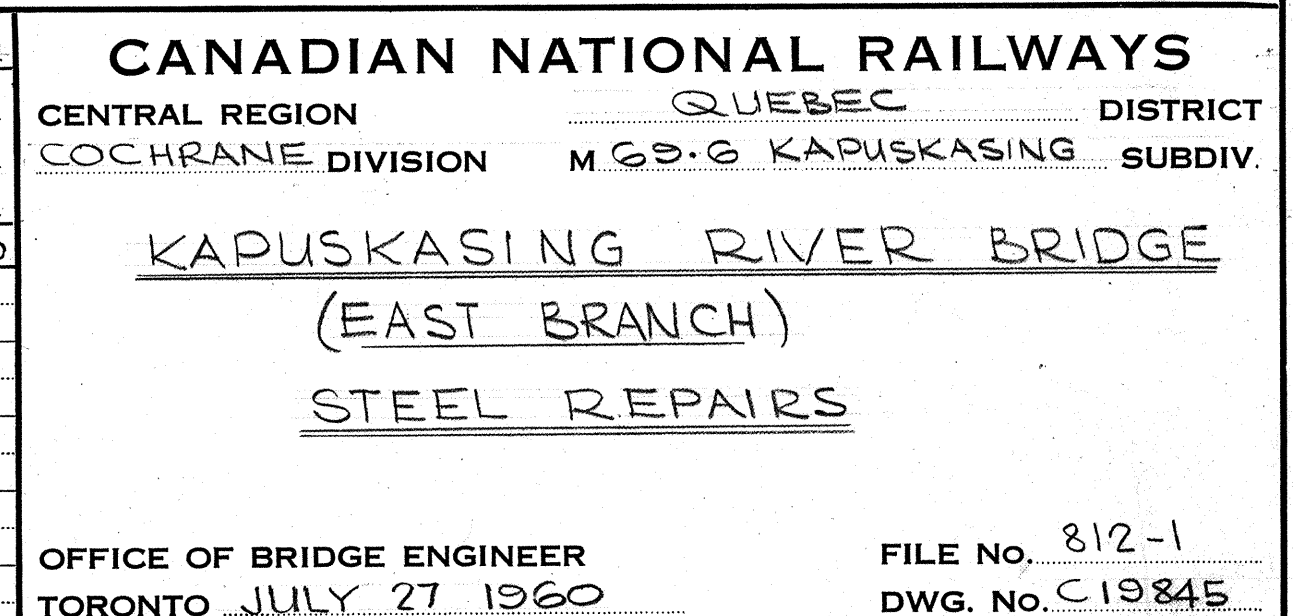
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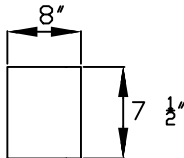
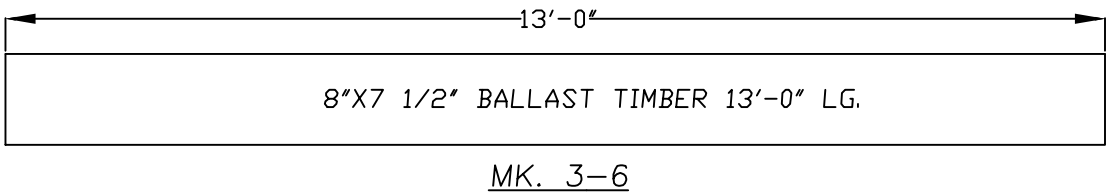
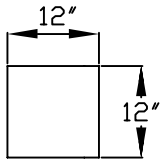
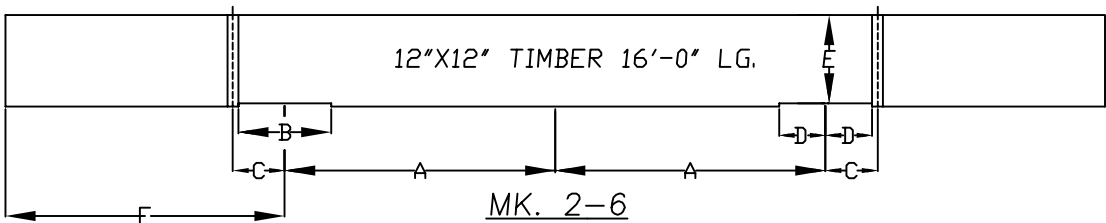
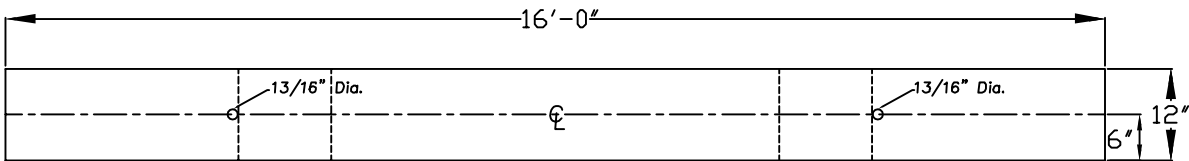
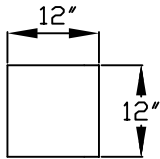
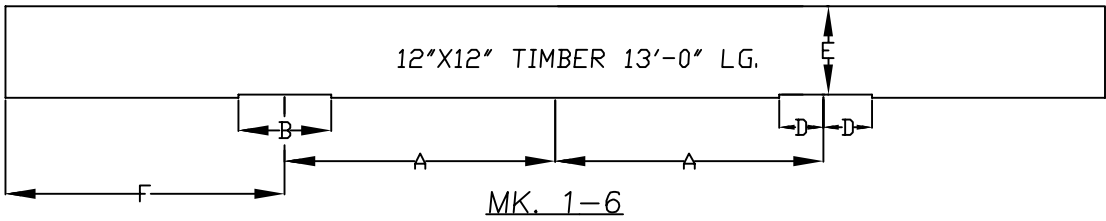
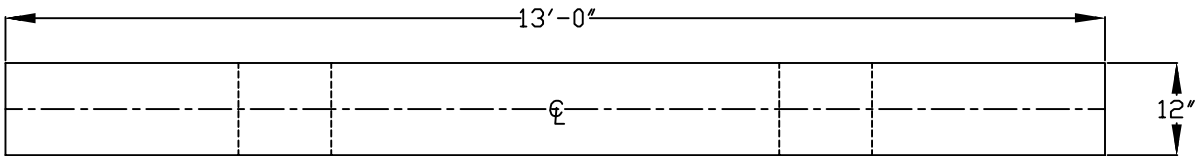
Steel repairs in accordance with bridge inspectors reports dated April 23, 1963, March 25, 1964, May 31, 1967 & May 1, 1969.
Steel specification: C.N.R. std. spec. S.I.W. 1-1 (1951).
Paint specification: C.N.R. std. spec. 470-114B & 470-115A.
one shop coat type I red lead (red).
one field coat type II red lead (brown).
one field coat black graphite.

Holes: 1/8" φ
Estimated weight: 7,200 lbs.
Nearest station: M. 69.4 Kapuskasing, Ont.

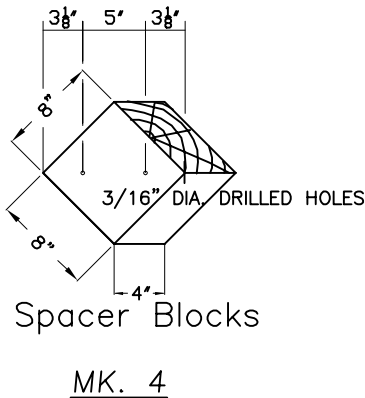
Work this drawing with drawing C-21452

SCALES: 1"=10'		GREAT LAKES REGION	
DESIGNED: W.J.S.	CHKD: J.J.	AREA: Northern Ontario	 Canadian National Railways
DRAWN: W.J.S.	CHKD: J.J.	SUBDIV: Kapuskasing	
MK: 1	DATE: MAY 1969	REVISION: GENERAL	BY: [Signature]
BRIDGE OVER KAPUSKASING RIVER		EAST BRANCH	
STEEL REPAIRS		REVIEWED: [Signature]	
APPROVED: [Signature]		OFFICE OF BRIDGE ENGINEER	
TORONTO		June 19, 1964. DWG. NO. C-20624	





DIMENSIONS	MK	A	B	C	D	E	F	FBM	QTY.
	MK. 1—6	4'—6"	17"	NO HOOK BOLTS	8 1/2"	11 1/2"	2'—0"	18096	116
	MK. 2—6	4'—6"	17"	8 7/8"	8 1/2"	11 1/2"	2'—0"	7680	40
	MK. 3—6	8"x7 1/2" BALLAST TIMBER 13'—0" LG.						319	4
	MK. 4	8"x8"x4" SPACER BLOCKS						555	312
	TOTAL							26650	



1. TIMBER SHALL BE NO.1 STRUCTURAL GRADE DOUGLAS FIR (ROUGH).
2. TIMBER SHALL BE AIR SEASONED BEFORE INJECTIONS OF CREOSOTE.
3. ALL CUTTING, BORING AND FRAMING TO BE COMPLETED PRIOR TO CREOSOTING.
4. ALL LENGTHS TO BE SQUARE CUT, DRILLED AND DAPPED IN ACCORDANCE WITH DRAWINGS.
5. TIMBER TO BE FULL SIZES IN ACCORDANCE WITH DRAWINGS.
6. TIMBER TO BE STAMPED AND CLEARLY VISIBLE OR TO HAVE A METAL TAG FASTENED TO ONE END TO IDENTIFY THE MK. NUMBER OF EACH TYPE IN ACCORDANCE WITH THE DRAWINGS.
7. TIMBER TO BE TREATED BY INJECTING 100% HOT CREOSOTE WITH PRESERVATIVE RETENTION TO BE NO LESS THAN 8 POUNDS PER CUBIC FOOT IN ACCORDANCE WITH CSA 080.2.
8. SPACER BLOCKS TO BE CUT IN ACCORDANCE WITH DRAWINGS AND HOLES BORED AGAINST THE GRAIN OF THE TIMBER.

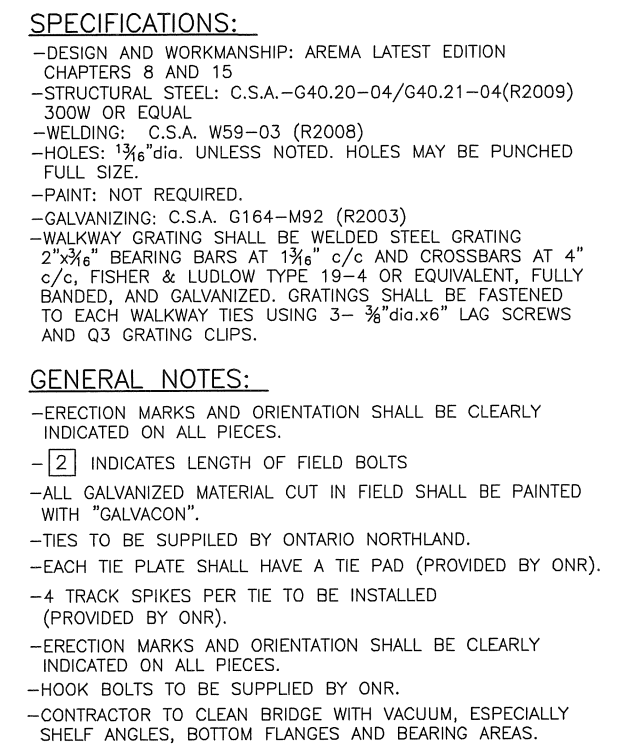


ONTARIO NORTHLAND
RAIL SERVICES
ENGINEERING DEPARTMENT

NEW BRIDGE TIMBERS
KAP RIVER
MILEAGE 69.6
KAP SUBDIVISION

DR. BY: TWB
CH. BY: SGD
DATE : JANUARY 2011
SCALE: NOT TO SCALE

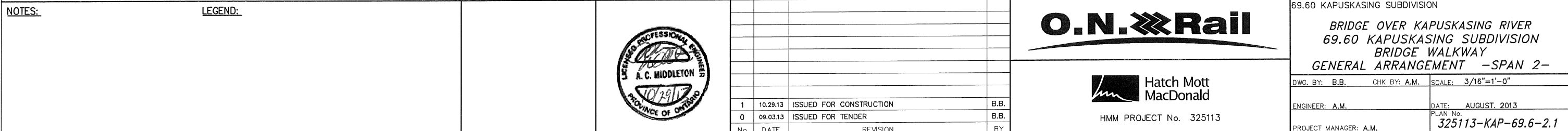
CAD. NO. A-6288
DWG. NO. A-6288



QUANTITIES OF EACH BOLT LENGTH
SHOWN IN THIS TABLE INCLUDE AN
EXTRA OF 5% + 5 FROM THE
ORIGINAL QUANTITY.

- LIST OF DRAWINGS:**
- | | | | |
|-----------|-----------------|--------------------|------------|
| - DRAWING | No.KAP-69.6-2.1 | GENERAL LAYOUT | - SPAN N°2 |
| - DRAWING | No.KAP-69.6-2.2 | GENERAL LAYOUT | - SPAN N°1 |
| - DRAWING | No.KAP-69.6-2.3 | DETAILS 1 | |
| - DRAWING | No.KAP-69.6-2.4 | DETAILS 2 | |
| - DRAWING | No.KAP-69.6-2.5 | DETAILS OF TIES | |
| - DRAWING | No.KAP-69.6-2.6 | DETAILS REFUGE BAY | |

ESTIMATED QUANTITIES: (ON THIS DRAWING)
-HANDRAILING _____ (245' LIN. FT) 674 LBS

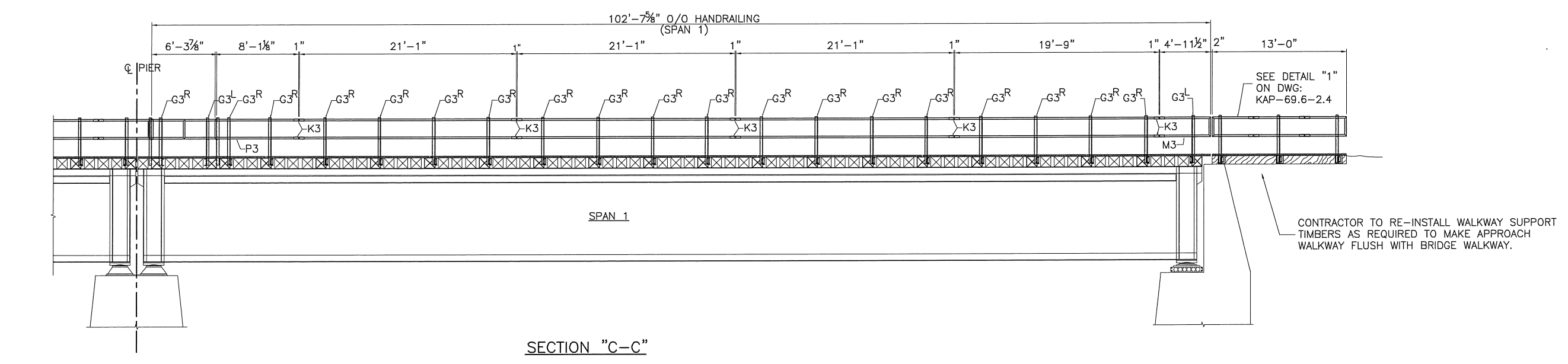
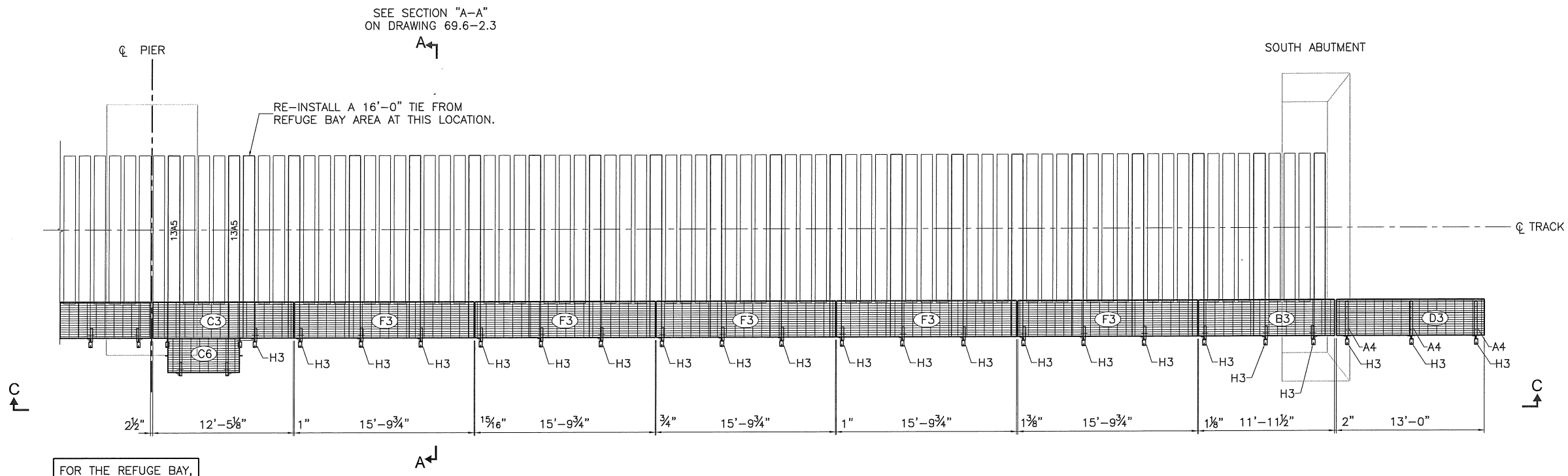


NORTHWARD TO
HEARST

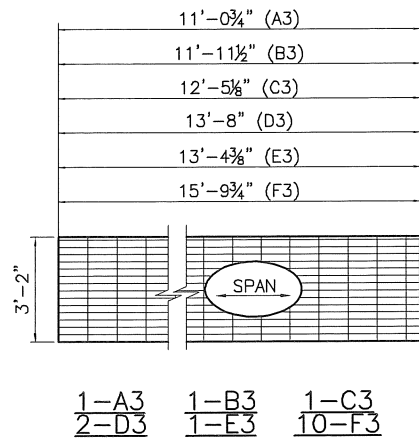
SOUTHWARD TO
COCHRANE

NOTES:
-FOR GENERAL NOTES & SPECIFICATIONS
SEE DRAWING No.KAP-69.6-2.1

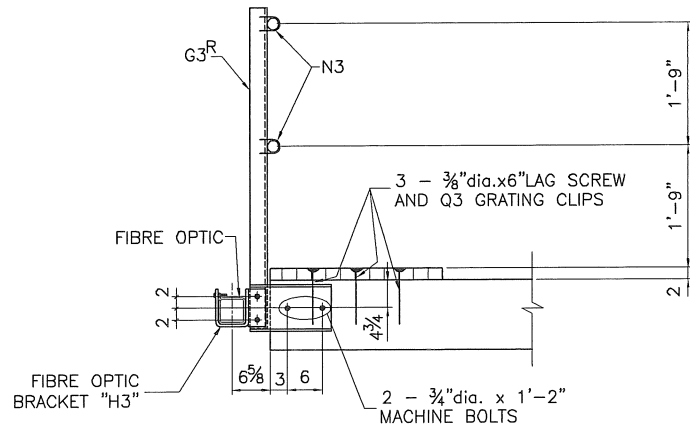
ESTIMATED QUANTITIES: (ON THIS DRAWING)
-HANDRAILING (239 LIN. FT) 658 LBS



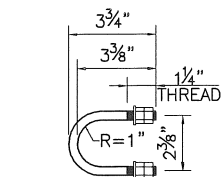
NOTES:	LEGEND:		1 10.29.13 ISSUED FOR CONSTRUCTION B.B.			
			0 09.03.13 ISSUED FOR TENDER B.B.			
			No.	DATE	REVISION	BY
				Hatch Mott MacDonald		
				HMM PROJECT No. 325113		
		69.60 KAPUSKASING SUBDIVISION		BRIDGE OVER KAPUSKASING RIVER 69.60 KAPUSKASING SUBDIVISION BRIDGE WALKWAY GENERAL ARRANGEMENT -SPAN 1-		
		DWG. BY: B.B. CHK BY: A.M. SCALE: 3/16"=1'-0"		ENGINEER: A.M. DATE: AUGUST, 2013		
		PROJECT MANAGER: A.M.		PLAN No. 325113-KAP-69.6-2.2		



GRATING PANELS

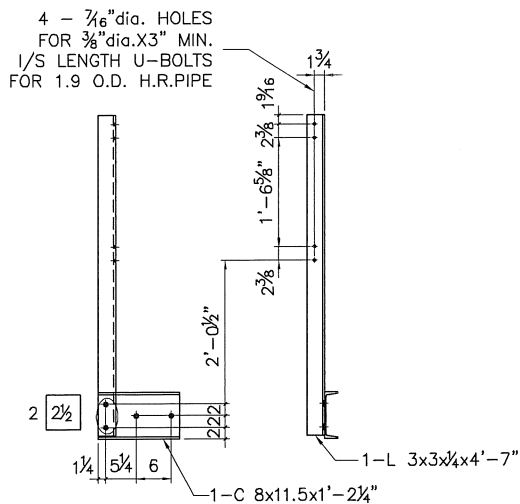


SECTION "A-A"
SCALE: 3/4"=1'-0"

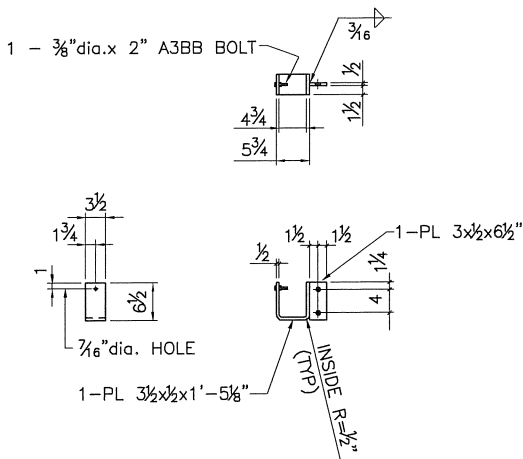


3/8" dia. GALVANIZED U-BOLT
(C/W 4 - HEX. NUTS & 2-FLAT WASHERS)

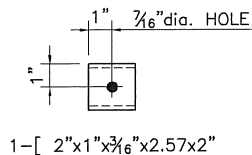
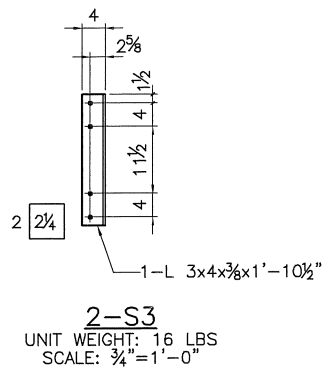
98-N3
UNIT WEIGHT: 2 LBS
SCALE: 3"=1'-0"



38-G3^R RIGHT (AS SHOWN)
3-G3^L LEFT
UNIT WEIGHT: 36 LBS
SCALE: 3/4"=1'-0"



47-H3
UNIT WEIGHT: 11 LBS
SCALE: 3/4"=1'-0"



180-Q3
UNIT WEIGHT: 0.428 LBS
SCALE: 3"=1'-0"

SPECIFICATIONS:

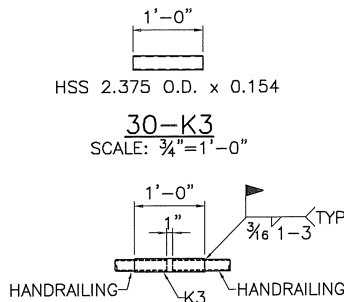
- ALL MATERIAL ON THIS DRAWING TO BE GALVANIZED AS PER CSA G164-M92 (R 2003)
- HANDRAILING SHALL BE OF HSS 1.9" OUTSIDE DIAMETER AND 0.150" THICK. CLASS C, STEEL 350W, IN ACCORDANCE WITH CAN/CSA-G.40.21-04(R2009).
- HOLES 1 3/16" dia. (UNLESS NOTED)

NOTES:

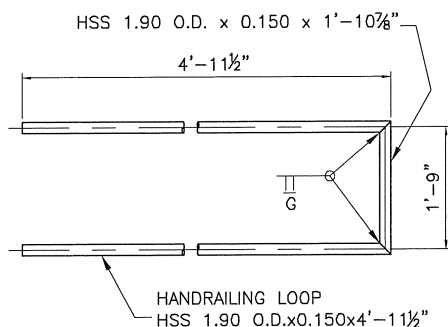
- FOR GENERAL NOTES & SPECIFICATIONS SEE DRAWING No.KAP-69.6-2.1
- ALL GALVANIZED MATERIAL CUT IN FIELD SHALL BE PAINTED WITH "GALVACON".

ESTIMATED QUANTITIES: (ON THIS DRAWING)

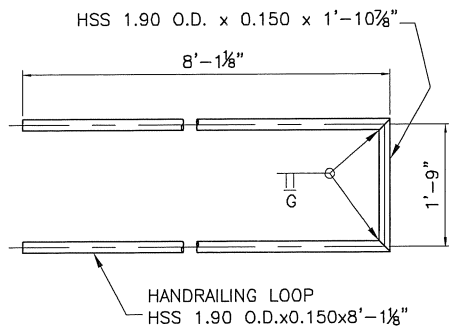
- STRUCTURAL STEEL 2282 LBS
- 3/8" dia. x 6" LONG. LAG SCREWS 123 EA
- WALKWAY GRATING 738 FT²
- MACHINE BOLTS 82



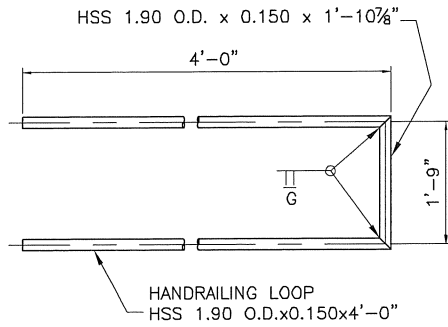
HANDRAILING SPLICE DETAIL



3-M3
SCALE: 3/4"=1'-0"



1-P3
SCALE: 3/4"=1'-0"



4-T3
SCALE: 3/4"=1'-0"

NOTES:

LEGEND:



No.	DATE	REVISION	BY
1	10.29.13	ISSUED FOR CONSTRUCTION	B.B.
0	09.03.13	ISSUED FOR TENDER	B.B.

O.N. Rail



HMM PROJECT No. 325113

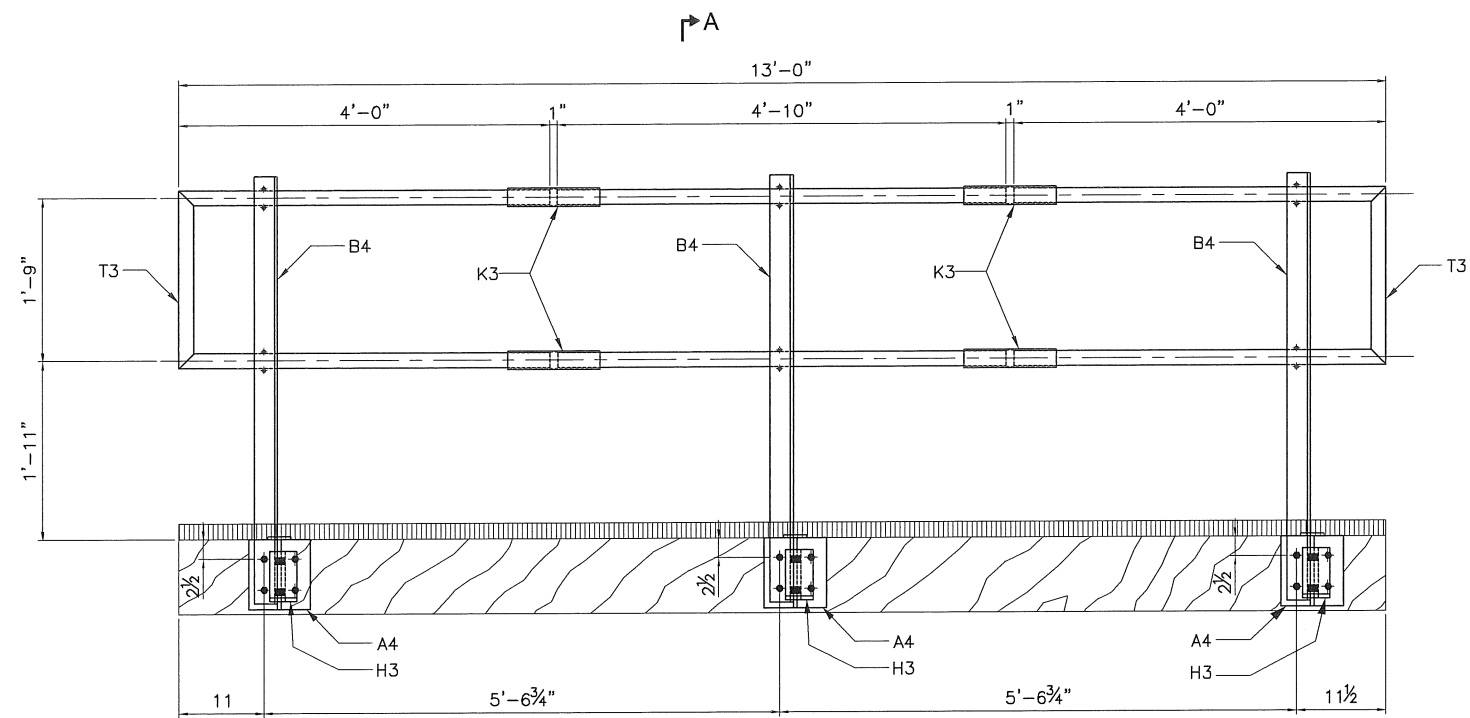
69.60 KAPUSKASING SUBDIVISION

BRIDGE OVER KAPUSKASING RIVER
69.60 KAPUSKASING SUBDIVISION
BRIDGE STEEL REPAIRS
DETAILS 1

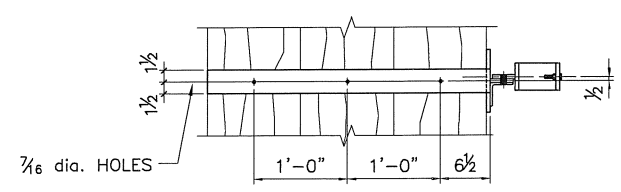
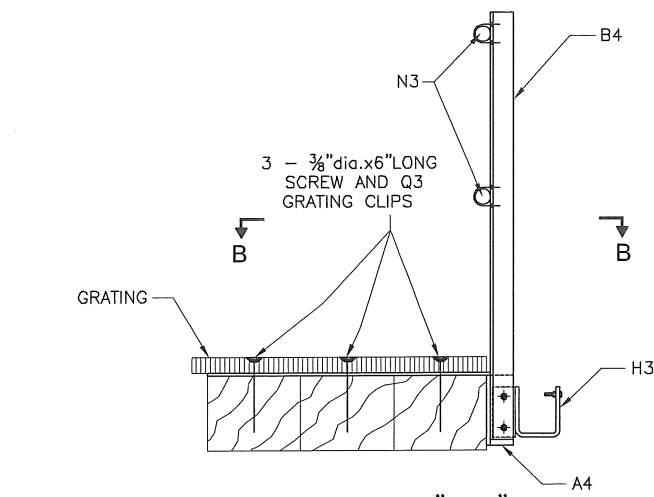
DWG. BY: B.B. CHK BY: A.M. SCALE: AS NOTED

ENGINEER: A.M. DATE: AUGUST, 2013

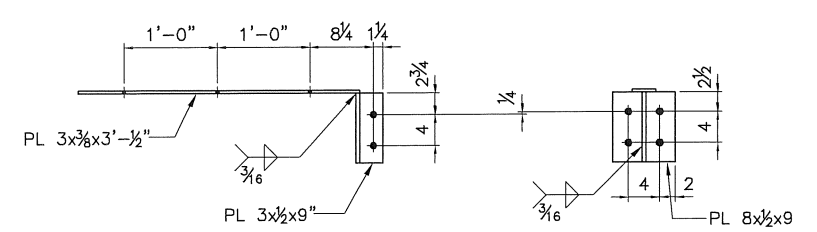
PROJECT MANAGER: A.M. PLAN No. 325113-KAP-69.6-2.3



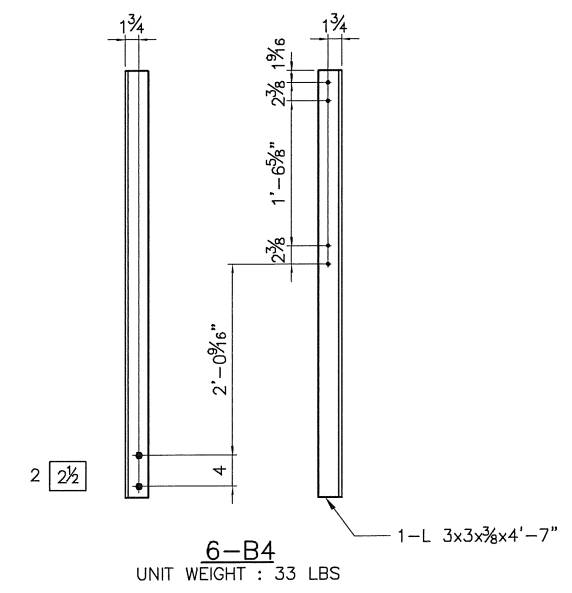
2-DETAIL "1"



VIEW "B-B"



6-A4
UNIT WEIGHT : 26 LBS



6-B4
UNIT WEIGHT : 33 LBS

SPECIFICATIONS:

- ALL MATERIAL ON THIS DRAWING TO BE GALVANIZED AS PER CSA G164-M92 (R 2003)
- HANDRAILING SHALL BE OF HSS 1.9" OUTSIDE DIAMETER AND 0.150" THICK. CLASS C, STEEL 350W, IN ACCORDANCE WITH CAN/CSA-G.40.21-04(R2009).
- HOLES 1 3/16" dia. (UNLESS NOTED)

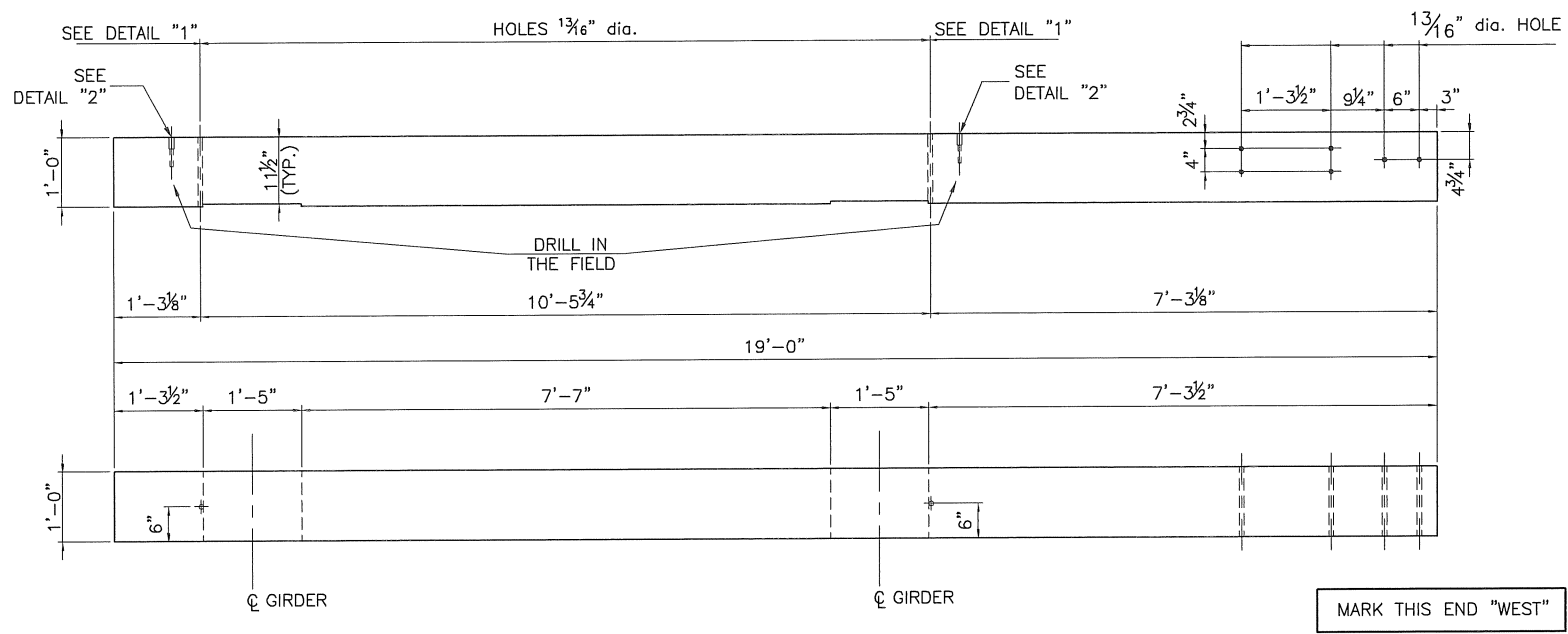
NOTES:

- FOR GENERAL NOTES & SPECIFICATIONS SEE DRAWING No.KAP-69.6-2.1
- ALL GALVANIZED MATERIAL CUT IN FIELD SHALL BE PAINTED WITH "GALVACON".

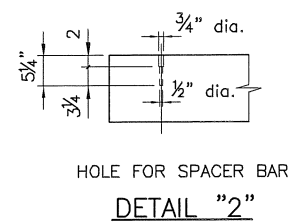
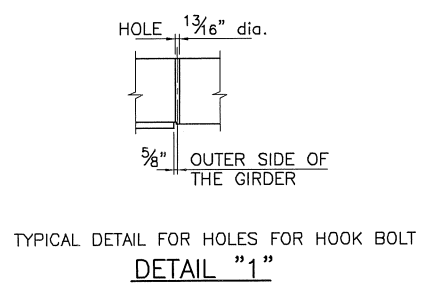
ESTIMATED QUANTITIES: (ON THIS DRAWING)

- STRUCTURAL STEEL 354 LBS
- 3/8" dia. x 6" LONG. LAG SCREWS 18 EA
- MACHINE BOLTS 24
- HANDRAILING (9'-8" LIN. FT) 27 LBS

NOTES:		LEGEND:				<table border="1"> <tr> <th>No.</th> <th>DATE</th> <th>REVISION</th> <th>BY</th> </tr> <tr> <td>1</td> <td>10.29.13</td> <td>ISSUED FOR CONSTRUCTION</td> <td>B.B.</td> </tr> <tr> <td>0</td> <td>09.03.13</td> <td>ISSUED FOR TENDER</td> <td>B.B.</td> </tr> </table>		No.	DATE	REVISION	BY	1	10.29.13	ISSUED FOR CONSTRUCTION	B.B.	0	09.03.13	ISSUED FOR TENDER	B.B.	 HMM PROJECT No. 325113		69.60 KAPUSKASING SUBDIVISION	
No.	DATE	REVISION	BY																				
1	10.29.13	ISSUED FOR CONSTRUCTION	B.B.																				
0	09.03.13	ISSUED FOR TENDER	B.B.																				
		BRIDGE OVER KAPUSKASING RIVER 69.60 KAPUSKASING SUBDIVISION BRIDGE STEEL REPAIRS DETAILS 2																					
DWG. BY: B.B.		CHK BY: A.M.		SCALE: 1"=1'-0"																			
ENGINEER: A.M.		DATE: AUGUST, 2013		PLAN No. 325113-KAP-69.6-2.4																			
PROJECT MANAGER: A.M.																							



TIE 12"x12"x19'-0" (TIMBER TO BE FULL SIZES)
2-BAY REFUGE TIES "13A5"

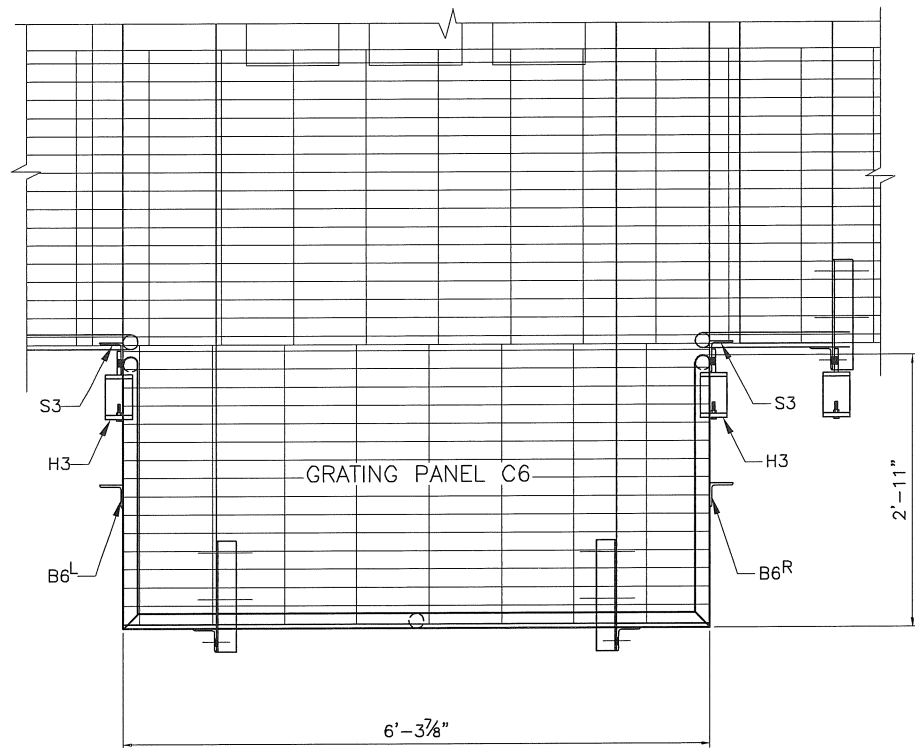


- NOTES:**
- FOR GENERAL NOTES & SPECIFICATIONS SEE DRAWING No.KAP-69.6-2.1.
 - TIMBER SHALL BE NO.1 STRUCTURAL GRADE DOUGLAS FIR (ROUGH).
 - TIMBER SHALL BE AIR SEASONED BEFORE INJECTIONS OF CREOSOTE.
 - ALL CUTTING, BORING AND FRAMING TO BE COMPLETED PRIOR TO CREOSOTING.
 - ALL LENGTHS TO BE SQUARE CUT, DRILLED AND DAPPED IN ACCORDANCE WITH DRAWINGS.
 - TIMBER TO BE FULL SIZES IN ACCORDANCE WITH DRAWINGS.
 - TIMBER TO BE STAMPED AND CLEARLY VISIBLE OR TO HAVE A METAL TAG FASTENED TO ONE END TO IDENTIFY THE MK. NUMBER OF EACH TYPE IN ACCORDANCE WITH THE DRAWINGS.
 - TIMBER TO BE TREATED BY INJECTING 100% HOT CREOSOTE WITH PRESERVATIVE RETENTION TO BE NO LESS THAN 8 POUNDS PER CUBIC FOOT IN ACCORDANCE WITH CSA 080.2.

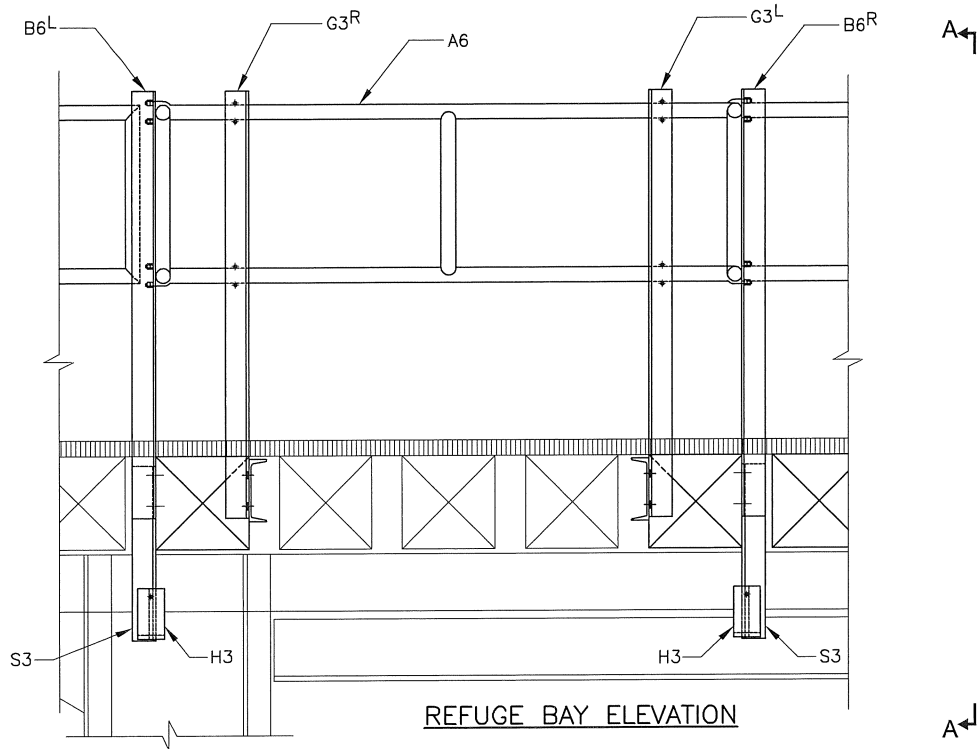
ESTIMATED QUANTITIES: (ON THIS DRAWING)
-BRIDGE TIE 12x12x19'-0" 2 EA.

NOTES:	LEGEND:						69.60 KAPUSKASING SUBDIVISION	
							BRIDGE OVER KAPUSKASING RIVER 69.60 KAPUSKASING SUBDIVISION BRIDGE STEEL REPAIRS DETAILS OF TIES	
			HMM PROJECT No. 325113		DWG. BY: B.B. CHK BY: A.M. SCALE: 3/4"=1'-0"		ENGINEER: A.M. DATE: AUGUST, 2013	
					PROJECT MANAGER: A.M.		PLAN No. 325113-KAP-69.6-2.5	

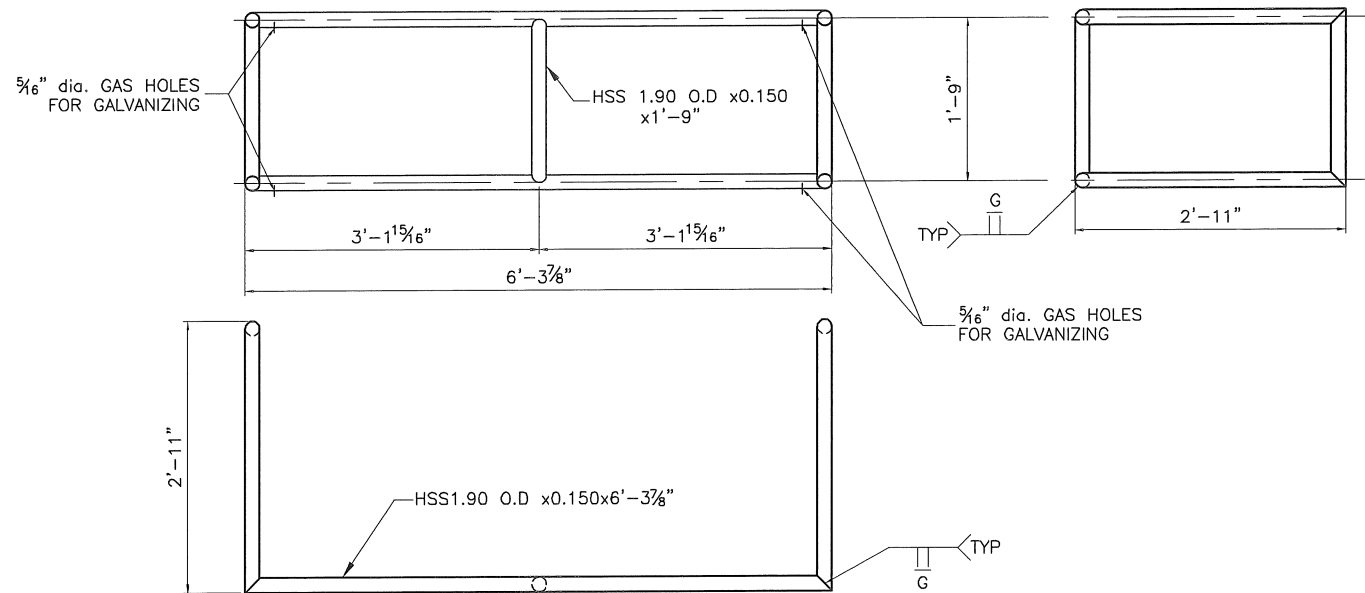
No.	DATE	REVISION	BY
1	10.29.13	ISSUED FOR CONSTRUCTION	B.B.
0	09.03.13	ISSUED FOR TENDER	B.B.



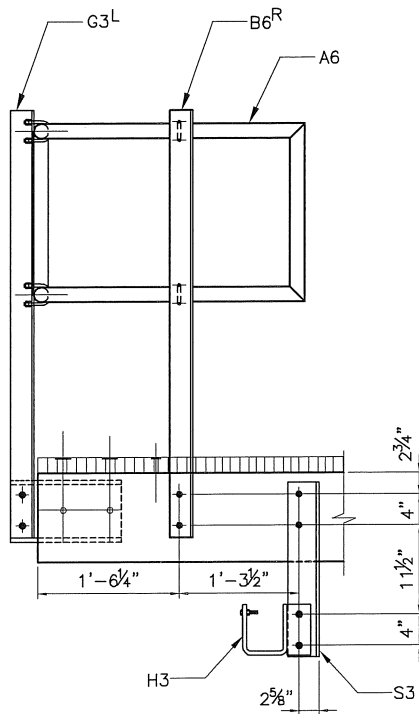
REFUGE BAY PLAN



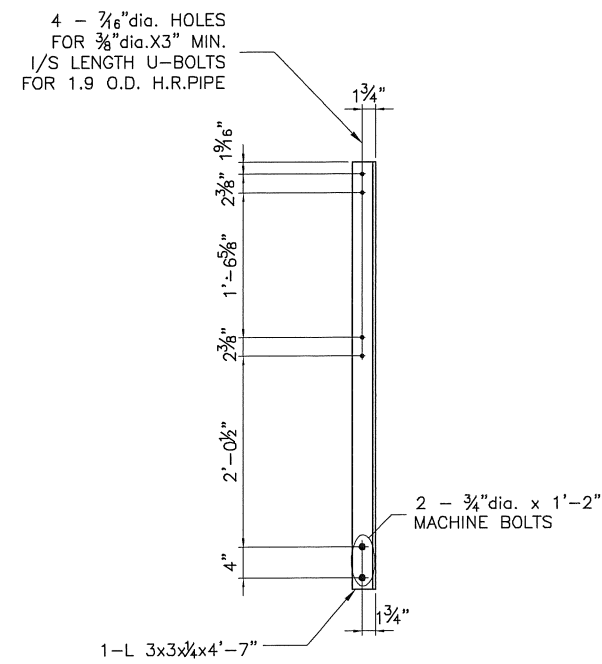
REFUGE BAY ELEVATION



1-A6



SECTION "A-A"



1-B6R RIGHT (AS SHOWN)

1-B6L LEFT
UNIT WEIGHT: 22 LBS

SPECIFICATIONS:

- ALL MATERIAL ON THIS DRAWING TO BE GALVANIZED AS PER CSA G164-M92 (R2003)
- HANDRAILING SHALL BE OF HSS 1.9" OUTSIDE DIAMETER AND 0.150" THICK. CLASS C, STEEL 350W, IN ACCORDANCE WITH CAN/CSA-G.40.21-04(R2009).
- HOLES 1 3/16" dia. (UNLESS NOTED)

NOTES:

- FOR GENERAL NOTES & SPECIFICATIONS SEE DRAWING No.KAP-69.6-2.1
- ALL GALVANIZED MATERIAL CUT IN FIELD SHALL BE PAINTED WITH "GALVACON".

ESTIMATED QUANTITIES: (ON THIS DRAWING)

- STRUCTURAL STEEL _____ 44 LBS
- HANDRAILING _____ (34'3" LIN. FT) 94 LBS
- 3/8" dia. x 6" LONG. LAG SCREWS _____ 6 EA
- WALKWAY GRATING _____ 19 FT²
- MACHINE BOLTS _____ 12

NOTES:

LEGEND:



No.	DATE	REVISION	BY
1	10.29.13	ISSUED FOR CONSTRUCTION	B.B.
0	09.03.13	ISSUED FOR TENDER	B.B.

O.N. Rail



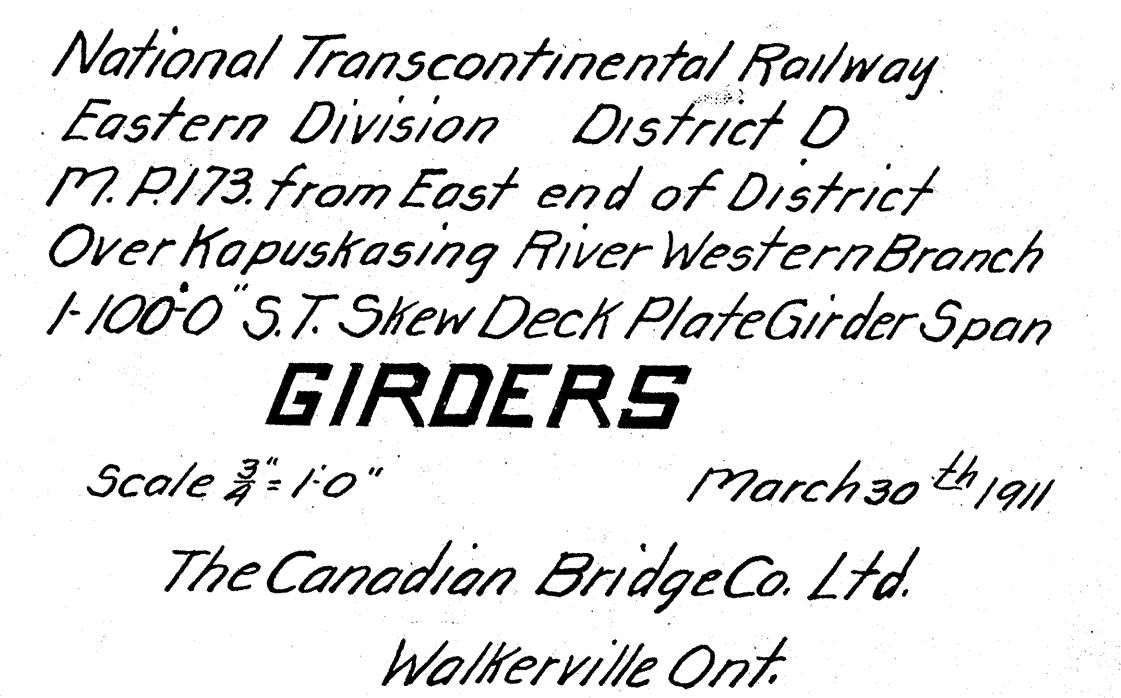
HMM PROJECT No. 325113

69.60 KAPUSKASING SUBDIVISION

BRIDGE OVER KAPUSKASING RIVER
69.60 KAPUSKASING SUBDIVISION
BRIDGE STEEL REPAIRS
DETAILS REFUGE BAY

DWG. BY: B.B.	CHK BY: A.M.	SCALE: 1"=1'-0"
ENGINEER: A.M.	DATE: AUGUST, 2013	PLAN No.
PROJECT MANAGER: A.M.	325113-KAP-69.6-2.6	

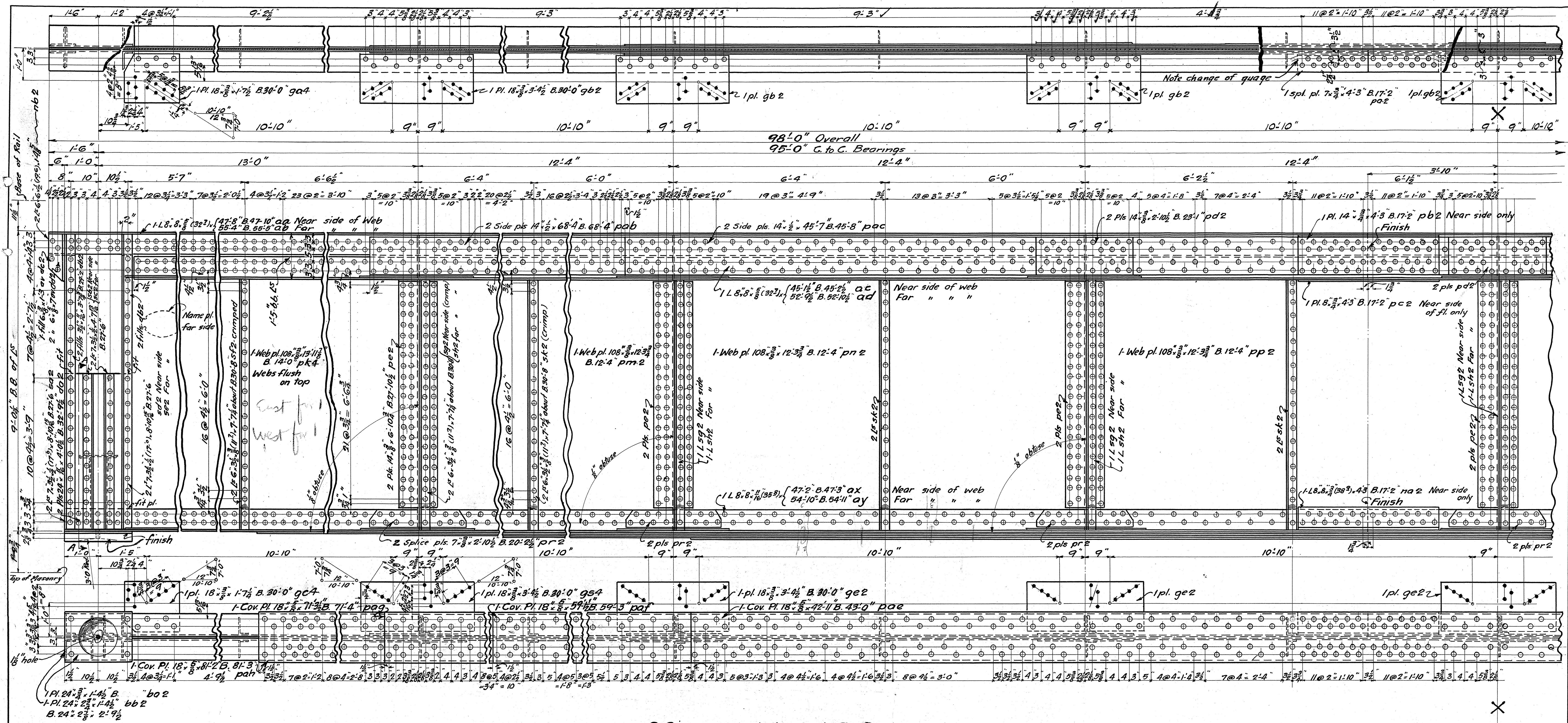
69.7 Kapuskasing Reference Drawings



Walkerville Ont.

Material Med. A.H. Steel
Rivets 3" unless noted
Holes punch $\frac{1}{8}$ " and ream to $\frac{1}{16}$ " except
in bottom flange which punch $\frac{1}{8}$ " and ream to $\frac{1}{16}$ "
Holes in lateral plates and anchor brackets punch $\frac{1}{8}$ "
Plane bottom edge of web plates

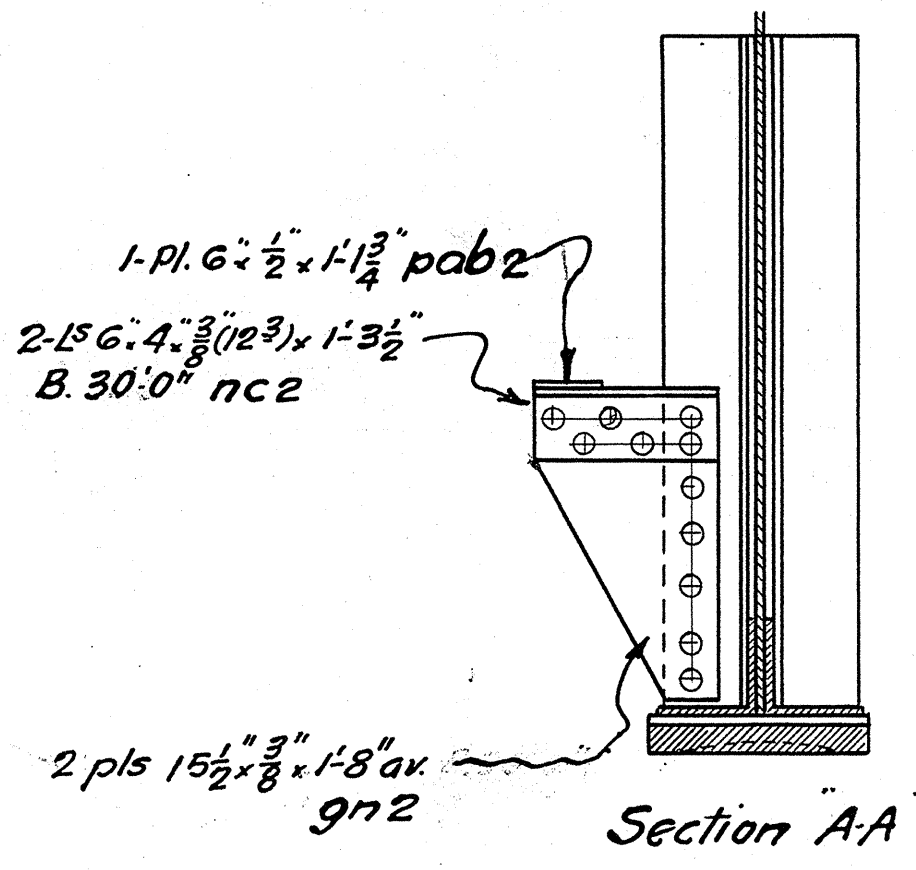
O.K. ~~exp.~~ 4/25/11 J.T.G.
AA221-697-2.3



2 Girders Wanted Mark G-3

For Part of Girder not shown See Drwg N^o 5.
 Note similarity in web details, to GIR Drwg N^o 2 Cont: N^o 1010
 for full length, except for right hand end panel,
 which is similar to G1 Drwg. N^o 3 Cont 1011.

Reference Line



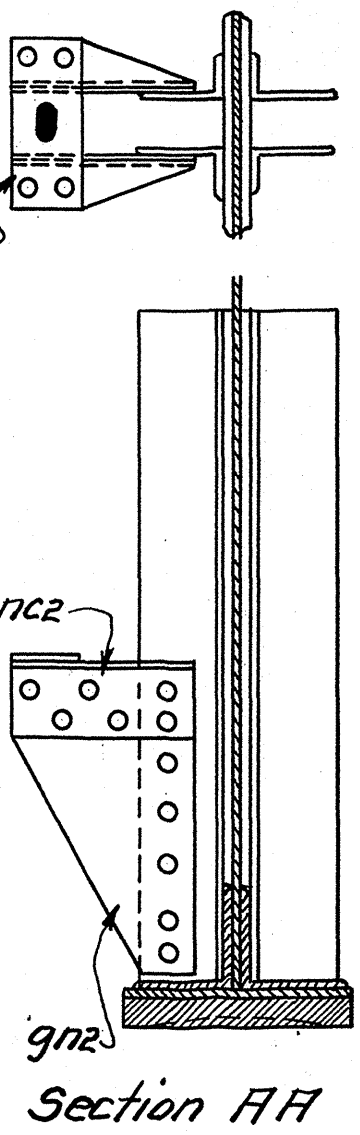
National Transcontinental Railway
 Eastern Division District D.
 M. P. 173 from East end of District
 Over Kapuskasing River Western Branch
 2-95'0" Skew Deck Plate Girders

GIRDERS

Scale 3/4" = 1'-0" March-29 1911

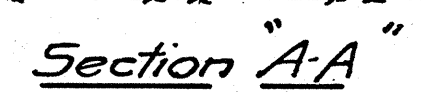
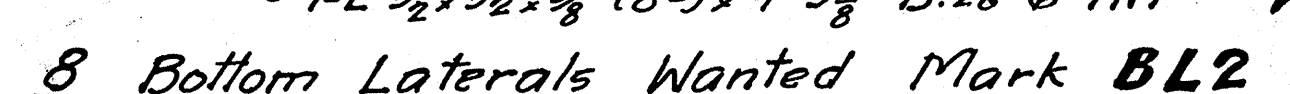
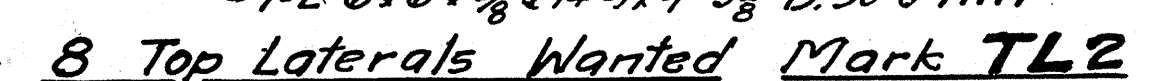
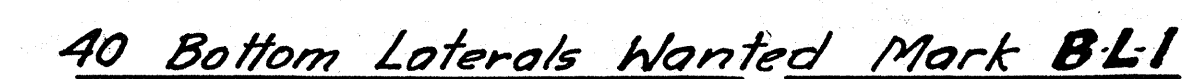
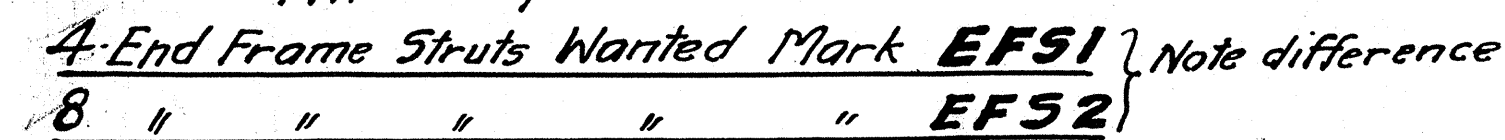
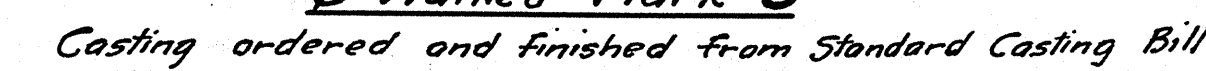
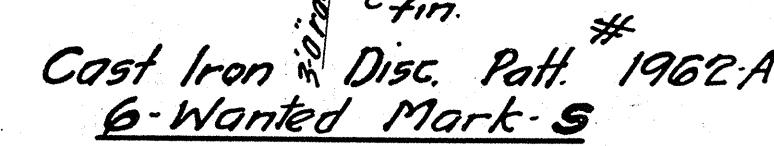
The Canadian Bridge Co. Ltd
 Walkerville Ont.

Plane bottom edge of web plates
 Material Med. O. H. Steel.
 Rivets 3/4" unless noted.
 Holes punch 1 1/8" and ream to 1 5/16"
 except in bottom flange, which
 punch 1 1/8" and ream to 1 5/16"
 Holes in lateral plates and
 anchor brackets punch 1 5/16"



Material Med. O. H. Steel.
Rivets $\frac{3}{8}$ " unless noted.
Holes punch $\frac{13}{16}$ " and ream to $\frac{15}{16}$ " except
in bottom flange which punch $\frac{1}{2}$ " and
ream to $\frac{15}{16}$ "
Holes in lateral plates and anchor brackets
punch $\frac{15}{16}$ "
Plane bottom edge of web plates

1011 $\frac{6}{176}$



Cast Iron Wall Plate - Pat.# 3474 A
6 Wanted Mark **W-P-I**

Costing ordered and finished from Standard Costing Bill.

National Transcontinental Railway.
Eastern Division, District D.
M. P. 173 from East end of District.
Over Kapuskasing River, Western Branch.
95', 100', & 105' Deck Plate Girder Spans.

LATERALS, FRAMES & PIER MEMBERS

Scale - $\frac{3}{4}$ ", 1", + $1\frac{1}{2}$ " = 1'-0" April 7 - 1911

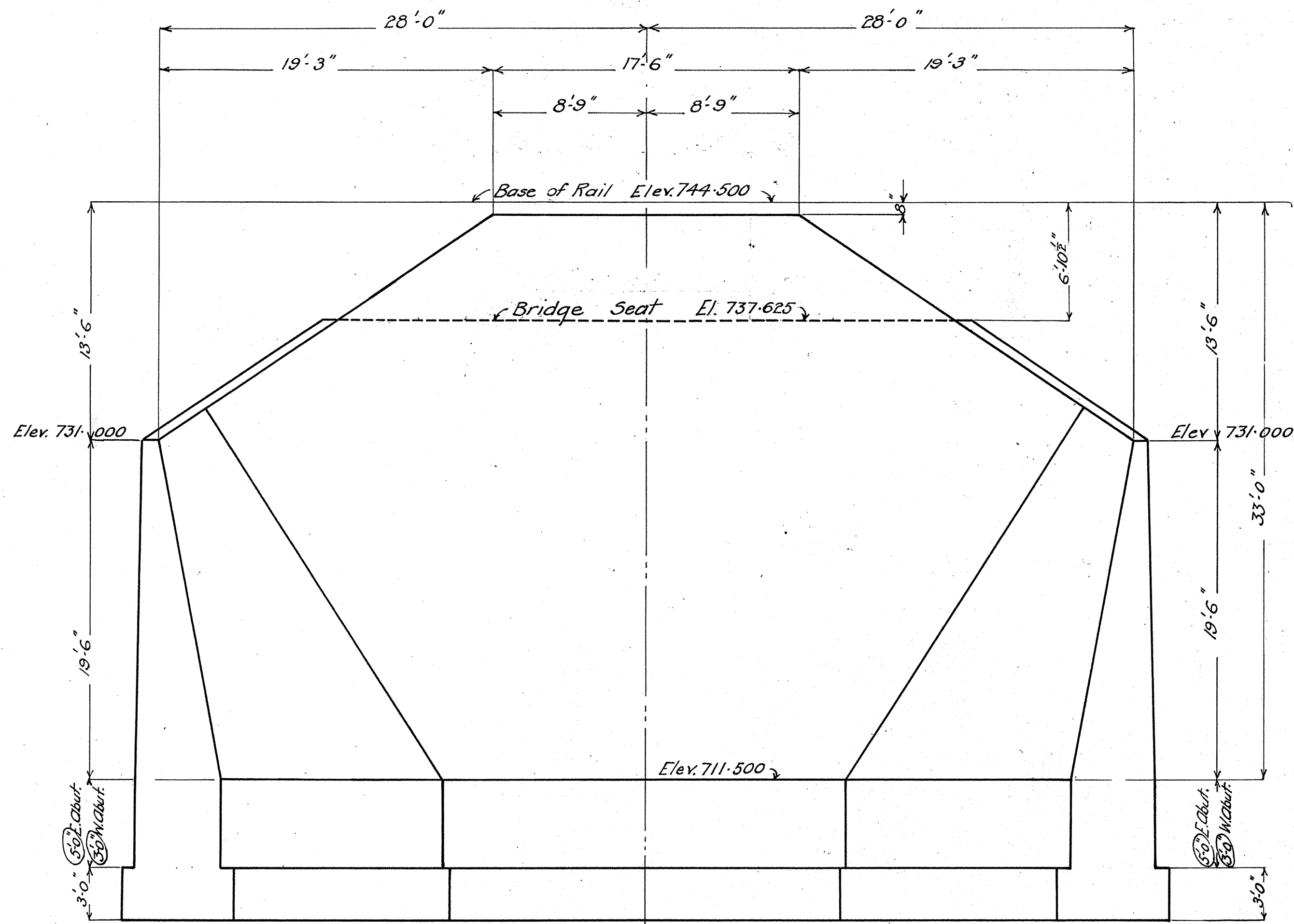
The Canadian Bridge Co. Ltd

Walkerville, Ont.

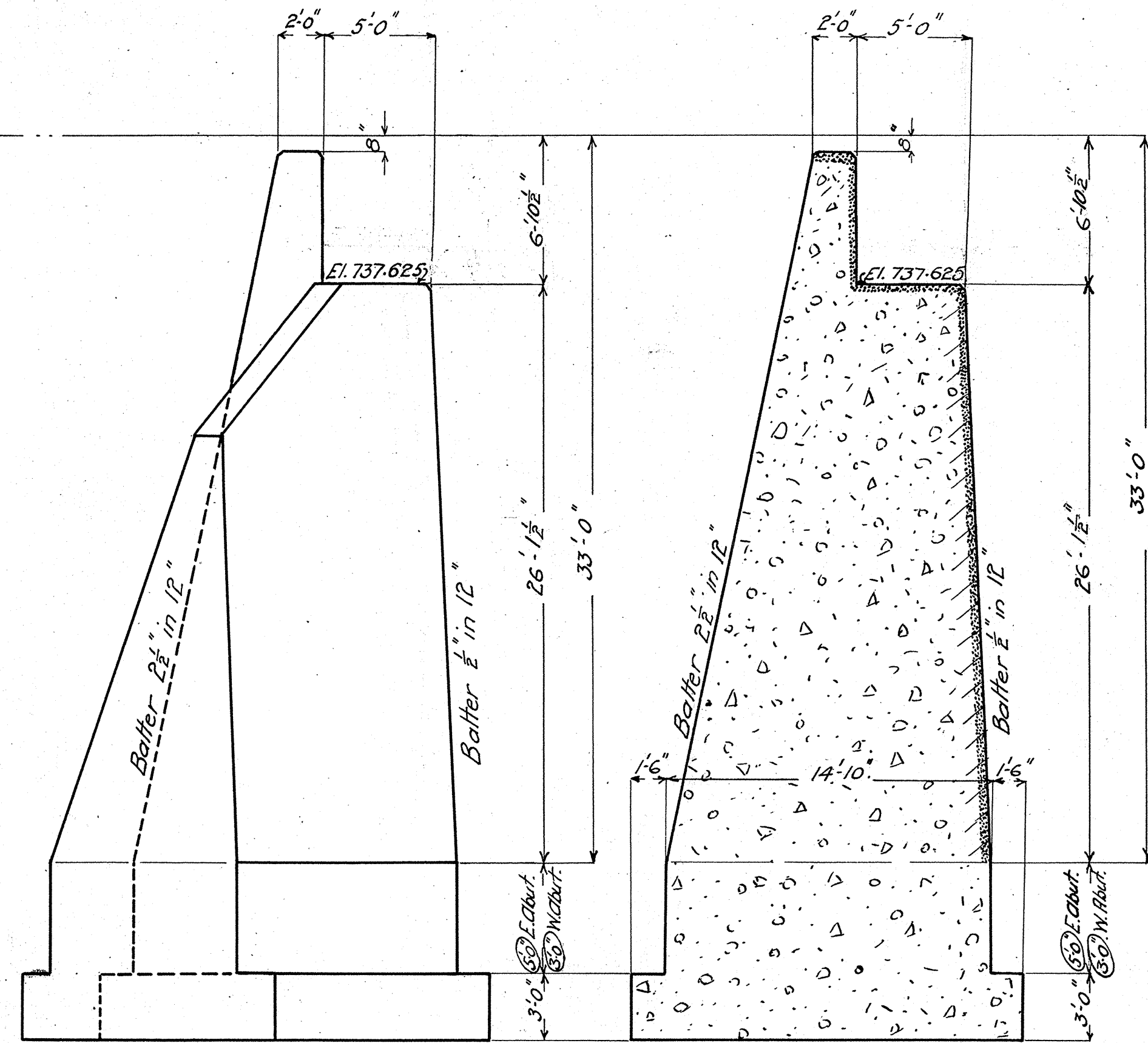
1011 8

O.K. Sec. 4/25/11

AA221-69.7-2.8



— Rear Elevation —

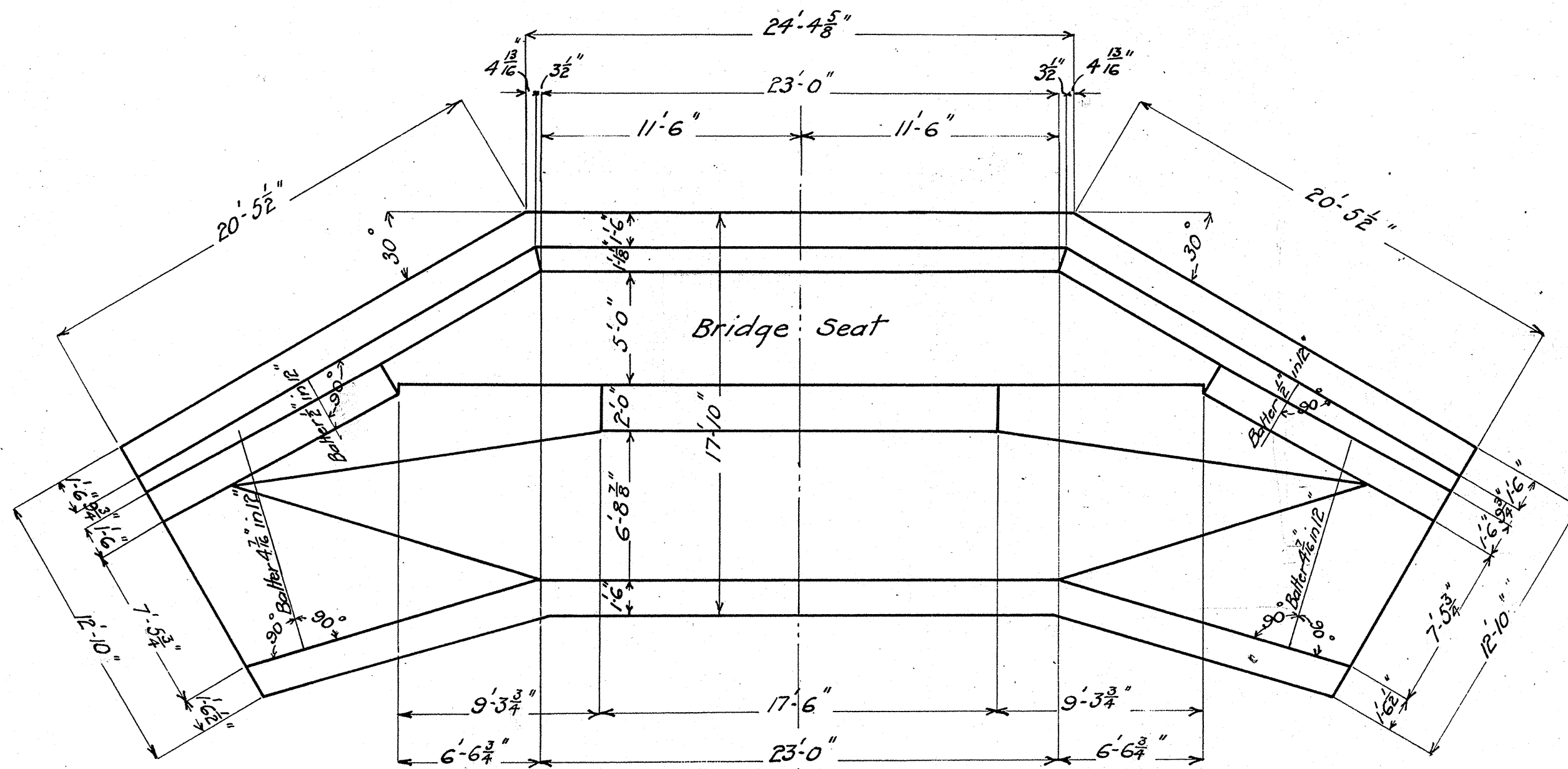


— Side Elevation —

— Section at Centre —

Note: All edges and corners above ground to be finished thus $\sqrt{}$ except lower back corner of Bridge Seat. Dimensions circled thus \bigcirc may be varied if necessary. For Particulars re Concrete facing etc see General Specifications.

For General Scheme see Drawing Br.C10-730.
For Temporary Timber Trestle see Drawing Br.C10-731.



— Plan —

National Transcontinental Railway.
Eastern Division - District "D"
Mile 193.16 From East End of District
Opazatika River
Details of East and West Abutments

March 21st 1910.
Revised April 1st 1910. C.B.
" April 22nd 1910. C.B.

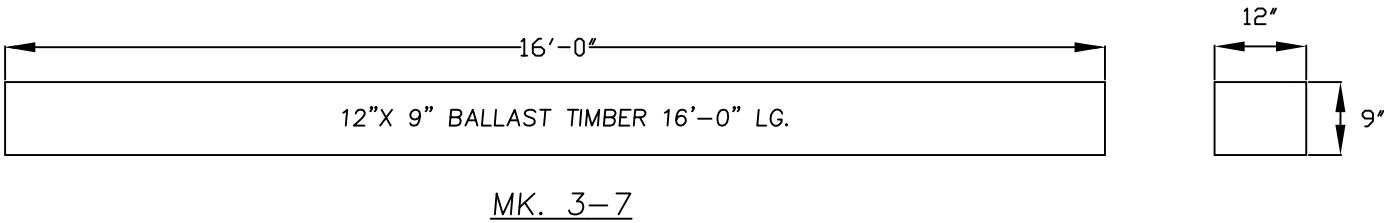
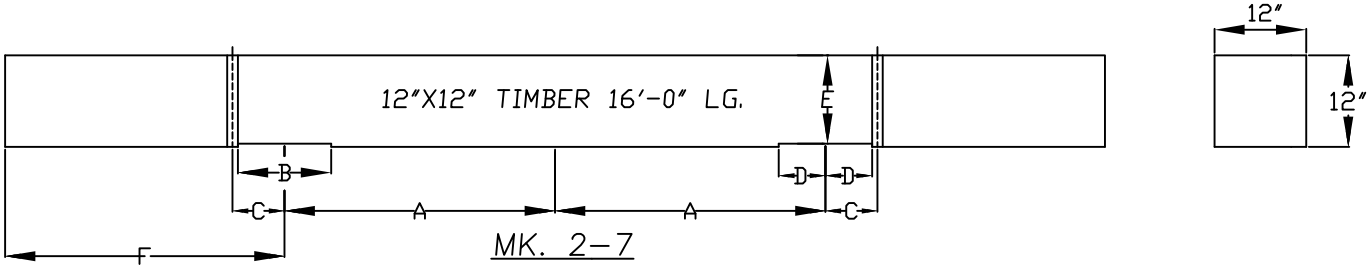
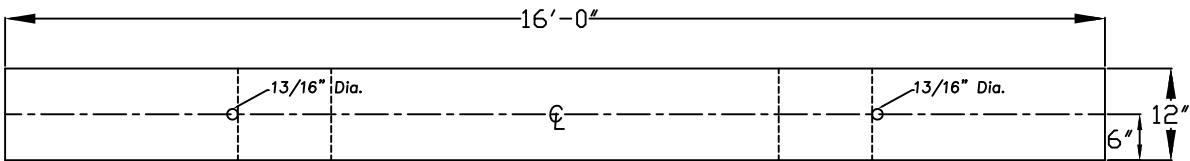
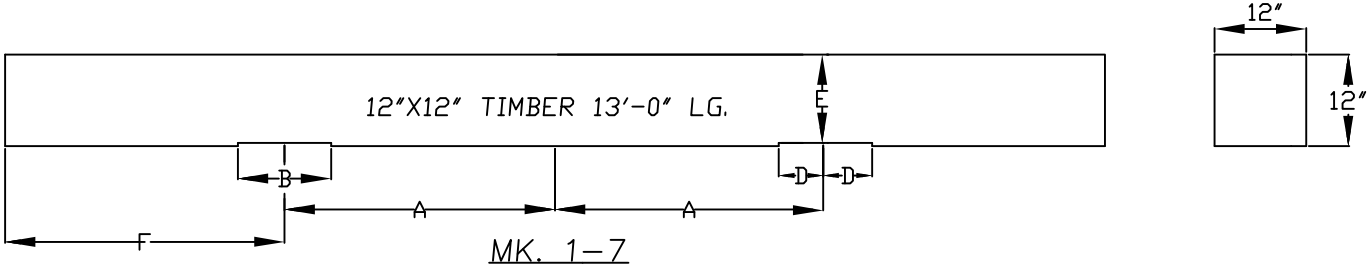
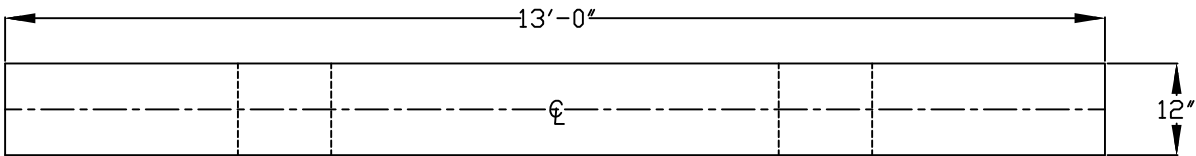
Scale: $\frac{3}{16}$ " = 1 foot.

Greenleaf
Chief Engineer

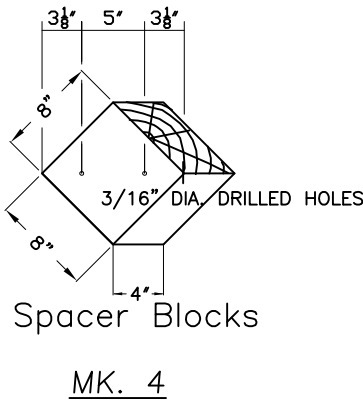
P. H. Mische
Bridge Engineer

Made by: P.H.M.
Checked by: C.B.

March 24/10



DIMENSIONS	MK	A	B	C	D	E	F	FBM	QTY.
	MK. 1-7	4'-6"	16 1/2"	NO HOOK BOLTS	8 1/4"	11 1/2"	2'-0"	27144	174
	MK. 2-7	4'-6"	16 1/2"	8 5/8"	8 1/4"	11 1/2"	2'-0"	11520	60
	MK. 3-7	12"X9" BALLAST TIMBER 16'-0" LG.						288	2
	MK. 4	8"X8"X4" SPACER BLOCKS						825	464
	TOTAL								39777



- SPECIFICATIONS
1. TIMBER SHALL BE NO.1 STRUCTURAL GRADE DOUGLAS FIR (ROUGH).

2. TIMBER SHALL BE AIR SEASONED BEFORE INJECTIONS OF CREOSOTE.

3. ALL CUTTING, BORING AND FRAMING TO BE COMPLETED PRIOR TO CREOSOTING.

4. ALL LENGTHS TO BE SQUARE CUT, DRILLED AND DAPPED IN ACCORDANCE WITH DRAWINGS.

5. TIMBER TO BE FULL SIZES IN ACCORDANCE WITH DRAWINGS.

6. TIMBER TO BE STAMPED AND CLEARLY VISIBLE OR TO HAVE A METAL TAG FASTENED TO ONE END TO IDENTIFY THE MK. NUMBER OF EACH TYPE IN ACCORDANCE WITH THE DRAWINGS.

7. TIMBER TO BE TREATED BY INJECTIIG 100% HOT CREOSOTE WITH PRESERVATIVE RETENTION TO BE NO LESS THAN 8 POUNDS PER CUBIC FOOT IN ACCORDANCE WITH CSA 080.2.

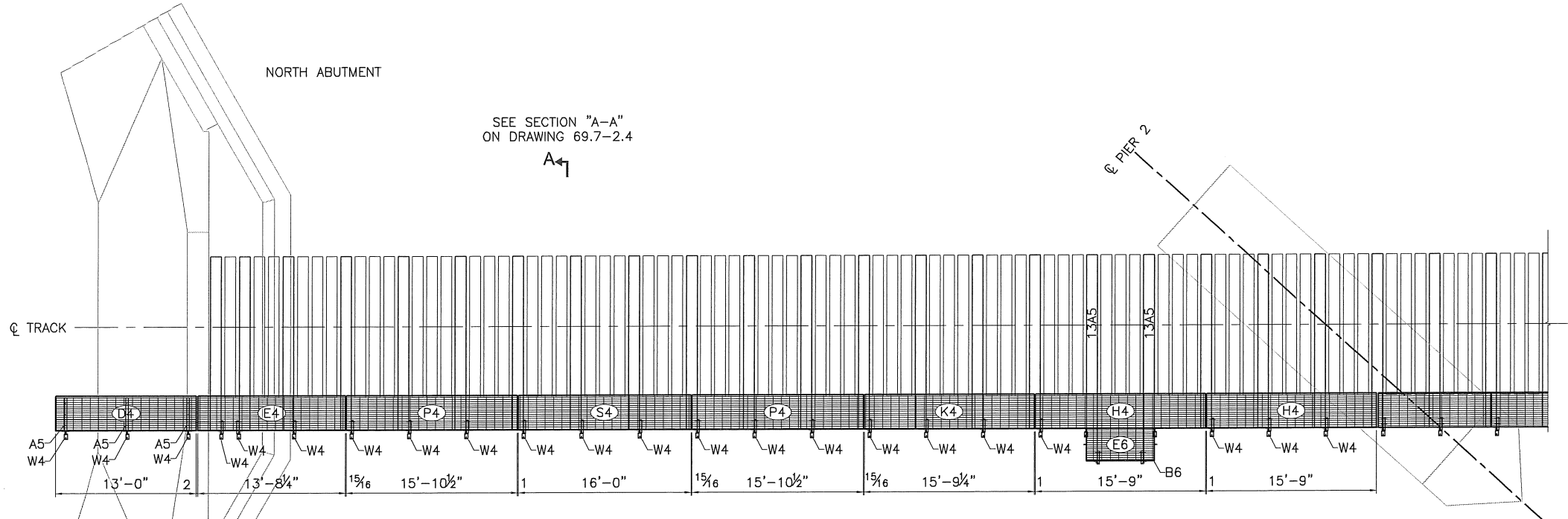
8. SPACER BLOCKS TO BE CUT IN ACCORDANCE WITH DRAWINGS AND HOLES BORED AGAINST THE GRAIN OF THE TIMBER.

ONTARIO NORTHLAND
RAIL SERVICES
ENGINEERING DEPARTMENT

NEW BRIDGE TIMBERS
KAP RIVER
MILEAGE 69.7
KAP SUBDIVISION

DR. BY: TWB
CH. BY: SGD
DATE : JANUARY 2011
SCALE: NOT TO SCALE

CAD. NO. A-6287
DWG. NO. A-6287



- SPECIFICATIONS:**
- DESIGN AND WORKMANSHIP: AREMA LATEST EDITION CHAPTERS 8 AND 15
 - STRUCTURAL STEEL: C.S.A.-G40.20-04/G40.21-04(R2009) 300W OR EQUAL
 - WELDING: C.S.A. W59-03 (R2008)
 - HOLES: 1 3/16" dia. UNLESS NOTED. HOLES MAY BE PUNCHED FULL SIZE.
 - PAINT: NOT REQUIRED.
 - GALVANIZING: C.S.A. G164-M92 (R2003)
 - WALKWAY GRATING SHALL BE WELDED STEEL GRATING 2"x3/16" BEARING BARS AT 1 3/16" c/c AND CROSSBARS AT 4" c/c, FISHER & LUDLOW TYPE 19-4 OR EQUIVALENT, FULLY BANDED, GALVANIZED. GRATINGS SHALL BE FASTENED TO EACH WALKWAY TIES USING 3-3/8" dia.x6" LAG SCREWS AND W4 GRATING CLIPS.

- GENERAL NOTES:**
- ERECTION MARKS AND ORIENTATION SHALL BE CLEARLY INDICATED ON ALL PIECES.
 - [2] INDICATES LENGTH OF FIELD BOLTS
 - ALL GALVANIZED MATERIAL CUT IN FIELD SHALL BE PAINTED WITH "GALVACON".
 - TIES TO BE SUPPLIED BY ONTARIO NORTHLAND.
 - EACH TIE PLATE SHALL HAVE A TIE PAD (PROVIDED BY ONR).
 - 4 TRACK SPIKES PER TIE TO BE INSTALLED (PROVIDED BY ONR).
 - ERECTION MARKS AND ORIENTATION SHALL BE CLEARLY INDICATED ON ALL PIECES.
 - HOOK BOLTS TO BE SUPPLIED BY ONR.
 - CONTRACTOR TO CLEAN BRIDGE WITH VACUUM, ESPECIALLY SHELF ANGLES, BOTTOM FLANGES AND BEARING AREAS.

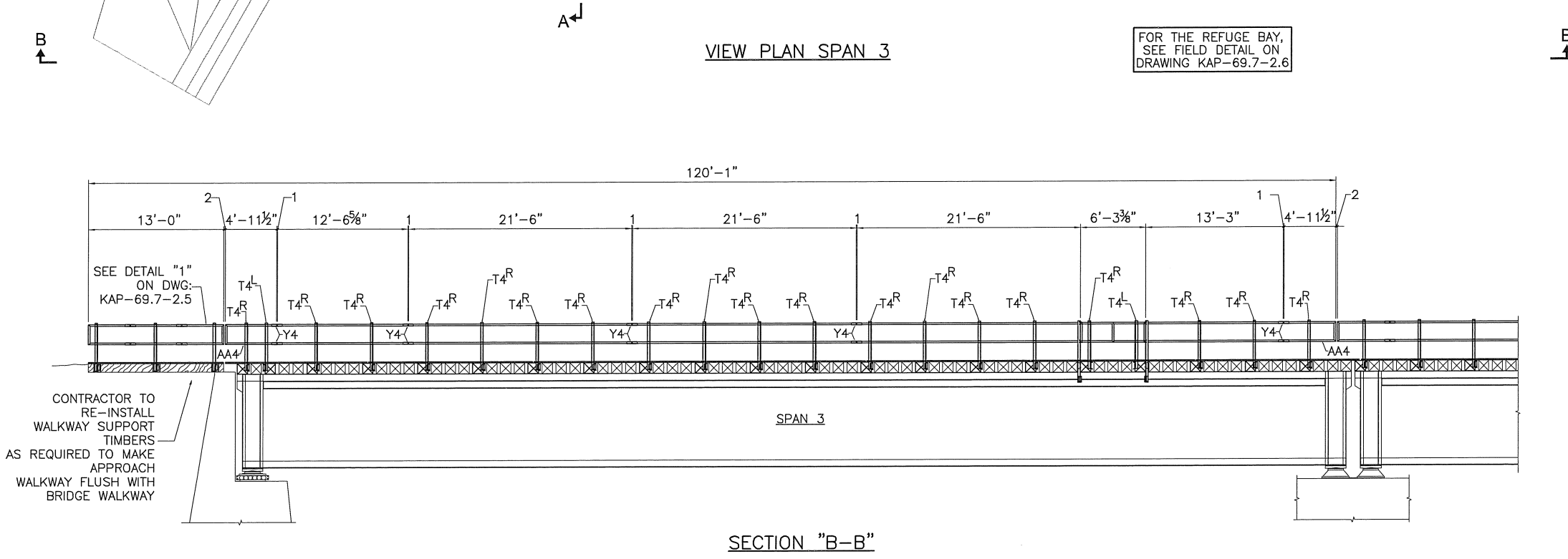
LIST OF FIELD BOLTS		
BOLT LENGTHS	QUANT.	REMARK
2 1/4	15	
2 1/2	145	

QUANTITIES OF EACH BOLT LENGTH SHOWN IN THIS TABLE INCLUDE AN EXTRA OF 5% + 5 FROM THE ORIGINAL QUANTITY.

- LIST OF DRAWINGS:**
- DRAWING No.KAP-69.7-2.1 ————— GENERAL LAYOUT — SPAN N°3
 - DRAWING No.KAP-69.7-2.2 ————— GENERAL LAYOUT — SPAN N°2
 - DRAWING No.KAP-69.7-2.3 ————— GENERAL LAYOUT — SPAN N°1
 - DRAWING No.KAP-69.7-2.4 ————— DETAILS 1
 - DRAWING No.KAP-69.7-2.5 ————— DETAILS 2
 - DRAWING No.KAP-69.7-2.6 ————— DETAILS REFUGE BAY

ESTIMATED QUANTITIES: (ON THIS DRAWING)

-HANDRAILING _____ (248 LIN. FT) 682 LBS



NOTES:

LEGEND:

1	10.29.13	ISSUED FOR CONSTRUCTION	B.B.
0	09.03.13	ISSUED FOR TENDER	B.B.
No.	DATE	REVISION	BY

HMM PROJECT No. 325113

69.70 KAPUSKASING SUBDIVISION

BRIDGE OVER KAPUSKASING RIVER
69.70 KAPUSKASING SUBDIVISION
BRIDGE STEEL REPAIRS
GENERAL ARRANGEMENT —SPAN 3—

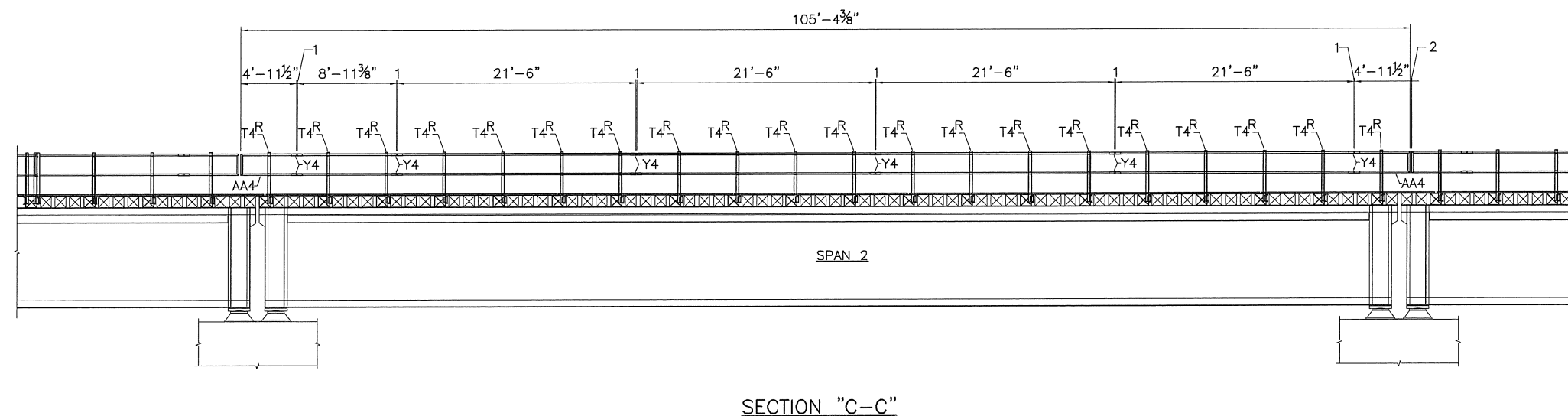
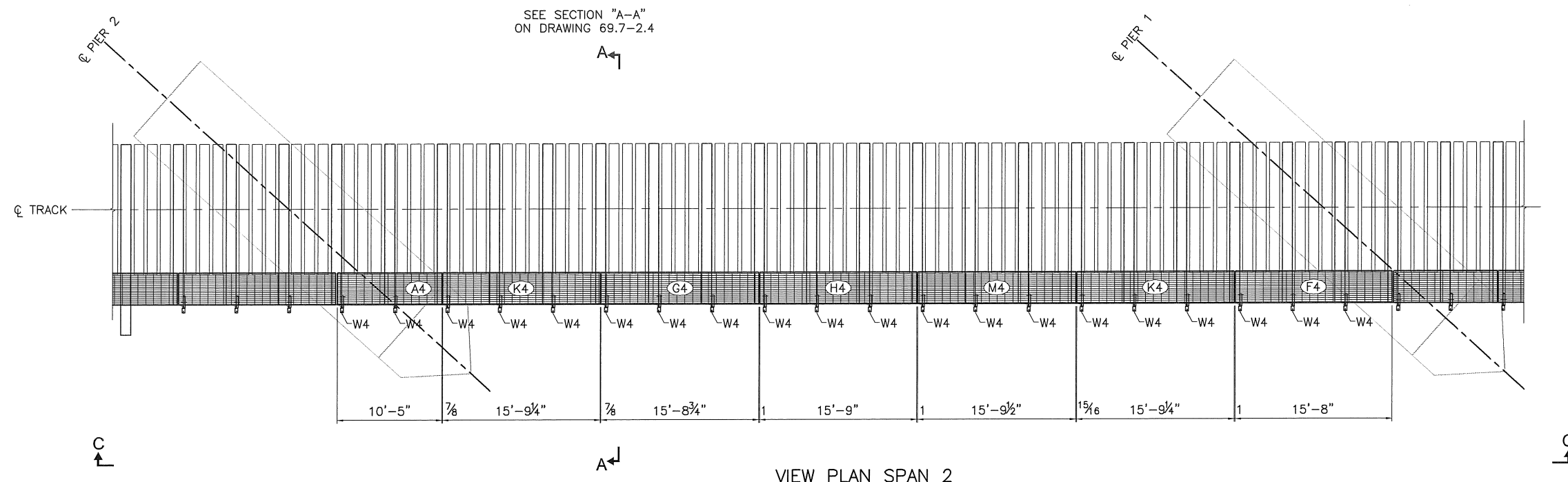
DWG. BY: B.B.	CHK BY: A.M.	SCALE: 5/32"=1'-0"
ENGINEER: A.M.	DATE: AUGUST. 2013	PLAN No.
PROJECT MANAGER: A.M.	325113-KAP-69.7-2.1	

NORTHWARD TO
HEARST

SOUTHWARD TO
COCHRANE

NOTES:
-FOR GENERAL NOTES & SPECIFICATIONS
SEE DRAWING No.KAP-69.7-2.1

ESTIMATED QUANTITIES: (ON THIS DRAWING)
-HANDRAILING (215' LIN. FT) 592 LBS



NOTES:

LEGEND:



1	10.29.13	ISSUED FOR CONSTRUCTION	B.B.
0	09.03.13	ISSUED FOR TENDER	B.B.
No.	DATE	REVISION	BY

O.N. Rail



HMM PROJECT No. 325113

69.70 KAPUSKASING SUBDIVISION		
BRIDGE OVER KAPUSKASING RIVER 69.70 KAPUSKASING SUBDIVISION BRIDGE STEEL REPAIRS GENERAL ARRANGEMENT -SPAN 2-		
DWG. BY: B.B.	CHK BY: A.M.	SCALE: 5/32"=1'-0"
ENGINEER: A.M.		DATE: AUGUST, 2013
PROJECT MANAGER: A.M.		PLAN No. 325113-KAP-69.7-2.2



—FOR GENERAL NOTES & SPECIFICATIONS
SEE DRAWING No.KAP-69.7-2.1

-HANDRAILING _____ (233' LIN. FT) 641 LBS



1	10.29.13	ISSUED FOR CONSTRUCTION			B.F
0	09.03.13	ISSUED FOR TENDER			B.F
No.	DATE	REVISION			B.F



HMM PROJECT No. 325113

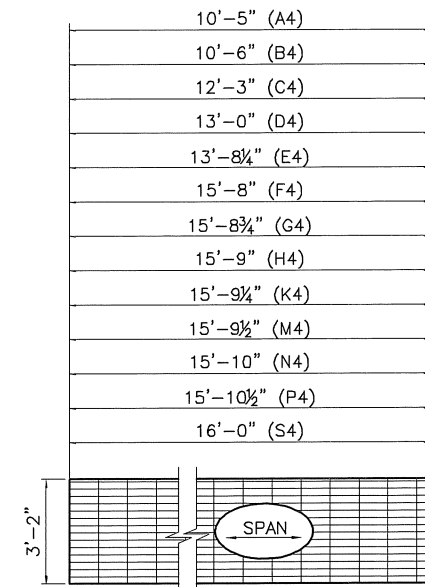
BRIDGE OVER KAPUSKASING RIVER
69.70 KAPUSKASING SUBDIVISION
BRIDGE STEEL REPAIRS
GENERAL ARRANGEMENT - SPAN 1 -

DWG. BY: B.B.	CHK BY: A.M.	SCALE: 5/32"=1'-0"
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ENGINEER: A.M.	DATE: AUGUST. 2013
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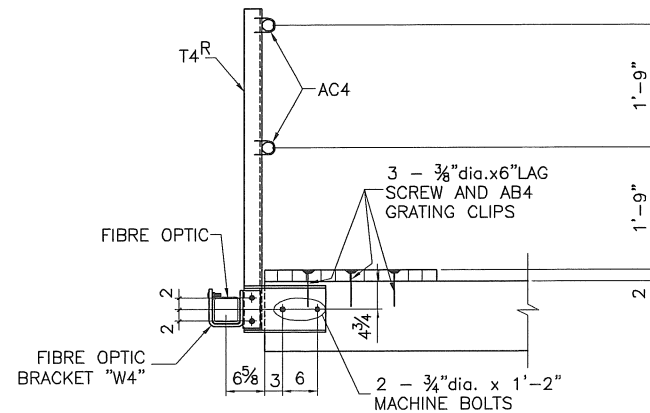
PROJECT MANAGER: A.M.

PLAN No.
325113-KAP-69.7-2.3

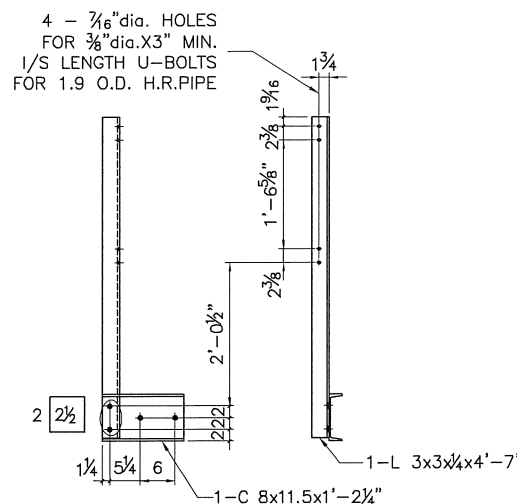


2-A4 1-B4 1-C4 2-D4 1-E4
 1-F4 2-G4 3-H4 3-K4 1-M4
 2-N4 3-P4 1-S4

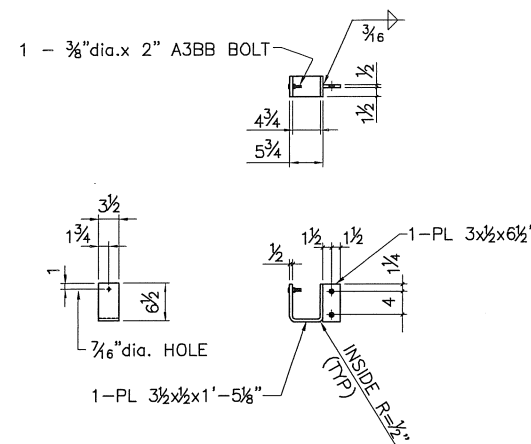
GRATING PANELS



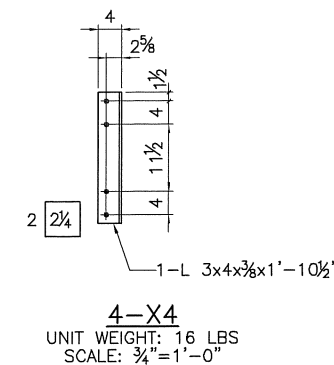
SECTION "A-A"
 SCALE: 3/4"=1'-0"



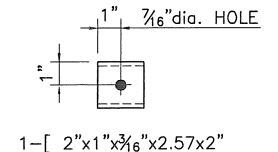
56-T4^R RIGHT (AS SHOWN)
 4-T4^L LEFT
 UNIT WEIGHT: 36 LBS
 SCALE: 3/4"=1'-0"



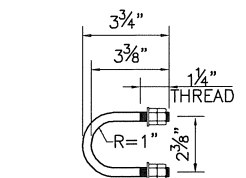
66-W4
 UNIT WEIGHT: 11 LBS
 SCALE: 3/4"=1'-0"



4-X4
 UNIT WEIGHT: 16 LBS
 SCALE: 3/4"=1'-0"



258-AB4
 UNIT WEIGHT: 0.428 LBS
 SCALE: 3"=1'-0"



140-AC4
 UNIT WEIGHT: 2 LBS
 SCALE: 3"=1'-0"

SPECIFICATIONS:

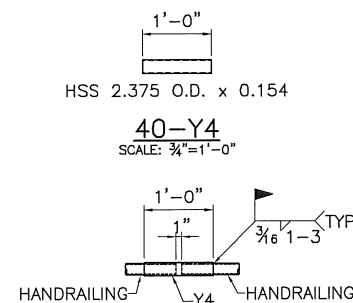
- ALL MATERIAL ON THIS DRAWING TO BE GALVANIZED AS PER CSA G164-M92 (R 2003)
- HANDRAILING SHALL BE OF HSS 1.9" OUTSIDE DIAMETER AND 0.150" THICK. CLASS C, STEEL 350W, IN ACCORDANCE WITH CAN/CSA-G.40.21-04(R2009).
- HOLES 1 3/8" dia. (UNLESS NOTED)

NOTES:

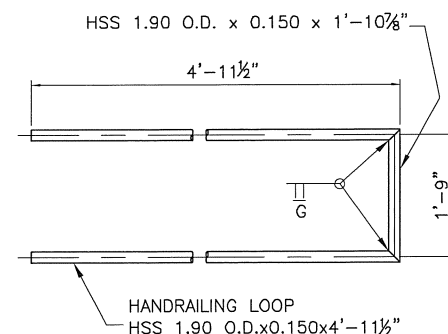
- FOR GENERAL NOTES & SPECIFICATIONS SEE DRAWING No.KAP-69.7-2.1
- ALL GALVANIZED MATERIAL CUT IN FIELD SHALL BE PAINTED WITH "GALVACON".

ESTIMATED QUANTITIES: (ON THIS DRAWING)

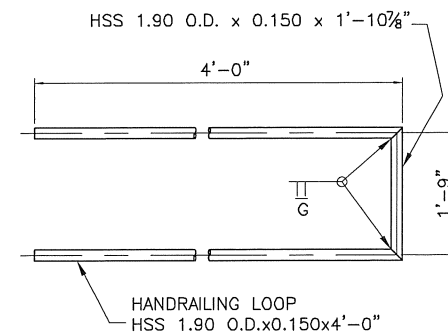
- STRUCTURAL STEEL 3315 LBS
- 3/8" dia. x 6" LONG. LAG SCREWS 180 EA
- WALKWAY GRATING 1065 FT²
- MACHINE BOLTS 120



HANDRAILING SPLICE DETAIL



6-AA4
 SCALE: 3/4"=1'-0"



4-AD4
 SCALE: 3/4"=1'-0"

NOTES:

LEGEND:



1	10.29.13	ISSUED FOR CONSTRUCTION	B.B.
0	09.03.13	ISSUED FOR TENDER	B.B.
No.	DATE	REVISION	BY

O.N. Rail

Hatch Mott MacDonald

HMM PROJECT No. 325113

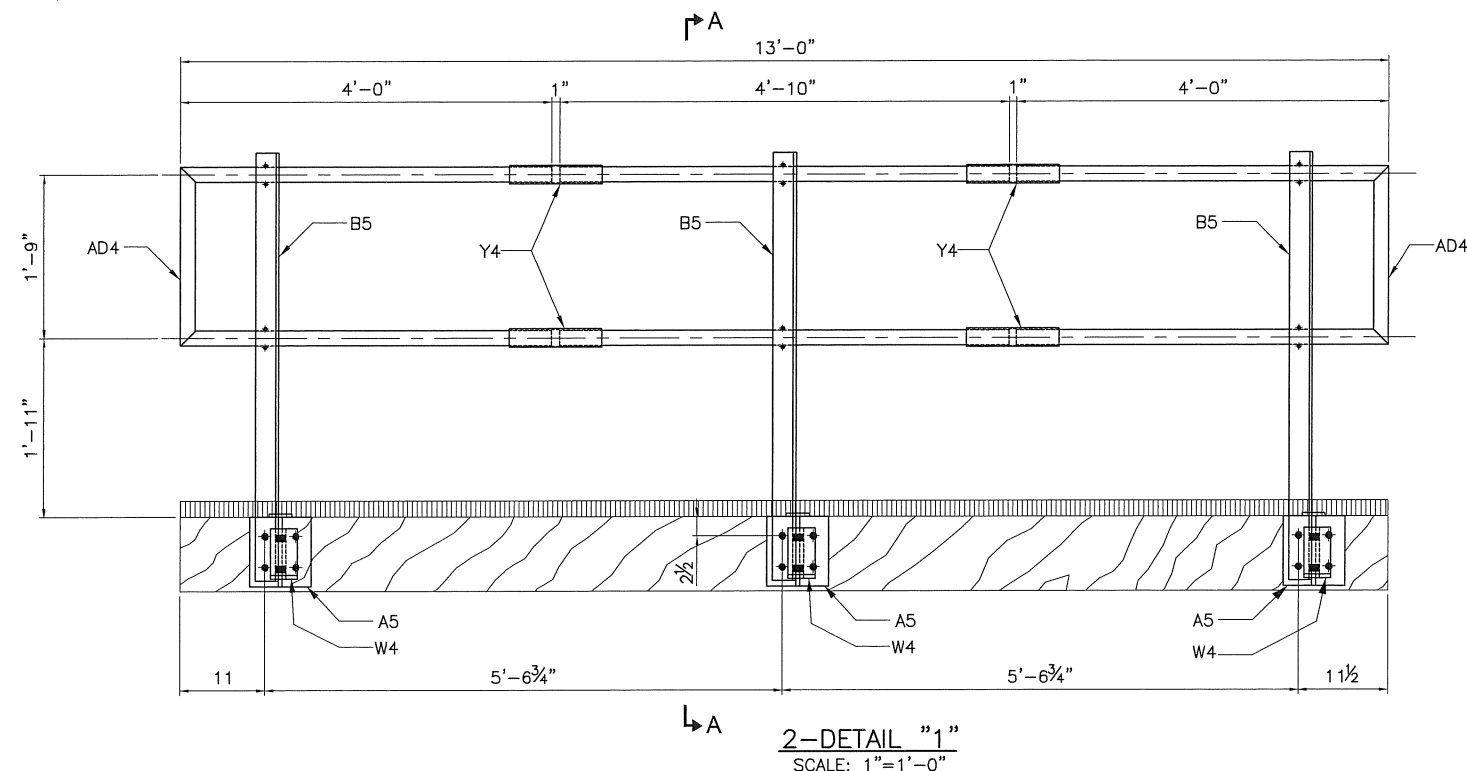
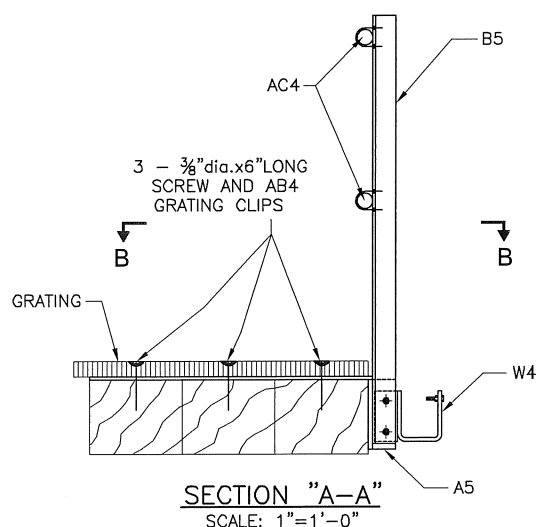
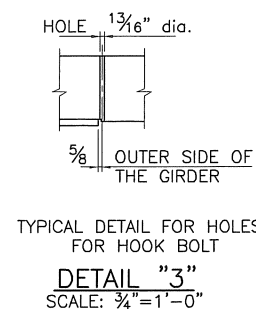
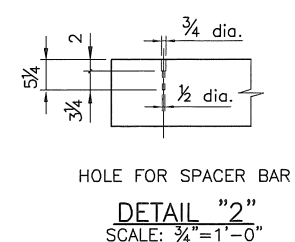
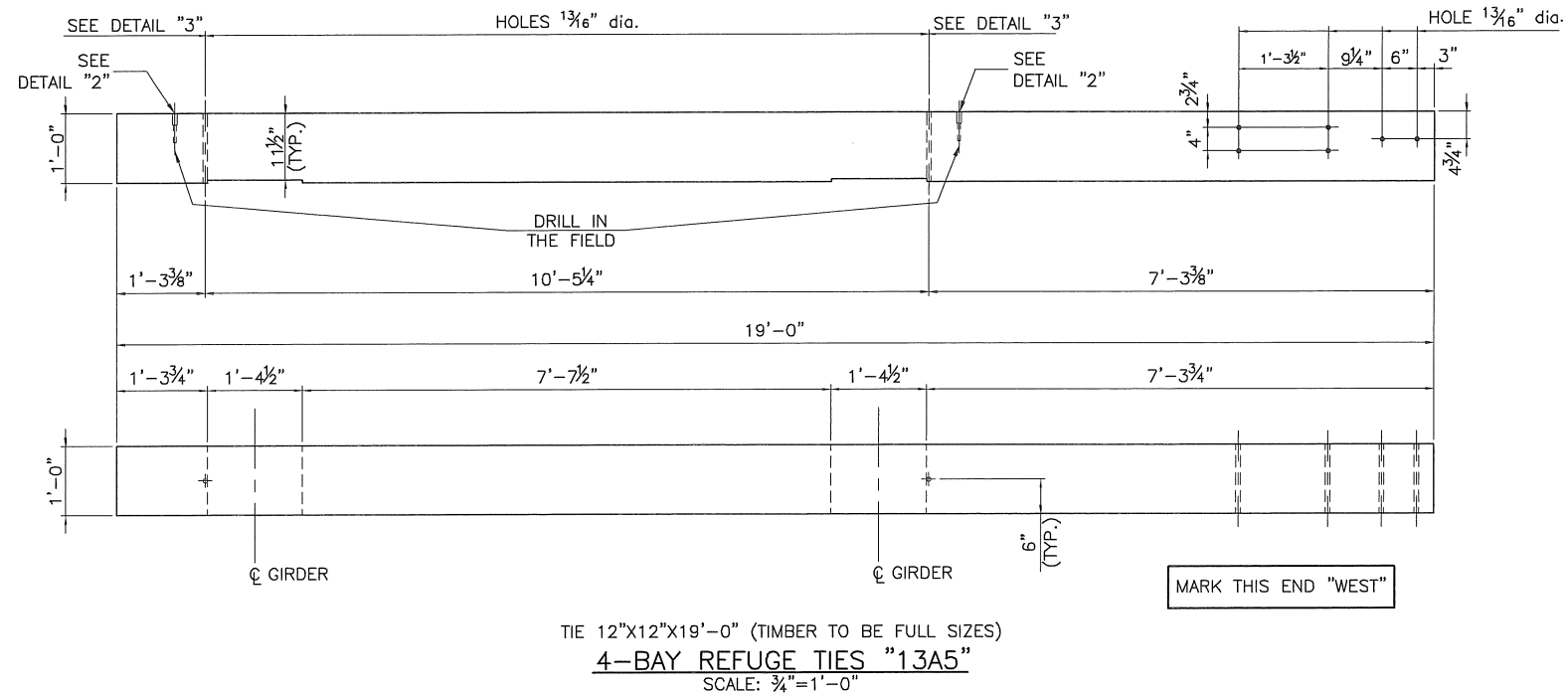
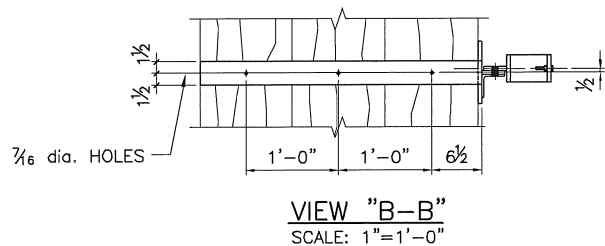
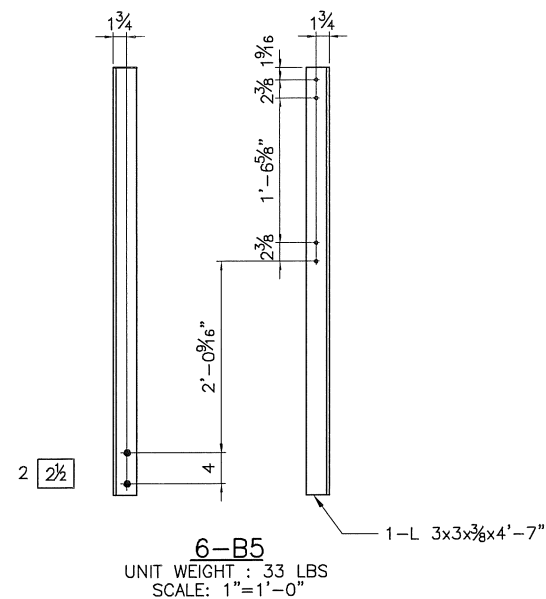
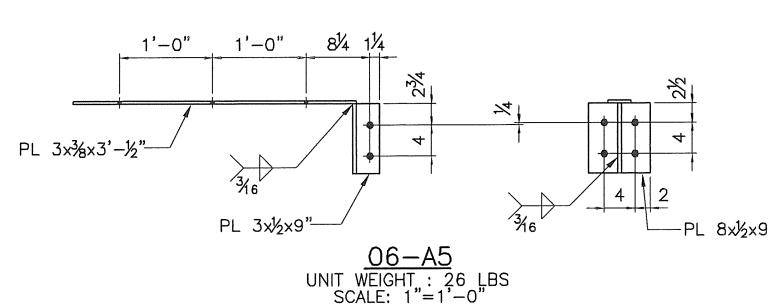
69.70 KAPUSKASING SUBDIVISION

BRIDGE OVER KAPUSKASING RIVER
 69.70 KAPUSKASING SUBDIVISION
 BRIDGE STEEL REPAIRS
 DETAILS 1

DWG. BY: B.B. CHK BY: A.M. SCALE: AS NOTED

ENGINEER: A.M. DATE: AUGUST, 2013

PROJECT MANAGER: A.M. PLAN No. 325113-KAP-69.7-2.4



SPECIFICATIONS:

-ALL MATERIAL ON THIS DRAWING TO BE GALVANIZED AS PER CSA G164-M92 (R 2003)
-HANDRAILING SHALL BE OF HSS 1.9" OUTSIDE DIAMETER AND 0.150" THICK, CLASS C, STEEL 350W, IN ACCORDANCE WITH CAN/CSA-G.40.21-04(R2009).
-HOLES 1 3/8" dia. (UNLESS NOTED).
-TIMBER SHALL BE NO.1 STRUCTURAL GRADE DOUGLAS FIR (ROUGH).

-TIMBER SHALL BE AIR SEASONED BEFORE INJECTIONS OF CREOSOTE.
-ALL CUTTING, BORING AND FRAMING TO BE COMPLETED PRIOR TO CREOSOTING.
-ALL LENGTHS TO BE SQUARE CUT, DRILLED AND DAPPED IN ACCORDANCE WITH DRAWINGS.
-TIMBER TO BE FULL SIZES IN ACCORDANCE WITH DRAWINGS.

-TIMBER TO BE STAMPED AND CLEARLY VISIBLE OR TO HAVE A METAL TAG FASTENED TO ONE END TO IDENTIFY THE MK. NUMBER OF EACH TYPE IN ACCORDANCE WITH THE DRAWINGS.
-TIMBER TO BE TREATED BY INJECTING 100% HOT CREOSOTE WITH PRESERVATIVE RETENTION TO BE NO LESS THAN 8 POUNDS PER CUBIC FOOT IN ACCORDANCE WITH CSA 080.2.

NOTES:

-FOR GENERAL NOTES & SPECIFICATIONS SEE DRAWING No.KAP-69.7-2.1
-ALL GALVANIZED MATERIAL CUT IN FIELD SHALL BE PAINTED WITH "GALVACON".

ESTIMATED QUANTITIES: (ON THIS DRAWING)

-STRUCTURAL STEEL _____ 354 LBS
-3/8" dia. x 6" LONG. LAG SCREWS _____ 18 EA
-MACHINE BOLTS _____ 24
-BAY REFUGE TIES _____ 4
-HANDRAILING _____ (9'-8" LIN. FT) 27 LBS

NOTES:

LEGEND:



No.	DATE	REVISION	BY
1	10.29.13	ISSUED FOR CONSTRUCTION	B.B.
0	09.03.13	ISSUED FOR TENDER	B.B.

O.N. Rail

Hatch Mott MacDonald

HMM PROJECT No. 325113

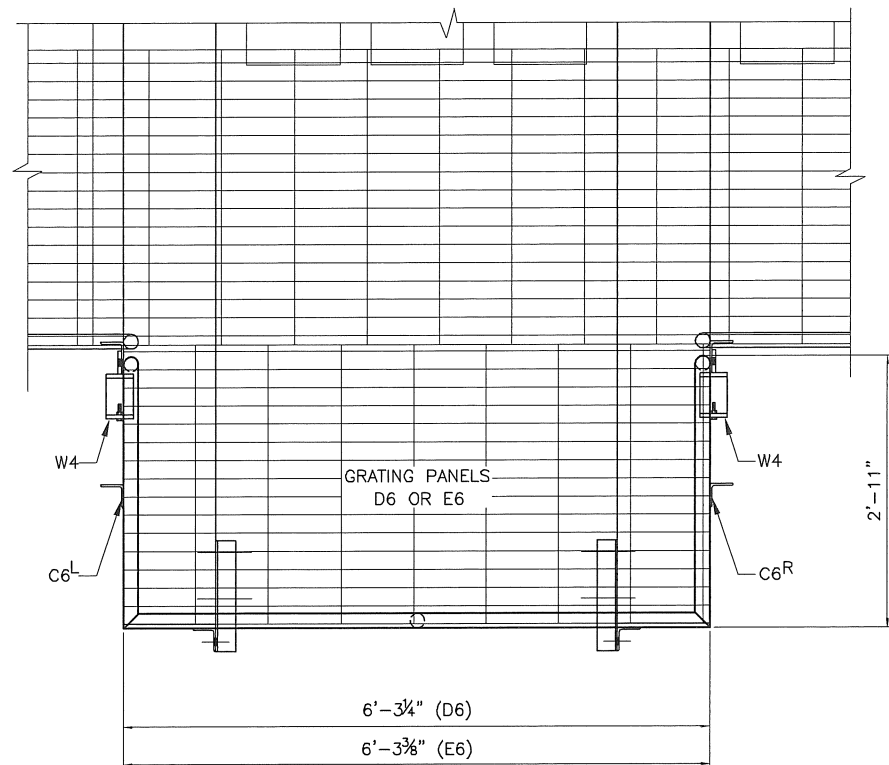
69.70 KAPUSKASING SUBDIVISION

**BRIDGE OVER KAPUSKASING RIVER
69.70 KAPUSKASING SUBDIVISION
BRIDGE STEEL REPAIRS
DETAILS 2**

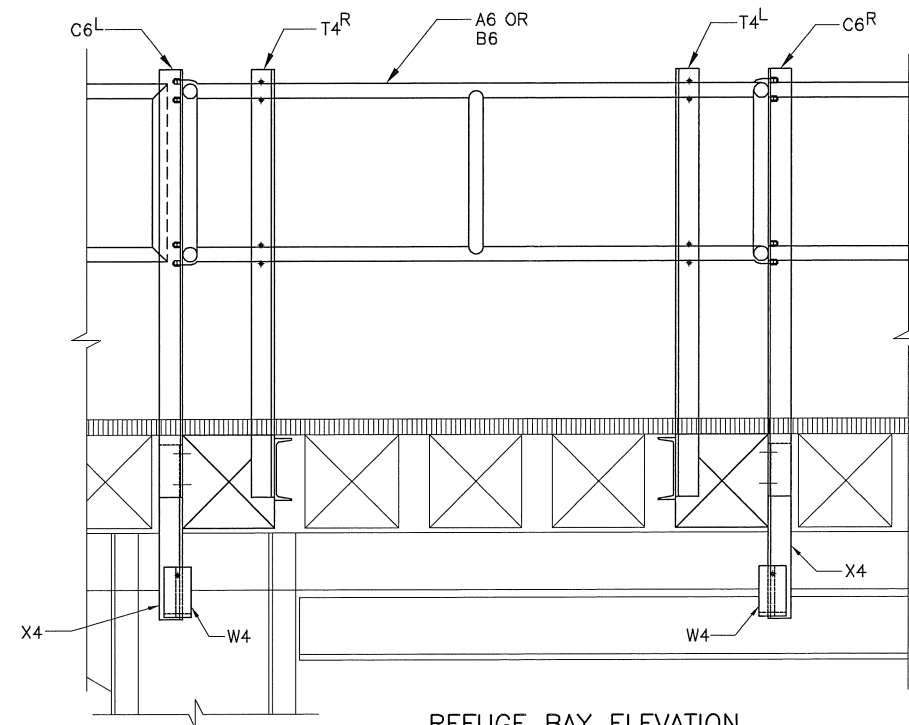
DWG. BY: B.B. CHK BY: A.M. SCALE: AS NOTED

ENGINEER: A.M. DATE: AUGUST, 2013

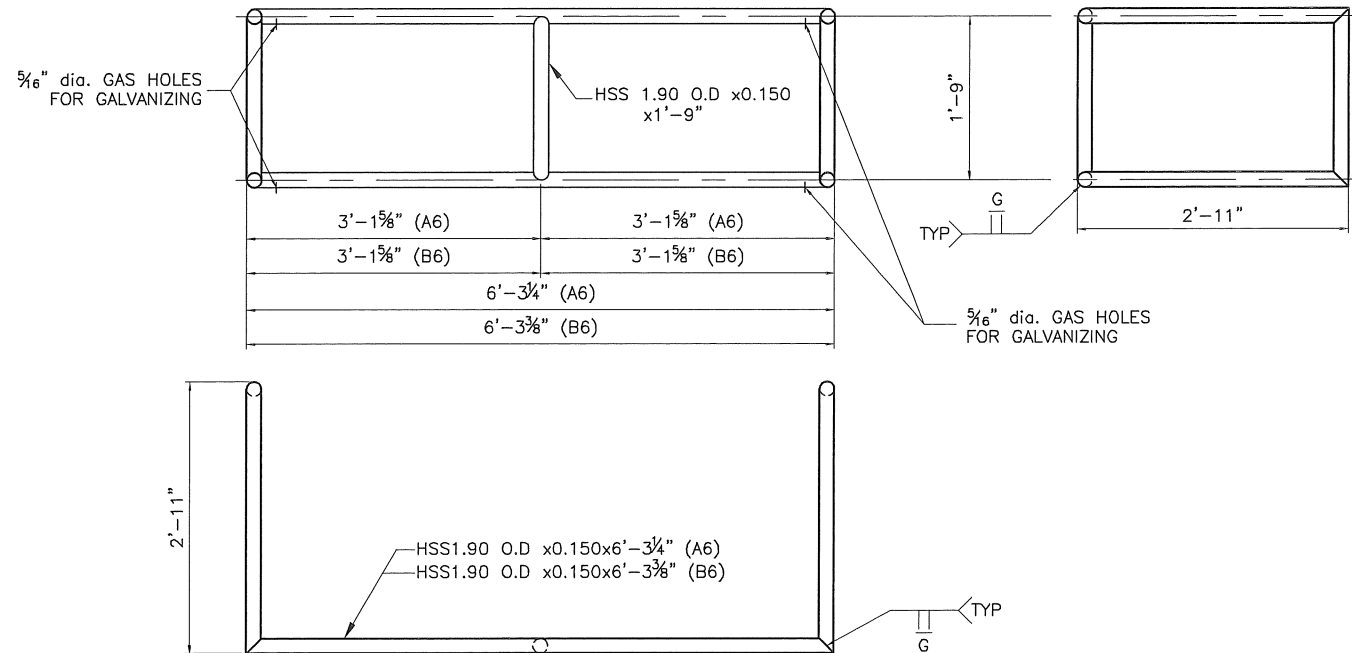
PROJECT MANAGER: A.M. PLAN No. 325113-KAP-69.7-2.5



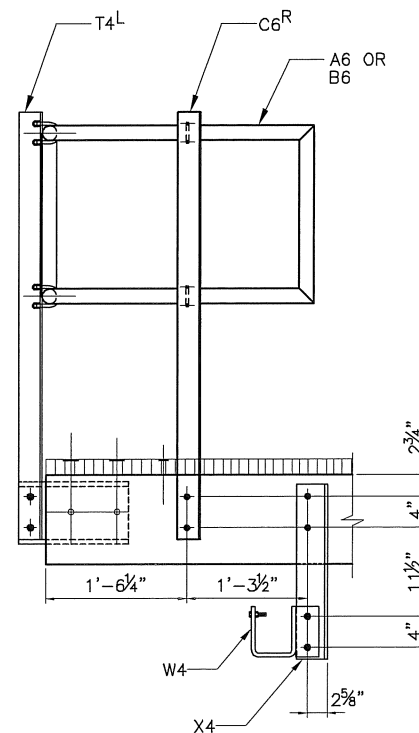
REFUGE BAY PLAN



REFUGE BAY ELEVATION

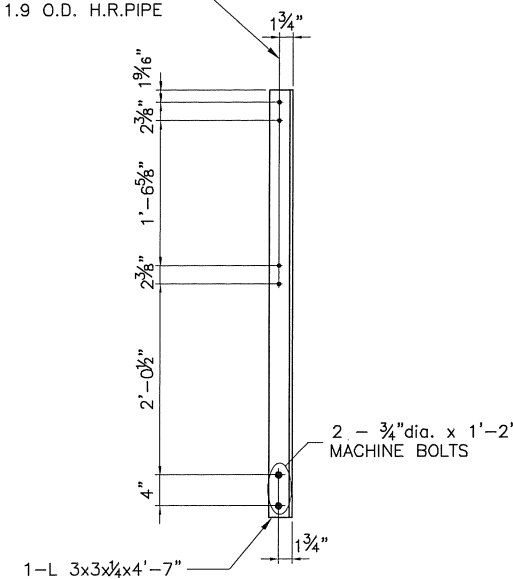


1-A6
1-B6



SECTION "A-A"

4 - 3/16" dia. HOLES
FOR 3/8" dia. X3" MIN.
1/S LENGTH U-BOLTS
FOR 1.9 O.D. H.R. PIPE



2-C6^R RIGHT (AS SHOWN)
2-C6^L LEFT
UNIT WEIGHT: 22 LBS

SPECIFICATIONS:

- ALL MATERIAL ON THIS DRAWING TO BE GALVANIZED AS PER CSA G164-M92 (R2003)
- HANDRAILING SHALL BE OF HSS 1.9" OUTSIDE DIAMETER AND 0.150" THICK. CLASS C, STEEL 350W, IN ACCORDANCE WITH CAN/CSA-G.40.21-04(R2009).
- HOLES 1 3/8" dia. (UNLESS NOTED)

NOTES:

- FOR GENERAL NOTES & SPECIFICATIONS SEE DRAWING No.KAP-69.7-2.1
- ALL GALVANIZED MATERIAL CUT IN FIELD SHALL BE PAINTED WITH "GALVACON".

ESTIMATED QUANTITIES: (ON THIS DRAWING)

-STRUCTURAL STEEL	88 LBS
-HANDRAILING	(48'-5" LIN. FT) 134 LBS
-3/8" dia. x 6" LONG. LAG SCREWS	12 EA
-WALKWAY GRATING	38 FT ²
-MACHINE BOLTS	24

NOTES:

LEGEND:



No.	DATE	REVISION	BY
1	10.29.13	ISSUED FOR CONSTRUCTION	B.B.
0	09.03.13	ISSUED FOR TENDER	B.B.

O.N. Rail

Hatch Mott
MacDonald

HMM PROJECT No. 325113

69.70 KAPUSKASING SUBDIVISION

BRIDGE OVER KAPUSKASING RIVER
69.70 KAPUSKASING SUBDIVISION
BRIDGE STEEL REPAIRS
DETAILS REFUGE BAY

DWG. BY: B.B.	CHK BY: A.M.	SCALE: 1"=1'-0"
ENGINEER: A.M.	DATE: AUGUST, 2013	PLAN No.
PROJECT MANAGER: A.M.	325113-KAP-69.7-2.6	

69.7 Kapuskasing Reference Reports



Mandated by:



UNDERWATER INSPECTION REPORT
Kapuskasing 69.70

N° project HATCH : H-363034

N° project BLM : 21-054

June 29th, 2021



© Photo BLM



BLM

LICENCE RBQ : 8215-8239-43

INGÉNIERIE
SERVICES
SUBAQUATIQUES
SSBLM.COM

UNDERWATER INSPECTION REPORT
Kapuskasing 69.70
June 29th, 2021


Services Subaquatiques BLM inc.

2356 av. de la Rotonde

Lévis (Qc) G6X 2M1

Phone : 418-832-5222

Prepared by :



Isabelle Therrien, P.Eng. MBA
OIQ n°5016272

September 17, 2021

Date

Verified by :



Maxim Roy, P.Eng. commercial diver

September 17, 2021

Date

SUMMARY

The underwater inspection of railway bridge 69.70 Kapuskasing, carried out on June 29th, 2021, has been realized by professional divers from Services Subaquatiques BLM inc. [BLM].

The underwater inspection revealed that South abutment and pier n°1 are in poor condition due to the severity of the material defects observed. Desaggregated and [very important] spalling areas with visible rebars have been observed on both foundation units. The desaggregated concrete could be disintegrated by a pointed tool. Some vertical cracks (up to 20 mm on South abutment and up to 5 mm on pier n°1) have been observed on foundation. The pier n°2 and North abutment are in fair condition despite the presence of several material defects such as cracks (up to 2 mm), eroded areas with visible rebars and cold joint with erosion up to 100 mm. A cavity has been found at the junction between the footing and the bedrock of pier n°2 (maximum depth of 100 mm). However, no scoured area has been observed along South and North abutments and around piers n°1 and n°2.

Due to the very low clearance between the water level and the main beams combine with the presence of a hydropower plan nearby (located downstream), it is highly recommended to proceed to a hydrology study to assess the risk of rising water level during floods or ice jams.

According to these observations, no emergency repair needs to be carried out. However, according to the progression of the concrete defects observed, concrete repairs would be recommended on South abutment and pier n°1 within the next 3 to 5 years.

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1. MANDATE

BLM has been mandated by Hatch to realize the underwater inspection of seven (7) railway bridges located within the northern region of Ontario. All these structures are the property of Ontario Northland Railway [ONR] and are listed below:

- | | | |
|-------------------|---------------------|---|
| ▪ Structure n°1 : | Island Falls 137.80 | South and North abutments |
| ▪ Structure n°2 : | Island Falls 157.63 | Piers n°1 and n°2 |
| ▪ Structure n°3 : | Island Falls 162.00 | Piers n°1 and n°2 |
| ▪ Structure n°4 : | Island Falls 174.00 | Piers n°1 to n°3 |
| ▪ Structure n°5 : | Kapuskasing 20.30 | Piers n°1 and n°2 |
| ▪ Structure n°6 : | Kapuskasing 50.20 | Pier n°1 |
| ▪ Structure n°7 : | Kapuskasing 69.70 | Piers n°1 and n°2 & South and North abutments |

The underwater inspection includes, but not restricted to, a visual and tactical inspection of all submerged surfaces of the foundation elements. The underwater inspection covers the area located between the riverbed up to 1 meter above the water level the day of the inspection. It also includes a visual scan of the riverbed around the foundation elements. Finally, the inspection contains the validation and / or the measurement of the various items inspected.

Overall, the inspection has been requested to assess the stability of the structure and to make an inventory of all structural defaults that could affect the structure capacity and stability to ensure sustainability. The underwater inspection usually takes part of the “Bridge Management Program” as recommended under the American Railway Engineering and Maintenance-of-Way Association [AREMA].

The first section of this underwater report [Mandate] resumes the scope of work defined. This report details only the underwater inspection of the railway bridge Kapuskasing 69.70. The second section of this report [Methodology] presents the inspection limits, the referential systems used, the intervention procedures and a list of all the equipment available for this specific underwater inspection. Then, the third section of the report [General informations] provides a general description of the structure inspected and presents the conditions during the underwater inspection. The section n°4 [Observations] presents the observations and all defects encountered. The section n°5 [Rating] classifies each of the foundation elements inspected and the structure in general according to a predefined rating system. The sixth section [Conclusion and recommendations] summarizes the observations made during the inspection and is accompanied by recommendations.

Three (3) annexes are also part of the underwater report. The first annex [Annex A] includes a CAD version of the drawings showing defaults observed on each abutment. The second annex [Annex B] contains all photos taken during the underwater inspection. The last annex [Annex C] shows the table used to classify each element according to defaults found.

2. METHODOLOGY

2.1 INSPECTION LIMITS AND REFERENTIAL SYSTEMS

As mentioned previously, the underwater inspection covers all elements and surfaces located between the riverbed up to 1 meter above the water level on the inspection day.

Unless clearly stated, the referential system used during the underwater inspection is the International System of Units (S.I.). Unless a referential elevation has been given, the referential elevation system used is based on the water level the day of the inspection. In that case, the water level is defined as elevation « 0 ».

Seabed elevations have a margin of error of ± 150 mm due to various factors such as wave height, turbulent flow, tidal variation, etc. All other measurements taken underwater have a margin of error up to ± 50 mm. Due to limited visibility and presence of marine life, cracks and small defaults couldn't be reported.

Usually, the underwater inspection cannot be proceed with the diving helmet [Kirby Morgan 97SS] when water depth along the foundation is less than 3' (1 000 mm). When water depth is less than 3', a tactical and visual inspection is still made but cannot be recorded simultaneously. However, BLM is equipped with a waterproof camera to record the junction between riverbed and foundation units.

2.2 INTERVENTION PROCEDURES

Overall, the inspection was conducted primarily in a tactile and visual manner. The technical evaluation of the structure consists of locating and quantifying structural defaults such as scouring, spalling, delamination, erosion, etc.

All diving works and intervention procedures are based on *Section XXVI.I – Travail effectué en plongée* of the Règlement sur la santé et la sécurité du travail (chapter S-2.1, r. 13) and according to the Canadian CSA regulations *CAN/CSA-Z275* (latest version) and *CAN/CSA-Z180.1-13*.

All data collected during the underwater inspection were, when possible, done according to the *AREMA bridge inspection handbook Chapter 15* and *Underwater Bridge Inspection FHWA-HHI-10-027*.

The following steps have been realized to satisfy the mandate specifications:

- 1 - Verification and validation of the mandate;
 - a) Reading the bid documents and documents available;
 - b) Analyzing the feasibility;
 - c) Risk assessment;
 - d) Developing the work methodology in terms of technical data collection.
- 2 - Identification of the structure;
 - a) Physical and geographical validation of the structure to be inspected;

- b) Taking photos from upstream and downstream of the structure;
 - c) Identification of each face of every elements.
- 3 - Inspection above the water level by an inspector. The inspector is under an engineer's supervision;
- a) Measurement of the various structures and defects;
 - b) Taking photos of each face and defects.
- 4 - Inspection below the waterline by a commercial diver inspector. The commercial diver inspector is under an engineer's supervision;
- a) Measurement of the various structures and defects;
 - b) Taking photos of the defects when the visibility is good enough;
 - c) Recording a video of the underwater inspection.
- 5 - Analyzing data and writing technical report
- a) Comparison of data with previous inspection results (when available);
 - b) Evaluation of foundation and structure;
 - c) Drawings showing damage and the defects encountered (see annex A);
 - d) Writing technical report according to the defects observed;

2.3 STAFF ASSIGNED TO THE MANDATE

Every staff member assigned to this mandate has all necessary qualifications to proceed all tasks they have been asked.

2.3.1 Staff on site

- Mr. Maxim Roy, P.Eng., Commercial diver – Unrestricted Surface supplied supervisor & Professional Light drone Pilot
- Mr. Damien Bélanger, Commercial diver (Inspector)
- Mr. Kevin Moisan, Commercial diver
- Mr. Dave Gendreau, Commercial diver

2.3.2 Staff assigned to the preparation of the underwater report

- Mrs. Isabelle Therrien, P.Eng., MBA
- Mr. Maxim Roy, P.Eng., Commercial diver
- Mrs. Carine Laliberté (subcontractor), drafter
- Mr. Michael Lalancette (subcontractor), Video

2.4 EQUIPMENT AVAILABLE FOR THE INSPECTION

See below all equipment available or used for the inspection. It should be noted that the following list is not exhaustive.

- Drysuits;
- Two (2) Kerby Morgan 97SS (KM97) helmets;
- Compressed air: two (2) independent high-pressure sets of cylinders;
- High-pressure compressor;
- Two (2) safety harnesses with bailout;
- Bidirectional communication system;
- Underwater lighting system mounted on each KM97 helmets;
- Underwater camera with HD recording system;
- Mechanical measurement instruments;
- Flowmeter Flow probe;
- Drone DJI Phantom 4 Pro;
- Digital cameras;
- Motorized zodiac boats;
- Hi-Rail diving unit.

2.5 DOCUMENTS INCLUDED WITH THIS REPORT

This report contains 3 annex showing the drawing in CAD format in the annex A, the photos in the annex B and the conditions raking table in the annex C used in section 5. Also attached to this report, a video showing the entire underwater inspection is part of the inspection documents included with this report. It is named as follows:

- Underwater inspection video : BLM_Hatch_Kapuskasing_69.70.mp4

3. GENERAL INFORMATION

3.1 RAILWAY BRIDGE LOCATION

The structure Kapuskasing 69.70 is located on the Kapuskasing subdivision connecting the cities of Cochrane and Hearst in the province of Ontario. The structure is crossing the Kapuskasing River. The bridge is located in the city of Kapuskasing. Coordinates below show the approximate location of the structure. See page 1 of Annex A to locate the structure on the map. The photo here next shows the onsite identification of the bridge.



FIGURE 1 – ONSITE IDENTIFICATION OF THE BRIDGE

COORDINATES	
Latitude	49° 24'43.15"N
Longitude	82° 25'48.45"W

TABLE 1 – RAILWAY BRIDGE'S COORDINATES

3.2 WEATHER CONDITIONS

Table 2 presents the weather conditions during the inspection. It is important to understand that the underwater inspection has been held within a changing environment. Therefore, the data presented below are based on a daily average.

ITEM'S	DESCRIPTION
Inspection's date	June 29th, 2021
Period of the day	11h19
Weather	Sunny
Wind	≈ 15 km/h (NW)
Wave height [mm]	≈ 0 mm
Current [mm/sec]	≈ 100 mm/sec
Underwater visibility [mm]	≈ 1 000 mm
Air temperature [°C]	28°C
Water temperature [°C]	≈ 15°C

TABLE 2 – WEATHER CONDITIONS ON THE INSPECTION DAY

3.3 UNDER TRAFFIC INSPECTION

In the event of a train (or several) passes during the underwater inspection, few information and observations must be collected. The professional diver needs to take special attention to any movement under traffic. This information is summarized in the table below. However, it is important to understand that some information is hardly available (or even impossible to gather) due to the location of the diving team during the passage of the train.

ITEM'S	DESCRIPTION
Type of train	N/A
Approximative speed	N/A
Observations	N/A

TABLE 3 – UNDER TRAFFIC INSPECTION

4. OBSERVATIONS

The identification of the elements is presented in drawing 02 of the annex A. It should be remembered that only the areas between the riverbed up to one (1) meter above the water line on the day of the inspection was covered by the underwater inspection.

4.1 SOUTH ABUTMENT

The present section summarizes all observations made, such as defects, on the South abutment. Drawing 04, in annex A, presents a general view of the defects observed. Photos 7 to 9, in annex B, show general views of the South abutment.

- The South abutment is made of concrete and is composed of an East and West wing walls with a front wall. Both wing walls connect to concrete retaining walls;
- The riverbed's granulometry along the South abutment is generally made of sand and gravel and covers the whole footing;
- Desaggregated and eroded areas have been observed on the South abutment. These areas are mostly located along the waterline and above it. The maximum depth observed is 100 mm. The drawing 04 in annex A shows the exact location of the desaggregated and eroded areas;
- Some vertical cracks have been found on the South abutment. All the vertical cracks that could be observed below the waterline were stopping at the riverbed. One of the cracks has a width up to 20 mm and rebars could be seen within the crack;
- A spalling area with visible rebars has been observed below the waterline. The exact dimensions are shown on drawing 04 in annex A;
- No scoured area has been observed along the South abutment.

4.2 PIER N°1

The present section summarizes all observations made, such as defects, on pier n°1. Drawings 05 & 06, in annex A, present a general view of the defects observed. Photos 10 to 14, in annex B, show general views and zoom-in of some defects of pier n°1.

- Pier n°1 is made of concrete. The pier n°1 is sitting on a concrete footing;
- The riverbed's granulometry around pier n°1 is generally made of a layer of sand and gravel covering the bedrock. An accumulation of trees has been found on the upstream section of pier n°1;
- A large spalling area have been observed on the upstream section of the pier n°1 as shown on the drawings 05 and 06 in annex A;
- Some vertical and horizontal cracks have been found on pier n°1. All the vertical cracks that could be observed above and below the waterline were stopping 800 mm below the waterline. Some of the cracks have a width up to 5 mm;

- Desaggregated and spalling areas have been observed along the waterline. The maximum depth observed is 600 mm and has been observed on the upstream section of pier n°1 along the waterline;
- Few localized spalling areas have been found on the North face of pier n°1. The spalling areas are generally located 800 mm below the waterline and have a maximum depth of 80 mm;
- The footing could be observed on most of the perimeter of pier n°1. However, no scoured area has been observed around pier n°1.

4.3 PIER N°2

The present section summarizes all observations made, such as defects, on pier n°2. Drawings 07 & 08, in annex A, present a general view of the defects observed. Photos 15 to 18, in annex B, show general views and zoom-in of some defects.

- Pier n°2 is made of concrete and is sitting on a concrete footing;
- The riverbed's granulometry around pier n°2 is generally made of a layer of sand and gravel covering the bedrock. An accumulation of trees has been found on the South face of pier n°2;
- Few spalling areas have been observed along and below the waterline as shown on the drawings 07 and 08 in annex A. The maximum depth observed on the spalling area is 500 mm (South face of pier n°2);
- Some vertical and horizontal cracks have been found on pier n°2. All the vertical cracks that could be observed above and below the waterline were stopping 750 mm below the waterline. Some of the cracks have a width up to 2 mm;
- An eroded area (up to 30 mm) belts pier n°2 along the waterline as shown on drawings 07 and 08 in annex A;
- The footing could be observed on most of the perimeter of pier n°2. The side of the footing is partially covered with old wood forms;
- A cavity has been observed at the junction between the bedrock and the footing. The cavity has a length of 1 000 mm with a maximum depth of 100 mm and has an average height of 150 mm. The drawings 07 and 08 in annex A locate the cavity.

4.4 NORTH ABUTMENT

The present section summarizes all observations made, such as defects, on North abutment. Drawing 09, in annex A, presents a general view of the defects observed. Photos 19 to 21, in annex B, show general views and zoom-in of some defects.

- The North abutment is made of concrete and is composed of an East and West wing walls with a front wall;

- The riverbed's granulometry along the North abutment is generally made of sand and gravel and covers the whole footing;
- Some vertical cracks have been found on the North abutment. Some of the cracks have a width up to 1 mm;
- A cold joint has been observed at 300 mm below the waterline. Eroded areas have been found along this cold joint with a maximum depth of 100 mm;
- A spalling area with visible rebars has been observed along the waterline as shown on drawing 09 in annex A;
- No scoured area has been observed along the North abutment.

5. RATING

5.1 COLOUR CLASSIFICATION

A colour classification system is used for the structure and each of its foundation units. The Annex C shows the criteria used for the classification system. On the other hand, the following table presents the rates of the Kapuskasing 69.70 foundation units.

STRUCTURE		FOUNDATION UNITS	
Structure identification	Classification 2021	Foundation unit	Classification 2021
Kapuskasing 69.70	5	South Abutment	4
		Pier n°1	4
		Pier n°2	5
		North Abutment	5

TABLE 4 – KAPUSKASING 69.70 STRUCTURE RATING

6. CONCLUSION AND RECOMMENDATIONS

6.1 CONCLUSION

The conclusion summarizes the principal observations of the underwater inspection :

- The South abutment and pier n°1 in poor condition due to the severity of the defects observed. Desaggregated and spalling areas with visible rebars have been observed on both foundation units. The desaggregated concrete could be disintegrated by a pointed tool. A very important spalling area has been found on the West edge of pier n°1. Then, some vertical cracks (up to 20 mm on South abutment and up to 5 mm on pier n°1) have been observed on foundation units;
- The pier n°2 and North abutment are in fair condition despite the presence of several material defects such as cracks (up to 2 mm), eroded areas with visible rebars, cold joint with erosion up to 100 mm and a cavity have been found at the junction between the footing and the bedrock (maximum depth of 100 mm);
- No scoured area has been observed along South and North abutments and around piers n°1 and n°2;
- *Even if it was not part of our mandate, a picture of a highly corroded steel beam stiffener has been included in the underwater report (see photo 22 in annex B).*

6.2 RECOMMENDATIONS

According to the observations, it is recommended that :

- No emergency repair has to be done;
- Due to the very low clearance between the water level and the main beams combine with the presence of a hydropower plan nearby (located downstream), it is highly recommended to proceed to a hydrology study to assess the risk of rising water level during floods or ice jams.
- According to the progression of the concrete defects, concrete repairs would be recommended on South abutment and pier n°1 within the next 3 to 5 years.

Next underwater inspection : four (4) years (2025)

ANNEX A – Drawings



© Google Earth

Scale 1 : 3 000



© Google Earth











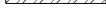
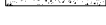



Scale 1 : 300 000

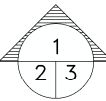


© Google Earth

Scale 1 : 12 000 000

Legend

-  Current direction
-  H.W.L. High Water Level
-  Water Level the day of the inspection
-  River bank
-  River Bed
-  Accumulation of trees
-  Riprap
-  Top Soil
-  380 Bathymetries
-  Steel
-  Concrete
-  Wood
-  Articulated Block Mat (AB600)
-  Scoured area
-  Material defects (Length x Height x Depth)
 - Spalling
 - Erosion
 - Desaggregation
 - Delamination

-  View Identification
 - 1 = View Number
 - 2 = Original page of the view
 - 3 = Destination Page of the View

Unless specified, all cotes and bathymetries are in mm.



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Montréal, Québec
Canada H3B 2G2

Client Contrat number :

H-366220

BLM Project number :

21-054

Drawn by :

Carine Laliberté

Verified by :

Maxim Roy, P. Eng.

Project :

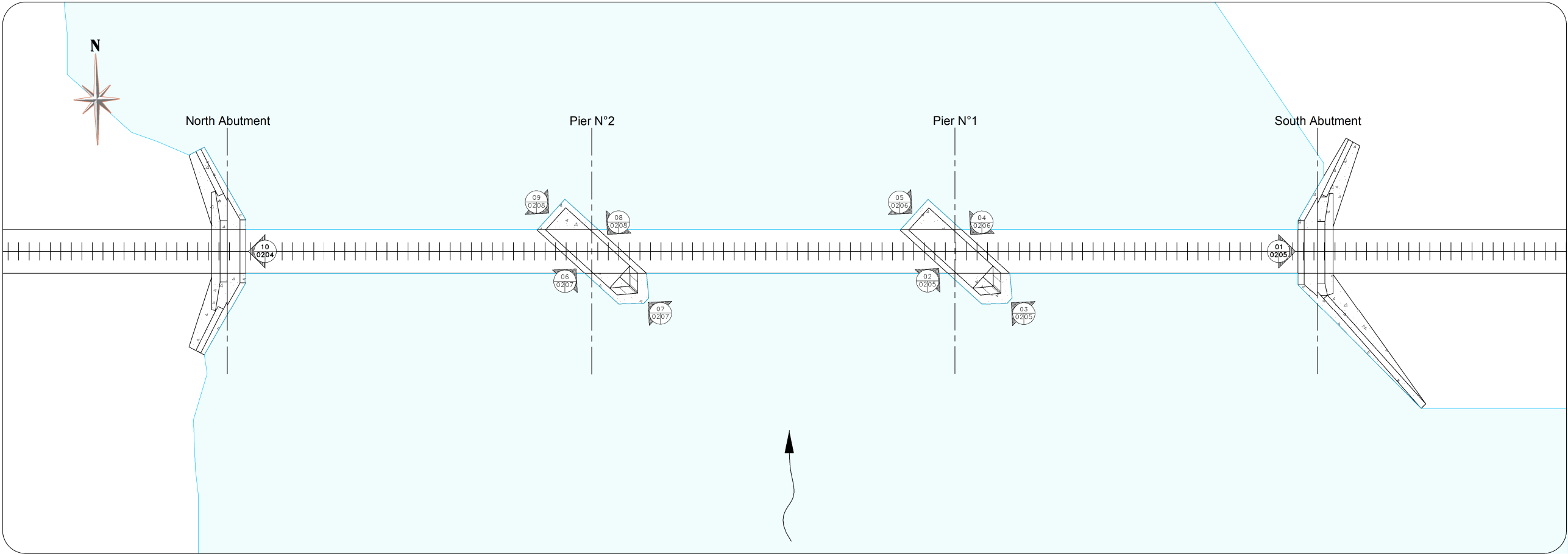
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North & South abutments
Mile Point : 69.70
Subdivision : Kapuskasing

Title :

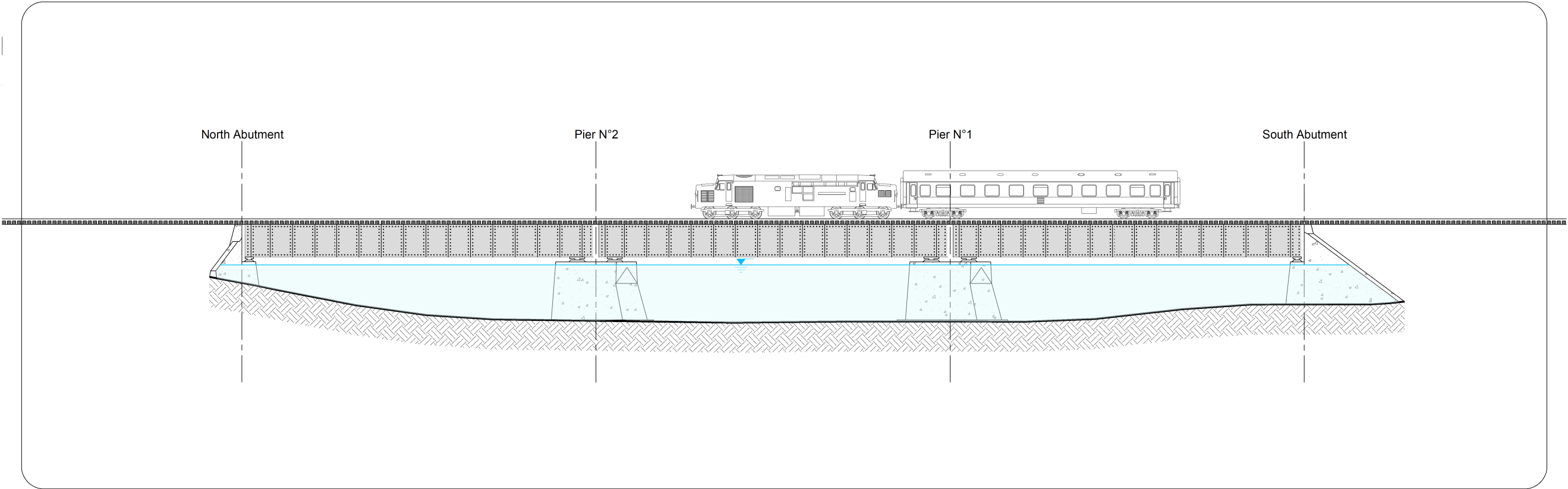
Localisation & Legend

Obstacle : Kapuskasing River	Scale : As shown
Date : June 29th, 2021	Sheet # : 01 of 09

General View



Elevation View from Upstream



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Mile Point : 69.70
Subdivision : Kapuskasing

Title :

General View
Elevation View from Upstream

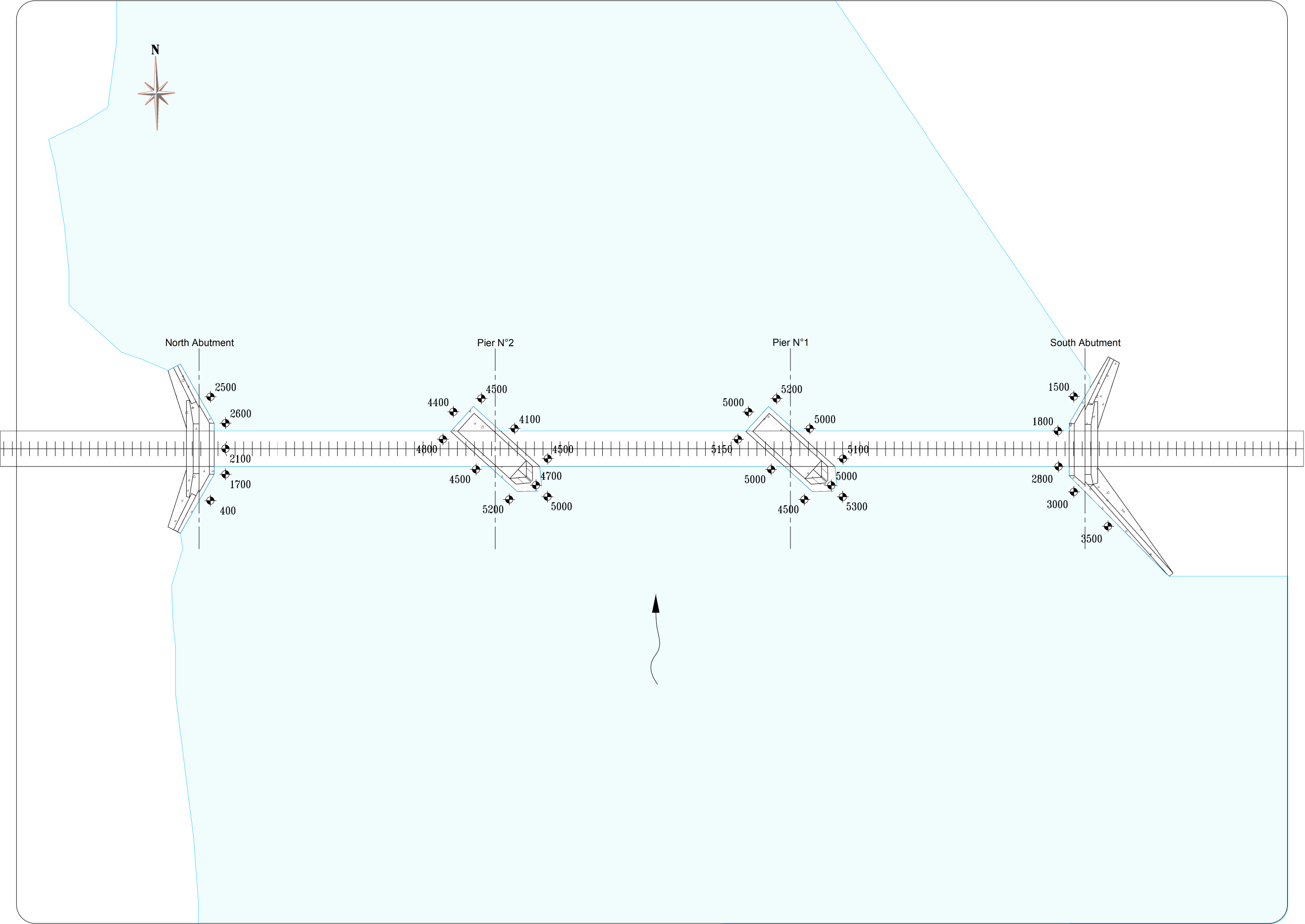
Obstacle :
Kapuskasing River

Scale :
1 : 400

Date :
June 29th, 2021

Sheet # :
02 of 09

Bathymetries




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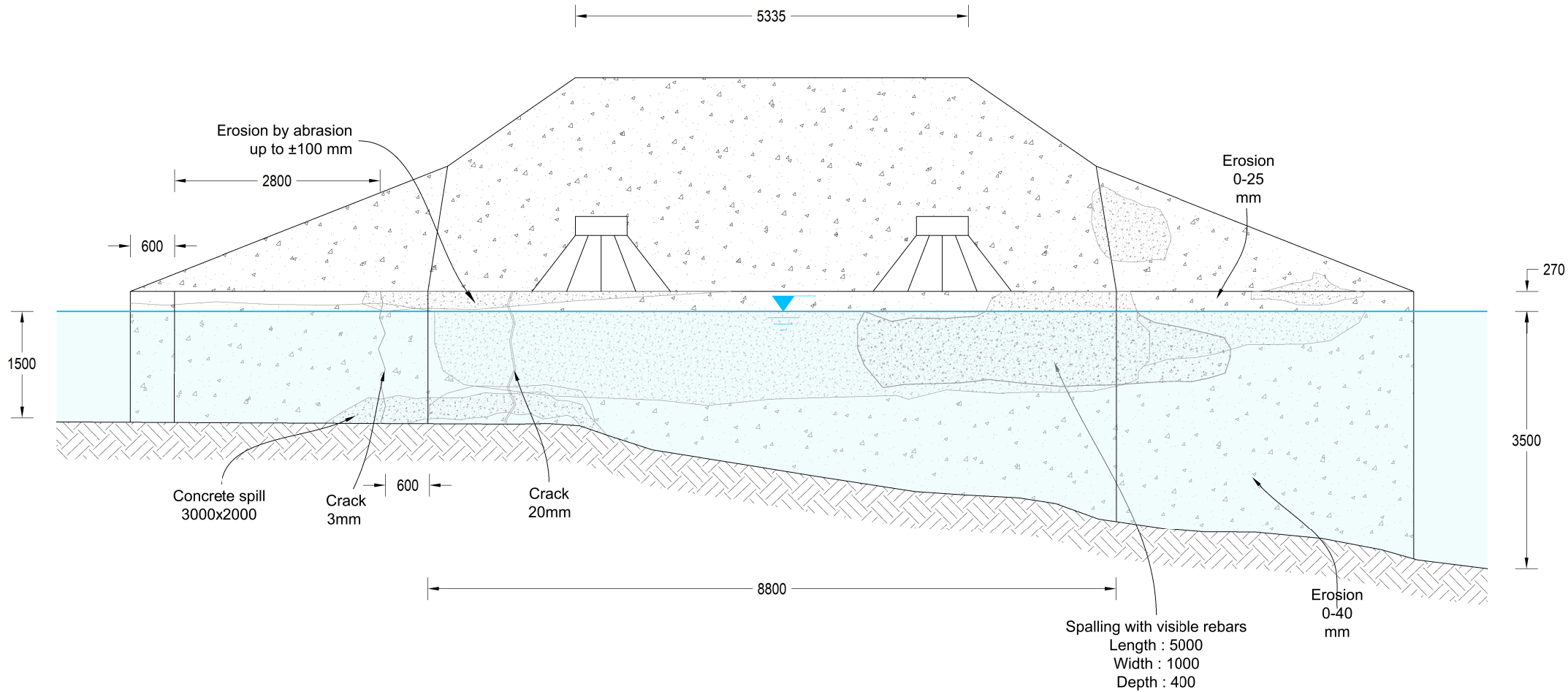
Underwater inspection of Piers n°1 & n°2 and
 North & South abutments
 Mile Point : 69.70
 Subdivision : Kapuskasing

Title :

Bathymetries

Obstacle : Kapuskasing River	Scale : 1 : 200
Date : June 29th, 2021	Sheet # : 03 of 09

South Abutment



01 North face
02

Elevation Views



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Project :

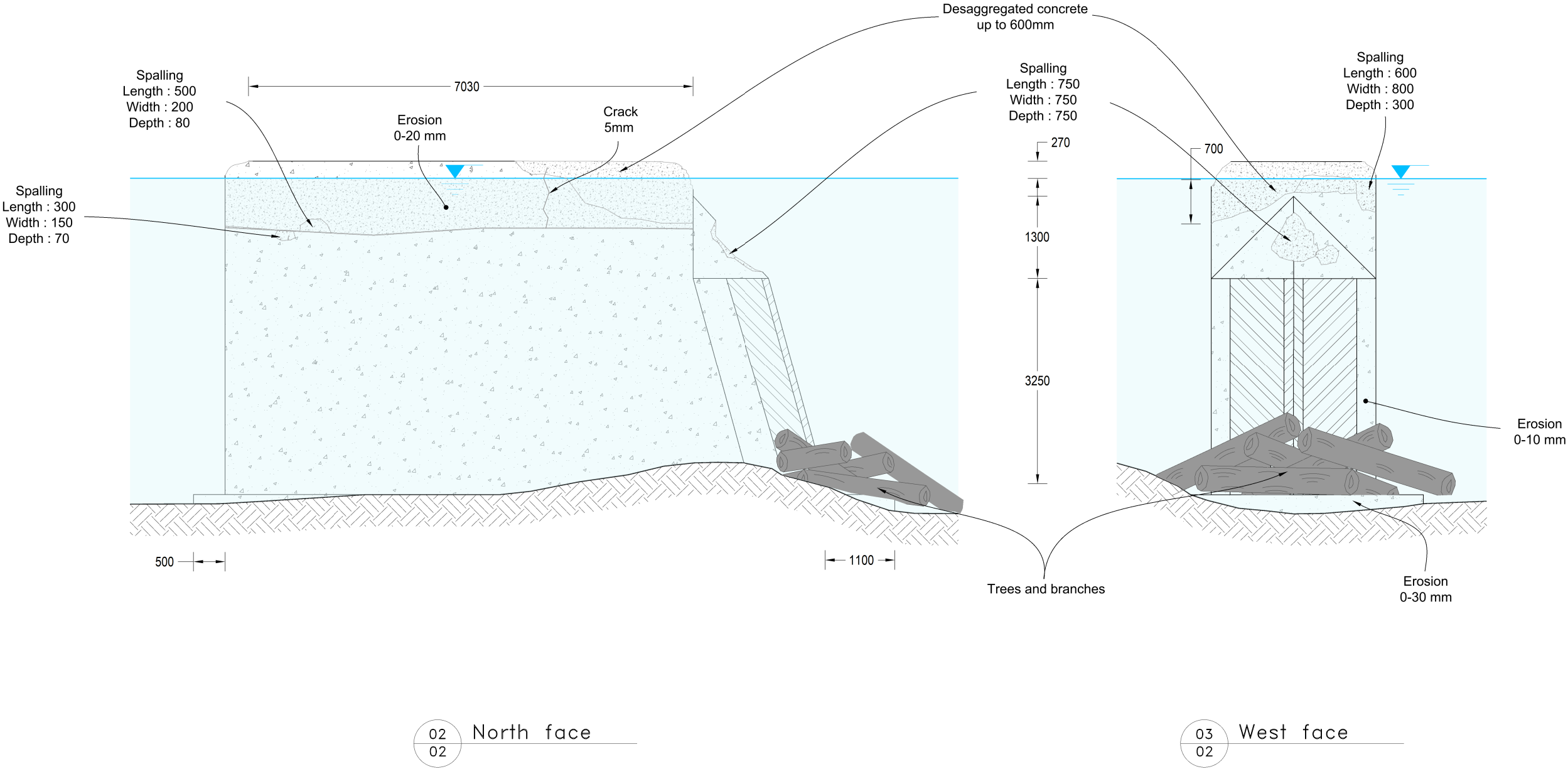
Underwater inspection of Piers n°1 & n°2 and
North & South abutments
Mile Point : 69.70
Subdivision : Kapuskasing

Title :

South Abutment

Obstacle : Kapuskasing River	Scale : 1 : 75
Date : June 29th, 2021	Sheet # : 04 of 09

Pier n°1



Elevation Views

Client:

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Client Contrat number :

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BLM Project number :

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Project :

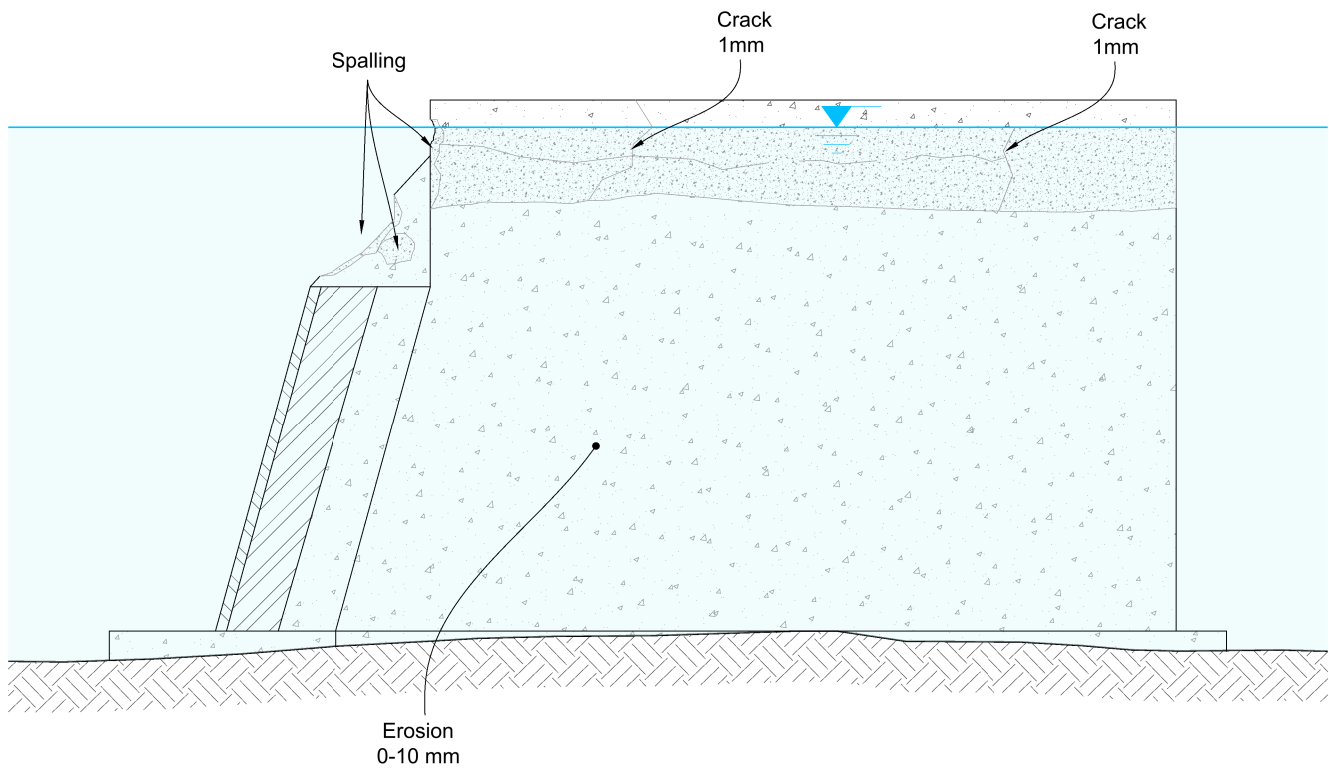
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North & South abutments
Mile Point : 69.70
Subdivision : Kapuskasing

Title :

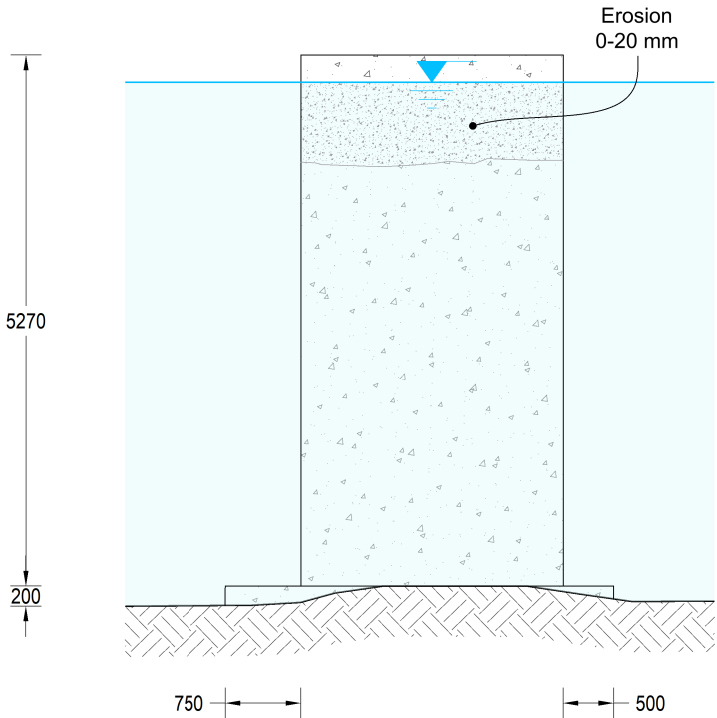
Pier n°1
North & West views

Obstacle : Kapuskasing River	Scale : 1 : 75
Date : June 29th, 2021	Sheet # : 05 of 09

Pier n°1



04
02 South face



05
02 East face

Elevation Views

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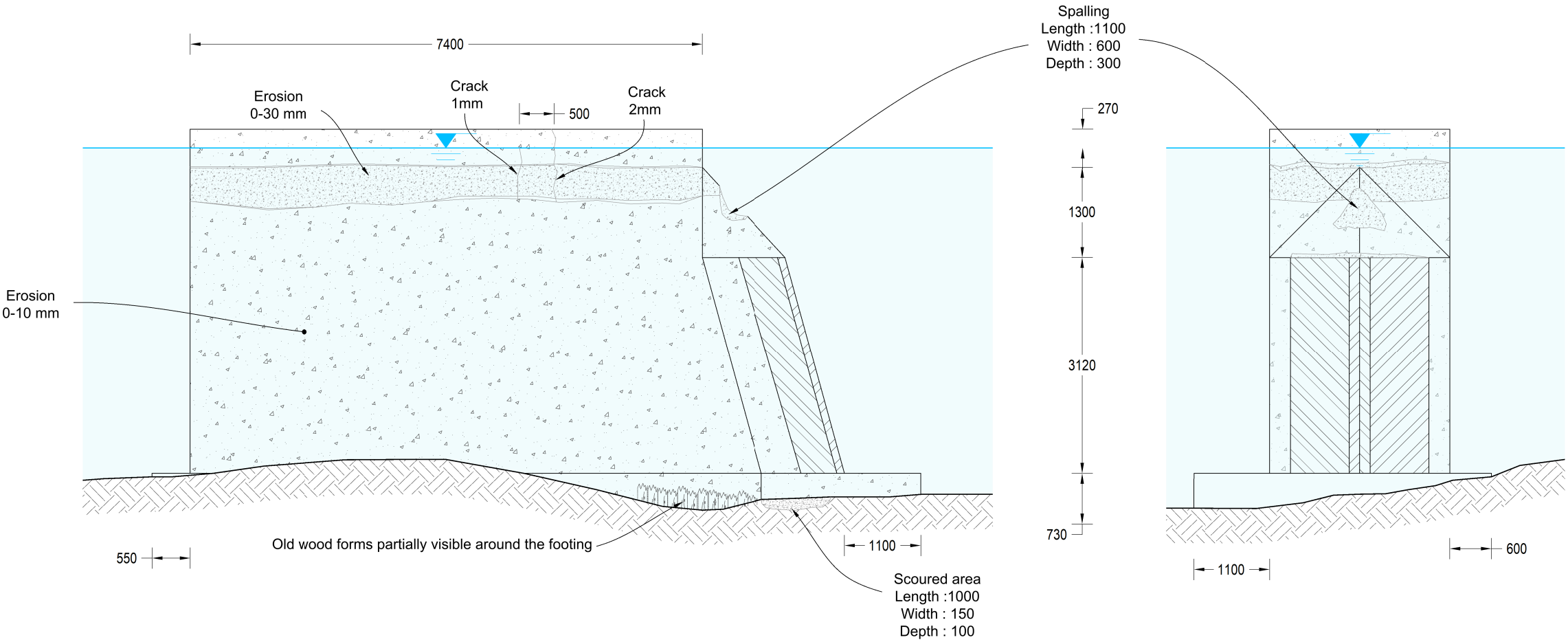
Underwater inspection of Piers n°1 & n°2 and
North & South abutments
Mile Point : 69.70
Subdivision : Kapuskasing

Title :

Pier n°1
South & East views

Obstacle : Kapuskasing River	Scale : 1 : 75
Date : June 29th, 2021	Sheet # : 06 of 09

Pier n°2



06
02 North face

07
02 West face

Elevation Views

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Client Contrat number :

H-366220

BLM Project number :

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Verified by :

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Project :

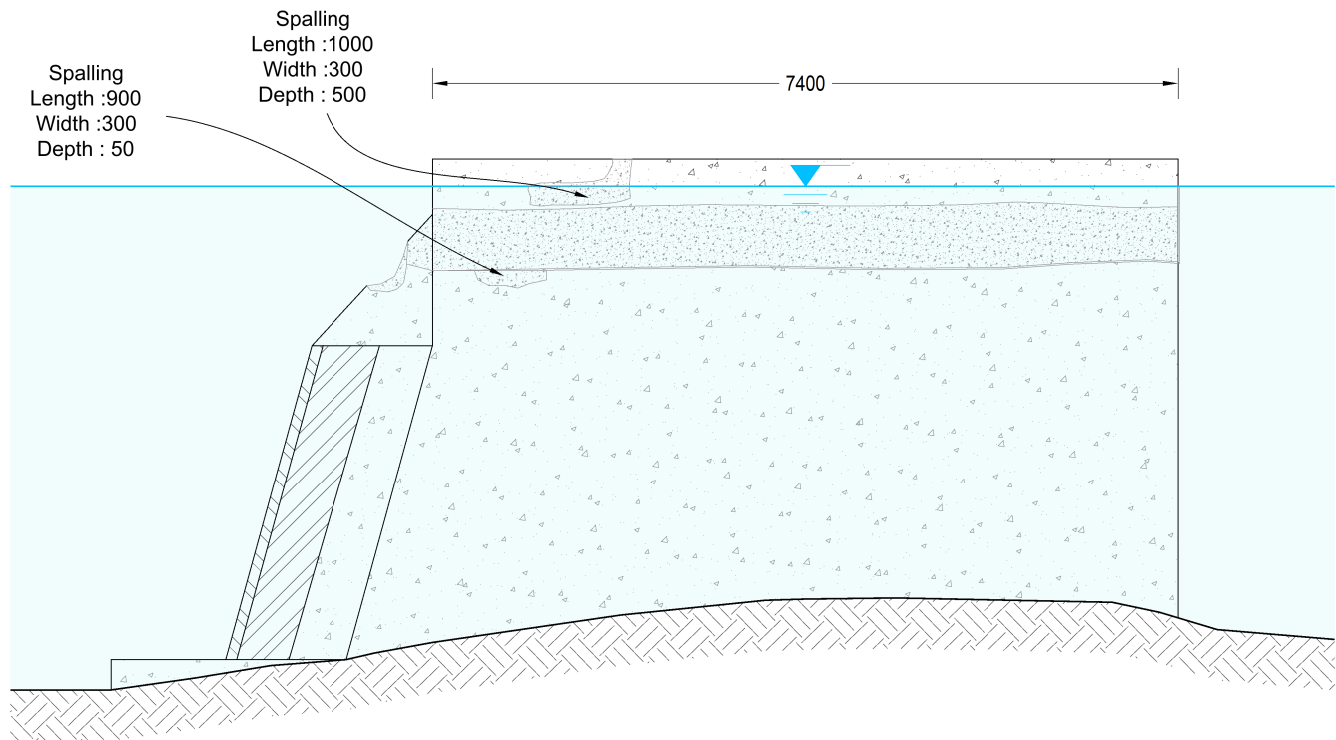
Underwater inspection of Piers n°1 & n°2 and
North & South abutments
Mile Point : 69.70
Subdivision : Kapuskasing

Title :

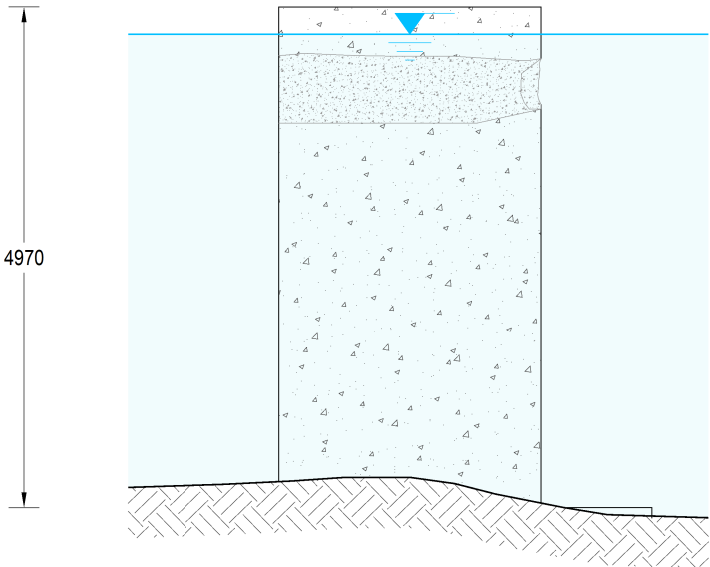
Pier n°2
North & West views

Obstacle : Kapuskasing River	Scale : 1 : 75
Date : June 29th, 2021	Sheet # : 07 of 09

Pier n°2



08
02 South face



09
02 East face

Elevation Views

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Client Contrat number :

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Project :

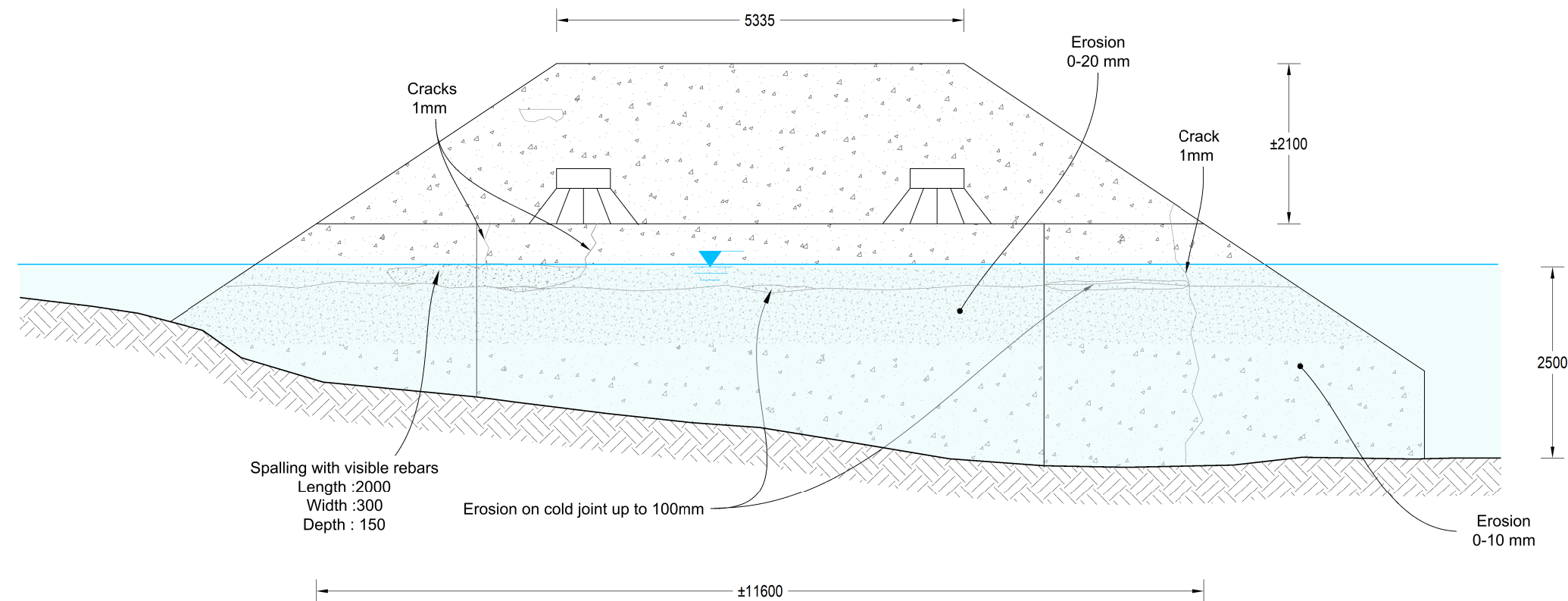
Underwater inspection of Piers n°1 & n°2 and
North & South abutments
Mile Point : 69.70
Subdivision : Kapuskasing

Title :

Pier n°2
South & East views

Obstacle : Kapuskasing River	Scale : 1 : 75
Date : June 29th, 2021	Sheet # : 08 of 09

North Abutment



10
02 South face

Elevation Views



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Project :

Underwater inspection of Piers n°1 & n°2 and
North & South abutments
Mile Point : 69.70
Subdivision : Kapuskasing

Title :

North Abutment

Obstacle : Kapuskasing River	Scale : 1 : 75
Date : June 29th, 2021	Sheet # : 09 of 09

ANNEX B – Photos

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Photo 1 – Top view
Photo 2 – Top view
Photo 3 – General view from upstream
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Photo 8 – South Abutment – Front wall
Photo 9 – South Abutment – West wing wall
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Photo 11 – Pier n°1 – West face
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Photo 15 – Pier n°2 – North face
Photo 16 – Pier n°2 – West face
Photo 17 – Pier n°2 – South face
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Photo 19 – North Abutment– East wing wall
Photo 20 – North Abutment– Front wall
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Photo 22 – Corrosion observed on steel beam stiffeners

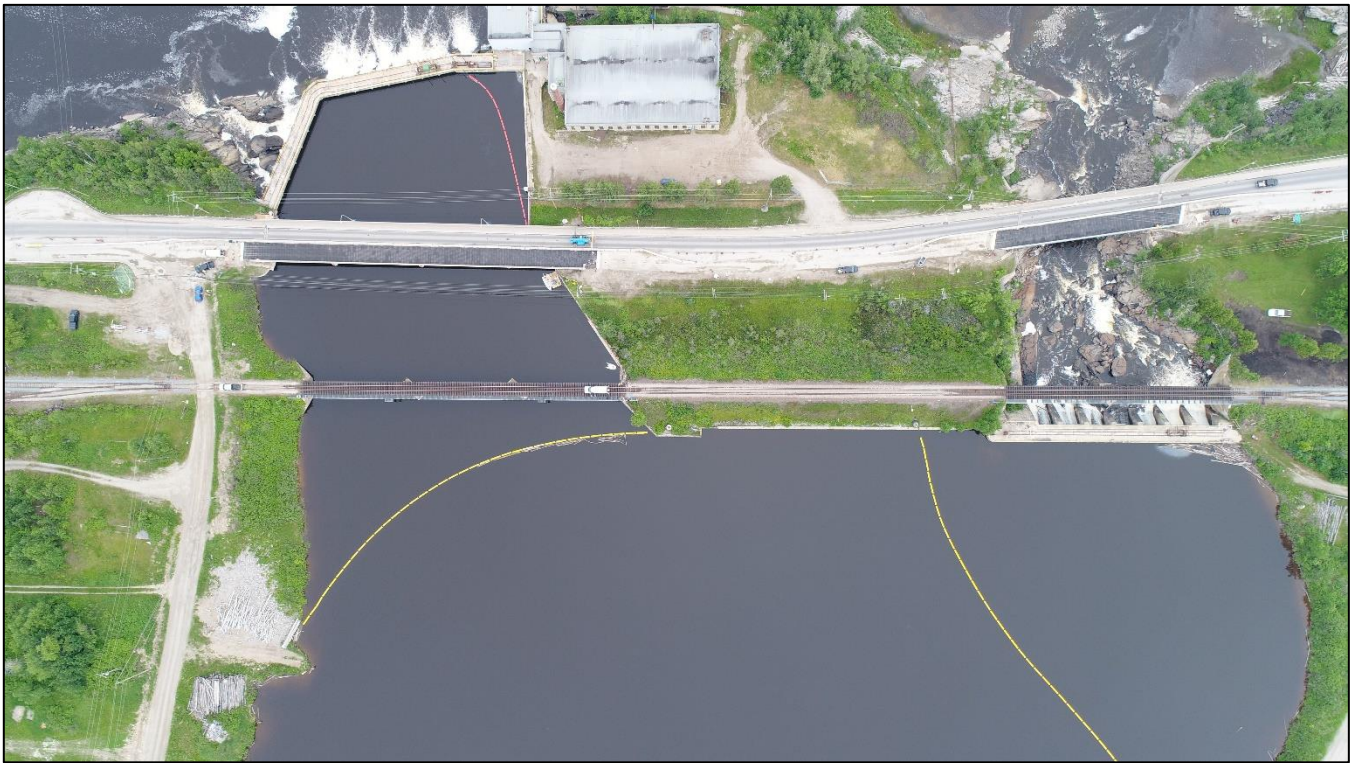


PHOTO 1 – TOP VIEW



PHOTO 2 – TOP VIEW

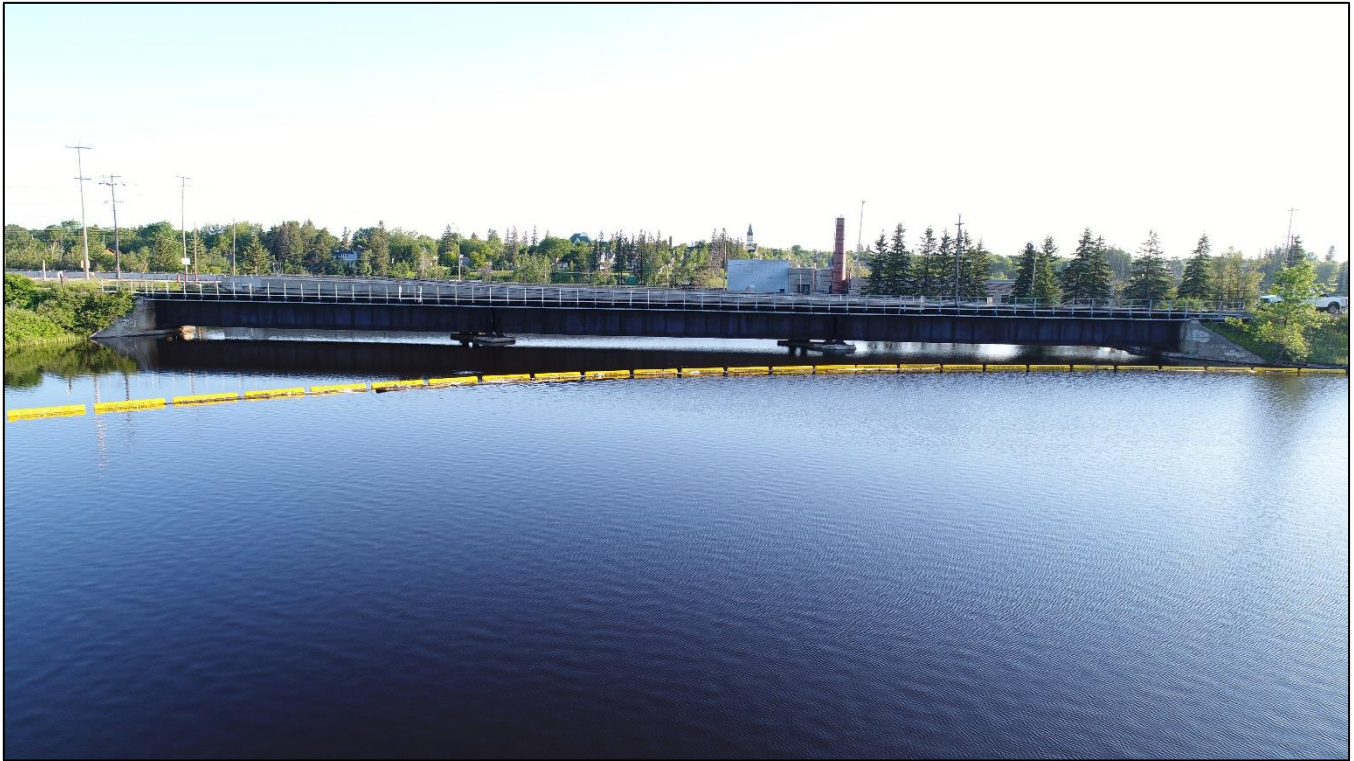


PHOTO 3 – GENERAL VIEW FROM UPSTREAM

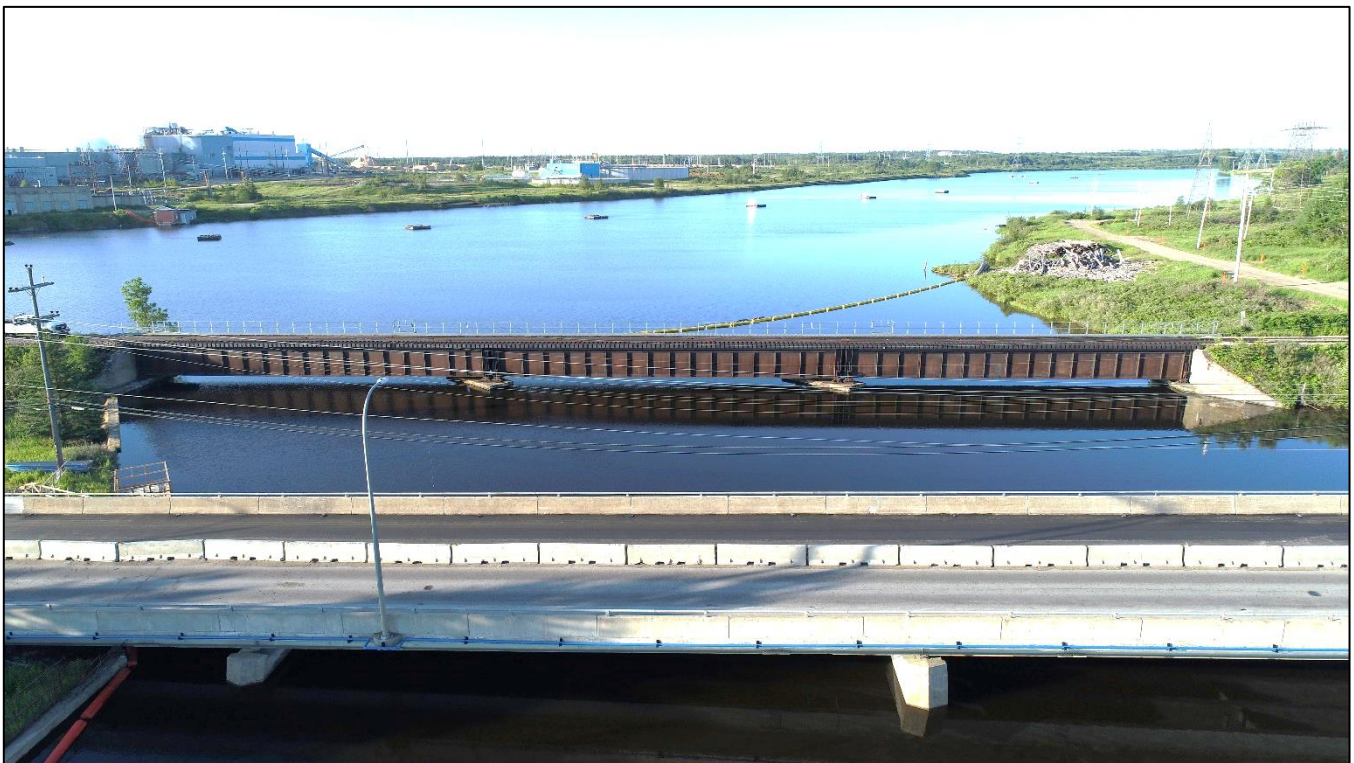


PHOTO 4 – GENERAL VIEW FROM DOWNSTREAM



PHOTO 5— LOOKING UPSTREAM



PHOTO 6— LOOKING DOWNSTREAM



PHOTO 7 – SOUTH ABUTMENT – EAST WING WALL

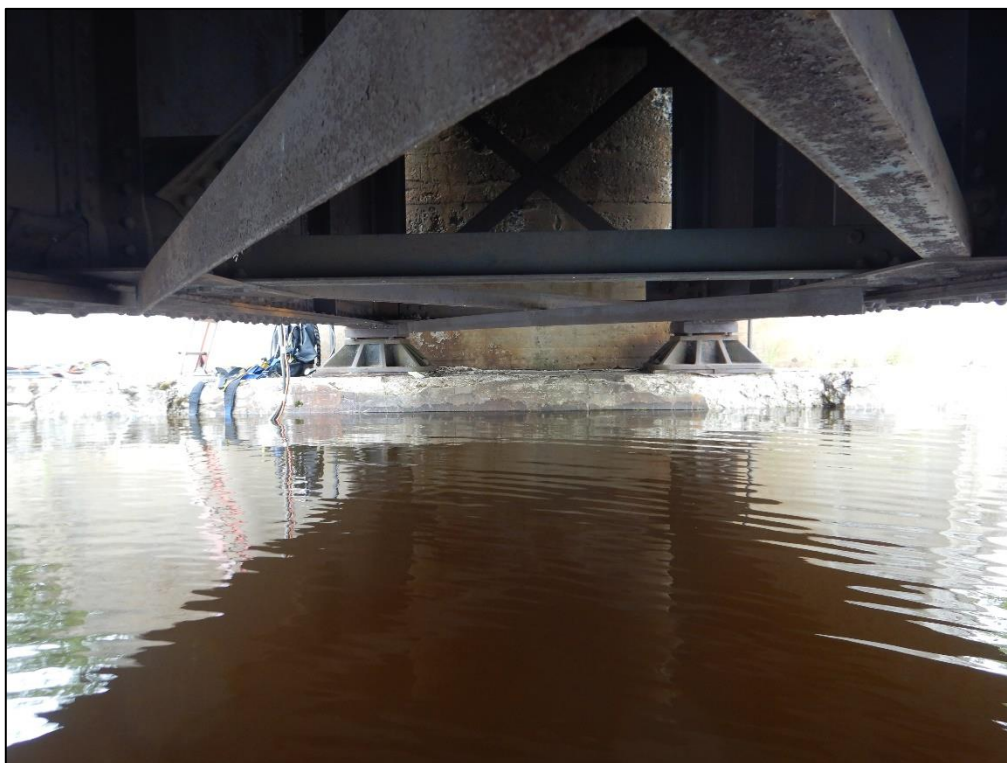


PHOTO 8 – SOUTH ABUTMENT – FRONT WALL



PHOTO 9 – SOUTH ABUTMENT – WEST WING WALL



PHOTO 10 – PIER N°1 – NORTH FACE

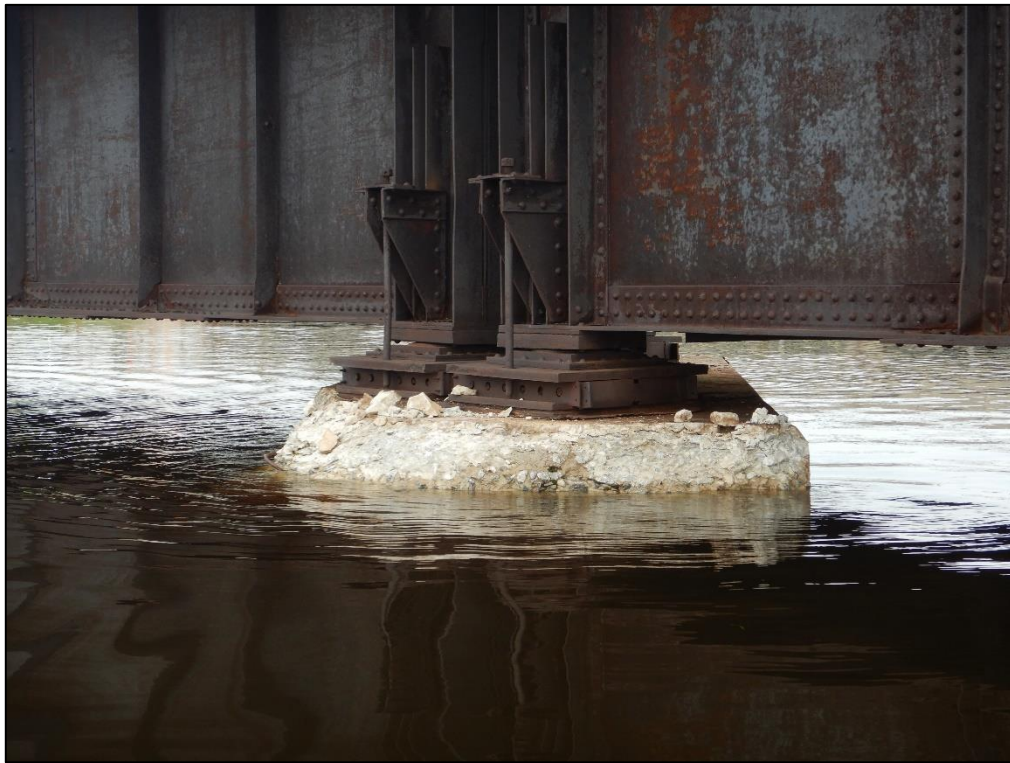


PHOTO 11 – PIER N°1 – WEST FACE



PHOTO 12 – PIER N°1 – SOUTH FACE



PHOTO 13 – PIER N°1 – EAST FACE



PHOTO 14 – PIER N°1 – CRACK 5 MM



PHOTO 15 – PIER N°2 – NORTH FACE

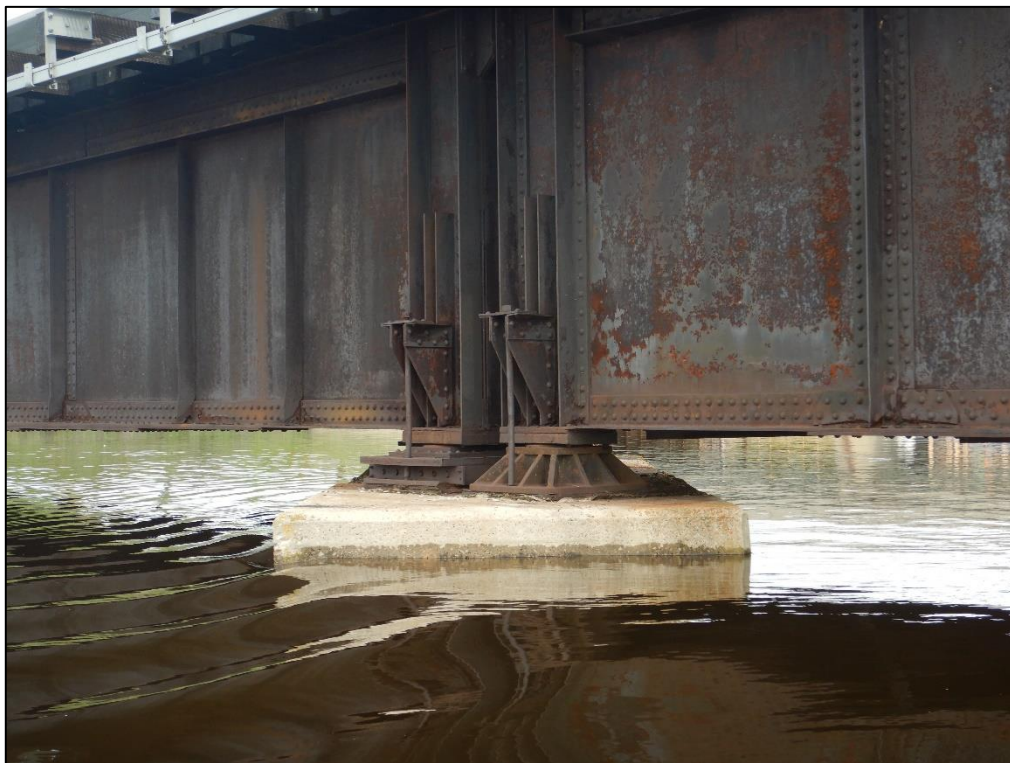


PHOTO 16 – PIER N°2 – WEST FACE



PHOTO 17 – PIER N°2 – SOUTH FACE



PHOTO 18 – PIER N°2 – EAST FACE



PHOTO 19 – NORTH ABUTMENT– EAST WING WALL



PHOTO 20 – NORTH ABUTMENT– FRONT WALL



PHOTO 21 – NORTH ABUTMENT– WEST WING WALL



PHOTO 22 – CORROSION OBSERVED ON STEEL BEAM STIFFENERS

ANNEX C – Conditions ranking table

Ranking		Commentary	Maintenance Priority
5 +	Very good	Very good condition with no problems noted	No repairs necessary at this time
5 -	Adequate	Acceptable condition with minor decay, section loss, cracking, spalling and/or scour of primary structural elements. Functioning as intended	No repairs necessary at this time.
4	Poor	Below minimum accepted condition. Advanced deterioration evident but still functioning as intended.	Low priority for repairs
3	Serious	Presence of distress or advanced deterioration. Not functioning as intended.	Medium priority for replacement, repair or restriction
2	Critical	May require continued observation until work is completed. Advance deterioration of primary structural elements, local failures possible.	High priority for replacement, repair or restriction
1	Immediate action	DANGER OF COLLAPSE And/or DANGER TO USERS OR THE PUBLIC	Bridge closure, replacement, repair and/or restriction required as soon as possible

Environment and Fisheries Assessment Memo

January 19, 2024

Fish and Fish Habitat Protection Program
Fisheries and Oceans Canada
867 Lakeshore Rd
Burlington, ON L7S 1A1

**Re: DFO Request for Review – ONR Miles 69.6 and 69.7 Kapuskasing Subdivision Rail Bridge
Rehabilitation Project**

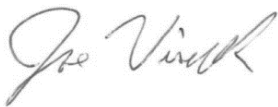
Dear Sir/Madam,

Ontario Northland Transportation Commission (ONTC), with rail division known as Ontario Northland Railway (ONR) has intentions to complete rehabilitation of two (2), respective rail bridges (i.e., situated side by side at the GreenFirst Forest Products owned/operated dam) in the Town of Kapuskasing, Cochrane District, Ontario. These rail bridges (i.e., undergoing work under one single project) cross the Kapuskasing River, and are formally known as Mile (Mi.) 69.6 Kapuskasing Subdivision (KAPSD) (site coordinates: 49.4122°, -82.4274°) and 69.7 KAPSD (site coordinates: 49.4121, -82.4301), respectively.

To address ongoing concrete erosion and structural integrity concerns, as part of regular right of way maintenance, the bridge crossings are slated to undergo rehabilitation work. This rehabilitation work is expected to consist of minimal work in water, as required. At this time, proposed construction works are being planned to be completed during 2024. ONR has undertaken an environmental review and fish habitat assessment to confirm site features, evaluate potential impacts and develop appropriate mitigation/monitoring measures. As part of regulatory due diligence, ONR is submitting a formal Request for Review application to DFO for the proposed works, with additional supplementary information attached, herein.

We thank the Ministry in advance for this project review. Please do not hesitate to contact me should you have any questions or concerns pertaining to this submission.

Yours Sincerely,



Josef A. Viscsek, M.Sc., MBA
Senior Manager, Earth & Environment
Ontario Northland Transportation Commission
1 Railroad St | Englehart, ON | P0J 1H0
T: (705) 544-2292 or 1-800-363-7512 ext. 106

Attachments: (1.) Supplementary Information:
ONR Miles 69.6 and 69.7 KAPSD Rail Bridge Rehab: Environmental and Fisheries Assessment - Technical Memo (Jan. 2024)

(2.) DFO Request for Review Application:
ONR Miles 69.6 and 69.7 KAPSD Rail Bridge Rehab - DFO RFR Application Form (Jan. 2024)

Cc: Ryan Pelletier – Manager, Structures, ONTC
Ryan.Pelletier@ontarionorthland.ca

Paul-Andre Lajeunesse – Director, Rail Infrastructure, ONTC
Paul-Andre.Lajeunesse@ontarionorthland.ca

Paul Michael Pilkington – Environmental Scientist, ONTC
PaulMichael.Pilkington@ontarionorthland.ca

David Barbour - Management Biologist, Hearst/Kapuskasing/Cochrane District, MNRF
david.barbour@ontario.ca





Ontario Northland Railway

ONR Miles 69.6 and 69.7 Kapuskasing Subdivision Rail Bridge Rehabilitation Project

Environmental and Fisheries Assessment:

Site Description, Summary of Work and Fish Habitat Assessment

Technical Memo

2024-01-19 (YYYY-MM-DD)	FINAL		
		P.M. Pilkington, M.Sc., GIT, Environmental Scientist	J. Viscek, M.Sc., MBA, Sr. Manager, Earth & Environment Div.
DATE	STATUS	PREPARED BY	REVIEWED / APPROVED BY

1. Introduction

Ontario Northland Railway (ONR), a division of Ontario Northland Transportation Commission (ONTC), Crown Agency reporting to the Ontario Ministry of Transportation (MTO), owns and maintains the rail water crossings situated at Miles (Mi.) 69.6 and Mi. 69.7 Kapuskasing Subdivision (KAPSD), located within the Town of Kapuskasing, District of Cochrane, Northeastern Ontario (general site coordinates: 49.4122°, -82.4288°; refer to **Figures 1.1a and 1.1b**). At this time, the Mi. 69.6 (east) and Mi. 69.7 (west) KAPSD rail bridges spanning the Kapuskasing River are scheduled for bridge rehabilitation work during 2024. The intention is for this work on the two bridges to occur concurrently under one (single) project due to the direct side-by-side nature of the bridges. The purpose of this technical memo is to provide supplementary information to support Department of Fisheries and Oceans (DFO) “*Request for Review*” for the proposed project, and to inform overall project planning to ensure that sound environmental due diligence, monitoring and mitigation measures are incorporated.

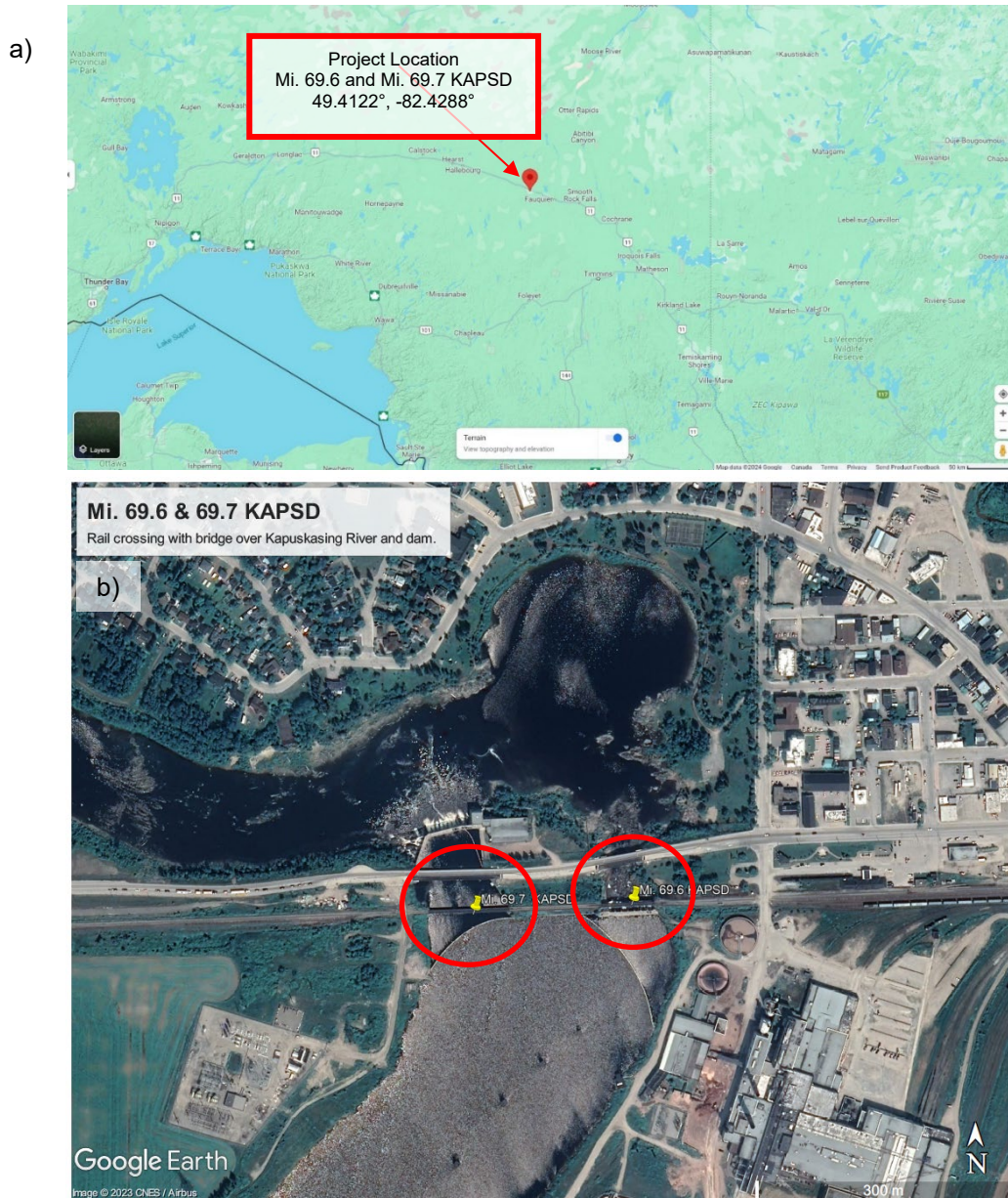


Figure 1.1: (a) Map and (b) satellite imagery illustrating location of proposed bridge rehabilitation project at ONR Mi. 69.6 and Mi. 69.7 KAPSD, Town of Kapuskasing, ON (Google Maps / Google Earth, 2024).

2. General Site Description

The two, rail bridge water crossings (i.e., situated side-by-side) are located within the Town of Kapuskasing, near adjacent/parallel to Highway (HWY) 11 bridge crossings and situated right at the GreenFirst Forest Products-owned and operated Kapuskasing River dam (**Figure 2.1**). The rail bridges (spanning the Kapuskasing River) are situated within the Lower Kapuskasing River sub-watershed in Northeastern Ontario. The Kapuskasing River is a relatively large and prominent, meandering and moderately flowing watercourse feature bisecting the Town and broader region. The river generally exists within boreal mixedwood forest terrain.

The rail crossings are connected by a small island of land in the middle of the River (i.e., at the dam) called B. O'Brian Island, where the river bisects into two channels. The dam complex is comprised of two main section, including: (1) a western dam section (i.e., at which the ONR Mi. 69.7 KAPSD bridge is located directly *upstream*), which serves as the primary intake conveying Kapuskasing River water to the powerhouse for hydroelectricity generation. This section also terminates with elevated, multiple (i.e., some 15) spillway sluice gates (stoplog function) in arch dam/semi-circle arrangement, where water cascades down Spruce Falls into the below river (i.e., majority sluices partially opened during site visit); and, (2) an eastern dam section (i.e., at which the ONR Mi. 69.6 KAPSD bridge is located directly *downstream*), comprised of a smaller water control dam structure with seven stoplog sluiceways over Spruce Falls (i.e., with sluices fully close and only minor seepage through stoplogs during site visit). The Kapuskasing River ultimately flows northeast from the Town for about 58 km before it reaches confluence with/drains into the Mattagami River.

The east (Mi. 69.6) and west (Mi. 69.7) ONR bridge structures were originally constructed in 1910 and 1911, respectively, and are both orientated in an east-west direction. The current east and west structures consist of steel deck plate girder (DPG) design. The east bridge (i.e., Mi. 69.6; situated immediately downstream of the eastern spillway dam/sluice gates) measures approx. 62 m (205 ft) in length, about 5 m in height from river surface, and is comprised of one, concrete middle pier (i.e., atop bedrock below/directly downstream of the spillway dam) and two concrete end abutments. The west bridge (i.e., Mi. 69.7; situated upstream of the main hydro intake) measures approx. 96 m (315 ft) in length respectively, is also roughly 5 m in height from river surface (i.e., as measured during time of assessment), and is comprised of two, in-water concrete piers and two concrete end abutments.

Located southeast, adjacent to the rail crossings, is the GreenFirst Forestry Products facility/operations, which sees production of various types of pulp, paper, and other wood related products). GreenFirst's property extends approx. 1 km south (upstream) from the rail crossing along the east bank of the river.

Further study location figures are provided in **Appendix A**; while site investigation photographs are provided in **Appendix B**, for reference.

a) Mi. 69.7 KAPSD (west rail bridge) with Town of Kapuskasing/HWY 11 in view (orientation east).



b) Mi. 69.7 KAPSD (west rail bridge) with HWY 11 bridge in view (orientation west).



c) Mi. 69.6 KAPSD (east rail bridge) with upstream dam spillway/slucice gates in view (orientation west).



d) Mi. 69.6 KAPSD (east rail bridge) with upstream dam spillway/slucice gates in view (orientation south).



e) Mi. 69.6 (east rail bridge, situated to left) and 69.7 (west rail bridge, situate to right) KAPSD, view from downstream of Kapuskasing River Dam complex (orientation south)



Figure 2.1: Photo series with captions (i.e., a, b, c, d and e) showing ONR Mi. 69.6 and 69.7 KAPSD bridge crossings, respectively, on Kapuskasing River with flow direction indicated (blue arrow).

3. Summary of Proposed Work

At this time, the ONR Mi. 69.6 and 69.7 KAPSD bridges are scheduled for rehabilitation work during 2024 to address overall erosion, aging/deterioration and stability concerns, to ensure critical infrastructure is maintained. As evidenced through recent bridge inspections and in discussion with Hatch engineering/consulting, the concrete abutments and piers are largely mottled/fractured and in somewhat poor condition (refer to **Appendix B** for site investigation photos). Steel members are also in need of rehabilitation/replacement.

The two bridges will be rehabilitated at the same time (concurrently) as one, single project. As part of the proposed rehabilitation project work during 2024, the rail bridge crossings will both require chipping and re-facing of concrete abutments and piers with the addition of new rebar, replacement of steel bearings, and various steel repairs on the superstructure. ONR and Hatch will be consulting with the dam owner/operator (i.e., GreenFirst Forest Products) to ensure safety of all work activities around dam structures/intakes.

Since the Mi. 69.6 (east) KAPSD bridge is situated atop exposed bedrock immediately downstream of the eastern spillway dam, it is expected that this rehabilitation work will be completed in the dry (i.e., with all dam sluice gates closed, to ensure thorough safety). This work is expected to be completed, largely, by utilizing scaffolding assisted by rail boom truck/excavator. The Mi. 69.7 (west) KAPSD rail bridge crossing will involve some greater complexity and require some in-water work to temporarily access piers and abutments. In communication with Hatch engineering (2023), it is likely that temporary cofferdaming, silt curtains and/or divers will be utilized for portions of the work, including related to chipping and resurfacing of the concrete piers and abutments, with all debris carefully collected and discarded from site. Concrete rehabilitation is only required approx. 1 ft below the standard water level and, as such, the potential for impacts from careful chipping/collecting of concrete with all environmental mitigation/best practice measures applied is anticipated to be low. Further steel repairs will be addressed from the top of the rail bridge crossings, with no in-water work expected.

The first phase of this project is set to start during 2024 and will only include the proposed steelwork on the bridge structures. Proposed concrete-related repairs are currently scheduled to begin in either Fall 2024 or Spring/Summer 2025. Engineering designs are currently being prepared by Hatch and will be provided as an addendum once updated designs are received by ONR.

4. Fish and Fish Habitat Assessment

A summarization of the fish and fish habitat assessment completed for the ONR Mi.69.6 and 69.7 KAPSD bridge crossings at the Kapuskasing River are provided in the following sections.

4.1. Methodology

A fish and fish habitat assessment of the Mi.69.6 and 69.7 KAPSD Kapuskasing River rail bridge sites was completed by ONR during Fall 2023, which consisted of a records review followed by a site investigation in the field to confirm and further evaluate environmental features, as documented herein.

The records review involved desktop research of a number of important hard copy and online resources to become more familiarized with site features. This included: ONR bridge inspection records (ONR, NA), ONR internal GIS mapping interface (ONR, 2024), Google Maps/Earth (2024); DFO aquatic species at risk online mapping (DFO, 2024); Ontario Ministry of Natural Resources and Forestry (MNR, 2024) online records, including Fish ON-Line mapping, Ontario watershed mapping and Natural Heritage Information Centre (NHIC) Areas mapping. The records review also involved consultation by the ONR and Hatch project management team with David Barbour, MNR Management Biologist for the Hearst, Kapuskasing and Cochrane District on November 28, 2023.

The site investigation at the Mi.69.6 and 69.7 KAPSD Kapuskasing River crossing was completed by J. Viscek and P.M. Pilkington (experienced assessors/scientists) on October 19, 2023. The investigation was completed between 10:30 am and 12:30 pm (duration: 2 hours). Weather conditions during the field work consisted of sunny with slight overcast upon arrival to site which quickly turned to full overcast and light rain. Recorded air temperature was ~8 °C and mild (5-10 km/hr) wind from the west. Recent weather trends during the days prior to the investigation consisted of generally cold to cool temperatures (i.e., 0 to 10 °C avg.) with overcast and rainfall.

The site investigation involved the assessors traversing the study area by foot, including near the bridge structures, from the river banks and along the upstream and downstream reaches, to the extent feasible and safe to do so. The assessors made frequent visual observations of the environment and collected notes. Ground photographs were collected to supplement the investigation and document site conditions. Due to air traffic restrictions in the vicinity of the project location, drone photos were unable to be captured. The river was accessed from the banks, where possible, to collect a suite of pertinent watercourse information, including general morphology, approx. dimensions (i.e., width/depth), flow, substrate, riparian/aquatic vegetation, wildlife and fish habitat observations, and general river water chemistry, as applicable. As part of safety procedures working near dam structures, field staff at no time attempted to access/wade into water or conveyance channels as part of the investigation.

Water quality readings from the local Kapuskasing River were measured from two sampling locations, respectively, including upstream (i.e., from the bank of the east bridge crossing, approx. 10 m from the east dam) and downstream (i.e., approx. 20 m downstream from the west dam structure, where cascading water subsided). Water quality data were collected using a YSI Pro Quatro water quality meter, including: temperature, atmospheric pressure, dissolved oxygen (DO), conductivity, total dissolved solids (TDS), salinity, pH, and oxidation-reduction potential (ORP). General flow measurements were collected using a Global Water flow probe. River width was generally estimated using Google Earth measurement. River depths were visually estimated, and also supported with reel tape measurement where feasible. River substrate conditions were visually estimated, where applicable. Substrate conditions were generally classified according to relative percentage of material present (e.g., clay, silt, sand, gravel, cobble, boulder, bedrock, detritus/muck, etc.). General flora and fauna observations were also documented, where possible.

4.2. Records Review Results

The records review confirmed that the extensive, meandering Kapuskasing River drains in a general northeast direction, with discharge at the confluence of the Mattagami River (i.e., flowing from the Lower Kapuskasing River sub-watershed into the Little Long Dam – Lower Mattagami River sub-watershed; refer to figure series, **Appendix A**).

While known to be a generally prominent fishery, a review of Fish-ON mapping (MNRF, 2024) of the Kapuskasing River for potentially present fish species did not yield specific results. An analysis of headwater regions, however, including for Kapuskasing Lake, indicated MNRF-confirmed (2023) common fish species, including Walleye (*Sander vitreus*), Northern Pike (*Esox Lucius*), Lake Whitefish (*Coregonus clupeaformis*), White Sucker (*Catostomus commersonii*) and Yellow Perch (*Perca flavescens*). A relatively healthy Lake Sturgeon population (*Acipenser fulvescens*) is also quite well documented to exist within the lower Kapuskasing River (i.e., below the Town of Kapuskasing dam) and within the broader/connecting Mattagami/Groundhog River reaches. These Southern Hudson Bay - James Bay Lake Sturgeon populations are listed as “Special Concern” (i.e., not endangered or threatened at this time) under the Ontario *Endangered Species Act (ESA)*, 2007. A DFO (2024) aquatic species at risk online mapping search for the Kapuskasing River did not result in any aquatic species at risk records in the vicinity of the project area.

Consultation by the ONR/Hatch planning team with David Barbour, MNRF Management Biologist for the Heart, Kapuskasing and Cochrane District on November 28, 2023, confirmed typical fish species in the Kapuskasing River, as indicated above. Mr. Barbour has extensive fisheries experience across this river system and has indicated that the proposed bridge rehabilitation project (i.e., with intended work methods broadly described by the ONR/Hatch team) would be unlikely to result in major impacts to fish or fish habitat with standard DFO best management practices applied. Mr. Barbour confirmed that immediately downstream of the Town dam complex exists known, prominent Walleye spawning grounds (i.e., cobble/boulder habitat with ample well-oxygenated Spring flows), however, that the project footprint will likely be sufficiently away from this habitat, and that impacts should not be expected with due diligence measures including respecting the applicable DFO Spring spawning window. As confirmed by Mr. Barbour, the DFO restricted timing window for work in water for Walleye in the Northeastern Region (i.e., April 1 to June 20) should reasonably apply to work on this section of the Kapuskasing River.

As an additional query, a search of MNRF NHIC online mapping revealed potential terrestrial species at risk records within an approx. 3 km radius from the project area, including plant species such as Spatulate Moonwort (*Botrychium spatulatum*) and Heart-leaved Alexanders (*Zizia aptera*), as well as an avian species, Evening Grosbeak (*Coccothraustes vespertinus*; with typical habitat reported as nesting in tall trees, typically coniferous (Ontario, 2021)). Due to the nature of the project location and proposed works (i.e., limited, focused footprint), there is no suspected impact/implication to the species and/or their habitats.

Potential fish and fish habitat features were further confirmed and evaluated through the site investigation, as summarized below.

4.3. Site Investigation Results

4.3.1. General Findings

Overall, the drainage basin of the Kapuskasing River exists within a typical, northern boreal mixedwood forest environment, however, the area around the project location is predominantly community-based infrastructure (e.g., waterfront, streets and parkland). The long and meandering river is consistent in form, notably lined by relatively tall and moderately sloping, vegetated banks. The broader terrain does contain marked elevation changes, as supported with the presence of Spruce Falls (Town of Kapuskasing dam location, owned/operated by GreenFirst Forest Products). The days/weeks prior to the site investigation were noted to be generally wet and rainy. Both upstream and downstream of the rail bridge crossings are relatively similar, as the moderately wide river exists within a steep-banked,

low to moderate-flow “U”-shaped basin containing narrow floodplain with rocky and grassed shores/shoulders. However, the upstream portion of the river has much greater water depths as the natural flow of the river has been altered by the presence of man-made dams over Spruce Falls. The downstream portion of the river contains comparatively more exposed bedrock, cobble and boulders, creating moderate rapid conditions (i.e., likely much more pronounced during Spring freshet high discharge) around Spruce Falls, which dissipates to riffing further downstream. Results of upstream (i.e., directly upstream of dam) and downstream (i.e., directly downstream of dam) water quality readings of the local Kapuskasing River are provided in **Table 4.1**.

Table 4.1: Mi.69.6 and 69.7 KAPSD - Kapuskasing River General Water Chemistry Results

Location	Temperature (°C)	Atmos. Pressure (mmHG)	DO (% , mg/L)	Cond. (µS/cm)	TDS (g/L)	Salinity (ppt)	pH	ORP (mV)
Upstream	10.7	741.2	87.6, 9.73	180.9	0.1173	0.09	7.87	23.2
Downstream	10.7	741.3	97.7, 10.85	177.2	0.1135	0.08	8.01	80.8

4.3.2. Upstream Habitat

The upstream reaches around Mi. 69.6 and 69.7 KAPSD on the Kapuskasing River were found to be relatively consistent in form, with the relatively tall, moderately sloping river banks lined with thick, common/native mixedwood vegetation. As measured/approximated using Google Earth mapping (2024), the river basin in the upstream project extent ranges from 220 to 270 m wide (with general river conditions expected to be slightly wider during the Spring snowmelt/high-flow season). In the field, the average annual high water mark of the river was determined to be approximately 0.5 to 1 m above observable water levels, as evidenced by staining observed on the existing concrete piers. The river banks around the rail bridge crossings were observed to be non-natural in nature, consisting of placed concrete or wooden sidings, likely to limit erosion of banks around the bridge/dam feature. While the river splits according to two major pathways at the dam (i.e., the main intake/overflow dam section to the west and the spillway dam to the east, respectively), the spillway sluice gates were notably fully sealed/closed (i.e. other than moderate seepage flow) during the time of the site visit (i.e., likely utilized primarily during Spring freshet period).

Average water depth of the River upstream was measured to be approx. 4.6 m near the center of the channel, as determined through lowering a tape line from the Mi. 69.7 KAPSD rail bridge. Overall, the measured channel flow was steady and low-moderate, with a measured flow rate of 0.2 to 0.3 m/s along the riverbanks. Water was observed to be generally clear with a slight observable brownness/turbidity. Due to the presence of the dam complex in proximity to the rail bridge crossings, wading was not possible for safety reasons. As such, observation of substrate conditions from the upstream portion of the river was made difficult, although it is estimated to be generally comprised of a silt/clay mix, similar to native banks.

As observed, riparian vegetation within the upstream floodplain consisted of native mixedwood forest (i.e., spruce, pine, birch, and poplar species, primarily), with heavy thicket (i.e., including common alder, raspberry species) and floodplain grasses/shrubs, sedges, and emergent grasses.

Overall, the Kapuskasing River upstream of the GreenFirst dam in Town is known to provide stable, general residence habitat for a wide range of common northern species, including Walleye, Northern Pike, Lake Whitefish and Yellow Perch. The site investigation did not find any evidence of likely, preferred spawning habitat for these species in the upstream river vicinity. The proposed project rehabilitation at the Mi. 69.7 KAPSD (west) rail bridge is planned to have a minor, isolated work in water footprint and is not expected to measurably impact or displace fish habitat or impede fish movement/migration. As a further note, the Mi. 69.6 (east) KAPSD rail bridge is situated downstream of the flood control dam and, as such, will see no work footprint in the upstream river.

4.3.3. Downstream Habitat

In the vicinity of the ONR Mi. 69.6 and 69.7 KAPSD bridge crossings, the downstream reaches of the Kapuskasing River (i.e., below the GreenFirst dam) were found to be relatively consistent in form. As is notable, the dam itself serves as a complete barrier to any upstream fish movement. Directly downstream (north) of the rail bridge crossing and Kapuskasing dam complex, the river shapes into a large, rounded main discharge zone (i.e., fed by the underwater hydro tailrace as well as overflow river capacity), which is comprised of relatively shallow (i.e., likely less than 2 m in most areas) pooled water and exposed bedrock that is lined with a promenade for the Kapuskasing Riverside Park. Review of Google imagery (2023) also suggests substantial cobble around the downstream dam areas, under shallow conditions. Downstream of the pooled discharge area, the river flows west before changing direction toward the northeast. The pooled discharge area is the widest observable area along the river in the vicinity of the project area being approx. 305 m (1000 ft) wide, measured/approximated using Google Earth mapping (2023). However, the average width of the river basin in the downstream project extent is approx. 100 to 130 m wide (with general river conditions expected to be slightly wider during the Spring snowmelt/high-flow season). The observable floodplain in the downstream extent was found to have mounds of exposed weathered bedrock and grassy areas with a shorter and wider floodplain than the upstream, likely due to the dam controlling the flow to the downstream reaches. During the assessment, the downstream average annual high water mark of the eastern spillway channel (i.e., seeing strong Spring discharge releases) was determined to be approximately 2 to 3 m above observable water levels, as evidenced by the exposed rocky shoals/banks, grassy floodplain vegetation and water level staining observed on the existing concrete piers and bedrock.

As indicated in the previous section, the river contains an obvious and defined split according to two major conveyance pathways at the hydro dam/Spruce Falls, including (1) the main intake/sluice gate overflow at the rounded/arch dam section to the west; and (2) the spillway dam to the east, respectively. These outlet areas each have some similar (i.e., substrate) and unique (i.e., morphology) habitat characteristics. Downstream of the main arch dam and overflow (i.e., downstream of the Mi. 69.7 (west) KAPSD rail bridge) consisted of a cascading, moderate discharge falls from most of the dam sluices (i.e., mostly closed sluice gates allowing moderate seepage flow, with one sluice gate potentially opened allowing higher flow rate), as observed during the site visit. River water from the main dam sluice gates falls several metres to a mix of bedrock and large boulder substrate (with further satellite imagery review suggesting ample boulder/cobble in the vicinity, around the dam footing/discharge). Steep, bedrock-lined river banks were noted in this zone (i.e., west downstream bank). Conversely, downstream of the Mi. 69.6 (east) KAPSD rail bridge, only low-moderate discharge flow (i.e., from stoplog seepage) was present, as the spillway dam sluice gates were fully closed. Relatively extreme discharge, however, would be expected at the spillway dam during spring, with sluice gates near fully opened. This conveyance channel is noted to be well-defined (varying from approx. 30-50 m wide), comprised almost completely of bedrock substrate at its upper portions by the ONR and Highway 11 bridges, and lined with concrete reinforced retaining walls. The extended downstream (approx. 65 m from the ONR rail bridge, near the Highway 11 bridge), where flood surge water would begin to dissipate to riffles, the spillway channel widens to meet the rounded pool of the main river, comprised heavily of boulder and rounded cobble, with patches of emergent grasses (i.e., as was visible during the site investigation, partially exposed due to lower seasonal water levels).

Overall, in-water measurement of depth within the downstream river was not feasible for safety reasons working near the dam; however, depths in the immediate pooling zone near the dam discharge may be expected to be in the range of approx. 2-3 m, on average (judging by site conditions and review of satellite imagery). Water cascading from the falls onto areas with exposed bedrocks and boulders were noted to cause rapids and waves near rocky banks, which dissipates to riffles further downstream. Flow rate observed around the dams was greater than the upstream flow of the channel. Overall, the downstream flow measured from the bank adjacent to the west dam (i.e., near the cascading falls), was steady and high/moderate at 0.7 m/s. Water was observed to be generally dark (i.e., due to shallow bedrock conditions) and relatively clear with very little turbidity present.

As observed, riparian vegetation within the downstream floodplain consisted of parkside clearings/grassy areas, and native mixedwood forest (i.e., spruce, pine, birch, and poplar species, primarily), with heavy thicket in areas (i.e., including common alder, raspberry species) and floodplain grasses/shrubs, sedges, and emergent grasses.

The east ONR rail bridge (Mi. 69.6 KAPSD) was noted to contain two minor stick nests visible within the underside steel girders; however, these nests appeared to be old/abandoned. These small stick nests are most likely from native crow/raven species which are common in the area, per communication with D. Barbour, MNRF.

Overall, the Kapuskasing River downstream of the Town dam is known to provide general residence habitat for a wide range of common northern species, including Walleye, Northern Pike, Lake Whitefish, Yellow Perch and Lake Sturgeon. As confirmed through recent consultation with the MNRF Management Biologist, the discharge from the dam complex and suitable cobble substrate in the extended downstream zone provides an important Walleye spawning zone. However, the proposed Mi. 69.6 and 69.7 KAPSD rail bridge rehabilitation projects are positioned well away from any downstream spawning or fish residence areas, with no impacts anticipated from the project. The Mi. 69.6 (east) bridge downstream of the spillway dam is unlikely to require any work in water (as spillway gates will be closed during the major work period); and the Mi. 69.7 (west) bridge upstream of the main dam/hydro intake will only see a minor, localized in-water work footprint, as needed.

5. Proposed Mitigation and Monitoring Measures

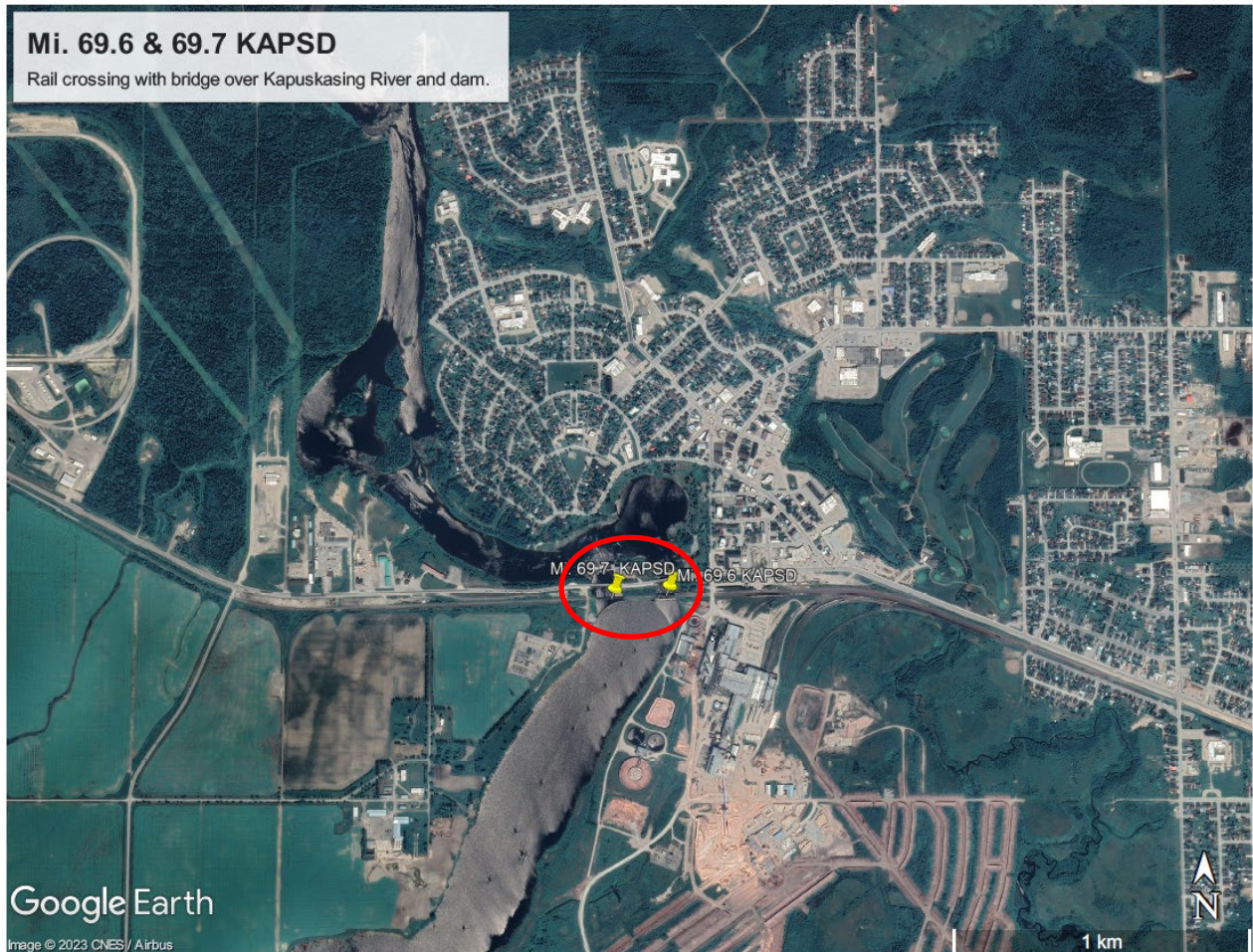
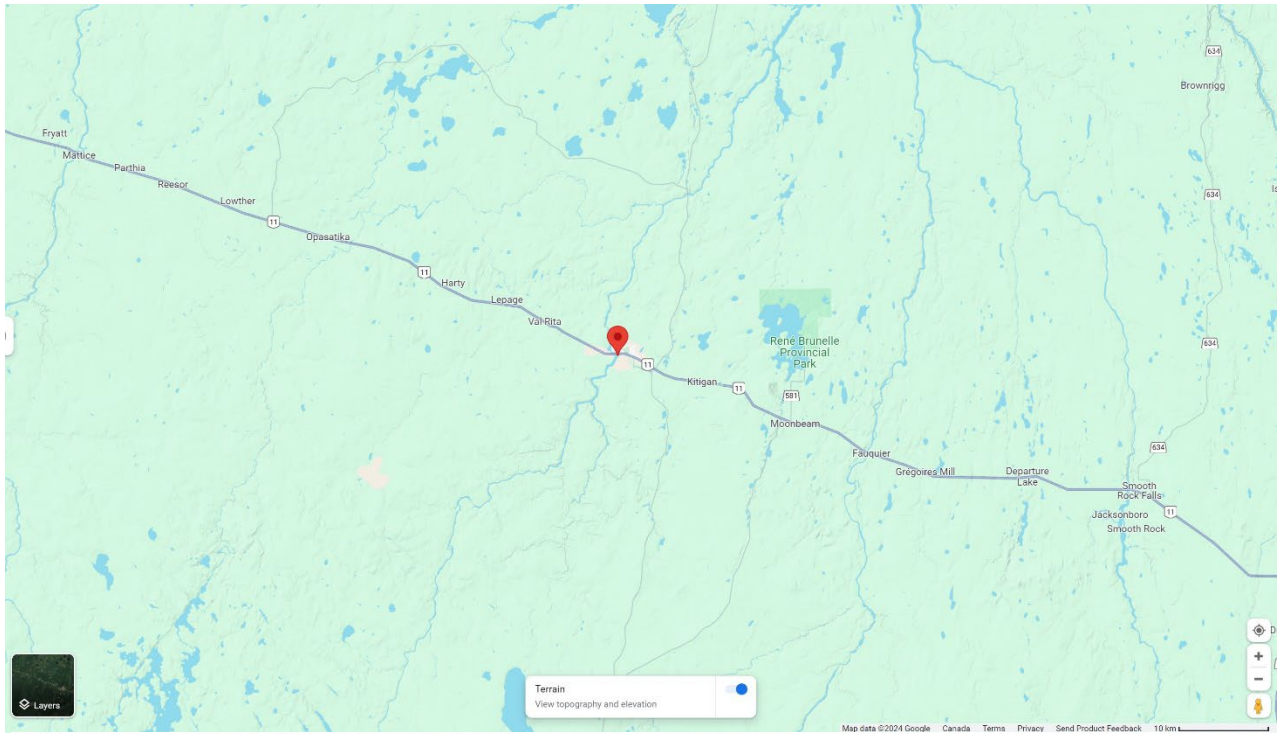
ONR and the selected Contractor are committed to preventing impacts to fish and fish habitat during the bridge rehabilitation work. Impact mitigation/monitoring efforts will align with any DFO-provided guidance and industry best practices, including:

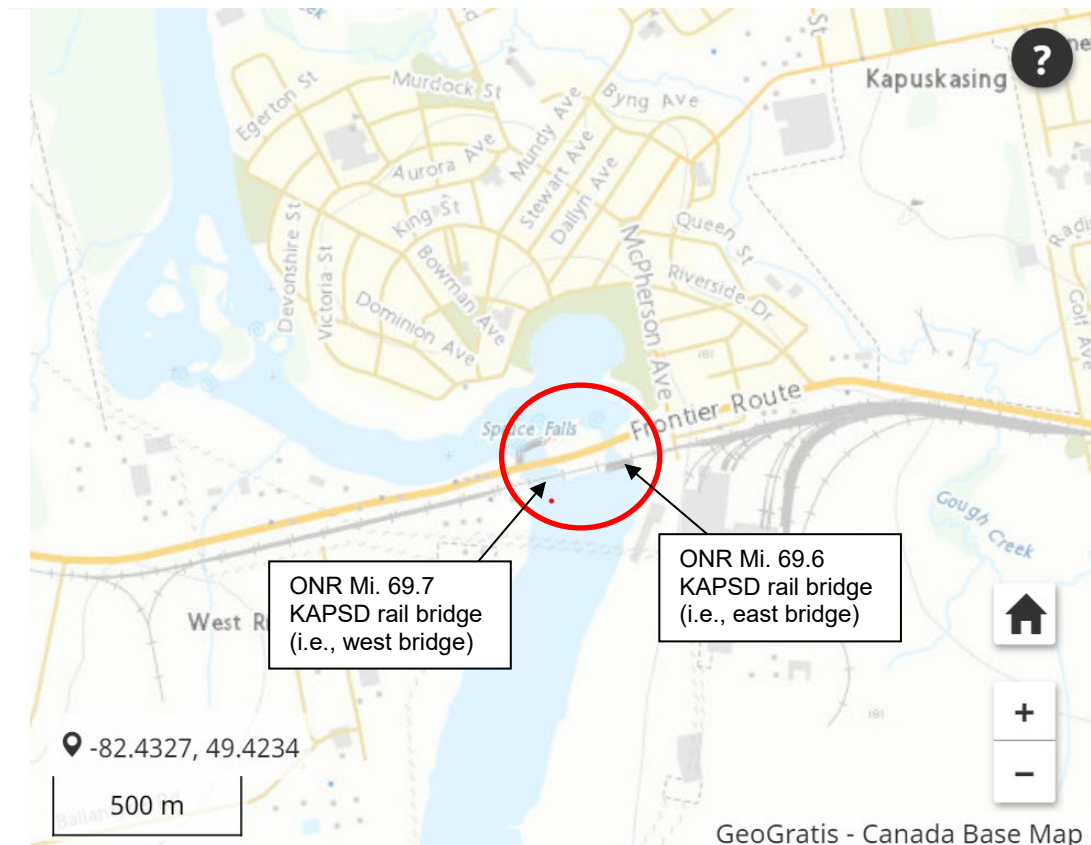
- Completing construction works while respecting DFO work in water timing restriction windows for Walleye in Northeastern Region (i.e., April 1 to June 20). This timing window was confirmed to be most applicable in consultation with David Barbour, District Management Biologist, MNRF.
- Minimizing time and footprint of all required in-water work. Carrying out construction works, undertakings and activities on land/in the dry, to the extent feasible.
- Minimizing the overall project impact by maintaining local riparian vegetation to the extent feasible. Restoring and/or reseeding of site, as needed, following construction activities.
- Ensuring pre-construction inspection for any potential bird nests within the immediate project area.
- Ensuring fish passage through the existing river is maintained and not unreasonably obstructed.
- Following best practices for any minor cofferdaming and/or water pumping which may be required to complete construction remedial works. Ensuring frequent inspection and safe relocation of any stranded fish behind cofferdamed areas, as applicable.
- Ensuring sound sediment and erosion control measures during construction according to best practices, preventing siltation to the local environment and waterways.
- Spill mitigation planning, preventing the entry of deleterious substances to waterways.
- Ensuring frequent environmental monitoring, oversight and due diligence by the Contractor (and inspection by the Owner, ONR) over the course of construction.

6. References

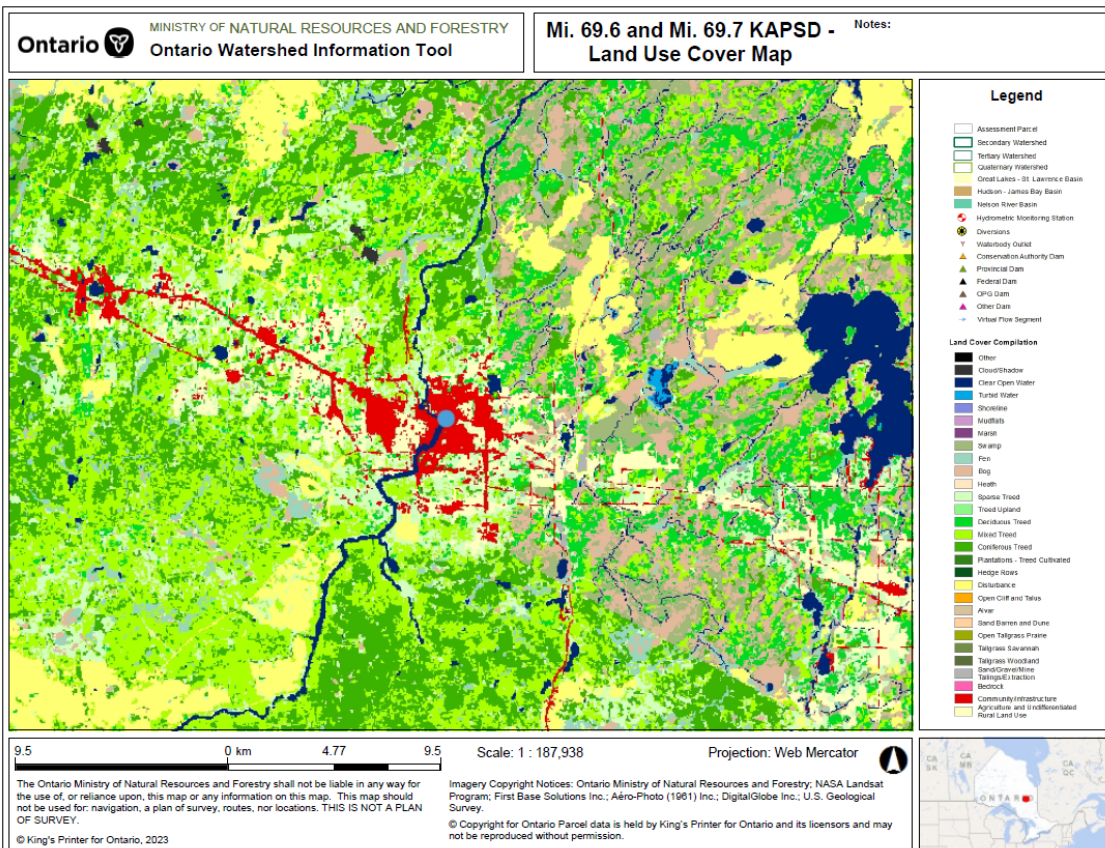
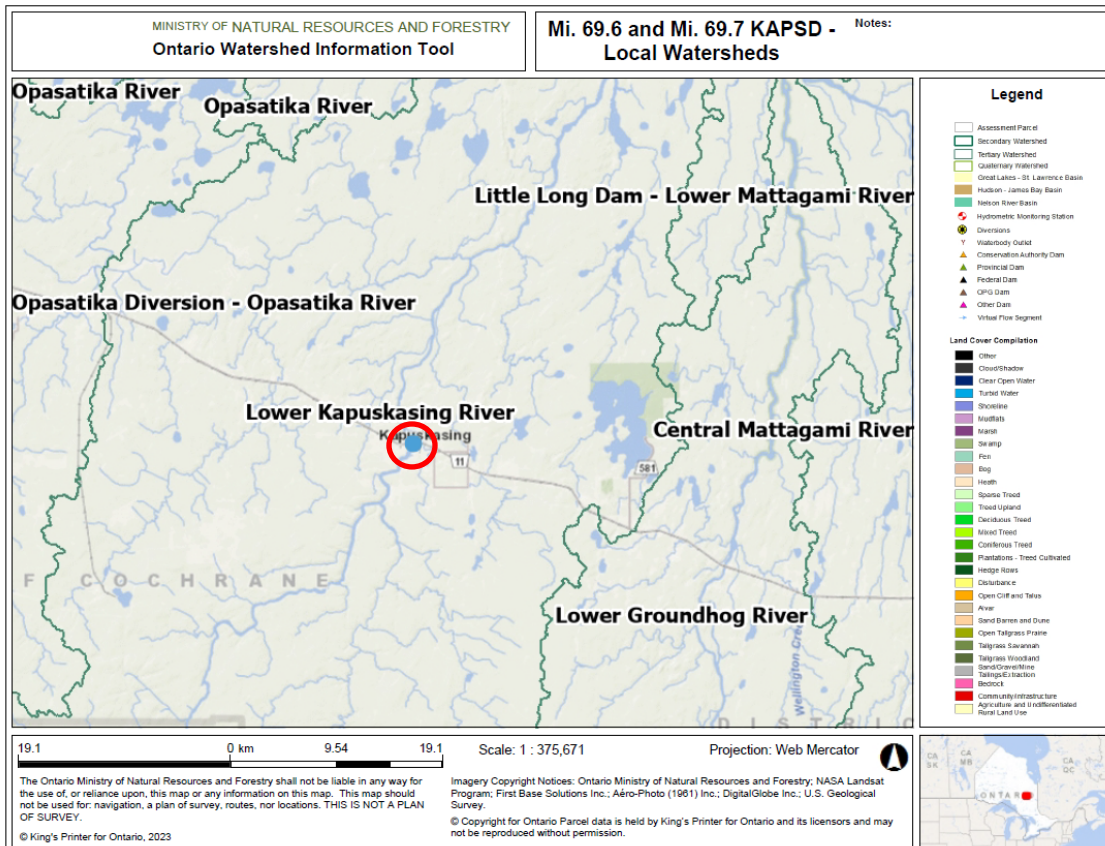
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- Ministry of Natural Resources and Forestry (MNRF). (2023). Ontario Watershed Information Tool. Copyright King's Printer for Ontario, 2024. Accessed online at <https://www.lioapplications.lrc.gov.on.ca/fishonline/Index.html?viewer=FishONLine.FishONLine>, January 2024.

Appendix A – Figures

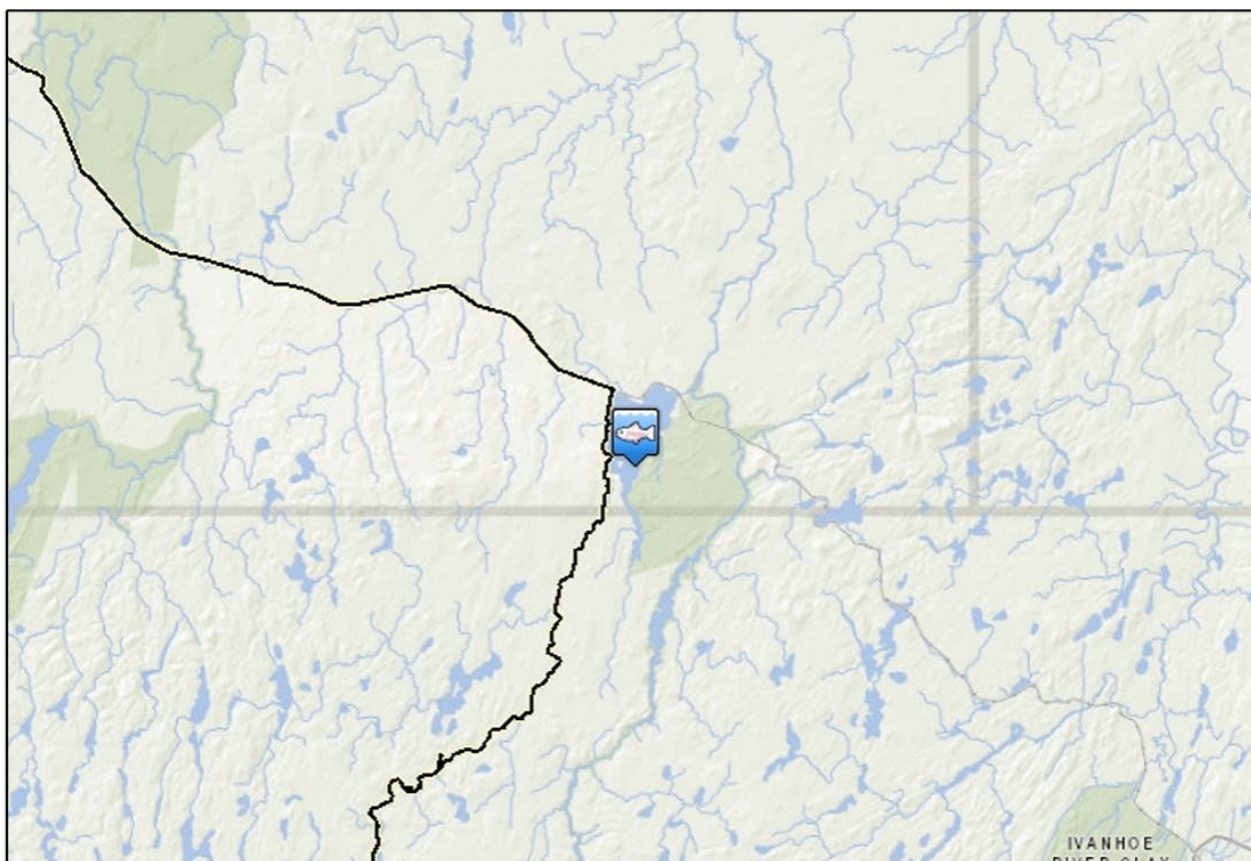








Kapuskasing Lake



Waterbody Information

Latitude: 48.492600
Longitude: -82.935041
Surface Area (ha): -
Maximum Depth (m): -
Average Depth (m): -
Fisheries Management Zone(s): 8

Legend



Waterbody



Licence Issuer



Fish Sanctuary



Fisheries Management Zone



Lake Depth Contours (m)



Fishing Access Points



Fish Species Found in Waterbody

Lake Whitefish, Northern Pike, Walleye, White Sucker, Yellow Perch

Appendix B – Site Investigation Photographs

ONR Mi 69.6 and 69.7 KAPSD Rail Bridge Water Crossings

(Photo source: J. Viscek & P.M. Pilkington, ONTC; October 19, 2023)

Mi. 69.6 KAPSD (east)



Mi. 69.6 KAPSD (east) Downstream



Mi. 69.6 KAPSD (east) Downstream



Mi. 69.7 KAPSD (west) Upstream



Mi. 69.7 KAPSD (west) Downstream



Mi. 69.7 KAPSD (west) Downstream



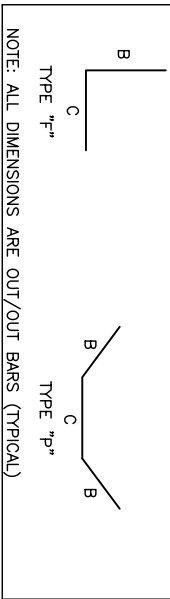
Mi. 69.7 KAPSD (west) Downstream



Appendix C – Engineering Designs (Hatch, TBD)
(Note: To be Attached as an Addendum)

Reference Drawings
Other Drawings

REINFORCING BAR LIST - ONE CAP (8 REQ'D)								
QTY.	SIZE	LENGTH	MARK	A	B	C	D	H
12	#6	7'-3"	60703F		3'-7 1/2"	3'-1 1/2"		
12	#6	2'-8"	80208P		0'-10"	1'-0"		
9	#4	9'-8"	40908					



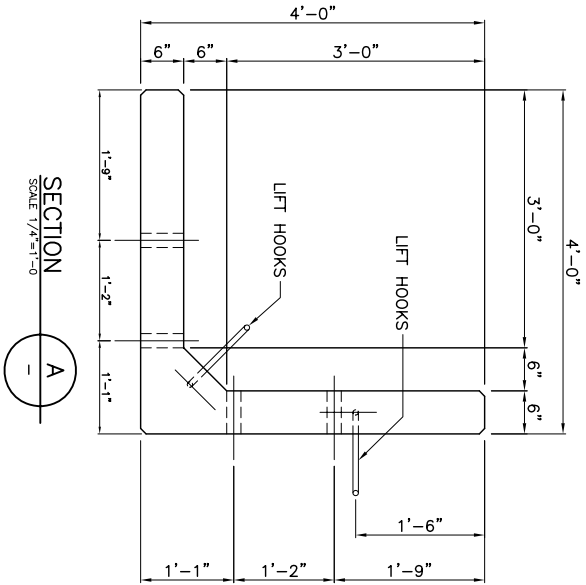
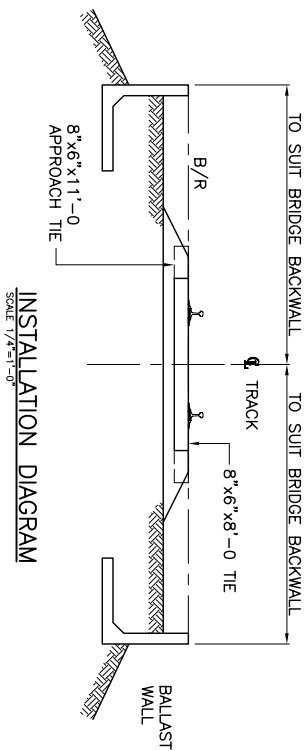
GENERAL CONCRETE NOTES:

- ALL CAST -IN-PLACE CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3600 PSI @ 28 DAYS. A SLUMP OF 2" TO 4". AIR CONTENT OF 5% \pm 1%.
- REINFORCING STEEL SHALL BE NEW BILLET STEEL CONFORMING TO A.S.T.M. SPECIFICATION A615, GRADE 60.
- MINIMUM COVER FOR REINFORCING STEEL TO BE 2" UNLESS NOTED OTHERWISE.
- ALL EXPOSED EDGES OF CONCRETE SHALL BE GIVEN $\frac{3}{4}$ "- $\frac{1}{2}$ " CHAMFERED DIMENSIONS ARE TO UNCHAMFERED EDGES.
- WATERPROOF INSIDE FACES OF RETAINING WALL WITH TWO COATS OF EMULSIFIED ASPHALT COMPOUND IN ACCORDANCE WITH SPECIFICATION.
- FILL SHALL BE FREE DRAINING GRANULAR MATERIAL OR EQUIVALENT.

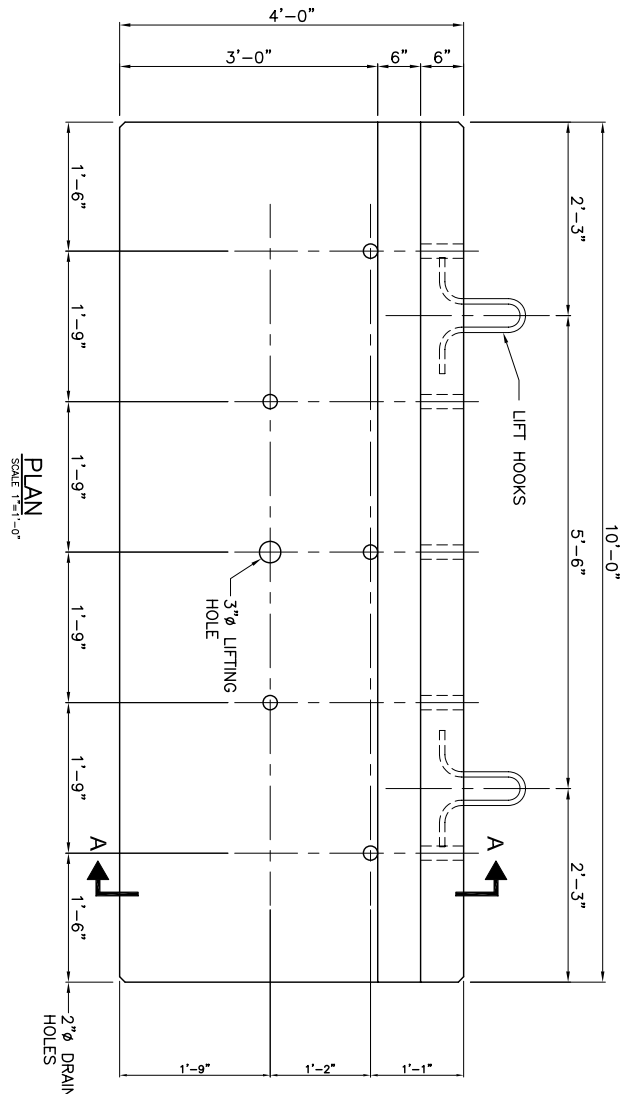
ESTIMATED QUANTITIES ON THIS DRAWING:

CONCRETE	38.75 ft ³
REINFORCING STEEL	237 lbs.
LIFT HOOKS	3 lbs.

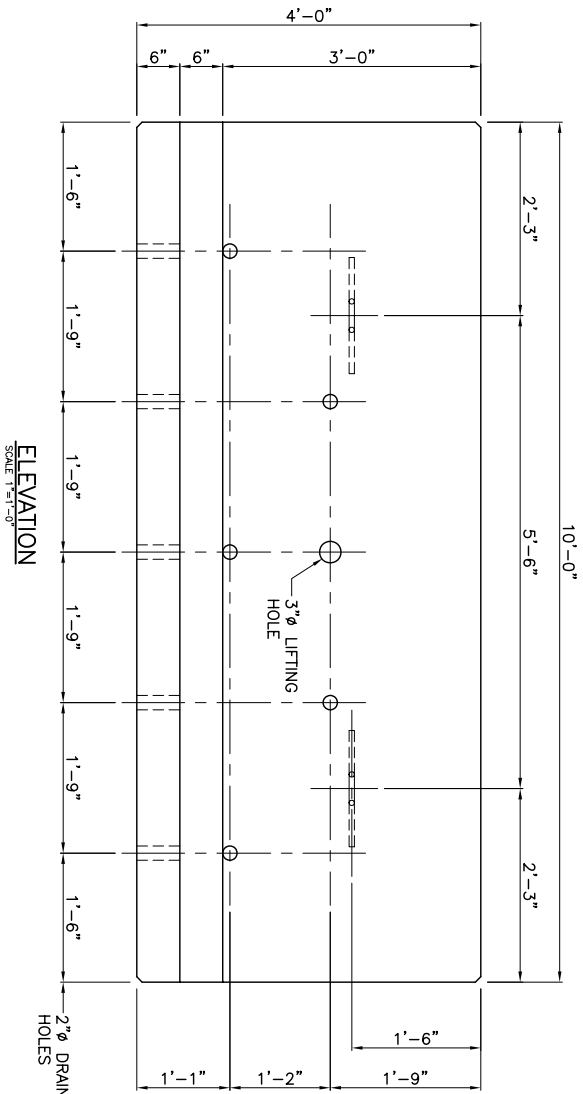
LIFTING WEIGHT FOR ONE SECTION = 5980 lbs.



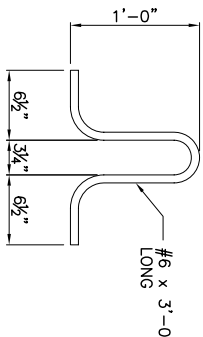
SECTION (A)
SCALE 1/4"=1'-0"



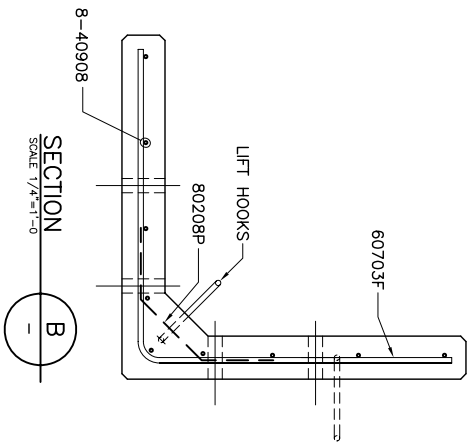
PLAN
SCALE 1"=1'-0"



ELEVATION
SCALE 1"=1'-0"



LIFTING HOOK DETAIL
SCALE 1 1/2"=1'-0"



SECTION (B)
SCALE 1/4"=1'-0"

[illegible]

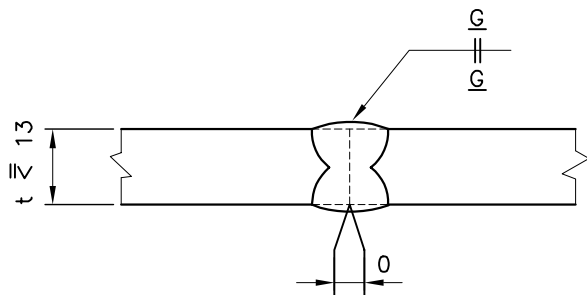
SENIOR STRUCTURAL ENGINEER

Drawn	J.H.H.	Designed	Checked	Scale	AS	Date
Desin		Conception	Verification	Echelle	NOTED	-

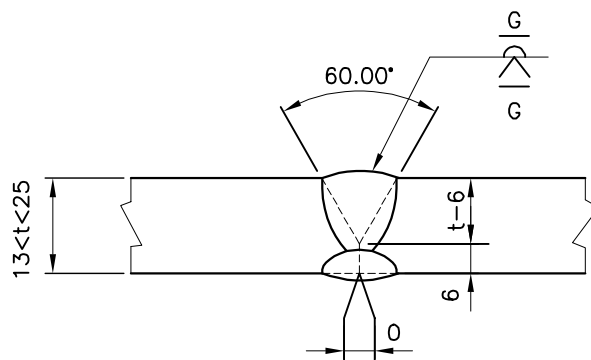
Office of Chief Engineer
Bureau de l'Ingénieur en chef



File Reference	Drawing Number Dessin Numero
	R5A-8.1



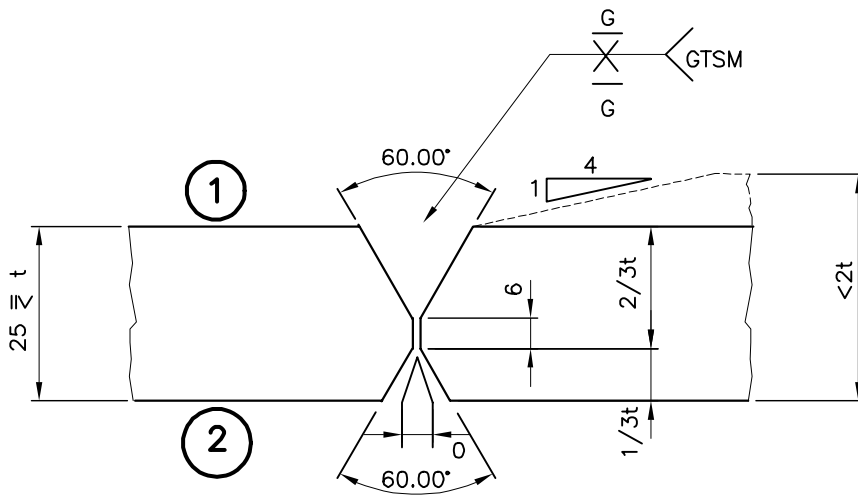
PLATES OF EQUAL THICKNESSES



PLATES OF EQUAL THICKNESSES

NO. OF
PASSES WILL
VARY WITH
THICKNESS

SIDE ② GOUGED OUT TO
SOUND METAL AFTER
SIDE ① IS WELDED, AND
THEN WELD.

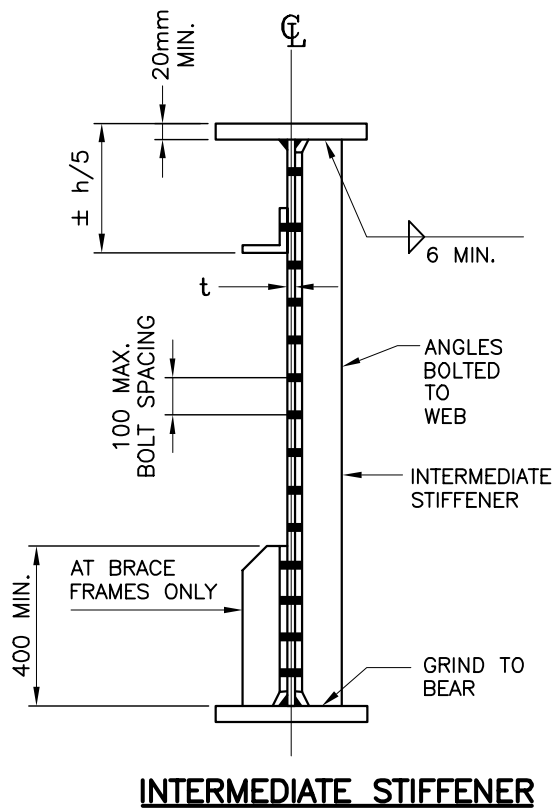
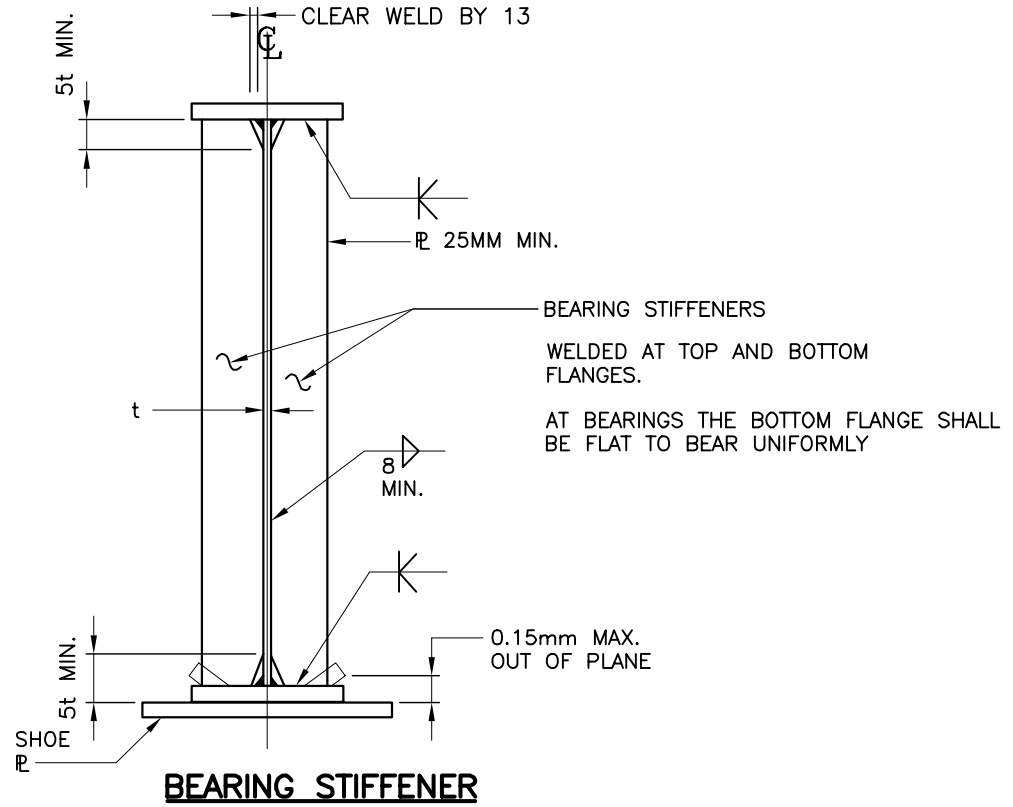


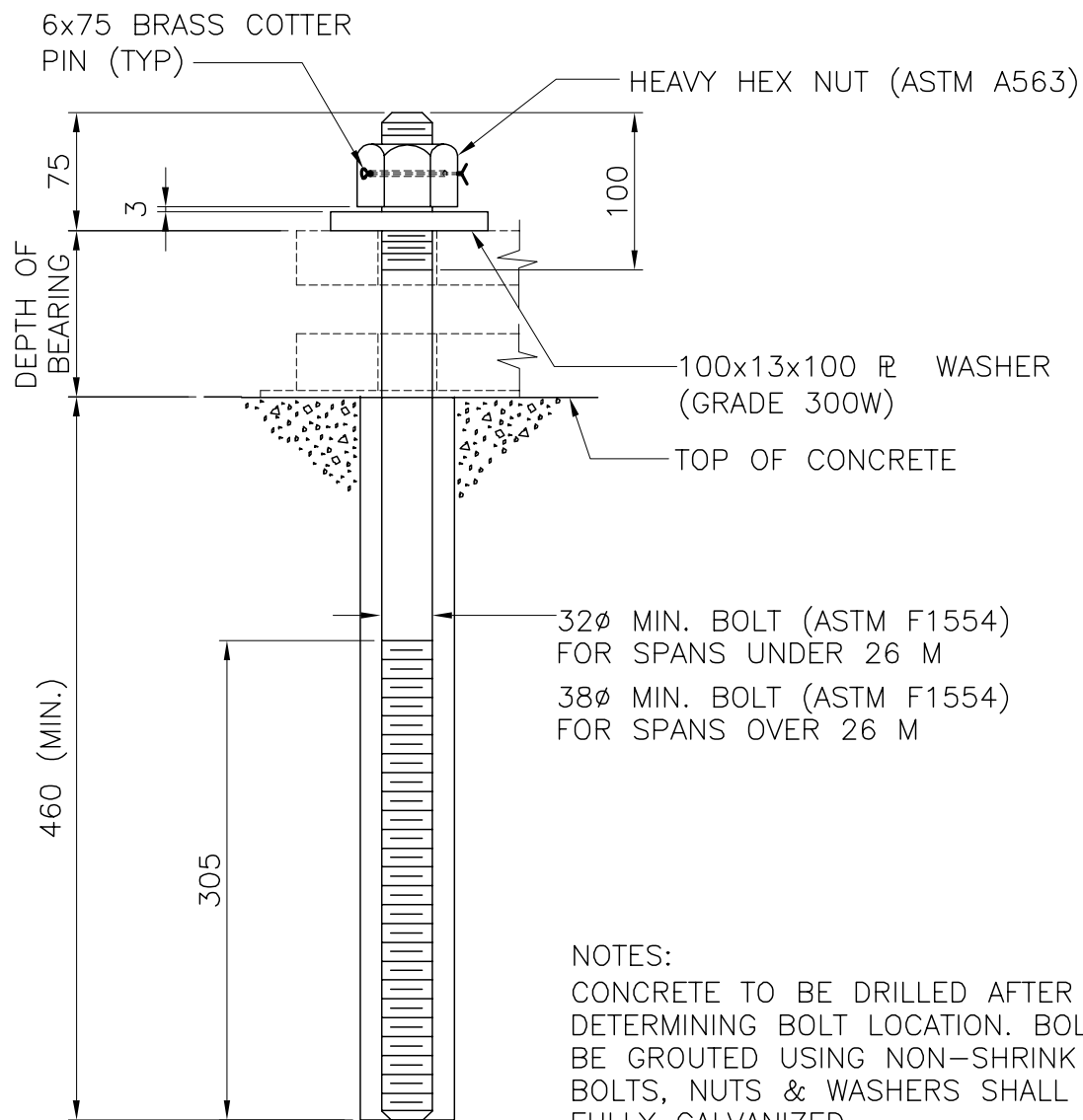
PLATES OF EQUAL OR UNEQUAL THICKNESSES

WELDING SHALL BE PERFORMED IN FLAT POSITION IN ACCORDANCE WITH CSA STANDARD W59. RUN-OFF PLATES SHALL BE USED TO ENSURE SOUND WELDS AND FULL THROAT THICKNESS, AND SHALL BE OF SAME MATERIAL AND GEOMETRY AS FLANGE AT JOINT. AFTER COMPLETION AND COOLING OF WELD, REMOVE RUN-OFF PLATES AND GRIND WELD FLUSH ON ALL SIDES (IN DIRECTION OF STRESSES).

ONR SPEC DWG
S1m

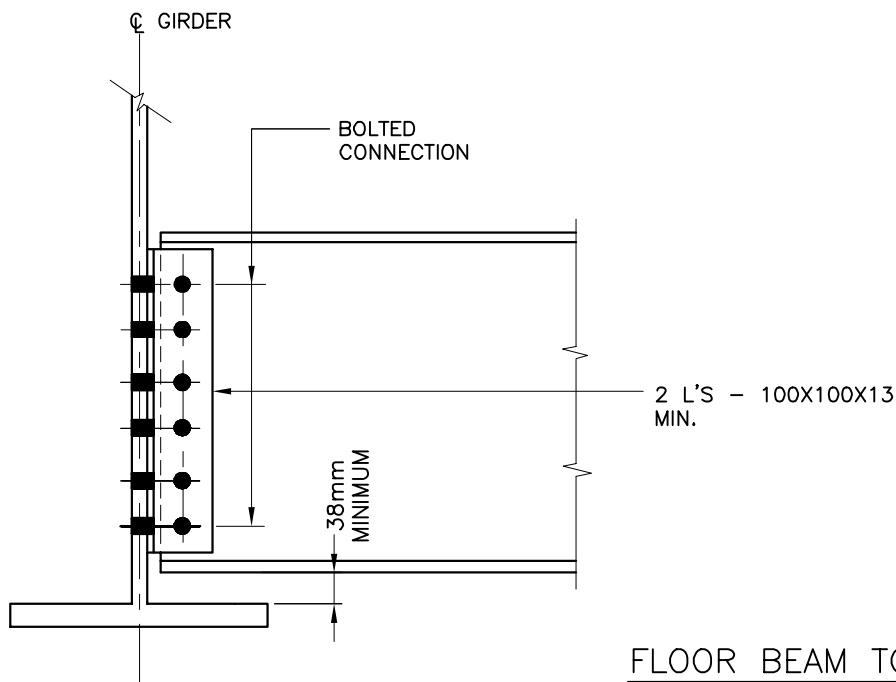
**SUBMERGED ARC WELDED JOINTS FOR FLANGES
WEB, STIFFENERS & GUSSET PLATES**



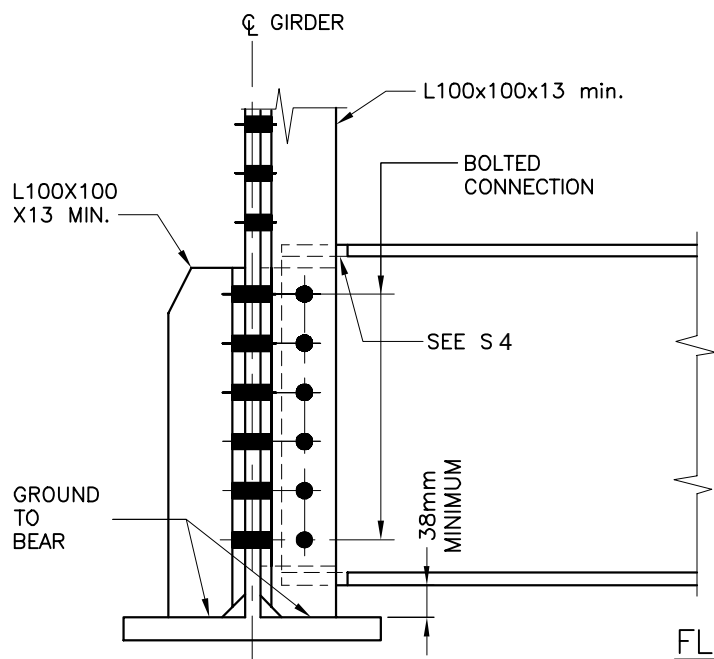


ONR SPEC DWG
S3m

ANCHOR BOLT

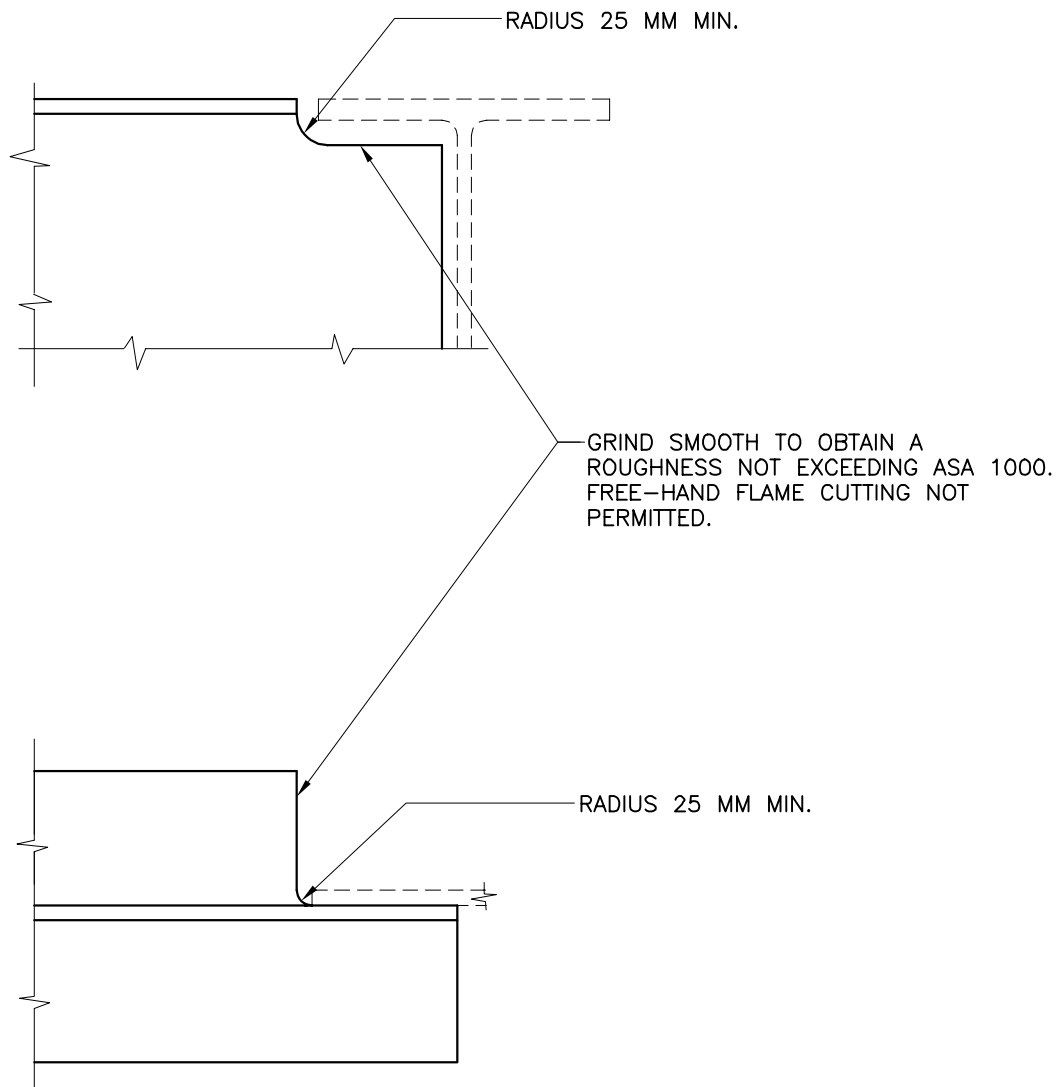


FLOOR BEAM TO GIRDER WEB



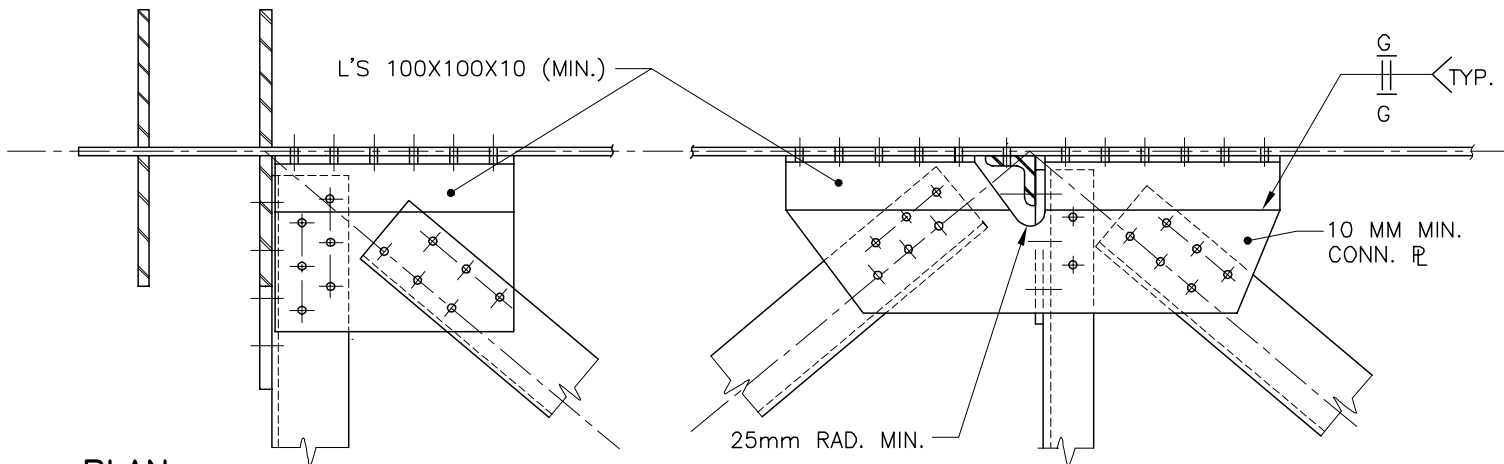
FLOOR BEAM TO GIRDER STIFFENER

NOTE
THESE ARE DIAGRAMATIC SKETCHES. THE CONTRACTOR SHALL DESIGN THE CONECTIONS AND SUBMIT FOR ENGINEER'S APPROVAL.

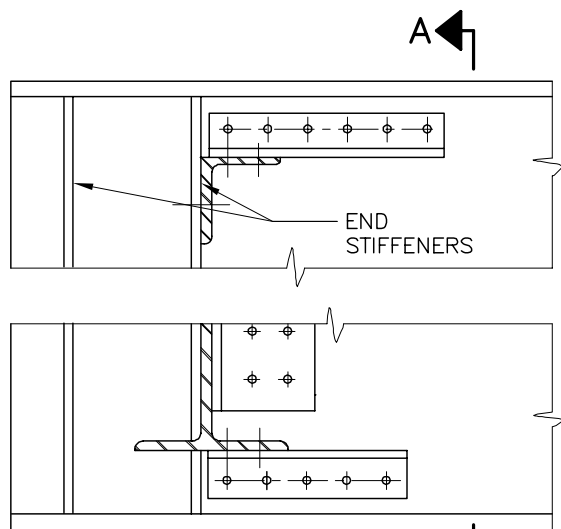


ONR SPEC DWG
S6m

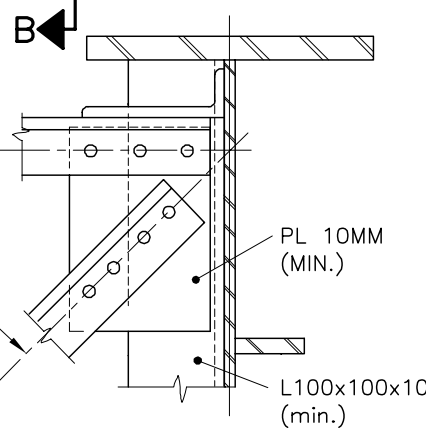
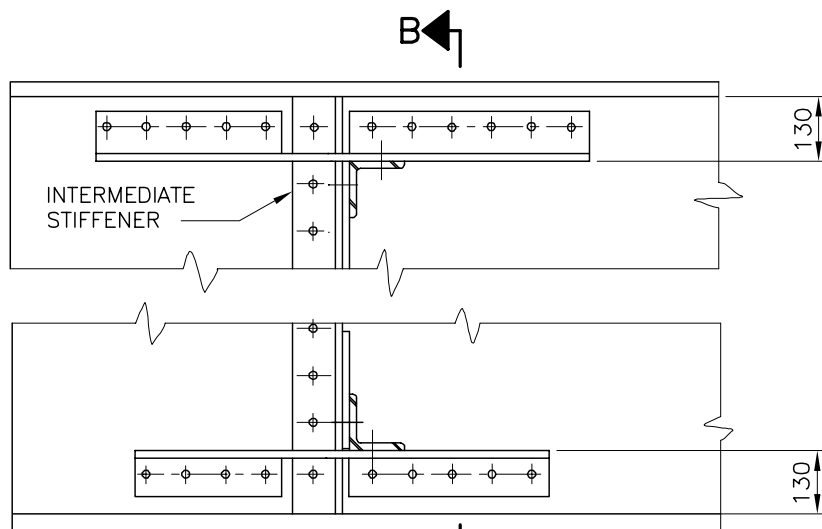
BEAM COPES



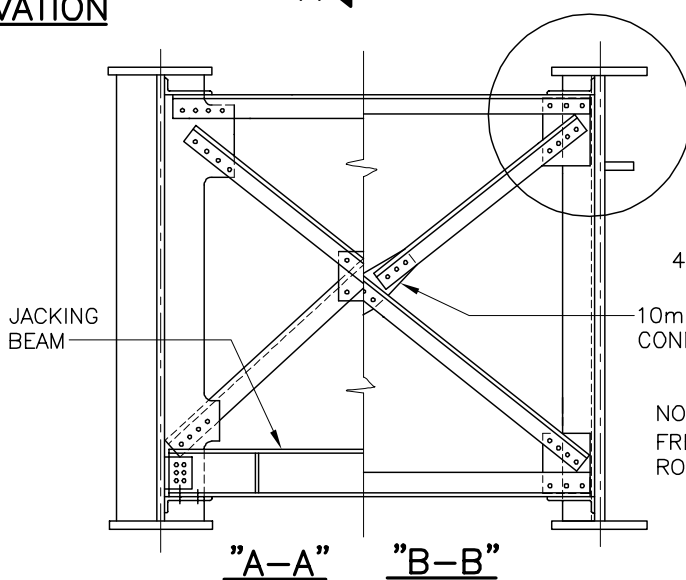
PLAN



ELEVATION



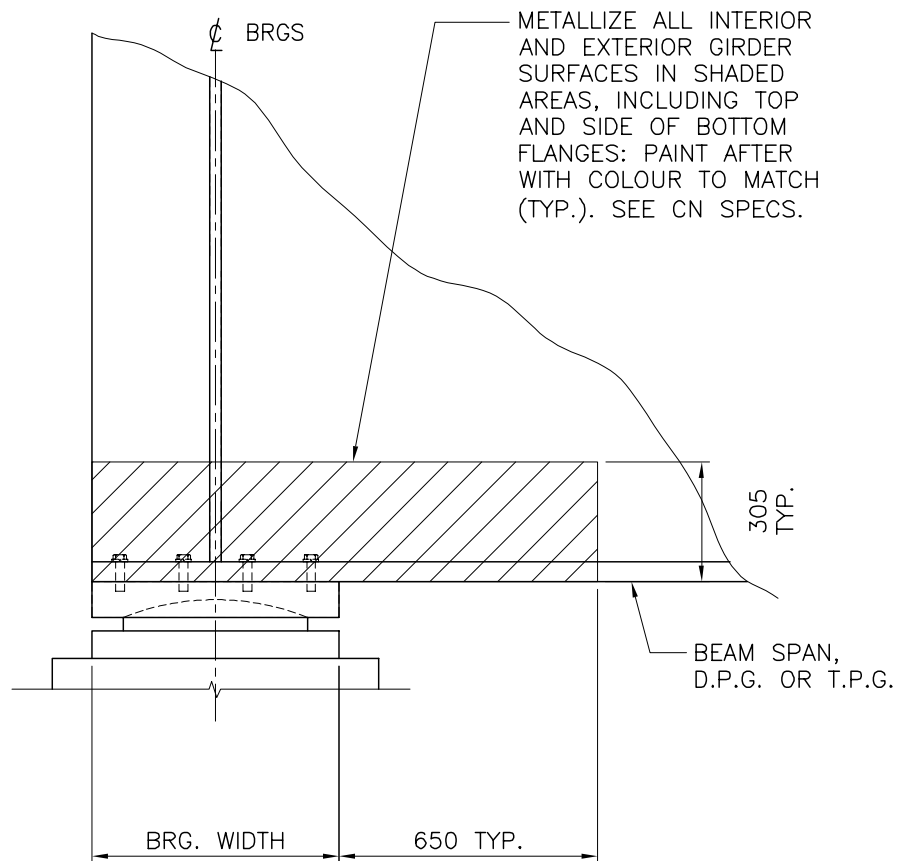
NOTE:
FREE-HAND FLAME CUTTING NOT PERMITTED;
ROUGHNESS NOT TO EXCEED ASA1000.



HALF SECTION

ONR SPEC DWG
S7m

LATERAL BRACING FOR DPG SPANS



NOTES:

METALLIZING IN ACCORDANCE WITH SSPC-CS GUIDE 23.00 OR A.S.T.M. B833
ZINC METALLIZING SHALL NOT BE LESS THAN 0.25mm THICKNESS

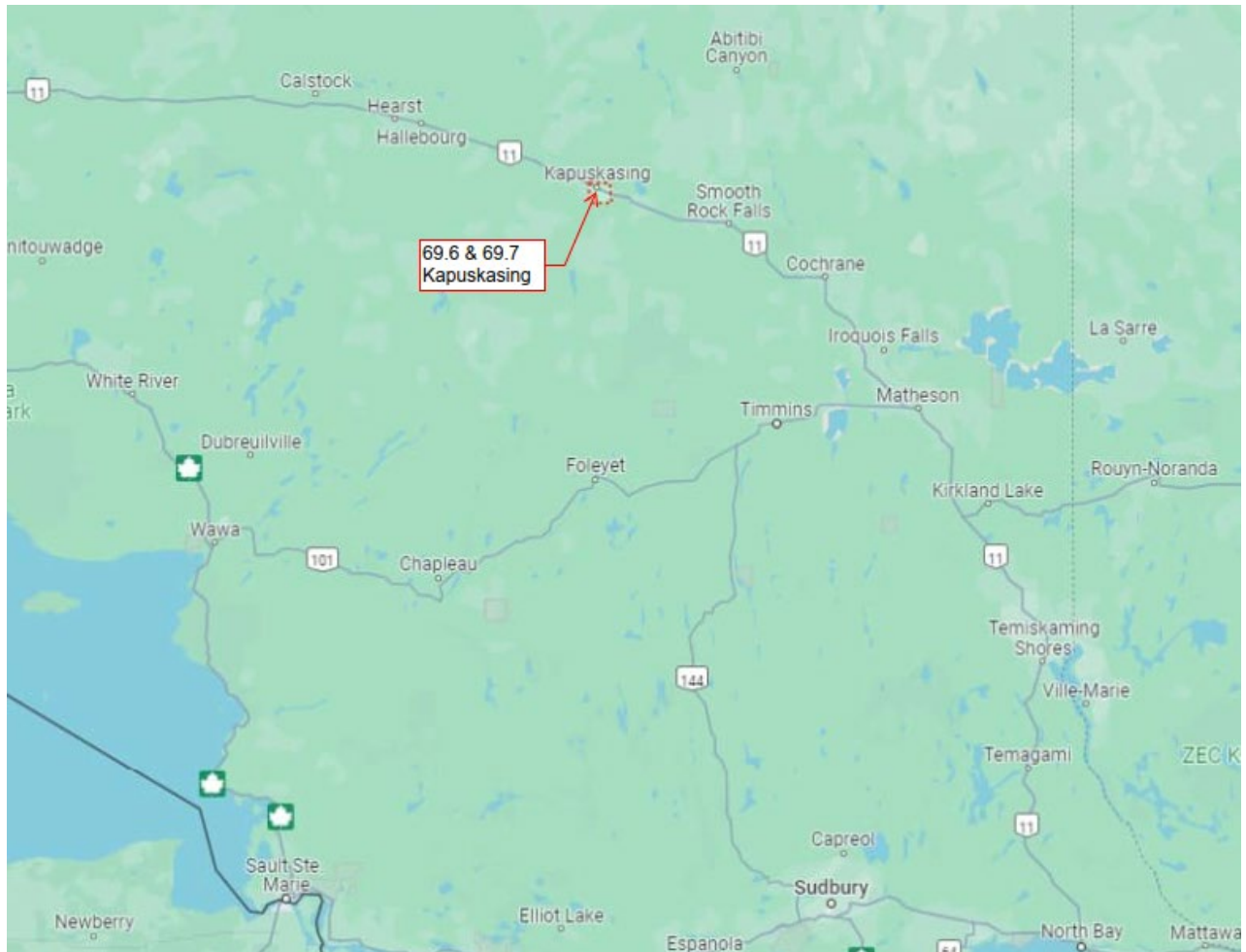
ONR SPEC DWG
S20m

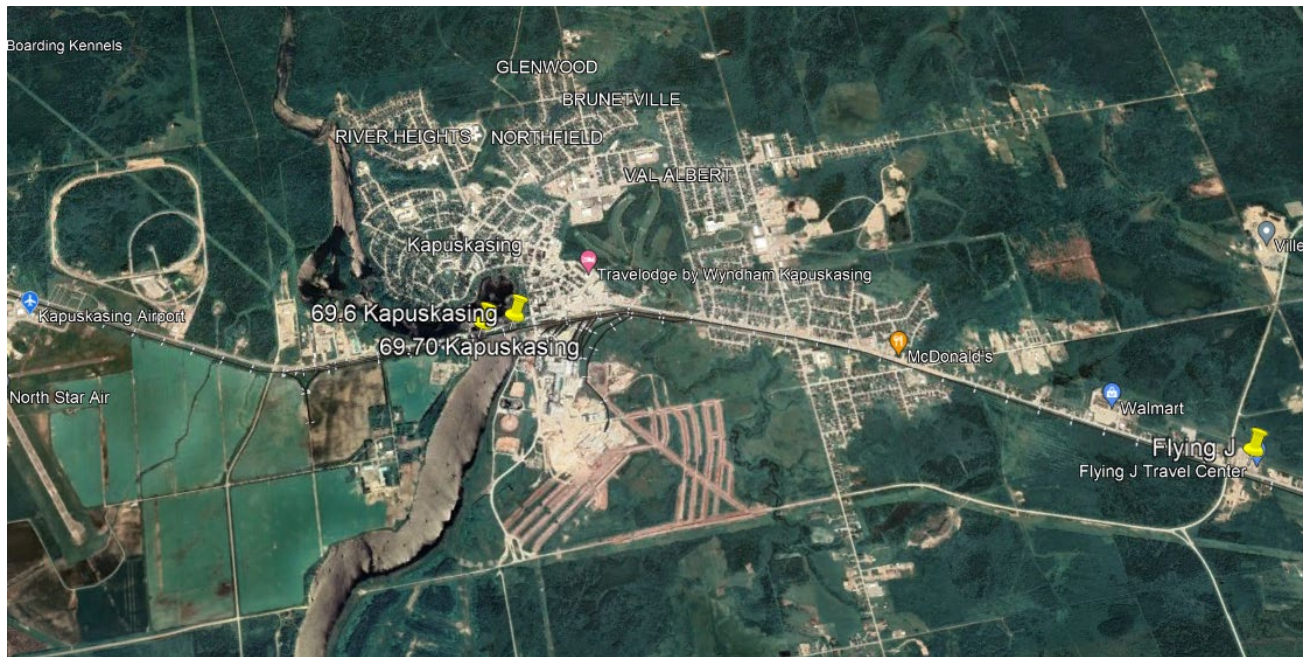
**METALLIZING AREA FOR BEAM SPANS, DPG &
TPG SPANS**

Drawing number

PART 3 – RFP SPECIFICATIONS
SCHEDULE 3-A-3
SITE LOCATION AND LOCATION OF SITE MEETING

The Bridge Rehabilitations are located at Miles 69.6 & 69.7 on the Kapuskasing Subdivision, in the town of Kapuskasing, in the Cochrane District of the Province of Ontario.





A virtual Site Meeting will be held on Teams

**PART 3 – RFP SPECIFICATIONS
SCHEDULE 3-A-4
SITE PHOTOS**

69.6 Kapuskasing

















69.7 Kapuskasing

















PART 3 – RFP SPECIFICATIONS
SCHEDULE 3-A-5
WORK BLOCKS

The following table reflects the train schedule as of April 30, 2023. The train times are subject to change.

No 313			No 514	
S-T-T--			-M-W-F-	
13:00	Ord	Cochrane	Arr	12:00
13:30	Dpt			
16:30	Arr	Kapuskasing	Dpt	09:00
17:00	Dpt		Arr	08:30
		Hearst	Dpt	06:30
19:00	Arr		Ord	06:00

not to be ordered before 0600



PART 4

REQUEST FOR PROPOSALS

FORM OF PROPOSAL

Note: Respondent is required to complete Part 4 in its entirety in order to be considered as having submitted a complete Proposal. Part 4 will be provided in Word format to Respondents who return Schedule 2-B – Participation Registration Form.

**PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 1
PROPOSAL SUBMISSION FORM**

RFP Number: RFP 2024 015

Description: ONTC Bridge Rehabilitations – Mile 69.6 and 69.7 Kapuskasing Subdivision

Submitted To: ONTARIO NORTHLAND TRANSPORTATION COMMISSION

We, _____
(Name of Respondent)

having carefully examined, understood, and completed the Request For Proposals Documents as described in Section 2 – The RFP Documents, and Addendum No. _____ to No. _____ inclusive, and having reviewed the supplied photographs and familiarized ourselves thoroughly with local conditions, hereby agree to supply the services associated with the *ONTC Bridge Rehabilitation – Mile 69.6 and 69.7 Kapuskasing Subdivision* as outlined in our Proposal for a total price of:

\$ _____ (\$ _____) excluding HST

which price includes any specified allowance and all taxes (**excluding HST**) except as may be otherwise provided in the RFP Documents, and to furnish all materials, labour, equipment and transportation to perform the entire Work described in the RFP Documents, in the manner prescribed therein, and in accordance with the specifications.

Include a breakdown of costs on the following Proposal Form 1-A.

Purchase is subject to budgetary approval of expenditures.

Proposal Forms:

The information contained in the Proposal Forms, as listed in the Request for Proposals and attached hereto, forms an integral part of this Proposal.

Declarations:

We hereby declare that:

- (a) We will execute the Agreement within ten (10) Working Days of receipt of the Final Agreement;
- (b) We agree to perform and fully complete the Work on or before the agreed upon schedule;
- (c) The Work is to start no later than the agreed upon start date in the schedule;
- (d) Work is deemed to be complete when Work is substantially complete as defined in the Construction Act and the Contractor is demobilized from the site;
- (e) The statutory holdback pursuant to the Construction Act will be 10%;
- (f) We will provide the required evidence of insurance, as specified in the Ontario Northland – Supplementary Conditions – CCDC 4 - 2011 included in Part 5 of the RFP Documents, with our execution of the Agreement;
- (g) For the General Liability Insurance, Ontario Northland Transportation Commission and Hatch are to be included as additional insured;

- (h) Coverages and limits of insurances will be provided and maintained by all Subcontractors in accordance with subsection (f) above;
- (i) No person, corporation or other legal entity other than the undersigned has any interest in this Proposal or in the proposed Contract for which this Proposal is made;
- (j) This Proposal is irrevocable for a period of ninety (90) days from the Submission Deadline;
- (k) It is understood and agreed that if this Proposal is accepted, we will not commence the Work until we have executed the Final Agreement and delivered it to ONTC and/or we are advised in writing by ONTC to proceed with the Work;
- (l) All copies of plans and specifications and other said RFP Documents furnished to us for the purpose of this Proposal are the property of ONTC and shall be kept confidential and not divulged in any manner by us. They will not be used on other work by us and will be returned to the issuing office when requested or promptly when not bidding; and
- (m) We have no right to reimbursement by ONTC for expenses, both direct and indirect, which may have been incurred by us in preparing this Proposal or otherwise participating in the RFP Process.

Signed and submitted for and on behalf of:

Contractor:

(Company Name)

(Street Address or Postal Box Number)

(City, Province and Postal Code)

Signature:

I have authority to bind the corporation.

Name and Title:

Email:

Date at _____ this _____ day of _____, 2024

**PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 1-A
PROPOSAL SUBMISSION FORM**

Please refer to the attached Schedule A – Schedule of Quantities and Prices, prepared by Hatch. This form must be completed as part of the proposal.

**PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 1-A
PROPOSAL SUBMISSION FORM**

Schedule A – Schedule of Quantities and Prices

ONTC Bridge Rehabilitation – Mile 69.6 Kapuskasing - RFP 2024 015

Unit Prices listed in this Schedule are based on the use of Specified Materials. Unit Price shall include all overhead, profit, handling, and all other related charges and shall hereinafter be referred to as Contract Unit Prices. All of the prices listed below are to be included in the Contract Price.

Refer to Drawing sets KAP-69.6 -3.1 to 3.16 & KAP-69.6-4.1 to 4.10

Item	Description	Section and/or Drawing No.	Unit	Est. Qty	Unit Price	Total Amount
1	Mobilization & Demobilization	Section 01520	L.S.	1	\$ _____	\$ _____
2	Construction Facilities/ Scaffolding	Sections 01520 & 01530	L.S.	1	\$ _____	\$ _____
3	Locate Utilities, contact Ontera and On1call		L.S.	1	\$ _____	\$ _____
4	Perform top of rail track survey to determine top of rail profile and bearing elevations. Provide a drawing of survey and profiles.	Dwg 3.1	L.S.	1	\$ _____	\$ _____
Bridge Rehabilitation						
5	Environmental Protection	Section 01561	L.S.	1	\$ _____	\$ _____
6	Design, Supply, Install and Remove Cofferdams for Abutment or Pier Concrete repairs, if required	Sections 01530 & 02270	L.S.	1	\$ _____	\$ _____
7	Design, Supply, Install and Remove Dewatering System, if required	Sections 01530, 02140 & 02270	L.S.	1	\$ _____	\$ _____
8	Sitework Demolition and Removal of Deteriorated Concrete	Section 02225 Dwgs 3.2,3.4,3.6,3.8, 3.11 & 3.14	ft3	2,838	\$ _____	\$ _____
9	Sitework Demolition and Removal of Deteriorated Concrete Underwater – Approximately 3 feet deep	Section 02225 Dwg 3.8	ft3	60	\$ _____	\$ _____
10	Contingency Amount Additional 20% Sitework Demolition and Removal of Deteriorated Concrete	Section 02225 Dwgs 3.2,3.4,3.6,3.8, 3.11 & 3.14	ft3	570	\$ _____	\$ _____
11	Supply and Install Concrete (Cast-in-place)	Sections 03010, 03100, 03200& 03300 Dwgs 3.3, 3.5, 3.7, 3.9, 3.10, 3.12 & 3.15	ft3	2,955	\$ _____	\$ _____
12	Supply and Install Concrete (Cast-in-place) Underwater – Approximately 3 feet deep	Sections 03010, 03100, 03200& 03300 Dwgs 3.8 & 3.9	ft3	60	\$ _____	\$ _____
13	Contingency Amount Additional 20% Supply and Install Concrete assuming no additional formwork required, just additional removal depth	Sections 03010, 03100, 03200& 03300 Dwgs 3.3, 3.5, 3.7, 3.9, 3.10, 3.12 & 3.15	ft3	591	\$ _____	\$ _____
14	Supply and Install Concrete Reinforcing (Cast-in-place)	Section 03200 Dwgs 3.3, 3.5, 3.7, 3.9, 3.10, 3.12, 3.13, 3.15 & 3.16	lbs	16,007	\$ _____	\$ _____
15	Supply and Install Concrete Reinforcing (Cast-in-place) Underwater – Approximately 3 feet deep	Section 03200 Dwgs 3.9 & 3.10	lbs	458	\$ _____	\$ _____
16	Contingency Amount Additional 20% Supply and Install Concrete Reinforcing (Cast-in-place)	Section 03200 Dwgs 3.3, 3.5, 3.7, 3.9, 3.10, 3.12, 3.13, 3.15 & 3.16	lbs	3,200	\$ _____	\$ _____
17	Drill for and install Dowels 25050 & 25063 as part of Major Crack Repair	Section 03200 Dwgs 3.9 & 3.10	L.S.	1	\$ _____	\$ _____

18	Supply and Install Pier Nosing Plates Assembly A15, B15 & C15.	Sections 05122 & 09900 Dwgs 2.1, 2.14 & 2.24	lbs	2,080	\$ _____	\$ _____
19	Supply and Install 20 feet of CN Type L-Shaped Precast Concrete Retaining Walls at each corner (including any excavating and backfilling)	Sections 03450 & 07560 Dwgs 3.1 & R5A-8_1	ea.	2	\$ _____	\$ _____
20	Design, Supply and Install a Galvanized Filler Plate between precast L-Shaped Retaining wall and existing abutments - A1 & B1	Section 05122 Dwg 3.1	ea.	2	\$ _____	\$ _____
21	Supply and Installation of Sikagard A50	Section 07560 Dwgs 3.3, 3.5, 3.7, 3.9, 3.12 & 3.15	ft2	4,016	\$ _____	\$ _____
22	Modify and install existing backwall ties for new backwall tie slot	Dwgs 3.9 & 3.12	ea.	4	\$ _____	\$ _____
23	Removal and Disposal of two existing 100' DPG spans, including bearings and bed plates. Includes design of span lifting attachments. Deck ties and walkway railing and grating are to be saved and re-used.	Sections 02225 & 05122 Dwgs 4.1 to 4.5	L.S.	1	\$ _____	\$ _____
24	Supply all materials and Fabricate two New 30.48m DPG spans shown on drawings 4.3 to 4.5. Includes inspection grating and inspection bars.	Section 05122 Dwgs 4.1 to 4.5	kg	167,636	\$ _____	\$ _____
25	Deliver, Assemble and Install the two New 30.48m DPG spans. If the installation plan requires something other than a direct vertical lift from the provided lifting devices, includes design, supply and install lifting attachments for spans.	Section 05122 Dwgs 4.1 to 4.5	L.S.	1	\$ _____	\$ _____
26	Supply and Install Bronze bearings A6 and B6 including all anchor rods/bolts and connecting bolts.	Sections 05122, 05500 & 05900 Dwgs 4.6 & 4.7	ea.	8	\$ _____	\$ _____
27	Supply and Install all bearing shim plates C7, D7, E7 & F7, temporary anchor rods TAR (7-1, 7-2 & 7-3) and base plates A7	Section 05122 Dwgs 4.2, 4.6 & 4.7	kg	3,516	\$ _____	\$ _____
28	Supply and Install additional bearing shim plates C7, E7 & F7 if survey determines they are required.	Section 05122 Dwgs 4.2, 4.6 & 4.7	kg	432	\$ _____	\$ _____
29	Supply and Install Steel Pedestals A8 and Anchor Rods AR 8-1 & 8-2, (including all jacking equipment required).	Sections 05122 & 05500 Dwgs 4.6 & 4.8	ea.	8	\$ _____	\$ _____
30	Temporarily relocate Guy Wire as needed on South Abutment for utility line pole.	Dwg 3.1	L.S.	1	\$ _____	\$ _____
31	Supply and Place 10 tons of Ballast per approach, if required. Hand tamp as required. Remove any contaminated ballast first.	Section 02235 Dwg 3.1	ea.	2	\$ _____	\$ _____
32	Apply topsoil, seed and mulch on all areas outside of the track that are disturbed for construction activities	Section 02911	L.S.	1	\$ _____	\$ _____
33	Remove and re-install Guard Rails.	Dwg 4.1	L.S.	1	\$ _____	\$ _____
34	Remove and re-install existing rail, as needed for span changeouts. Includes area as needed over approach ties. Existing tie plates and spikes to be salvaged. ONR to supply additional tie plates and spikes, if needed.	Section 021130 Dwg. 4.1	L.S.	1	\$ _____	\$ _____
35	Remove ties from existing spans, modify the Dap for the new girder flanges and re-install on new spans, salvaging and re-using tie plates and spikes. Any extra remaining materials will be temporarily stored on site and then loaded, transported, and delivered to the ONR yard in Englehart.	Section 021130 Dwgs 4.1, 4.9 & 4.10	L.S.	1	\$ _____	\$ _____

36	Remove existing walkway handrailing and grating and re-install on new spans.	Section 05122 Dwg. 4.1	L.S.	1	\$ _____	\$ _____
37	Supply and installation of ¼" Neoprene Tie Pads for all ties on Bridge and backwall Tie Plates.	Section 021130 Dwgs 4.1, 4.9 & 4.10	ea.	340	\$ _____	\$ _____
38	Supply and installation of new hook bolts for ties on Bridge	Sections 021130 & 05122 Dwgs 4.1, 4.9 & 4.10	ea.	100	\$ _____	\$ _____
	Decking Material for pre-installation on 1 New Span	If required for Contractor's Installation Methodology				
D1	Supply and Install Timber Ties A10 and Hook/Various Bolts.	Section 02225 Dwgs 4.9 & 4.10	ea.	2	\$ _____	\$ _____
D2	Supply and Install Timber Ties B10 and Hook/Various Bolts.	Section 02225 Dwgs 4.9 & 4.10	ea.	20	\$ _____	\$ _____
D3	Supply and Install Floorbeam Timber Ties C10 and Various Bolts.	Section 02225 Dwgs 4.9 & 4.10	ea.	56	\$ _____	\$ _____
D4	Supply and Install Tie Spacer Bars for 1 span	Section 05122 Dwg 4.9	lbs.	1832	\$ _____	\$ _____
	SUBTOTAL					\$ _____
	Harmonized Sales Tax (HST)					\$ _____
	TOTAL PROPOSAL PRICE FOR MILE 69.6 Kapuskasing					\$ _____

Total proposal price shall include all labour, subcontractor fees, products, services, tools, equipment and tool rental fees, shop drawings, handling costs, profit, bonding costs, site access preparation including construction of a crossing (if required), environmental protection and control costs, removal of debris, waste and rubble, excavation, shoring, backfilling, dewatering and other work area requirements, cleanup and restoration of site, taxes and all other overhead related charges and incidentals necessary for the total completion of the Work.

ONTC Bridge Rehabilitation – Mile 69.7 Kapuskasing - RFP 2024 015

Unit Prices listed in this Schedule are based on the use of Specified Materials. Unit Price shall include all overhead, profit, handling, and all other related charges and shall hereinafter be referred to as Contract Unit Prices. All of the prices listed below are to be included in the Contract Price.

Refer to Drawing sets KAP-69.7 -3.1 to 3.16 & KAP-69.7-4.1 to 4.13

Item	Description	Section and/or Drawing No.	Unit	Est. Qty	Unit Price	Total Amount
1	Mobilization & Demobilization	Section 01520	L.S.	1	\$ _____	\$ _____
2	Construction Facilities/ Scaffolding	Sections 01520 & 01530	L.S.	1	\$ _____	\$ _____
3	Locate Utilities, contact Ontera and On1call		L.S.	1	\$ _____	\$ _____
4	Perform top of rail track survey to determine top of rail profile and bearing elevations. Provide a drawing of survey and profiles.	Dwg 3.1	L.S.	1	\$ _____	\$ _____
Bridge Rehabilitation						
5	Environmental Protection	Section 01561	L.S.	1	\$ _____	\$ _____
6	Design, Supply, Install and Remove Cofferdams for Abutment or Pier Concrete repairs, if required	Sections 01530 & 02270	L.S.	1	\$ _____	\$ _____
7	Design, Supply, Install and Remove Dewatering System, if required	Sections 01530, 02140 & 02270	L.S.	1	\$ _____	\$ _____
8	Sitework Demolition and Removal of Deteriorated Concrete	Section 02225 Dwgs 3.2,3.4,3.6,3.8, 3.11 & 3.14	ft3	1,198	\$ _____	\$ _____
9	Sitework Demolition and Removal of Deteriorated Concrete Underwater – Approximately 3.5 feet deep	Section 02225 Dwg 3.8, 3.11 & 3.14	ft3	855	\$ _____	\$ _____
10	Contingency Amount Additional 20% Sitework Demolition and Removal of Deteriorated Concrete	Section 02225 Dwgs 3.2,3.4,3.6,3.8, 3.11 & 3.14	ft3	410	\$ _____	\$ _____
11	Supply and Install Concrete (Cast-in-place)	Sections 03010, 03100, 03200& 03300 Dwgs 3.3, 3.5, 3.7, 3.9, 3.10, 3.12 & 3.15	ft3	1,273	\$ _____	\$ _____
12	Supply and Install Concrete (Cast-in-place) Underwater – Approximately 3 feet deep	Sections 03010, 03100, 03200& 03300 Dwgs 3.9, 3.10, 3.12 & 3.15	ft3	855	\$ _____	\$ _____
13	Contingency Amount Additional 20% Supply and Install Concrete assuming no additional formwork required, just additional removal depth	Sections 03010, 03100, 03200& 03300 Dwgs 3.3, 3.5, 3.7, 3.9, 3.10, 3.12 & 3.15	ft3	425	\$ _____	\$ _____
14	Supply and Install Concrete Reinforcing (Cast-in-place)	Section 03200 Dwgs 3.3, 3.5, 3.7, 3.9, 3.10, 3.12, 3.13, 3.15 & 3.16	lbs	7,242	\$ _____	\$ _____
15	Supply and Install Concrete Reinforcing (Cast-in-place) Underwater – Approximately 3.5 feet deep	Section 03200 Dwgs 3.9, 3.10, 3.13, 3.15 & 3.16	lbs	3,766	\$ _____	\$ _____
16	Contingency Amount Additional 20% Supply and Install Concrete Reinforcing (Cast-in-place)	Section 03200 Dwgs 3.3, 3.5, 3.7, 3.9, 3.10, 3.12, 3.13, 3.15 & 3.16	lbs	2,200	\$ _____	\$ _____
17	Drill for and install Dowels 25063 as part of Major Crack Repair	Section 03200 Dwgs 3.9 & 3.10	L.S.	1	\$ _____	\$ _____
18	Supply and Install 20 feet of CN Type L-Shaped Precast Concrete Retaining Walls at each corner (including any excavating and backfilling)	Sections 03450 & 07560 Dwgs 3.1 & R5A-8_1	ea.	4	\$ _____	\$ _____

19	Design, Supply and Install a Galvanized Filler Plate between precast L-Shaped Retaining wall and existing abutments - A1 & B1.	Section 05122 Dwg 3.1	ea.	4	\$ _____	\$ _____
20	Supply and Installation of Sikagard A50.	Section 07560 Dwgs 3.3, 3.5, 3.7, 3.9, 3.12 & 3.15	ft2	2,922	\$ _____	\$ _____
21	Modify and install existing backwall ties for new backwall tie slot	Dwgs 3.9 & 3.12	ea.	4	\$ _____	\$ _____
22	Removal and Disposal of two existing 108' Long Skew and one existing 103' Skew DPG spans, including bearings and bed plates. Includes design of span lifting attachments. Deck ties and walkway railing and grating are to be saved and re-used.	Sections 02225 & 05122 Dwgs 4.1 to 4.8	L.S.	1	\$ _____	\$ _____
23	Supply all materials and Fabricate two New 32.92 m Long Skew DPG spans shown on drawings 4.5 to 4.8. Includes inspection grating and inspection bars.	Section 05122 Dwgs 4.1 to 4.8	kg	167,616	\$ _____	\$ _____
24	Supply all materials and Fabricate one New 31.39 m Skew DPG span shown on drawings 4.3 to 4.4 and 4.7 to 4.8. Includes inspection grating and inspection bars.	Section 05122 Dwgs 4.1 to 4.8	kg	84,218	\$ _____	\$ _____
25	Deliver, Assemble and Install the two New 32.92 m Long Skew and one 31.39 m Skew DPG spans. If the installation plan requires something other than a direct vertical lift from the provided lifting devices, includes design, supply and install lifting attachments for spans.	Section 05122 Dwgs 4.1 to 4.8	L.S.	1	\$ _____	\$ _____
26	Supply and Install Bronze bearings A9 and B9 including all anchor rods/bolts and connecting bolts.	Sections 05122, 05500 & 05900 Dwgs 4.9 & 4.10	ea.	12	\$ _____	\$ _____
27	Supply and Install all bearing shim plates C10, D10, E10 & F10, temporary anchor rods TAR (10-1, 10-2 & 10-3) and base plates A10	Section 05122 Dwgs 4.2, 4.9 & 4.10	kg	7,192	\$ _____	\$ _____
28	Supply and Install additional bearing shim plates F10 if survey determines they are required.	Section 05122 Dwgs 4.2, 4.9 & 4.10	kg	144	\$ _____	\$ _____
29	Supply and Install Steel Pedestals A11 and Anchor Rods AR 11-1 & 11-2, (including all jacking equipment required).	Sections 05122 & 05500 Dwgs 4.9 & 4.11	ea.	12	\$ _____	\$ _____
30	Supply and Place 10 tons of Ballast per approach, if required. Hand tamp as required. Remove any contaminated ballast first.	Section 02235 Dwg 3.1	ea.	2	\$ _____	\$ _____
31	Apply topsoil, seed and mulch on all areas outside of the track that are disturbed for construction activities	Section 02911	L.S.	1	\$ _____	\$ _____
32	Remove and re-install Guard Rails.	Dwg 4.1	L.S.	1	\$ _____	\$ _____
33	Remove and re-install existing rail, as needed for span changeouts. Includes area as needed over approach ties. Existing tie plates and spikes to be salvaged. ONR to supply additional tie plates and spikes, if needed.	Section 021130 Dwg. 4.1	L.S.	1	\$ _____	\$ _____
34	Remove existing walkway handrail and grating and re-install on new spans.	Section 05122 Dwg. 4.1	L.S.	1	\$ _____	\$ _____
35	Remove ties from existing spans, modify the Dap for the new girder flanges and re-install on new spans, salvaging and re-using tie plates and spikes. Any extra remaining materials will be temporarily stored on site and then loaded, transported, and delivered to the ONR yard in Englehart.	Section 021130 Dwgs 4.1, 4.12 & 4.13	L.S.	1	\$ _____	\$ _____

36	Supply and installation of ¼" Neoprene Tie Pads for all ties on Bridge and backwall Tie Plates.	Section 021130 Dwgs 4.1, 4.2 & 4.13	ea.	472	\$ _____	\$ _____
37	Supply and installation of new hook bolts for ties on Bridge	Sections 021130 & 05122 Dwgs 4.1, 4.9 & 4.10	ea.	140	\$ _____	\$ _____
	Decking Material for pre-installation on 1 New Span	If required for Contractor's Installation Methodology				
D1	Supply and Install Timber Ties A13 and Various Bolts.	Section 02225 Dwgs 4.9 & 4.10	ea.	2	\$ _____	\$ _____
D2	Supply and Install Timber Ties B13 and Various Bolts.	Section 02225 Dwgs 4.9 & 4.10	ea.	19	\$ _____	\$ _____
D3	Supply and Install Floorbeam Timber Ties C13 and Various Bolts.	Section 02225 Dwgs 4.9 & 4.10	ea.	62	\$ _____	\$ _____
D4	Supply and Install Tie Spacer Bars for 1 span	Section 05122 Dwg 4.9	lbs.	1882	\$ _____	\$ _____
	SUBTOTAL					\$ _____
	Harmonized Sales Tax (HST)					\$ _____
	TOTAL PROPOSAL PRICE FOR MILE 69.7 Kapuskasing					\$ _____

Total proposal price shall include all labour, subcontractor fees, products, services, tools, equipment and tool rental fees, shop drawings, handling costs, profit, bonding costs, site access preparation including construction of a crossing (if required), environmental protection and control costs, removal of debris, waste and rubble, excavation, shoring, backfilling, dewatering and other work area requirements, cleanup and restoration of site, taxes and all other overhead related charges and incidentals necessary for the total completion of the Work.

PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 2
RESPONDENT'S GENERAL INFORMATION

The Respondent must complete this document and submit it as part of his Proposal.

Name <i>Please indicate the complete legal name of the firm</i>	
Tax Registration # (HST)	
Tax Registration # (GST)	
Tax Registration # (QST)	
Address	
Telephone Number	
Fax Number	
Web Address	
Please indicate any other name(s) under which the firm operates <i>(if applicable)</i>	

Owner ☐ Partnership ☐ Corporation ☐

Relationship *(if applicable)*

Parent Company	
Subsidiaries	
Affiliates	

Ontario Business ☐ Yes ☐ No

"Ontario Business": A supplier, manufacturer or distributor of any business structure that conducts its activities on a permanent basis in Ontario. The business either has a headquarters or a main office in Ontario or has at least 250 full-time employees in Ontario at the time of this RFP.

Canadian Business ☐ Yes ☐ No

"Canadian Business": A commercial enterprise that is incorporated pursuant to the laws of Canada and which has ongoing business activities in Canada.

Main Contact Person *(for the purposes of this Proposal)*

Name	
Title	
Telephone #	Fax #
E-mail address	

PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 2 *cont'd*
RESPONDENT'S GENERAL INFORMATION

Indicate below your company/business' invoice terms:

Does your company/business have the capability to handle Electronic Funds Transfers?
YES _____ NO _____

If yes, please provide the necessary banking information as part of your submission.

If available, please provide your Dunn & Bradstreet Reference Number:

How many years of experience does your company have in the provision of goods or services proposed herein?

Subcontractors

The Respondent must indicate where they will use subcontractors for specific services.

Description of Services	Subcontractor's Name	% Contract Value	Telephone Number

PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 3
ACKNOWLEDGMENT TO COMPLY WITH PART 3 - REQUEST FOR PROPOSALS
SPECIFICATIONS

Ontario Northland Transportation Commission (ONTC) is committed to procuring goods and services through a process that is conducted in a fair and transparent manner, providing equal opportunity to vendors.

ONTC endeavors to provide specifications that meet the requirements of the procurement without naming specific brands. However, there may be instances where a third-party consultant prepares a specification on behalf of ONTC, and a specific brand is named. In these instances, alternatives may be used if deemed equal by ONTC and/or the third-party consultant. Respondents shall submit proposed deemed equals as a clarification item to be considered while the procurement remains open per the requirements of Part 1, Section 3, item 3.2 Questions and Communications Related to the RFP documents.

Respondent acknowledges that they can fully comply with Part 3 – Request for Proposals Specifications.

(Check one) YES _____; NO _____

If the Respondent indicates “NO”, they shall provide details as an attachment to this Proposal Form 3, indicating how they will deviate from the requirements identified in Part 3 – Requests for Proposals – Specifications.

If the Respondent wishes to submit an alternative proposal, it shall be indicated here and submitted separately from the original proposal, clearly indicating that it is an alternative proposal.

Respondent will be submitting an alternative proposal:

(Check one) YES _____; NO _____

PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 4
REFERENCES

The Respondent must supply here the reference information of three (3) customers for which they have provided similar services within the last five (5) years. ONTC is **NOT** to be listed as a Reference.

Reference #1

Company name	
Location	
Description of services provided	
Start and end dates	
Value of the contract	
Contact person name and title	
Phone	E-mail

Reference #2

Company name	
Location	
Description of services provided	
Start and end dates	
Value of the contract	
Contact person name and title	
Phone	E-mail

Reference #3

Company name	
Location	
Description of services provided	
Start and end dates	
Value of the contract	
Contact person name and title	
Phone	E-mail

PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 5
COMPLIANCE WITH CONTRACT DOCUMENTS

The Respondent may suggest changes to the Supplementary Conditions included in Part 5 of this RFP using the table below. ONTC does not have any obligation to accept any proposed changes to the Supplementary Conditions and will do so in its sole discretion. Significant material proposed changes to the Agreement may impact the evaluation of the Respondent's proposal. ONTC will not accept any material changes to the clauses in the Supplementary Conditions relating to Confidentiality, Personal Information, Intellectual Property ownership and infringement, Indemnification, Limitation of Liability or rights of ONTC on termination. ONTC, as an Ontario Crown corporation, is unable to provide indemnities pursuant to s.28 of the *Financial Administration Act* (Ontario).

Exception	Contract, Schedule, Article, or Sub-Clause	Existing Wording	Respondent's Proposed Wording	Reason for Proposed Change
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				

**PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 6
RESPONDENTS' MEETING REGISTRATION FORM**

Reference Number: RFP 2024 015

Title: ONTC Bridge Rehabilitation – Mile 69.6 & 69.7 Kapuskasing Subdivision

Submitted To: ONTARIO NORTHLAND TRANSPORTATION COMMISSION

Please confirm that you plan to attend the Respondents' Meeting by emailing a completed copy of this Registration Form to Brinda.ranpura@ontarionorthland.ca, prior to Monday April 22, 2024, at 4:00 p.m.

Failure to submit all forms by the time required may result in ONTC not being able to accommodate your attendance at the site. PROPOSALS SUBMITTED BY RESPONDENTS THAT FAILED TO ATTEND THE RESPONDENTS' MEETING WILL BE DECLARED NON-COMPLIANT AND WILL BE REJECTED.

Date and Time of Meeting: Wednesday, April 24, 2024 at 1:00 p.m.

Location: Teams Conference Call

COMPANY NAME: _____

CONTACT NAME: _____

ADDRESS: _____

TELEPHONE: _____

EMAIL: _____

NUMBER OF PERSONS ATTENDING: _____

ACCOMMODATION: ONTARIO NORTHLAND IS AN EQUAL OPPORTUNITY ORGANIZATION. ACCOMMODATION IS AVAILABLE FOR RESPONDENT'S WITH DISABILITIES THROUGHOUT THE PROCUREMENT PROCESS. IF ACCOMMODATION IS REQUIRED, PLEASE CONTACT brinda.ranpura@ontarionorthland.ca.

PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 7
HEALTH, SAFETY AND ENVIRONMENT

Respondents shall review the attached Health and Safety Policy Statement and include the following with their Proposal:

1. Submit a copy of the most recent version of your Health, Safety, and Environmental Protection Policy. **Provide evidence of compliance to Ontario's environmental requirements (e.g., recycling, waste management, etc.)**
2. Submit the attached Contractor Health and Safety Responsibility Agreement.
3. Submit the attached Contractor Safety Pre-Qualification Form and associated supporting documents.

Respondents must pass the Contractor Safety Pre-Qualification. Failure to pass will result in disqualification from the procurement process.

Effective Date:
April 2016

Revised:
May 2020

Health and Safety Policy

POLICY STATEMENT

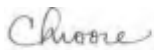
Ontario Northland Transportation Commission (ONTC) / Nipissing Central Railway (NCR) is committed to providing a safe and healthy work environment for employees by upholding the highest levels of safety in all workplace operations.

To fulfill these commitments, we will adopt and adhere to the requirements of a safety management system (SMS) consisting of the following key components:

- Accountability
- Safety policy
- Compliance with health and safety legislation, regulations, standards, rules and other instruments
- Occurrence management including reporting of occurrences, investigations, implementation of corrective actions and close-out
- Identification, assessment and controlling of hazards and health and safety concerns
- Risk assessments
- Identification and correction of non-conformities
- Implementing and evaluating remedial/corrective actions
- Setting and communication safety targets and results
- Training
- Fatigue management
- Continuous improvement

As part of developing a safety culture, we will collectively strive to prevent accidents and incidents through a risk-based approach. Employees are required to report safety concerns immediately and can do so without fear of reprisal. We will adopt the latest in systems to improve the reporting, investigation, implementation of corrective actions, close-out, and trend analysis of accidents and incidents. We will communicate safety and encourage engagement at all levels of the organization, in tailgates, briefings and meetings.

The success of ONTC/NCR safety programs will be ensured through the collective and cooperative efforts of all, including management, employees, unions and Workplace Health and Safety Committees. All ONTC/NCR members will jointly participate in Safety, Health and Loss Prevention initiatives to ensure a safe and healthy workplace for all employees by reducing risk and preventing loss at every opportunity.



President and CEO

Contractor Safety Pre-Qualification Form

1. Company Identification:

Company Name:	Telephone:	ONTC Use
Mailing Address:	Fax:	
	E-mail:	

2. Form of Business:

☐ Sole Proprietor
 ☐ Partnership:
 ☐ Corporation

3. Officers:	Years with the Company
President / CEO	
Vice President	
Treasurer	
Who is the manager most responsible for health and safety?	
Name:	Title:

4. How many years has your business operated under its current name?	
5. Under Current Management Since (Date)	

6. Parent Company Information

Parent Name:	
City:	Province / State:
Postal / Zip Code:	
Subsidiaries:	

7. Insurance Contact Information

Title:	Telephone:	Fax:
--------	------------	------

Insurance

8. Carriers:	Type of Coverage:	Telephone

9. Organization:

Describe the nature of the work your company specialized in:	
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

10. Health and Safety Performance

- | | | |
|---|------------------------------|-----------------------------|
| a) Are any of the above services that you perform normally subcontracted to others? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| b) Can you provide a Workplace Safety & Insurance Clearance Certificate? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| c) Is your company experience rated (CAD-7, NEER)? If yes attach CAD-7 reports for the last 3 years and go to item e). If no, complete item d). | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| d) Has an employee of your company suffered a fatal accident or "critical injury" as defined by the <u>Ontario Occupational Health & Safety Act</u> ? Please provide for the last 3 years: i) total number of lost time accidents by rate group, ii) total number medical aid accidents, iii) total number of hours worked by each rate group | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| e) Has your company ever been subjected to a Workwell Audit? If yes, what was your final score? ____ | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| f) Are there judgements, claims or suits pending or outstanding against your company? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| g) Have you received any regulatory (MOL, MOE, etc.) orders and/or prosecutions in the last 3 years? If yes, provide details of all prosecution and fines for the past 3 years on a separate sheet. | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| h) Do you have involvement in provincial safety associations such as the Infrastructure Health & Safety Association (IHSA) and/or Workplace Safety & Prevention Services (WSPS)? If yes, please name: | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

11. Health and Safety Program and Procedures:

- | | | |
|---|------------------------------|-----------------------------|
| a) Do you have a written health and safety policy? If yes, include a copy. | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| b) Do you have a written health and safety program? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| c) If so, are the following elements addressed? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| i. Participation by all levels in the organization | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| ii. Accountabilities & responsibilities for managers, supervisors and employees | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| iii. Adequate resourcing for meeting health and safety requirements | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| iv. Hazard identification and control | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| v. Health and safety performance measurement and evaluation | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| vi. Corrective actions implementation | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

12. Health and Safety Program: Does the health and safety program include procedures and practice documents such as:

- | | | |
|---|------------------------------|------------------------------|
| a) Hazardous Energy Control, Lock-out – Tag-out | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| b) Confined Space Entry | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| c) Working at Heights, Fall Protection | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| d) Personal Protective Equipment (PPE) | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| e) Portable / Electric Power Tools | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes |

Contractor Safety Pre-Qualification Form

f) Vehicle Safety	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
g) Compressed Gas Cylinders	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
h) Electrical Equipment Grounding Assurance	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
i) Powered Industrial Vehicles (forklifts, cranes, etc.)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
j) Heavy Construction Equipment (excavators, backhoes, bulldozers, etc.)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
k) Excavation and Trenching	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
l) Housekeeping	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
m) Accident / Incident Reporting and Investigation	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
n) Hazard / Unsafe Condition Identification, Reporting and Communication	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
o) Workplace Hazardous Materials information System (WHMIS)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
p) Emergency Action Plan / Evacuation Plan	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
q) Spill Response / Reporting	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
r) Respiratory Protection	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
s) Designated Substances Management	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
t) Waste Staging / Disposal	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
u) Traffic Control	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
v) Hearing Conservation	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
13. Do you have a policy/procedure for terminating contracts of subcontractors who do not comply with the requirements of the <u>Occupational Health & Safety Act</u> , associated regulations and / or company safety rules?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
14. Do your employees read, write and understand English to the degree that they can safely perform their tasks without the aid of an interpreter? (<i>If no, provide a description of your plan to assure that they can safety perform their tasks</i>)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
15. Do you have personnel certified in Emergency First Aid and CPR on site? If yes, provide copies of certificates of training for site personnel proposed for the project?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
16. Do you have First Aid kits available to your staff?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
17. Does your company use a formalized Health and Safety Plan for conducting large projects?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
18. Does the company conduct pre-placement medical examinations?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
19. Is task-adequate PPE provided to workers?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
20. Are employees trained in PPE care, use and maintenance?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
21. Do you have a corrective actions process for addressing individual health and safety performance deficiencies	<input type="checkbox"/> Yes	<input type="checkbox"/> No	

Contractor Safety Pre-Qualification Form

22. Equipment and Manuals:

- | | | | |
|---|------------------------------|-----------------------------|--|
| a. Do you conduct inspections on operating equipment (e.g. excavators, cranes, forklifts, vehicles, etc.) as per regulatory requirements? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| b. Do you maintain operating equipment in compliance with regulatory requirements? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| c. Do you maintain applicable pre-use inspection and maintenance certification records for operating equipment? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| d. Are records available upon request | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |

23. Subcontractors

- | | | | |
|--|------------------------------|-----------------------------|--|
| a. Do you use health and safety performance criteria in the selection of contractors? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| b. Do you require your subcontractor to have a written health and safety program? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| c. Are your subcontractors included in | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| d. Does the company have a policy for the termination of contracts of subcontractors who do not comply with the Occupation Health and Safety Act, regulations under the Act, contractor rules, programs, protocols policies or procedures? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| e. Does the company have a progressive discipline policy for employees and subcontractors? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |

24. Health and Safety Training

- | | | | |
|---|------------------------------|-----------------------------|--|
| a. Are you aware for the regulatory training requirements for your employees? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| b. Have your employees received the required health and safety training? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| c. Do you have specific health and safety training for supervisors? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| d. Do you keep records of health and safety training for employees? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| e. Are records of health and safety training available on request? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |

25. Job Skills

- | | | | |
|---|------------------------------|-----------------------------|--|
| a. Have employees been trained in appropriate job skills? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| b. Are employee job skills certified where required by regulation or industry standard? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| c. Are certificates available upon request? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |

26. Health and Safety Supervision

- | | | | |
|--|------------------------------|-----------------------------|--|
| a. Does the company have a health & safety coordinator? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| b. Who is the highest ranking safety professional in the company | | | |

I agree that the above information is true and correct to the best of my knowledge. I also agree to follow all terms and conditions of the Contractor Safety Program at all times while performing work for ONTC. I understand that supporting documentation may be requested for due diligence verification purposes.

Name: (Please print) _____
 Signature: _____

Title: _____
 Date: _____

PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 8
SCHEDULE OF MATERIALS

SCHEDULE OF MATERIALS - VARIATIONS (AND SOURCES)

VARIATIONS:

MATERIALS SOURCES:
(ADD WHERE REQUIRED)

PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 9
LIST OF EQUIPMENT

List all Equipment, owned or controlled by the Respondent for use on the Work. Such list shall show for each Unit the description of the Unit, capacity, condition, age, present location, the owner's name and all-inclusive hourly rental rates. Such equipment shall be subject to inspection by ONTC to verify the stated information.

ONTC reserves the right to perform random site inspections in order to ensure the Successful Respondent's equipment used to perform the Work coincides with the information provided below. Any deviations may be subject to the terms of the Final Agreement. Any changes to this proposed list of equipment requires prior approval of ONTC.

<u>QUANTITY</u>	<u>DISCRIPTION</u>	<u>CAPACITY</u>	<u>CONDITION</u>	<u>AGE</u>	<u>LOCATION</u>	<u>OWNER</u>	<u>HOURLY RENTAL RATE</u>
-----------------	--------------------	-----------------	------------------	------------	-----------------	--------------	-----------------------------------

**PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 10
SCHEDULE AND PROPOSED APPROACH**

CONSTRUCTION SCHEDULE

Respondents shall include a construction schedule with their Proposal. The construction schedule shall be in Gantt chart format, showing all activities of the Work and the critical path. The construction schedule shall reflect the milestone dates listed below.

Mandatory Respondents' Meeting	April 24, 2024
Request for Proposal Close	May 15, 2024
Shop Drawings / Work Plan Submissions	Prior to mobilization
Mobilization to site	Summer 2024
Completion of the Work	Before October 31, 2025

Do you agree to complete the Work by October 31, 2025?

Respondent confirms that they will complete the Work by October 31, 2025.

(Check one) YES _____; NO _____

ONTC has established the date for Completion of the Work with consideration for northern Ontario weather conditions. As such, there is no flexibility to extend the end date for completion of the work, and a failure to confirm that the work will be completed by the identified date may result in a rejection of the Proposal.

PROPOSED APPROACH

The Respondent shall provide a written narrative plan on their proposed approach for the project, demonstrating their ability to complete the project on budget and on schedule within the timelines identified in Part 3 – RFP Specifications, Schedule 3-A, Scope of Work. Evidence of a thorough review of the RFP Documents should be apparent in the Respondent's Schedule and Proposed Approach.

PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 11
SCHEDULE OF PROGRESS PAYMENTS

Indicate below, the estimate of the monthly progress billings (gross before holdback) for the duration of the Agreement.

PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 12
LIST OF PERSONNEL

List the names of the Principal Personnel who will be assigned to the Work and **include their resumes.** This information shall be for the use of ONTC and the Consultant in assessing the Proposal and such personnel may be subject to the approval of the Consultant. In the event of a Subcontractor(s) being listed as Principal Personnel, the Respondent shall also include their resume(s).

Name	Position	Experience
------	----------	------------

PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 13
CURRENT LABOUR AGREEMENTS

List the current labour agreements the Respondent or each partner in a joint venture has in force covering this type of work in the Province in which the Work is to be performed.

PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 14
CONTRACTOR'S QUALIFICATION STATEMENT

1. The Respondent shall include a company profile.

In the event that the Respondent is using a subcontractor(s) for a portion(s) of the scope of work associated with this RFP, they shall also include with this Proposal Form 14, a company profile for each subcontractor.

2. The Respondent shall supply a minimum of three (3) project descriptions for projects of a similar nature and scope. The project descriptions shall include:
 - a) Company/Client
 - b) Name of contact and contact details
 - c) Project Name
 - d) The scheduled project start and end date
 - e) The actual start and end date
 - f) The project value of the Respondent's scope of work for the project at the beginning of the project
 - g) The project value of the Respondent's scope of work for the project at the end of the project
 - h) Detailed description of the Respondent's scope of work for the project. The description should detail if subcontractors were used to complete part of the scope.
 - i) Outcomes of the project (i.e., completed on schedule and on budget etc.)

ONTC may, in its sole discretion, confirm the Respondent's experience in the projects identified by contacting the named contacts above, in addition to the references provided as part of Proposal Form 4.

3. The Respondent shall describe how and when you will use local workforce, local vendors, local manufacturers, local contractors, and local apprentices/trainees to achieve the project goals and provide the requested services.
4. The Respondent shall describe their organization's diversity programs.

ONTC will consider all information submitted in the Respondent's Proposal when evaluating the Respondent's experience.

PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 15
CLAIMS

Submit an up to date list of outstanding, pending or anticipated claims, proceedings, liens or other legal claims, actions or proceedings.



PART 5

REQUEST FOR PROPOSALS

CCDC 4 – 2011 SUPPLEMENTARY CONDITIONS

The ONTC Bridge Rehabilitations – Mile 69.6 & 69.7 Kapuskasing Subdivision project will be completed using CCDC 4 – 2011. The Supplementary Conditions and Special Supplementary Conditions, prepared by ONTC, will apply.

Revision Summary – CCDC 4 ONTC Supplementary Conditions– 15 NOV 2023

15 NOV 2023 GC 10.2 – Amendments to reflect Crown immunity relating to building permits and development applications.

GC 5.8.2 – Amendments to address Court delays.

AMENDMENTS TO THE AGREEMENT BETWEEN OWNER AND CONTRACTOR

1. ARTICLE A-3 CONTRACT DOCUMENTS

- 1.1 Add the following to the list of Contract Documents in paragraph 3.1:

“– Ontario Northland - Supplementary Conditions - CCDC 4 – 2011”

2. ARTICLE A-5 PAYMENT

- 2.1 In Article A-5.1, delete the words “and, where such legislation or regulations do not exist or apply, subject to a holdback of _____ percent (____%)” and replace them with “and subject to the Owner’s right to withhold, set-off, or reduce any payment pursuant to any Notice of Non-Payment”.

- 2.2 In subparagraph A-5.1.1 delete the words “amount certified by the Consultant together” and replace them with “amount applied for in a Proper Invoice”.

- 2.3 Delete subparagraph A-5.1.2 in its entirety and replace it with the following:

“.2 upon Substantial Performance of the Work, as certified by the Consultant, and on the 61st day after the publication of the certificate of Substantial Performance of the Work, if there are no claims for lien given to the Owner or registered against the title to the Place of the Work, pay the Contractor the unpaid balance of the holdback together with such Value Added Taxes as may be applicable to such payment, less any amount stated in the Owner’s Notice of Non-Payment that is published in accordance with the *Construction Act*,”

- 2.4 Delete subparagraph A-5.1.3 in its entirety and replace it with the following:

“.3 upon receipt of the final certificate for payment from the Consultant, and on the 61st day after the date on which the Contractor completes the Work, if there are no claims for lien given to the Owner or registered against the title to the Place of the Work, pay the Contractor the unpaid balance of the Contract Price together with such Value Added Taxes as may be applicable to such payment.”

- 2.5 Delete subparagraph A – 5.3 in its entirety and replace it with the following:

“Interest on late payments, if any, will be in accordance with the *Construction Act*.”

3. ARTICLE A-9 CONFLICT OF INTEREST

- 3.1 Add new Article A-9 as follows:

“ARTICLE A-9 CONFLICT OF INTEREST

9.1 The *Contractor*, all of the *Subcontractors*, and any of their respective advisors, partners, directors, officers, employees, agents, and volunteers shall not engage in any activity or provide any services where such activity or the provision of such services creates a Conflict of Interest (actually or potentially, in the sole opinion of the *Owner*) with the provision of the *Work* pursuant to the *Contract*.

9.2 The *Contractor* shall disclose to the *Owner*, in writing, without delay, any actual or potential situation that may be reasonably interpreted as either a Conflict of Interest or a potential Conflict of Interest, including the retention of any *Subcontractor* or *Supplier* that is directly or indirectly affiliated with or related to the *Contractor*.”

4. ARTICLE A-10 TIME OF THE ESSENCE / LIQUIDATED DAMAGES

- 4.1 Add new ARTICLE A-10 TIME OF THE ESSENCE/LIQUIDATED DAMAGES as follows:

10.1 It is agreed that one of the reasons the *Contractor* was selected by the *Owner* for this *Contract* is the *Contractor*’s representation and warranty that it will attain Substantial Performance of the

Work within the Contract Time stated in Article A-1 of this Contract. The Contractor acknowledges that it has been advised by the Owner that it is critical to the Owner that Substantial Performance of the Work is achieved within the Contract Time. The Contractor agrees that time is of the essence in the performance of the Contractor's obligations under this Contract.

- 10.2 The Contractor further acknowledges its understanding that the Owner is responsible and must account to the Government of Ontario, its customers and passengers and the residents of Northern Ontario. A failure by the Contractor to attain Substantial Performance of the Work within the Contract Time will result in damages to the Owner and to the Government of Ontario, its customers and passengers and the residents and businesses in Northern Ontario, which would be difficult or impractical to quantify but would nevertheless have a significant negative impact on the Owner and its ability to provide the services the Owner is obliged to provide to the residents and businesses in Northern Ontario.
- 10.3 Given the significance of the requirement for the Contractor to achieve Substantial Performance of the Work, as described in Article A-10.2, the Contractor further acknowledges and agrees that, without limiting the Owner's entitlement to any additional or other damages, if it fails to achieve Substantial Performance of the Work within the Contract Time, the Owner will incur substantial damages and the extent of such damages shall be incapable or very difficult of accurate measurement. Nonetheless, the parties acknowledge that as of the effective date of this Contract, the amount of liquidated damages set forth in subparagraph 10.4 below represents a good faith estimate on the part of the parties as to the actual potential damages that the Owner would suffer because of late completion of the Project. It is expressly acknowledged and agreed by and between the parties that the amount of such liquidated damages does not include any penalty. Notwithstanding the foregoing, where the Project is delayed beyond the Contract Time, the Owner shall be entitled to (i) the liquidated damages as calculated pursuant to Article A-10.4, or (ii) in the event that the Contractor claims that this liquidated damages provision is invalid or unenforceable and the Contractor prevails on such a defence, the damages arising from the delay suffered by the Owner including, without limitation, consequential, special, incidental, and indirect damages, costs and other expenses incurred or suffered by the Owner.
- 10.4 The Owner shall require that the Contractor pay to the Owner (or have deducted from Contract payments) liquidated damages at the per diem rate set out in the Contract Documents for each calendar day of delay beyond the prescribed date for Substantial Performance of the Work until Substantial Performance of the Work is achieved and certified, pursuant to the terms of the Contract. If there is no per diem rate set out in the Contract Documents, the Contractor Owner shall pay to the Owner the Administration Costs incurred by the Owner as a result of the delay."
- 10.5 Liquidated damages will be assessed as incurred and reflected as deductions from amounts that may be due under any applications for payment pending at the time that such liquidated damages are assessed. All liquidated damages not deducted from payments prior to final payment shall be deducted from the final payment to be made by the Owner to the Contractor pursuant to GC 5.7 FINAL PAYMENT and any amount of liquidated damages in excess of the final payment amount, shall be paid by the Contractor to the Owner, within 30 days following a written demand by the Owner for such payment.
- 10.6 The liquidated damages payable under this paragraph are in addition to and without prejudice to any other remedy, action or any other alternative claim that may be available to the Owner."

AMENDMENTS TO THE DEFINITIONS

5. DEFINITIONS

- 5.1 Add the following new definition:

“*Administration Costs* means those costs and expenses incurred by the Owner as a result of carrying out a process or activity due to a delay in the performance of the Work by the Contractor and include:

- (a) additional fees payable by the Owner to the Consultant on a per diem basis according to the Consultant's personnel rates;
- (b) the Owner's personnel costs associated with the delay, in an amount determined by the Owner;
- (c) any addition costs or loss of revenue incurred by the Owner due to the delay.”

5.2 Add the following new definition:

“*Adjudication* means construction dispute interim adjudication as defined under the *Construction Act*.”

5.3 Add the following new definition:

“The *Arbitration Act* means the *Arbitration Act*, 1991, S.O. 1991, c. 17, as amended.”

5.4 Add the following new definition:

“Confidential Information” means all information of the Owner that is confidential by its nature or in the circumstances in which it is received, including all confidential information in the custody or control of the Contractor, regardless whether it is identified as confidential or not, which comes into the knowledge, possession or control of the Contractor in connections with this Agreement, but Confidential Information does not include information that:

- .1 is or becomes generally available to the public without fault or breach by the Contractor, but only after that information becomes generally available to the public;
- .2 the Contractor can demonstrate to have been rightfully obtained by the Contractor without any obligation of confidence from a third party who had the right to transfer or disclose it to the Contractor free of any obligation of confidence;
- .3 the Contractor can demonstrate to have been rightfully known to or in the possession of the Contractor, free of any obligation of confidence, when disclosed; or
- .4 is independently developed by the Contractor without the use of any of the Owner's Confidential Information.

5.5 Add the following new definition:

“*Conflict of Interest* includes, but is not limited to, any situation or circumstance where the interests, conduct, other commitments or relationships of a Contractor, a Contractor's family member or an officer, director or employee of the Contractor could or could be perceived to, directly or indirectly, compromise, impair or be in conflict with the interests of the Owner.

5.6 Add the following new definition:

“The *Construction Act* means the *Construction Act*, R.S.O. 1990, c. C.30, as amended, including all regulations passed under it that are enforceable as of the date of execution of this Contract. For certainty, Parts I.1 (Prompt Payment) and II.1 (Construction Dispute Interim Adjudication) of the *Construction Act* apply to this Contract.”

5.7 Add the following new definition:

“The *Construction Schedule* or construction schedule means the schedule for the performance of the Work provided by the Contractor pursuant to GC 3.5 – CONSTRUCTION SCHEDULE, including any amendments to the Construction Schedule made pursuant to the Contract Documents.”

5.8 Delete the definition of “Consultant” and replace it with the following:

"The *Consultant* is the person, partnership or corporation designated by the Owner to be the Owner's representative for the purposes of the Contract. References to the "Engineer" in the Specifications or to the "Contract Administrator" in OPSS shall mean the "Consultant" as defined herein."

- 5.9 Delete the definition of "Contract Price" and replace it with the following:

"The *Contract Price* is the amount payable by the Owner to the Contractor for Work to be completed under the Contract in accordance with the method and manner of payment stipulated in the Contract Documents and the unit prices or lump sum prices submitted by the Contractor in its proposal as stipulated in paragraph 4.1 of Article A-4 CONTRACT PRICE in the Contract, and includes any additional or reduced amounts payable for approved Changes in the Work as provided for and authorised in the Contract Documents."

- 5.10 Add the following new definition:

"A *Dispute* means all unresolved claims, disputes or controversies of any kind arising out of or in connection with this Contract or the carrying out of the Work."

- 5.11 At the end of the definition of "Drawings", add the following:

"and a waste disposal plan."

- 5.12 Add the following new definition:

"*Environmental Contaminants* means any substance, material or waste defined, regulated, listed or prohibited by Environmental Laws";

- 5.13 Add the following new definition:

"*Environmental Laws* means all applicable federal, provincial, territorial, municipal and local laws, statutes, ordinances, by-laws and regulations, judgments, decrees, common laws and principles thereof, and orders, directives and decisions rendered or issued by any governmental authority relating to Environmental Contaminants or the protection of human health, natural resources or the environment;

- 5.14 Add the following new definition:

"*Estimate* means a calculation of the quantity or cost of the Work or part of it depending on the context."

- 5.15 Add the following new definition:

- 5.16 "*Force Majeure* means an event or a cause beyond the control of a party, which may include war, interference by civil or military authorities, civil insurrection, local or national emergency, blockade, seizure, riot, sabotage, vandalism, terrorism, earthquake, flood, act of God, accident, fire, nuclear or other explosion, disease, epidemic, pandemic, quarantine restriction, strike, lockout or other labour disturbance, governmental embargo, or emergency changes to any acts, orders, legislation, regulations, directives, or priorities of any government or other public authority; provided such event is not caused by the affected party's negligence or failure to exercise reasonable diligence. A Force Majeure event or cause does not include an inability to pay or a lack of financial resources unless it is due to a failure of the province to approve the appropriation from the Consolidated Revenue Fund for the Project. For clarity, the COVID-19 pandemic may be considered a Force Majeure event if it causes the Contractor or the Owner a substantiated delay in complying with all or part of their obligations under this Agreement.

- 5.17 Add the following new definition:

Impact Assessment Reports means the impact assessment reports, if any, listed in the RFP related to the Fisheries Act; Navigable Waters Act; Lakes and Rivers Improvement Act; heritage reviews; Endangered Species Act and Species at Risk Act; terrestrial resources (vegetation, wildlife, other features); socio-economic impacts and Indigenous consultations.

- 5.18 Add the following new definition:

Intellectual Property Rights” means any intellectual or industrial property rights protected or protectable under the laws of Canada, any foreign country, or any political subdivision of any country, including any intellectual property rights protected by legislation (such as legislation governing copyrights, industrial designs, integrated circuit topographies, patents or trademarks), or by common law (such as confidential information and trade secrets). At any time in the future, Intellectual Property Rights shall include any intellectual or industrial property rights protected or protectable at such time under the laws of Canada, any foreign country, or any political subdivision of any country. ”

- 5.19 Add the following new definition:

Notice of Non-Payment means a notice of non-payment of holdback (Form 6) or a notice of non-payment (Form 1.1) under the *Construction Act*, as applicable to the circumstances.”

Add the following new definition:

- 5.20 “*Proper Invoice* means a “proper invoice” as that term is defined in Section 6.1 of the *Construction Act* that complies with the minimum requirements set out in Schedule A to the Supplementary Conditions.”

- 5.21 Add the following new definition:

“*The Restricted Period (Adjudication)* means the (inclusive) period of time between November 15 in one calendar year to January 2 in the next calendar year, in any given year throughout the duration of the Contract.”

- 5.22 Add the following new definition:

“*The Restricted Period (Proper Invoice)* means the (inclusive) period of time between December 10 to December 28 in any given year throughout the duration of the Contract.”

- 5.23 Add the following new definition:

“*Statutory Declaration* means the “Ontario Northland Statutory Declaration of Progress Payment Distribution by Contractor” form, attached to the Supplementary Conditions as Schedule “B”.

AMENDMENTS TO THE GENERAL CONDITIONS OF THE UNIT PRICE CONTRACT

6. GC 1.1 CONTRACT DOCUMENTS

- 6.1 Where a General Condition or paragraph of the General Conditions of the Unit Price Contract is deleted by these Supplementary Conditions, the numbering of the remaining General Conditions or paragraphs shall remain unchanged, and the numbering of the deleted item will be retained, unused.

- 6.2 Add new sentence to the end of paragraph 1.1.6:

“The Specifications are divided into divisions and sections for convenience but shall be read as a whole and neither such division nor anything else contained in the Contract Documents will be construed to place responsibility on the Consultant to settle disputes among the Subcontractors and Suppliers in respect to such divisions.”

- 6.3 Amend paragraph 1.1.7 by adding the following to the end of that paragraph:

“The drawings are, in part, diagrammatic and are intended to convey the scope of the Work and indicate general and appropriate locations, arrangement and sizes of materials. The Contractor shall obtain more accurate information about the locations, arrangement and sizes from study and coordination of the drawings and shall become familiar with conditions and spaces affecting these matters before proceeding with the Work. Where site conditions require minor changes in indicated locations and arrangements, the Contractor shall make such changes at no additional cost to the Owner.”

- 6.4 Delete paragraph 1.1.7.1 in its entirety and replace it with new 1.1.7.1:

“the order of priority of documents, from highest to lowest, shall be:

- Special Provisions, if any
- ONTC Special Supplementary Conditions, if any
- ONTC Supplementary Conditions to CCDC 4
- Agreement between the Owner and the Contractor
- Definitions
- General Conditions
- Addenda to the Request for Proposals (“RFP”)
- Schedule 2-A to the RFP - RFP Data Sheet
- Schedule 3-A to the RFP - Scope of Work
- Contractor’s Proposal in Part 4 of the RFP in response to the RFP
- Technical Specifications
- Working Blocks
- Contract Drawings”

6.5 Further amend paragraph 1.1.7 by adding new paragraphs 1.1.7.5, and 1.1.7.6, as follows:

“.5 Annotations on the drawings shall govern over the graphic representation of the drawings.

.6 Schedules of Division 01 - General Requirements of the Specifications shall form part of and be read in conjunction with the technical specification section as listed in the table of contents of the specifications.”

6.6 Delete paragraph 1.1.8 in its entirety and substitute new paragraph 1.1.8:

“The Owner shall provide the Contractor, without charge, an electronic version of the Contract Documents.”

6.7 Delete paragraph 1.1.9 in its entirety and substitute new paragraph 1.1.9:

“All deliverables and Intellectual Property Rights produced by or resulting from the Work, including all Specifications, Drawings, models and copies thereof, shall vest in the Owner and is the sole and absolute property of the Owner as and when created. The Contractor hereby irrevocably assigns and conveys and agrees to assign and convey, without further consideration, all right, title and interest in and to the Intellectual Property Rights produced or resulting from the Work, in perpetuity and throughout the world, to the Owner and its successors and assigns.”

6.8 Add new paragraph 1.1.11 as follows:

“If an item is shown on one document, and it can be reasonably inferred that it was intended to include work not shown on other related documents, the Contract Price shall nevertheless include for the cost of the item of work, unless the Consultant agrees otherwise.”

6.9 Add new paragraph 1.1.12 as follows:

“Wherever in the Contract provision is made for the giving or issuing of any notice, consent, approval, certificate or determination by any person, unless otherwise specified such notice, consent, approval certificate or determination shall be in writing and shall not unreasonably be withheld or delayed.”

7. GC 1.2 LAW OF THE CONTRACT

7.1 Delete paragraph 1.2.1 in its entirety and substitute new paragraph 1.2.1:

“This Contract shall be governed by and constituted in accordance with the laws in force in the Province of Ontario excluding any conflict of laws principles. The parties hereby irrevocably attorn to the exclusive jurisdiction of the courts of the Province of Ontario for any legal proceedings arising out of this Contract or the performance of the obligations hereunder.”

8. GC 1.4 ASSIGNMENT

8.1 Delete paragraph 1.4.1 in its entirety and substitute new paragraph 1.4.1:

"Neither party to the Contract shall assign the Contract or a portion thereof without the written consent of the other, which consent, in the case of the Owner, is at the sole discretion of the Owner. In the event of an assignment of the Contract by the Contractor, such assignment shall not relieve the Contractor from its obligations and liabilities hereunder."

9. GC 2.1 AUTHORITY OF THE CONSULTANT

- 9.1 Delete paragraph 2.1.3 in its entirety.

10. GC 2.2 ROLE OF THE CONSULTANT

- 10.1 Amend paragraph 2.2.5 by adding the words "Within 7 calendar days of receipt of the Contractor's Proper Invoice," at the beginning of the paragraph.

- and -

Add to the end of the paragraph the following words "If the Consultant determines that the amount payable to the Contractor differs from the amount stated in a Proper Invoice, the Consultant shall immediately notify the Owner as provided in paragraph 5.3.1.2 and prepare a draft of the applicable Notice of Non-Payment for the amount in dispute."

- 10.2 Amend paragraph 2.2.6 by adding to the beginning of the paragraph:

"Except as provided otherwise in the agreement between the Consultant and the Owner,"

- 10.3 Amend paragraph 2.2.13 by adding the following to the end of that paragraph:

"If, in the opinion of the Contractor, the Supplemental Instruction involves an adjustment in the Contract Price or in the Contract Time, it shall, within three (3) Working Days of receipt of a Supplemental Instruction provide the Consultant and the Owner with a written notice to that effect. Failure to provide written notification within the time stipulated in this paragraph 2.2.13 shall be deemed an acceptance of the Supplemental Instruction by the Contractor without adjustment in the Contract Price or Contract Time."

11. GC 2.3 REVIEW AND INSPECTION OF THE WORK

- 11.1 Add new paragraph 2.3.8 as follows:

"Where inspection and testing services are specified, the service provider employed for such services shall be the service provider named by the Owner."

- 11.2 Add new paragraph 2.3.9 as follows:

"Where standards of performance are specified and the Work does not comply with the specified standard of performance, the deficiency in the Work shall be corrected as directed by the Consultant. Subsequent testing to ensure that the standard of performance has been attained (including re-testing by Owner), shall be carried out at the Contractor's expense and shall not be paid from the cash allowances described in GC 4.1."

12. GC 2.4 DEFECTIVE WORK

- 12.1 Add new paragraphs 2.4.1.1 and 2.4.1.2 as follows:

1. Without limiting the foregoing, the Contractor shall rectify, in a manner acceptable to the Owner and the Consultant, all defective work and deficiencies throughout the Work, whether or not they are specifically identified by the Consultant.

2. The Contractor shall prioritize the correction of any defective work which, in the sole discretion of the Owner, adversely affects the day to day operations of the Owner."

13. GC 2.5 EMERGENCY SITUATIONS

13.1 Add new GC 2.5 EMERGENCY SITUATIONS as follows:

.1 The Consultant has the right to determine the existence of an emergency situation and, when such an emergency situation is deemed to exist, the Consultant may instruct the Contractor to take action to remedy the situation. If the Contractor does not take timely action or, if the Contractor is not available, the Consultant may direct others to remedy the situation.

.2 If the emergency situation was the fault of the Contractor, the remedial work shall be completed at the cost of the Contractor and with no additional cost to the Owner and the Owner shall be entitled to seek reimbursements for all costs associated with the remedial work including the cost of work done by third parties.

.3 If the emergency situation was not the fault of the Contractor, the Owner shall pay for the remedial work.

14. GC 3.1 CONTROL OF THE WORK

14.1 Add new paragraph 3.1.3 as follows:

"Prior to commencing individual procurement, fabrication and construction activities, the Contractor shall verify, at the Place of the Work, all relevant measurements and levels necessary for proper and complete fabrication, assembly and installation of the Work and shall further carefully compare such field measurements and conditions with the requirements of the Contract Documents. Where dimensions are not included or exact locations are not apparent, the Contractor shall immediately notify the Consultant in writing and obtain written instructions from the Consultant before proceeding with any part of the affected work."

14.2 Add new paragraph 3.1.4 as follows:

"The Contractor shall perform the work in a good and workmanlike manner, using new materials, in accordance with all applicable laws and current best practices and standards in the construction industry at the Place of Work. The Contractor acknowledges that both time and quality are of the essence and the Contractor will perform the Work or cause the Subcontractors and Suppliers to perform the Work in accordance with the construction schedule, as amended from time to time, and in an expeditious and professional manner.

15. GC 3.2 CONSTRUCTION BY OWNER OR OTHER CONTRACTORS

15.1 Delete paragraph 3.2.2.1 in its entirety and substitute "Intentionally left blank".

15.2 Delete paragraph 3.2.2.2 in its entirety and substitute "Intentionally left blank".

15.3 Add new paragraph 3.2.3.4 as follows:

"Subject to GC 9.4 – CONSTRUCTION SAFETY, for the Owner's own forces and for other contractors, assume overall responsibility for compliance with all aspects of the applicable health and safety legislation of the Place of the Work, including all of the responsibilities of the "Constructor" under the *Occupational Health and Safety Act* (Ontario)."

16. GC 3.4 DOCUMENT REVIEW

16.1 Delete paragraph 3.4.1 in its entirety and substitute new paragraph 3.4.1:

"The Contractor shall review the Contract Documents and shall report promptly to the Consultant any error, inconsistency or omission the Contractor may discover. Such review by the Contractor shall comply with the standard of care described in paragraph 3.14.1 of the Contract. Except for its obligation to make such review and report the result, the Contractor does not assume any responsibility to the Owner or to the Consultant for the accuracy of the Contract Documents. Provided it has exercised the degree of care and skill described in this paragraph 3.4.1, the Contractor shall not be liable for damage or costs resulting from such errors, inconsistencies, or omissions in the Contract Documents which the Contractor could not reasonably have discovered. If the

Contractor does discover any error, inconsistency or omission in the Contract Documents, the Contractor shall not proceed with the work affected until the Contractor has received corrected or missing information from the Consultant.”

16.2 Add new paragraph 3.4.2 as follows:

“If the Contractor finds discrepancies in and/or omissions from the Contract Documents or has any doubt as to the meaning or intent of any part thereof, the Contractor must immediately notify the Consultant by means of a written Request for Information (“RFI”) and the Consultant will provide written instructions or explanations. Neither the Owner nor the Consultant will be responsible for oral instructions.”

16.3 Add new paragraph 3.4.3 as follows:

“Notwithstanding the foregoing, errors, inconsistencies and/or omissions shall not include lack of reference on the drawings or in the specifications to labour and/or Products that are required or normally recognized within respective trade practices as being necessary for the complete execution of the Work. The Contractor shall not use RFIs, issued during execution of the Work, in and of themselves to establish a change and/or changes in the Work pursuant to Part 6 – CHANGES IN THE WORK. In the event an RFI or the cumulative effect of RFIs leads to what the Contractor considers to be a change in the Work, then the procedure under Part 6 – CHANGES IN THE WORK shall be followed.”

17. GC 3.5 CONSTRUCTION SCHEDULE

17.1 Delete paragraph 3.5.1 in its entirety and substitute the following:

“The Contractor shall prepare, and update as required, a construction schedule, including identification of the critical path of the Work and the schedule of operations and indicating the proposed methods of construction and sequence of work and the time the Contractor proposes to complete the various items of work within the Contract Time. The schedule shall be designed to ensure conformity with the specified Contract Time. The schedule shall be submitted to the Consultant within 10 Working Days from the date of the contract award, unless otherwise required by the Contract Documents. The schedule will include activity sequences and durations, special allocation of labour and Products, processing of Working Drawings and samples, delivery of Products involving long lead time procurement and usage and occupancy requirements of the Owner of those portions of the Work having usage or occupancy priority and any other schedule requirements set out in the Contract Documents. The Contractor shall, during performance of the Work and in accordance with the controls and reporting requirements in the Contract Documents, provide for the Consultant’s review and approval progress reports updating the construction schedule, reporting on the progress achieved, percentage of completion, schedule status and financial status with areas of immediate concern highlighted. If the schedule is affected by approved Changes, the Contractor shall submit an updated construction schedule, if requested by the Consultant, within 7 Working Days of the request. This updated schedule shall show how the Contractor proposes to perform the balance of the Work, so as to complete the Work within the time specified in the Contract Documents. The Owner may, at its sole discretion, not issue an order to commence work until the schedule has been received and approved.”

17.2 Add new paragraphs 3.5.2 and 3.5.3 as follows:

3.5.2 “For the duration of the Contract term, the Contractor shall provide progress reports with each application for payment, in the form provided by the Owner attached as Schedule C, for review and approval, including an update of the Construction Schedule referred to in paragraph 3.5.1.”

3.5.3 If,

.1 at any time it should reasonably appear to the Owner or the Consultant that the actual progress of the Work is behind schedule or is likely to become behind schedule, based on critical path methodology, and notice of such opinion is given to the Contractor; or

.2 the Contractor has noticed slippage in the schedule,

then the Contractor shall take appropriate steps to cause the actual progress of the Work to conform to the Construction Schedule and shall produce and present to the Owner and the Consultant a recovery plan demonstrating how the Contractor will achieve the recovery of the Construction Schedule.”

18. GC 3.6 SUPERVISION

- 18.1 Amend paragraph 3.6.1 by adding at the end of that paragraph:

“..., and upon the Contractor obtaining the Owner’s written consent, which consent will not be unreasonably withheld.”

- 18.2 Add new paragraph 3.6.3 as follows:

“Notwithstanding paragraph 3.6.2, the representative of the Contractor attending a meeting with one or more of the Owner or the Owner’s representative and the Consultant shall be deemed to have authority to act on behalf of the Contractor and bind the Contractor in matters related to this Contract.”

- 18.3 Add new paragraph 3.6.4 as follows:

“The Owner may, at any time during the course of the Work, request the replacement of the appointed representative(s), where the grounds for the request involve conduct on the part of the representative(s) which jeopardizes the safety of the Owner’s operations or the Work or the proper progress of the Work. Immediately upon receipt of the request, the Contractor shall make arrangements to appoint an acceptable replacement. The Contractor shall indemnify and hold the Owner harmless from and against any damages, costs, expenses, claims, injuries and other liabilities suffered by the Owner arising from the conduct of the representative that is being replaced.”

19. GC 3.7 SUBCONTRACTORS AND SUPPLIERS

- 19.1 Add new paragraph 3.7.1.4:

“ensure the Subcontractors and Suppliers, while working on the Owner’s property, are aware of and comply with the Owner’s policies, including its Drug and Alcohol Policy, and with the Ontario Northland Operating Manual, including the Current Summary Bulletin, the current Ontario Northland Time Table, C.R.O.R. 2022, Infrastructure Special Instructions, Dangerous Goods and Ontario Northland General Operating Instructions, as applicable.”

- 19.2 Delete paragraph 3.7.2 in its entirety and substitute new paragraph 3.7.2

“The Contractor shall not change Subcontractors or Suppliers set out in the Contract Documents without the prior written approval of the Owner which approval will not be unreasonably withheld.”

- 19.3 Add new paragraph 3.7.7 as follows:

“The responsibility as to which Supplier and/or Subcontractor provides the specific labour, Products and services for each item of work rests solely with the Contractor, within and in accordance with the requirements and limitations listed in the Contract Documents with respect to approval of Suppliers and/or Subcontractors permitted to perform work on the Project.”

20. GC 3.8 LABOUR AND PRODUCTS

- 20.1 Amend paragraph 3.8.1 by adding the following sentence at the end of that paragraph:

“The Contractor represents and warrants that the Products supplied by the Contractor in accordance with the Contract are not subject to any conditional sales contract and are not subject to any security rights obtained by any third party which may subject any of the Products to seizure and/or removal from the Place of the Work.”

- 20.2 Amend paragraph 3.8.3 by adding the words, “..., agents, Subcontractors and Suppliers ...” after the word “employees” toward the end of line one.

- 20.3 Add new paragraph 3.8.4 as follows:

“Upon receipt of a written notice from the Consultant, the Contractor shall take action to rectify any situation involving tradespersons and labourers whose work is unsatisfactory to the Consultant or the Owner or who are considered by the Consultant or the Owner to be unskilled or otherwise objectionable. If after giving sufficient warning the Contractor is not able to reasonably rectify such situation, then such tradespersons or labourers shall

be dismissed from the Place of the Work and the Contractor shall indemnify and hold the Owner harmless from and against any damages, costs, expenses, claims, injuries and other liabilities suffered by the Owner arising from the dismissal of such labourers or tradespersons.”

20.4 Add new paragraph 3.8.5 as follows:

“The Contractor is responsible for the safe on-site storage of Products and their protection (including Products supplied by the Owner and other contractors to be installed under the Contract) in such ways as to avoid dangerous conditions or contamination to the Products or other persons or property and in locations at the Place of the Work to the satisfaction of the Owner and the Consultant. The Owner shall provide all relevant information on the Products to be supplied by the Owner.”

20.5 Add new paragraph 3.8.6 as follows:

“The Contractor shall not employ any persons to perform Work whose labour affiliation, or lack thereof, is incompatible with other labour employed in connection with the Work. Any costs arising from labour disputes, as a result of the employ of any such person by the Contractor, its Subcontractors or Suppliers shall be at the sole expense of the Contractor.”

20.6 Add new paragraph 3.8.7 as follows:

“The Contractor and the Owner and its representatives shall cooperate and shall take all reasonable and necessary actions to maintain stable and harmonious labour relations with respect to the work at the Place of the Work, including cooperation to attempt to avoid work stoppages, trade union jurisdictional disputes and other labour disputes.”

21. GC 3.9 DOCUMENTS AT THE SITE

21.1 Delete paragraph 3.9.1 in its entirety and substitute new paragraph 3.9.1:

“The Contractor shall keep one copy of the current Contract Documents, Supplemental Instructions, Contemplated Change Orders, Change Orders, Change Directives, reviewed Shop Drawings, reports and records of meetings at the Place of Work in good order and available to the Owner and the Consultant.”

21.2 Add new paragraph 3.9.2 as follows:

“The Contractor shall keep one copy of current standards and manufacturers’ literature specified in the Contract Documents at the Place of Work in good order and available to the Consultant and his representatives for the duration of the Work.”

22. GC 3.10 SHOP DRAWINGS

22.1 Add new sentence to the end of paragraph 3.10.5 as follows:

“Certain specifications sections require the shop drawings to bear the seal and signature of a professional engineer. Such professional engineer must be registered in the jurisdiction of the Place of the Work and shall have expertise in the area of practice reflected in the shop drawings.”

23. GC 3.13 CLEANUP

23.1 Add at the end of paragraph 3.13.1 the following:

“The Contractor shall provide to the Owner for approval a waste disposal plan, and a waste reduction plan if required by Environmental Laws, for the waste products, debris and any excess soils generated by the Work, which plan shall comply with all Environmental Laws and the Specifications. The costs of disposing of all waste products and debris, including products and debris containing Environmental Contaminants, and excess soil resulting from the Work is included in the Contract Price.

23.2 Add new paragraph 3.13.4 as follows:

"In performing work to correct deficiencies or work under warranty following Substantial Performance of the Work, the Contractor shall maintain the Place of the Work in a tidy condition and shall immediately remove waste products and debris."

23.3 Add new paragraph 3.13.5 as follows:

"The Contractor shall comply with all Environmental Laws in disposing of the waste products, debris and excess soil resulting from the Work. The Contractor shall assume all liability and responsibility for any waste products, debris and excess soil, including any such materials containing Environmental Contaminants, which are removed from the Place of the Work by the Contractor and during the transportation of the waste products, debris and excess soils to the appropriate waste disposal site. The Contractor shall submit landfill weigh bills from a waste disposal site as proof that all waste has been disposed of at a certified waste disposal site."

23.4 Add new paragraph 3.13.6 as follows:

"In the event that the Contractor fails to remove waste and debris as provided in this GC 3.13, then the Owner or the Consultant may give the Contractor twenty-four (24) hours' written notice to meet its obligations respecting clean up. Should the Contractor fail to meet its obligations pursuant to this GC 3.13 within the twenty-four (24) hour period next following delivery of the notice, the Owner may remove such waste and debris and deduct from payments otherwise due to the Contractor, the Owner's costs for such clean up, including a reasonable mark-up for Administration Costs."

24. GC 3.14 PERFORMANCE BY CONTRACTOR

24.1 Add new GC 3.14 – PERFORMANCE BY CONTRACTOR as follows:

- .1 "In performing its obligations, duties and responsibilities under this Contract, the Contractor shall exercise the degree of care, skill and diligence that would normally be exercised by an experienced, skilled and prudent contractor supplying similar services for similar projects. The Contractor acknowledges and agrees that, throughout this Contract, the Contractor's obligations, duties and responsibilities shall be judged, evaluated and interpreted in accordance with this standard. The Contractor shall exercise the same standard of care in respect of any Products, personnel or procedures which it may recommend to the Owner or employ on the Project."
- .2 The Contractor further represents, covenants and warrants to the Owner that:
 - .1 The personnel it assigns to the Project are appropriately experienced;
 - .2 It has a sufficient staff of qualified and competent personnel to replace its designated supervisor and project manager, subject to the Owner's approval, in the event of death, incapacity, removal or resignation; and
 - .3 there are no pending, threatened or anticipated claims that would have a material effect on the financial ability of the Contractor to perform its work under the Contract."
- .3 The Owner has a Vendor Performance Policy which requires the Owner to complete an evaluation of the Contractor's performance of its obligations under this Contract. The performance evaluation of the Contractor for the supply of these Services will be used in the assessment of the Contractor's proposals in response to future procurements. The performance evaluation may also result in the Contractor being disqualified from submitting proposals in response to future procurements in accordance with the terms of the policy. The policy can be found at <http://ontarionorthland.ca/en/requests-tenders>."

25. GC 5.1 FINANCING INFORMATION REQUIRED OF THE OWNER

- 25.1 Delete GC 5.1 – FINANCING INFORMATION REQUIRED OF THE OWNER in its entirety including all paragraphs thereunder and replace it with "Intentionally left blank."

25.2 GC 5.2 APPLICATIONS FOR PROGRESS PAYMENT

- 25.3 Delete paragraph 5.2.1 in its entirety and substitute new paragraph 5.2.1:

Subject to paragraph 5.2.2, applications for payment on account as provided in Article A-5 of the Contract – PAYMENT may be made monthly as the Work progresses and must be delivered to the Owner and the Consultant in the same manner as a Notice in Writing. Unless otherwise directed in writing by the Owner, the applications for payment shall be delivered by email to pay.inv@ontarionorthland.ca and to the Owner's representative listed in Article A-6 of the Contract – RECEIPT OF AND ADDRESSES FOR NOTICES IN WRITING and to the Consultant. If the Contractor fails to deliver its application for payment, at the interval prescribed in this GC 5.2.1, subject to written approval by the Owner, the Contractor shall not be entitled to submit its application for payment until the next prescribed interval."

25.4 Delete paragraph 5.2.2 in its entirety and substitute new paragraph 5.2.2:

"5.2.2 Applications for payment shall be dated the last day of each payment period which is the last day of the month preceding the month in which the application for payment is submitted pursuant to GC 5.2.1."

25.5 Amend paragraph 5.2.3 by adding the following to the end of that paragraph:

"but no amount claimed shall include Products delivered to the Place of the Work unless the Products are free and clear of all security interests, liens, and other claims of third parties, subject to claims for lien pursuant to the *Construction Act*."

25.6 Amend paragraph 5.2.4 by deleting the words "the Consultant, at least 15 calendar days" and replacing them with "the Owner and the Consultant, at least 30 calendar days"

- and -

add the words "in a form acceptable to the Owner," after the words "Contract Price".

25.7 Amend paragraph 5.2.5 by adding the words "or the Owner" after the words " as the Consultant"

- and -

In the second line of paragraph 5.2.5, delete the second word "Consultant" and substitute "Owner".

25.8 Delete paragraph 5.2.6 in its entirety and substitute new paragraph 5.2.6:

"Each application for payment delivered by the Contractor in accordance with this GC 5.2 shall include all of the requirements for a Proper Invoice."

25.9 Amend paragraph 5.2.7 by adding the following new sentence at the end of that paragraph:

"Any Products delivered to the Place of the Work but not yet incorporated into the Work shall remain at the risk of the Contractor notwithstanding the title has passed to the Owner pursuant to GC 13.1 – OWNERSHIP OF MATERIALS."

25.10 Add new paragraph 5.2.8 as follows:

"The Contractor shall prepare and maintain current as-built Drawings which shall consist of the Drawings and Specifications revised by the Contractor during the Work, showing changes to the Drawings and Specifications, which current as-built Drawings shall be maintained by the Contractor and made available to the Consultant for review with each application for progress payment. The Owner reserves the right to retain a reasonable amount for the value of the as-built Drawings not presented for review."

25.11 Add new paragraph 5.2.9 as follows:

"Notwithstanding any other provision of this Contract, the Contractor shall not deliver an application for payment, for consideration as a Proper Invoice by the Owner and the Consultant, during the Restricted Period (Proper Invoice)."

25.12 Add new paragraph 5.2.10 as follows:

"The Consultant shall prepare an Estimate of the quantity of Work immediately upon the conclusion of each

payment period. The first Estimate shall be for the quantity of Work performed since the Contractor commenced the Contract, and every subsequent Estimate shall be of the quantity of Work performed since the preceding Estimate was made. The Consultant shall provide the Estimate to the Contractor within 10 calendar days after the end of the payment period, or at such other time agreed to by the Owner and the Contractor in writing. If the Consultant has not delivered an Estimate to the Contractor within the 10 calendar days' period, the Contractor shall deliver a Notice to this effect to the Owner and the Consultant."

25.13 Add new paragraph 5.2.11 as follows:

Within five (5) calendar days following the delivery of the Estimate to the Contractor, the Contractor shall deliver its application for payment to the Owner and to the Consultant in accordance with GC 5.2.1 for Work performed during a payment period (the "**Proper Invoice Submission Date**"), provided that if the fifth (5th) calendar day following the delivery of the Estimate to which an invoice relates falls on a calendar day that is not a Working Day, the Proper Invoice Submission Date shall be deemed to fall on the next Working Day. The parties hereby consent to the giving and receiving of Proper Invoices electronically and in accordance with the requirements of GC 5.2.1."

26. GC 5.3 PROGRESS PAYMENT

26.1 Delete paragraph 5.3.1 in its entirety and substitute new paragraph 5.3.1:

"After receipt by the Owner and the Consultant of an application for payment submitted by the Contractor in accordance with GC 5.2 – APPLICATIONS FOR PROGRESS PAYMENT:

- .1 the Owner and the Consultant will assess whether all of the criteria for a Proper Invoice are satisfied and, if not, the Owner or the Consultant, as the Owner's agent, will return the application for payment to the Contractor with reasons setting out why the application for payment is not a Proper Invoice;
- .2 the Owner reserves the right, in its sole, absolute, and unfettered discretion to permit the Contractor to correct an error or minor irregularity in an application for payment submitted by the Contractor in accordance with GC 5.2 – APPLICATIONS FOR PROGRESS PAYMENT, and to permit the Contractor to re-submit the application for payment before the next interval prescribed by GC 5.2; however, the Owner shall be under no obligation to exercise this right and the date of resubmission of the application for payment shall be deemed to be the date of receipt by the Owner of the Proper Invoice, provided that the requirements of the Proper Invoice are then satisfied;
- .3 within 14 calendar days after receipt of a Proper Invoice (or on the next Working Day if the 14th day is not a Working Day), in the event that the Owner disputes the amount claimed as payable in the Proper Invoice, the Owner shall deliver to the Contractor an executed Notice of Non-Payment (Form 1.1); and
- .4 the Owner shall make payment to the Contractor, on account as provided in Article A-5 of the Agreement – PAYMENT, on the 28th calendar day after receipt of a Proper Invoice, unless such 28th calendar day lands on a day that is other than a Working Day, in which case payment shall be made on the next Working Day after such 28th day."

26.2 Add new paragraph 5.3.3 as follows:

"Where the Owner has delivered a Notice of Non-Payment, as specified under paragraph 5.3.1.3, the Owner and the Contractor shall first engage in good faith negotiations to resolve the dispute. If within 10 calendar days following the issuance of a Notice of Non-Payment, the Owner and the Contractor cannot resolve the dispute, either party may issue a notice of adjudication in a form prescribed under the *Construction Act*, in which case the Owner and the Contractor will agree to submit the dispute to Adjudication as set out under PART 8 – DISPUTE RESOLUTION."

26.3 Add new paragraph 5.3.4 as follows:

"The amounts disputed and described under the Notice of Non-Payment shall be held by the Owner until all disputed amounts of the relevant Proper Invoice have been resolved pursuant to PART 8 – DISPUTE RESOLUTION. Any portion of the Proper Invoice which is not the subject of the Notice of Non-Payment shall be payable within the time period set out in paragraph 5.3.1.4."

26.4 Add new paragraph 5.3.5 as follows:

"Without limitation, the Owner shall be entitled to deduct from or, set off against, any payment of the Contract Price and any other amounts payable by the Owner to the Contractor under the Contract:

- .1 any amount expended by the Owner in exercising the Owner's rights under this Contract to perform any of the Contractor's obligations that the Contractor has failed to perform;
- .2 any damages, costs or expenses (including, without limitation, reasonable legal fees and expenses) incurred by the Owner as a result of the failure of the Contractor to perform any of its obligations under the Contract; or
- .3 any other amount owing from the Contractor to the Owner under this Contract."

26.5 Add new paragraph 5.3.6 as follows:

"The Contractor represents, warrants, and covenants to the Owner that it is familiar with its prompt payment and trust obligations under the *Construction Act* and will take all required steps and measures to ensure that it complies with the applicable prompt payment and trust provisions under the *Construction Act* including, without limitation, section 8.1 of the *Construction Act*. Evidence of the Contractor's compliance under this paragraph 5.3.6 will be made available to the Owner within 5 Working Days following receipt by the Contractor of a Notice in Writing making such request."

27. C 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK

27.1 Delete paragraph 5.4.3 in its entirety and substitute new paragraph 5.4.3:

"After the date of Substantial Performance of the Work is established, the Contractor and all Subcontractors who have completed their subcontracts shall complete on a commercially reasonable efforts basis within thirty (30) days all deficient work including providing the required documentation described in paragraph 5.4.5, unless the reasons for any delay is acceptable to the Owner. All deficient work not completed within the above time may be completed by the Owner and the cost of this work may at the option of the Owner be deducted from the Contractor's next application for payment."

27.2 Add new paragraph 5.4.4 as follows:

"Immediately following the issuance of a certificate of Substantial Performance of the Work, the Contractor shall publish the certificate referred to in paragraph 5.4.2.2 in the manner provided in the *Construction Act*. Failing valid publication by the Contractor within 3 Working Days following the issuance of the certificate, the Owner shall be at liberty to publish the certificate and back-charge the Contractor for its reasonable costs for doing so."

28. GC 5.5 PAYMENT OF HOLDBACK UPON SUBSTANTIAL PERFORMANCE OF THE WORK

28.1 Amend paragraph 5.5.1 by adding the words "and within 15 calendar days for the deliverables under paragraphs 5.5.1.1 and 5.5.1.2, and within 45 calendar days for the deliverable under paragraph 5.5.1.3," immediately after "the Work,".

28.2 Add new paragraph 5.5.1.3 as follows:

- .3 submit to the Consultant all specified as-built drawings, warranties, records, operation and maintenance manuals, data books, literature maintenance sheets, list of outstanding work and deficiency list, Certificate of Clearance from WSIB, and proof of publication of the certificate of Substantial Performance of the Work. Failure to submit all the foregoing material and documentation shall be grounds for the Consultant to reject the Contractor's application for Substantial Performance of the Work."

28.3 Delete paragraph 5.5.2 in its entirety and substitute new paragraph 5.5.2:

"After receipt of an application for payment of the holdback amount from the Contractor and other documents required under paragraph 5.5.1, and upon satisfying itself that the application for payment is a Proper Invoice, the Consultant will issue a certificate for payment of the statutory holdback amount. Where after thirty (30) days

following the publication of the certificate of Substantial Performance of the Work, pursuant to paragraph 5.4.4, the value of the Work remaining to be complete under the Contract, plus the estimated cost to repair any remaining deficiencies, exceeds the amount of the unpaid balance of the Contract Price (as determined by the Consultant, acting reasonably), the Owner may publish a Notice of Non-Payment of holdback in accordance with the *Construction Act* (Form 6) and retain an amount from the holdback to supplement the unpaid value of the Contract Price to secure the correction of deficiencies and completion of the Work.”

28.4 Delete paragraph 5.5.3 in its entirety and substitute “Intentionally left blank”.

28.5 Delete the first and second sentences in paragraph 5.5.4 and replace them with the following:

“The holdback amount authorized by the certificate for payment of the holdback amount issued by the Consultant, pursuant to paragraph 5.5.2, is due and payable on the 61st calendar day following the publication of the certificate of Substantial Performance of the Work referred to in paragraph 5.4.2.2.”

29. GC 5.6 PROGRESSIVE RELEASE OF HOLDBACK

29.1 Delete GC 5.6.1 in its entirety, and replace it with the following:

“Where legislation and the Contract Documents permit progressive release of the holdback for a portion of the Work and the Consultant has certified or verified that the part of the Work has been performed prior to Substantial Performance of the Work, the Owner will release such portion to the Contractor in accordance with such legislation.”

30. GC 5.7 FINAL PAYMENT

30.1 Delete GC 5.7 – FINAL PAYMENT in its entirety and substitute the following:

“5.7.1 When the Contractor considers that the Work is completed the Contractor may submit an application for final payment to the Owner and the Consultant.

5.7.2 After receipt by the Owner of an application for final payment submitted by the Contractor in accordance with paragraph 5.7.1:

- .1 the Owner and Consultant will assess whether all of the criteria for a Proper Invoice are satisfied and, if not the Owner will return the application for payment to the Contractor with reasons setting out why the application for final payment is not a Proper Invoice;
- .2 within 14 calendar days of receipt of the Proper Invoice (or on the next Working Day if the 14th day is not a Working Day), in the event that the Owner disputes the amount claimed as payable in the Proper Invoice, the Owner shall deliver to the Contractor an executed Notice of Non-Payment (Form 1.1); and
- .3 the Owner shall make payment to the Contractor on the 28th calendar day after receipt of a Proper Invoice, unless such 28th calendar day lands on a day that is other than a Working Day, in which case payment shall be made on the next Working Day after such 28th day.

5.7.3 Where the Owner has delivered a Notice of Non-Payment, as specified under paragraph 5.7.2.2, the Owner and the Contractor shall first engage in good faith negotiations to resolve the dispute. If within 10 calendar days following the issuance of a Notice of Non-Payment, the Owner and Contractor cannot resolve the dispute, either party may issue a notice of Adjudication in a form prescribed under the *Construction Act*. The Owner and Contractor will then submit the dispute to Adjudication as set out under PART 8 – DISPUTE RESOLUTION.

5.7.4 The amounts disputed and described under the Notice of Non-Payment shall be held by the Owner until all disputed portions of the Proper Invoice for final payment have been resolved in accordance with PART 8 – DISPUTE RESOLUTION. Any portion of the Proper Invoice which is not the subject of a Notice of Non-Payment shall be payable within the time period set out in paragraph 5.7.2.3.

- 5.7.5 Subject to the provision of paragraph 10.4.1 of GC 10.4 – WORKERS' COMPENSATION, and any lien legislation applicable to the Place of the Work, the Owner shall make payment, to the Contractor in accordance with paragraph 5.7.2.3.
- 5.7.6 Notwithstanding anything else in this GC 5.7 – FINAL PAYMENT the Owner shall retain a finishing holdback as provided for in the *Construction Act*, which shall be released to the Contractor upon expiry of the lien period provided for under the *Construction Act*, provided no construction liens have been registered.
- 5.7.7 As additional requirements for release of finishing construction lien holdback, the Contractor shall submit the following documentation:
- .1 a written declaration that no claims for lien or written notices of lien have been received by it;
 - .2 a Statutory Declaration in the form set out in Schedule B that all accounts for labour, subcontracts, Products, construction machinery and equipment, and other indebtedness which may have been incurred by the Contractor and for which the Owner might in any way be held responsible have been paid in full up to the previous progress payment, except for amounts properly retained as a holdback or as an identified amount in dispute; and
 - .3 a Workplace Safety & Insurance Board Clearance Certificate."

31. GC 5.8 WITHHOLDING OF PAYMENT

31.1 Add new paragraph 5.8.2 as follows:

"Upon notice to the Contractor, the Owner may, subject to the Owner's requirement to issue a Notice of Non-Payment under the *Construction Act*, withhold or retain all or any portion of any payment due to the Contractor under this Contract to ensure the performance of the Work or to protect the Owner's rights in respect of the events set out in this paragraph 5.8.2, but only such portion of any payment as is reasonably necessary for such purpose. The Owner may make such withholding or retention upon the occurrence and continuance of any of the following events:

- .1 the Contractor is in default of any of its material obligations under this Contract;
- .2 all or any part of such payment is attributable to Work which is defective or not performed in accordance with the Contract Documents;
- .3 the Contractor has improperly failed to make prompt payments to its Subcontractors and Suppliers respecting Work for which the Owner has made payment to the Contractor; or
- .4 the amounts described in section 17(3) of the *Construction Act*."

31.2 Add new paragraph 5.8.3 as follows:

"If because of climatic or other conditions reasonably beyond the control of the Contractor, there are items of work that cannot be performed, payment in full for that portion of the Work which has been performed as certified by the Owner shall not be withheld or delayed by the Owner on account thereof, but the Owner may withhold, until the remaining portion of the Work is finished, only such an amount that the Owner determines is sufficient and reasonable to cover the cost of performing such remaining work."

31.3 Add new paragraph 5.8.4 as follows:

"In the event of deficiencies or delays in the Work that the Contractor fails or refuses to address upon receiving notice of same in accordance with the requirements of the Contract, the Owner may, without limiting the remedies available to it under this Contract and subject to the Owner's requirement to issue a Notice of Non-Payment under the *Construction Act*, retain and set off as against any payments that would otherwise be owing to the Contractor, the reasonable costs of rectifying such deficiencies or delays as determined by the Owner."

31.4 Add new paragraph 5.8.5 as follows:

"In addition to any rights the Owner has pursuant to the Construction Act and subject to the Owner's requirement to issue a Notice of Non-Payment under the Construction Act, if a lien is registered against the Place of the Work or served upon the Owner, or an action commenced against the Owner, by any Subcontractor, the Owner having made all payments currently due in accordance with the payment terms of the Contract Documents, the Owner shall have the right to withhold from any money otherwise due to the Contractor, the full amount claimed in the lien action plus an additional amount sufficient to satisfy all of the Owner expenses relating to such lien action, including legal and consulting costs. These funds, less expenses incurred, shall be released to the Contractor upon the full discharge of all liens and dismissal of all actions against the Owner."

32. GC 5.10 CONSTRUCTION LIENS

32.1 Add new GC 5.10 – CONSTRUCTION LIENS as follows:

"GC 5.10 – CONSTRUCTION LIENS

- 5.10.1 Notwithstanding anything else in this PART 5 – PAYMENT, in the event a claim for lien is registered against title to the Place of the Work by the Contractor, a Subcontractor or a Supplier, or served on the Owner with regard to the Project by a Subcontractor or a Supplier, or the Owner receives a written notice of or claim for lien from a Subcontractor or a Supplier, the Owner shall be entitled to withhold any payment otherwise due to the Contractor until such time as such claims have been dealt with as provided below.
- 5.10.2 In the event that a claim for lien or a written notice of a lien is received by the Owner in relation to the Project, the Contractor shall, within ten (10) calendar days, at its sole expense, arrange for the vacating or the discharge of the claim for lien and/or the withdrawal of the written notice of lien or or commence an application to the Court to have the lien vacated pursuant to the *Construction Act*. If the Contractor commences an application to the Court to have the lien vacated, the Contractor shall provide the Owner with copies of all court documents submitted by the Contractor and the Order issued by the Court. If the lien is only vacated, the Contractor shall, if requested, undertake the Owner's defence of any subsequent action commenced in the respect of the lien at the Contractor's expense.
- 5.10.3 If the Contractor fails or refuses to take such steps as required under paragraph 5.10.2, the Owner shall, at its option, be entitled to take all steps necessary to vacate and/or discharge the claim for lien or the withdrawal of the written notice of lien, and all costs incurred by the Owner in doing so (including, without limitation, legal fees on a full indemnity basis and any payment which may ultimately be made out of or pursuant to security posted to vacate the lien) shall be the responsibility of the Contractor, and the Owner may deduct such amounts from the amounts otherwise due or owing to the Contractor.
- 5.10.4 Without limiting any of the foregoing, the Contractor shall satisfy all judgments and pay all costs resulting from any liens or any actions brought by a Subcontractor or Supplier in connection with any liens, or in connection with any other claim or lawsuit brought against the Owner by any person that provided services or materials to the Project which constituted part of the Work, and the Contractor shall indemnify the Owner for any and all costs (including, without limitation, legal fees on a solicitor and client basis) the Owner may incur in connection with such claims or actions.
- 5.10.5 Section 20(1) of the Construction Act does not apply to this Contract and no general lien arises under or in respect of the Work, such that all liens shall arise and expire on a lot-by-lot basis."

33. GC 6.1 OWNER'S RIGHT TO MAKE CHANGES

33.1 Amend paragraph 6.1.2 by adding the following to the end of that paragraph:

"This requirement is of the essence and it is the express intention of the parties that any claims by the Contractor for a change in the Contract Price and/or Contract Time shall not be approved unless there has been compliance with PART 6 – CHANGES IN THE WORK. No course of conduct or dealing between the parties, no express or implied acceptance of alterations or additions to the Work and no claims that the Owner has been unjustly enriched by an alteration or addition to the Work, whether in fact there is any such unjust enrichment or not, should be the basis for a claim for additional payment under this Contract or a claim for any extension of the Contract Time."

33.2 Add new paragraph 6.1.3 as follows:

"The Contractor agrees that changes resulting from construction coordination, including but not limited to site surface conditions, site coordination, and Subcontractor and Supplier coordination, are included in the Contract Price and shall not entitle the Contractor to claim an addition to the Contract Price in relation to coordination."

34. GC 6.2 CHANGE ORDER

34.1 Add new paragraph 6.2.4 as follows:

"The Contractor shall not be entitled to any additional compensation arising out of changes to the Work aside from the amounts determined and agreed to under this GC 6.2, or as provided in GC 6.3 – CHANGE DIRECTIVE."

34.2 Add new paragraph 6.2.5 as follows:

"Change Orders are not valid and binding upon the Owner unless approved and executed in accordance with the Owner's internal approval processes."

35. GC 6.3 CHANGE DIRECTIVE

35.1 Amend paragraph 6.3.6 in the second line by adding the word "actual" before the word "cost".

35.2 Delete paragraph 6.3.6.3 in its entirety and substitute the following:

".3 The Contractor's fee shall be as specified in paragraphs 6.2.4 and 6.2.5."

35.3 Amend paragraph 6.3.7 by adding the word "actual" before the word "cost" in line 1.

36. GC 6.4 CONCEALED OR UNKNOWN CONDITIONS

36.1 Amend paragraph 6.4.4 by deleting the words "and GC 9.5 – MOULD" and substituting the words "GC 9.5 – MOULD and GC 9.6 – IMPACT ASSESSMENT."

36.2 Add new paragraph 6.4.5 as follows:

"The Contractor acknowledges that it has received the Impact Assessment Reports for the Project that are described in the RFP documents and that it has considered the mitigation measures described in the Impact Assessment Reports in the Contract Price. If the Impact Assessment Reports are not completed prior to the closing of the RFP submission deadline, any adjustments required to the Contract Price shall be determined in accordance with GC 9.6.2.3."

36.3 Add new paragraph 6.4.6 as follows:

"The Contractor confirms that, prior to submitting its response to the RFP for the Project, it had the opportunity to carefully investigate the Place of the Work and applied to that investigation the degree of care and skill described in paragraph 3.14.1, given the amount of time provided between the issue of the RFP documents and the actual submission deadline for the RFP, the degree of access provided to the Contractor prior to submission of the response, and the sufficiency and completeness of the information provided by the Owner. The Contractor is not entitled to compensation or to an extension of the Contract Time for conditions which could reasonably have been ascertained by the Contractor by such careful investigation undertaken prior to the submission of its response."

37. GC 6.5 DELAYS

37.1 Amend paragraph 6.5.1 by in the third line, after the word "Contractor" insert "and the Owner approves" and deleting all of the words in the fourth line following the word "for" and substituting the following:

"reasonable direct costs directly flowing from the delay but excluding any indirect, consequential, or special damages."

37.2 Delete paragraph 6.5.2 in its entirety and substitute:

"If the Contractor is delayed in the performance of the Work by a stop work order issued by a court or other public authority on account of a breach, violation, contravention, or a failure to abide by any laws, ordinances, rules,

regulations, or codes or the advice, recommendations and instructions of public health officials directly by the Owner, the Owner's other contractor(s) or the Consultant and relating to the Work or the Place of the Work and providing that such order was not issued as the result of an act or fault of the Contractor or any person employed or engaged by the Contractor directly or indirectly, then the Contract Time shall be extended for such reasonable time as the Consultant may recommend in consultation with the Contractor and the Owner approves. The Contractor shall be reimbursed by the Owner for the reasonable direct costs directly flowing from the delay but excluding any indirect, consequential, or special damages."

37.3 Delete paragraph 6.5.3 in its entirety and substitute:

"6.5.3.1 If the performance of the Work or the performance of any other obligation(s) of party to this contract is delayed by Force Majeure, then the Contract Time shall be extended for such reasonable time as the Owner and the Contractor shall agree. The extension of time shall not be less than the time lost as a result of the event causing the delay, unless the Contractor and the Owner agree to a shorter extension. Neither party shall be entitled to payment for its costs incurred by such delays. Upon reaching agreement on the extension of the Contract Time attributable to the Force Majeure event, the Owner and the Contractor shall execute a Change Order indicating the length of the extension to the Contract Time and confirming that there are no costs payable by either party to the other for the extension of Contract Time.

6.5.3.2 Notwithstanding the foregoing, the Owner may issue a Change Directive requiring the Contractor to undertake those specific actions identified in the Change Directive as the Contractor can reasonably and safely initiate to remove or relieve either the Force Majeure or its direct or indirect effects on the Project, in which case the Contract Price will be adjusted in accordance with paragraph 6.3.7. If the Contractor fails within the time period specified in the Change Directive to take such action, then the Owner may, at its sole and absolute discretion and after it has given written notice to the Contractor, take some or all of such actions to partially or wholly remove or relieve such Force Majeure or its direct or indirect effects, and thereafter require the Contractor to resume the performance of the Work."

37.4 Delete paragraph 6.5.4 in its entirety and substitute new paragraph 6.5.4:

"No extension of the Contract Time will be approved unless the Contractor notifies the Owner in writing within 3 Working Days of the date upon which the Contractor ought reasonably to have been aware of the delay contemplated in paragraph 6.5.3. For the written notice to be valid under this paragraph 6.5.4 it must include specific details about:

- .1 the cause of the delay;
- .2 the likely impact the delay will have on the Contract Time and details of the extension of time being requested; and
- .3 mitigation efforts, if any, undertaken by the Contractor or, where no mitigation efforts have been undertaken by the Contractor, the reasons why mitigation is either not possible or has not been undertaken by the Contractor."

37.5 Add new paragraph 6.5.6 as follows:

"If the Contractor delays the performance of the Work and such delay is for a cause within the Contractor's control, the Contractor shall pay to the Owner the per diem rate for liquidated damages specified in Article 10 of the Agreement for each day of delay if Substantial Performance of the Work is not achieved in accordance with the Construction Schedule due to the delay. If the per diem rate for liquidated damages is not specified in the Contract Documents, the Contractor shall pay to the Owner the Administration Costs incurred by the Owner as a result of the delay."

37.6 Add new paragraph 6.5.7 as follows:

"If the Contractor is delayed in the performance of the Work due to the replacement of a representative or a worker pursuant to GC 3.6.4 or 3.8.4, the Contractor shall pay to the Owner the per diem rate for liquidated damages specified in Article 10 of the Agreement for each day of delay if Substantial Performance of the Work is not achieved in accordance with the Construction Schedule due to the delay. If the per diem rate for liquidated damages is not specified in the Contract Documents, the Contractor shall pay to the Owner the

Administration Costs incurred by the Owner as a result of the delay.

38. GC 7.1 OWNER'S RIGHT TO PERFORM THE WORK, TERMINATE THE CONTRACTOR'S RIGHT TO CONTINUE WITH THE WORK OR TERMINATE THE CONTRACT

38.1 Amend paragraph 7.1.2 by adding the words "including failing or neglecting to comply with the requirements in GC 3.5 – CONSTRUCTION SCHEDULE..." immediately following the word "properly" in line one.

38.2 Amend paragraph 7.1.3.1 as follows:

Insert after the word "commences" the words "and is diligently proceeding with".

38.3 Revise paragraph 7.1.3.2 by substituting the words "an acceptable schedule" with "a schedule acceptable to the Owner".

38.4 Amend paragraph 7.1.4.2 by adding to the end of the paragraph the words "and within 5 Working Days publish a notice of termination (form 8) in accordance with the *Construction Act*."

38.5 Amend paragraph 7.1.5.3 by substituting the words "the difference" at the end of paragraph 7.1.5.3 with the words "on the expiry of the warranty period specified in paragraph 12.3.1 for that portion of the Work performed by the Contractor, provided that such payment shall be made only in accordance with the requirements set out in GC 5.7 – FINAL PAYMENT".

38.6 Amend paragraph 7.1.5.4 by substituting the words "the difference" at the end of paragraph 7.1.5.4 with the words "for that portion of the Work performed by the Contractor, provided that such payment shall be made only in accordance with the requirements set out in GC 5.10 – CONSTRUCTION LIENS".

38.7 Add new paragraph 7.1.7 as follows:

"The Owner may, if conditions arise which make it necessary for reasons other than as provided in paragraphs 7.1.1 and 7.1.4, suspend performance of the Work or terminate the Contract by giving written notice to that effect to the Contractor identifying the reason for the suspension and the expected length of the suspension. Such suspension or termination shall be effective in the manner specified in said notice and shall be without prejudice to any claims which either party may have against the other."

38.8 Add new paragraph 7.1.8 as follows:

"The Contractor upon receiving notice of suspension or termination from the Owner shall suspend all operations as soon as reasonably possible except work which, in the Contractor's opinion is necessary for the safety of personnel and for the care and preservation of the Work, the materials and plant. In the event of such suspension, the Contractor shall be reimbursed by the Owner for the reasonable costs incurred by the Contractor for such protection. Subject to any directions in the notice of suspension or termination, the Contractor shall discontinue ordering materials, facilities and supplies and make every reasonable effort to delay delivery of existing orders and, in the event of termination, to cancel existing orders on the best terms available."

38.9 Add new paragraph 7.1.9 as follows:

"During the period of suspension, the Contractor shall not remove from the Place of the Work any part of the Work, or any Product or materials without the consent of the Owner."

38.10 Add new paragraph 7.1.10 as follows:

"If the Work should be suspended for a period of 30 days or less, the Contractor, upon the expiration of the period of suspension, shall resume the performance of the Work in accordance with the Contract Documents. If the suspension was not due to an act or an omission of the Contractor, there shall be an equitable adjustment to the Contract Time and the Contract Price."

38.11 Add new paragraph 7.1.11 as follows:

"If, after 30 days from the date of notice of suspension of the Work the Owner and the Contractor agree to continue with and complete the Work, the Contractor shall resume operations and complete the Work in accordance with any terms and conditions agreed upon by the Owner and the Contractor."

38.12 Add new paragraph 7.1.12 as follows:

"The Owner may terminate this Contract at any time for any or no reason. Such termination shall be effective upon the date specified in the Owner's Notice in Writing advising of the termination of the Contract pursuant to this paragraph 7.1.12. In such event, the Owner shall pay for the actual and verifiable Work performed up to the effective date of termination, including demobilization costs, and for such additional costs, if any, directly flowing from and which are a reasonable consequence of the termination, but excluding any consequential, indirect or special damages, termination fees, penalties or levies, and any claims for loss of profit, lost deposits, or lost opportunity. The Owner shall not be liable to the Contractor for any other claims, costs or damages whatsoever arising from such termination of the Contract. Within 3 Working Days of termination by the Owner, the Contractor shall deliver a Notice in Writing to each of its Subcontractors and Suppliers confirming the effective date of the termination."

39. GC 7.2 CONTRACTOR'S RIGHT TO SUSPEND THE WORK OR TERMINATE THE CONTRACT

39.1 Amend paragraph 7.2.1 by adding to the end of the paragraph the words "and within 5 Working Days publish a notice of termination (form 8) in accordance with the *Construction Act*."

39.2 Amend paragraph 7.2.2, by:

(i) adding the following after the words "public authority" in the second line:

"on account of a breach, violation, contravention, or a failure to abide by any laws, ordinances, rules, regulations, or codes or the advice, recommendations and instructions of public health officials, directly by the Owner, the Owner's other contractor(s) or the Consultant and relating to the Work or the Place of the Work,"; and,

(ii) adding the following to the end of the paragraph:

"unless an acceptable arrangement for an extension of the Contract Time is agreed to by the Contractor and the Owner."

39.3 Delete paragraph 7.2.3.1 in its entirety and replace them with "Intentionally left blank".

39.4 Delete paragraph 7.2.3.3 in its entirety and substitute new paragraph 7.2.3.3:

".3 the Owner fails to pay the Contractor when due the amount certified by the Consultant or awarded by arbitration or a Court, except where the Owner has a bona fide claim for set off; or"

39.5 Amend paragraph 7.2.3.4 by deleting the words "except for GC 5.1 - FINANCING INFORMATION REQUIRED OF THE OWNER".

39.6 Amend paragraph 7.2.4 by adding to the end of the paragraph the words "and within 5 Working Days publish a notice of termination (form 8) in accordance with the *Construction Act*."

39.7 Delete 7.2.5 in its entirety and replace it with the following:

"If the Contractor terminates the Contract under the conditions described in this GC 7.2, the Contractor shall be entitled to be paid for all Work performed to the date of termination. The Contractor shall also be entitled to recover the costs associated with termination, including the costs of demobilization, losses sustained on Products and construction machinery and equipment. The Contractor shall not be entitled to any recovery for any indirect, special or consequential losses."

40. GC 8.2 NEGOTIATION, MEDIATION, ARBITRATION AND ADJUDICATION

40.1 Delete GC 8.2 – NEGOTIATION, MEDIATION, ARBITRATION, including all paragraphs thereunder and substitute the following:

“GC 8.2 – NEGOTIATION, MEDIATION, ARBITRATION AND ADJUDICATION

- “8.2.1 Save and except where the Contractor has given an undertaking, in accordance with the *Construction Act*, to refer a dispute to Adjudication, prior to delivering a notice of Adjudication in a form prescribed by the *Construction Act*, the parties agree to first address all Disputes in a tiered approach as follows:
- .1 A Dispute shall be referred to the Owner’s project manager for the Project and a representative of the Contractor of the equivalent seniority or position for resolution within a period not to exceed thirty (30) days.
 - .2 If unresolved, after following the process described in paragraph 8.2.1.1, the Dispute shall be referred to the Owner’s Director or Vice President who is responsible for the Project and an employee of the Contractor of the equivalent seniority or position for resolution within a period not to exceed thirty (30) days.
 - .3 If unresolved after following the process described in paragraph 8.2.1.3, and only at the election of the Owner, the Dispute shall be referred to the President and CEO of the Owner and the most senior executive employee of the Contractor for resolution within a period not to exceed thirty (30) days. If the Owner does not elect, at its sole option, to proceed under this paragraph 8.2.1.3, the Dispute may proceed to under either step as described in paragraphs 8.2.2 or 8.2.3.
- 8.2.2 If the Dispute remains unresolved despite the Parties’ attempting to resolve it following the process in paragraph 8.2.1, a party may elect to proceed with the Dispute by way of an Adjudication. If a party elects to proceed by way of an Adjudication, the other party shall not be bound to proceed by way of an Adjudication, save and except where the parties are obliged under the *Construction Act*. Where either party has delivered a notice of Adjudication in a form prescribed by the *Construction Act*, the procedures and rules set out under the *Construction Act* and the regulations thereto shall govern the Adjudication.
- 8.2.3 Other than where the Contractor is obliged to commence an Adjudication pursuant to an undertaking under the *Construction Act*, neither the Owner nor the Contractor shall commence an Adjudication during the Restricted Period (Adjudication).
- 8.2.4 If the Dispute remains unresolved despite the Parties attempting to resolve it following the process in paragraph 8.2.1, or following a determination of the Dispute pursuant to an Adjudication under paragraph 8.2.2, a party may elect to proceed with the Dispute under a mediation model to be agreed upon by the parties. A party shall elect to proceed to mediation no later than: (i) ten (10) days following the expiry of the timeline set out in paragraphs 8.2.1.2 or 8.2.1.3, whichever is the later, or (ii) ten (10) days following the rendering of the adjudicator’s determination following an Adjudication. Where a party elects to proceed with mediation within the timelines prescribed in this paragraph 8.2.4, the other party shall be bound to proceed to mediation. No later than ten (10) days after a party makes an election to proceed to mediation, or such longer period as may be mutually agreed between the parties, the parties shall enter into a mediation agreement which shall set out the mediation process and designate the mediator.
- 8.2.5 If neither party elects to proceed to mediation within the timelines outlined in paragraph 8.2.2 or 8.2.4, or the Parties are unable to enter into a mediation agreement within the time limits, the matter shall proceed and be finally resolved by binding arbitration by a single arbitrator in accordance with the *Arbitration Act* by an arbitration agreement to be executed by the parties and the arbitrator. The Parties shall mutually agree on the selection of the arbitrator, failing which the arbitrator shall be appointed in accordance with the *Arbitration Act*. The arbitration proceedings shall take place in Toronto, Ontario, Canada. The language of the arbitration shall be English. The Parties agree that any arbitration award, including with respect to costs, shall be binding on the Parties, may be enforced in any court of competent jurisdiction and shall be final and no appeals or judicial reviews shall be permitted as of right or by application to any court of competent jurisdiction, except on errors of law. The Parties shall each bear their own costs and their proportionate share of any joint costs of arbitration, subject to any award of an arbitrator.
- 8.2.6 The timelines in paragraphs 8.2.1, 8.2.2 and 8.2.4 may be amended by mutual agreement of the parties.”

41. GC 8.3 RETENTION OF RIGHTS

41.1 Add new paragraph 8.3.3 as follows:

"If the Owner gives the notice in writing described in paragraph 8.2.6 to have a dispute resolved by arbitration, the Contractor agrees that this paragraph 8.3.3 shall be construed as a formal consent to the stay of any lien proceedings until an award is rendered in the arbitration or such dispute as otherwise resolved between the parties. In no event shall the Contractor be deprived of its right to enforce its lien against the Project should the Owner fail to satisfy any arbitral award against it in full on the dispute in respect of which the lien proceedings were commenced. Provided nothing in this paragraph 8.3.3 shall prevent the Contractor from taking the steps required by the *Construction Act* to preserve and/or perfect a lien to which it may be entitled."

42. GC 9.1 PROTECTION OF WORK AND PROPERTY

Amend paragraph 9.1.1.1 by adding the following words at the end of that paragraph:

"...which the Contractor could not reasonably have discovered applying the degree of care and skill described in paragraph 3.4.1 to its review of the Contract Documents."

42.1 Delete paragraph 9.1.2 in its entirety and substitute the following new paragraph 9.1.2:

"Before commencing any work, the Contractor shall determine the locations of all underground utilities and structures indicated in the Contract Documents or that are discoverable by applying to an inspection of the Place of Work the degree of care and skill described in paragraph 3.14.1."

42.2 Add new paragraph 9.1.5 as follows:

"The Contractor shall neither undertake to repair and/or replace any damage whatsoever to the work of other contractors, or to adjoining property, nor acknowledge the same was caused or occasioned by the Contractor, without first consulting the Owner and receiving written instructions as to the course of action to be followed from either the Owner or the Consultant. However, where there is danger to life or public safety, the Contractor shall take such emergency action as it deems necessary to remove the danger."

43. GC 9.2 TOXIC AND HAZARDOUS SUBSTANCES

43.1 Add new paragraph 9.2.10 as follows:

"The Contractor shall indemnify and hold harmless the Owner, the Consultant, their agents and employees from and against claims, demands, losses, costs, damages, actions, suits or proceedings arising out of or resulting from exposure to, or the presence of, toxic or hazardous substances or materials which were either brought on to the Place of the Work by the Contractor, or anyone for whom the Contractor is in law responsible, and mishandled or handled negligently or improperly or which are otherwise mishandled or handled negligently or improperly by the Contractor, or anyone for whom the Contractor is in law responsible, thereby creating exposure to toxic or hazardous substances or materials. This obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity set out in GC 12.1 – INDEMNIFICATION or which otherwise exist respecting a person or party described in this paragraph."

44. GC 9.4 CONSTRUCTION SAFETY

44.1 Delete paragraph 9.4.1 in its entirety and substitute:

"The Contractor shall be solely responsible for construction safety at the Place of the Work and for compliance with the rules, regulations and practices required by the applicable construction health and safety legislation and shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Work. Without limiting the generality of the foregoing, the Contractor shall comply with the occupational health and safety laws and regulations and any orders, recommendations and restrictions made by the federal, provincial or municipal governments and the advice, recommendations and instructions of public health officials, including any advice, recommendations or instructions on physical distancing, cleaning or disinfecting during the COVID-19 pandemic as they apply to the Place of the Work. If the Place of the Work is located on the Owner's premises, the Contractor shall comply with all the Owner's policies and directions to ensure the health and safety of the Owner's employees and contractors as well as the Contractor's employees,

Subcontractors and Suppliers. The Contractor shall indemnify and hold harmless the Owner for any fines, penalties or other costs imposed or assessed on or incurred by the Owner arising from the Contractor's failure to comply with the applicable health and safety laws, any orders, recommendations and restrictions of the federal, provincial or municipal governments or the advice, recommendations and instructions of public health officials. "

44.2 Add new paragraph 9.4.2 as follows:

"Prior to the commencement of the Work, the Contractor shall submit to the Owner:

- .1 a current WSIB clearance certificate;
- .2 copies of the Contractor's insurance policies having application to the Project or certificates of insurance, at the option of the Owner;
- .3 documentation of the Contractor's in-house safety-related programs; and
- .4 a copy of the Notice of Project filed with the Ministry of Labour naming itself as "Constructor" under the *Occupational Health and Safety Act*."

44.3 Add new paragraph 9.4.3 as follows:

"The Contractor shall indemnify and save harmless the Owner, its agents, officers, directors, employees, consultants, successors and assigns from and against the consequences of any and all safety infractions committed by the Contractor under the *Occupational Health and Safety Act* and any breaches of the *Emergency Management and Civil Protection Act* and related orders, recommendations or regulations, including the payment of legal fees and disbursements on a full indemnity basis."

44.4 Add new paragraph 9.4.4 as follows:

"The Contractor shall ensure that it and its employees, Subcontractors and Suppliers are aware of and, while being on the Owner's property, comply with the Owner's policies, including its Drug and Alcohol Policy, and with the Ontario Northland Operating Manual, including the Current Summary Bulletin, current Ontario Northland Time Table, C.R.O.R. 2015, Infrastructure Special Instructions, Dangerous Goods and Ontario Northland General Operating Instructions, as applicable."

44.5 Add new paragraph 9.4.5 as follows:

"In the event of an emergency threatening health, life or property, the Contractor shall take such action as may be necessary to save lives and protect persons from injury and to protect and preserve the property. The Contractor shall notify the Owner of such emergency as promptly as is practical under the circumstances."

45. GC 9.6 IMPACT ASSESSMENT

45.1 Add new GC 9.6 as follows:

"9.6.1 The Contractor shall be responsible for:

- .1 ensuring that any potential impacts and areas of concern identified in the Contract Documents or Impact Assessment Reports, if provided, are mitigated during the Work; and,
- .2 identifying any previously unknown impacts relating to fish, navigable waters, species at risk, vegetation, wildlife, socio-economic and heritage that arise prior to commencing the Work and during the Work.

9.6.2 If the Contractor or Owner observes or reasonably suspects the presence of any impacts described in paragraph 9.6.1.2 that are not mentioned or accounted for in the Contract Documents or Impact Assessment Reports, if any, and related mitigation plans,

- .1 the observing party shall immediately report the circumstances to the other party;

- .2 the Contractor shall immediately take reasonable steps, including stopping the Work if necessary, to ensure that any potential impacts are mitigated; and,
- .3 if the Owner and Contractor do not agree on the existence, significance or mitigation measures for the impact, the Owner shall retain and pay for an independent qualified expert to investigate and determine the issue and the parties will enter into a Change Order if the mitigation measures will cause an increase or decrease in the Contractor's cost or time to perform the Work.

9.6.3 If the Contractor fails to comply with the requirements in paragraph 9.6.2, the Contractor shall:

- .1 be responsible for all costs incurred by the Owner or the Contractor to mitigate the damage caused due to the failure;
- .2 not be entitled to request a Change Order relating to the failure to comply; and
- .3 indemnify the Owner and hold it harmless from any claims, damages, costs, fines or other expenses, including reasonable legal fees and expenses, relating to or arising from the Contractor's failure to comply with paragraph 9.6.2."

46. GC 9.10 ENVIRONMENTAL PROTECTION FOR CONSTRUCTION IN AND AROUND WATERBODIES

46.1 Add new GC 9.10 as follows:

- .1 The Contractor shall comply with the environmental protection requirements and mitigation measures that apply to construction involving work in and around waterbodies and on waterbody banks as set out in OPSS.PROV 182.
- .2 Pursuant to section 38(4) of the *Fisheries Act*, the Contractor has an obligation to notify the Department of Fisheries & Oceans ("DFO") when the Work results in the unauthorized death of fish or a harmful alteration, disruption or destruction ("HADD") of fish habitat or where there is imminent danger that the death of fish or HADD of fish habitat could occur. The notification shall be done using the form attached as Schedule D. The Contractor shall also notify the Consultant and the Owner of any such incidents. Failure to notify DFO of such incidents is a federal offence.
- .3 In accordance with the Fisheries Act, notification must be made without delay to DFO after the Contractor ensures the immediate health and safety risks are managed at the Place of the Work. Updates to DFO may be provided at a later time, if required.
- .4 All spills and sediment releases into a waterbody during the Work must be immediately reported by the Contractor to the Consultant and the Owner who must report the release to the Spills Action Centre ("SAC") operated by the Ministry of Environment, Conservation and Parks ("MECP") at 800-288-6060. If the Consultant or the Owner is not available, the Contractor shall report the incident to SAC. The Contractor shall take all reasonable measures to mitigate or remedy any adverse effects that result from the occurrence or might reasonably be expected to result from it.

47. GC 9.11 ENVIRONMENTAL SPILLS AND RELEASES

47.1 Add new GC 9.11 as follows:

- .1 All spills and releases of hazardous substances in the course of the Work must be immediately reported by the Contractor to the Consultant and the Owner who will report the spill or release to the MOECP SAC. If the Consultant or the Owner is not available, the Contractor shall report the incident to the MOECP SAC and the ONTC RTC at 800-558-4129 X 141.
- .2 The Contractor shall take immediate steps to mitigate the damage to the environment and contain the spill or release. If the Contractor does not take timely action or, if the Contractor is not available, the Consultant or the Owner may direct others to remedy the situation.
- .3 If the spill or release was the fault of the Contractor, the remedial work shall be completed at the cost of the Contractor and with no additional cost to the Owner and the Owner shall be entitled to seek

reimbursements for all costs associated with the remedial work including the cost of work done by third parties.

- .3 If the spill or release was not the fault of the Contractor, the Owner shall pay for the remedial work.

48. GC 10.1 TAXES AND DUTIES

- 48.1 Amend paragraph 10.1.2 by adding the following sentence at the end of that paragraph:

“For greater certainty, the Contractor shall not be entitled to any mark up for overhead or profit on any increase in such taxes and duties and the Owner shall not be entitled to any credit relating to mark up for overhead or profit on any decrease in such taxes.”

- 48.2 Add new paragraph 10.1.3 as follows:

“Where an exemption or a recovery of sales taxes, customs duties, excise taxes or Value Added Taxes, rebates, or monies from incentive programs is applicable to the Contract, the Contractor shall, at the request of the Owner or the Owner’s representative, assist, join in, or make application for any exemption, recovery or refund of all such taxes, duties, rebates and incentives and all amounts recovered or exemptions obtained shall be for the sole benefit of the Owner. The Contractor agrees to endorse over the Owner any cheques received from the federal or provincial governments, or any other taxing or other authority, as may be required to give effect to this paragraph 10.1.3.”

- 48.3 Add new paragraph 10.1.4 as follows:

“The Contractor shall maintain accurate records tabulating equipment, material and component costs reflecting the taxes, customs duties, excise taxes and Value Added Taxes paid.”

- 48.4 Add new paragraph 10.1.5 as follows:

“Any refund of taxes, including without limitation, any government sales tax, customs duty, excise tax or Value Added Tax, whether or not paid, which is found to be inapplicable or for which exemption may be obtained, is the sole and exclusive property of the Owner.”

- 48.5 Add new paragraph 10.1.6 as follows:

“The Contractor agrees to cooperate with the Owner and to obtain from all Subcontractors and Suppliers cooperation with the Owner in the application for any rebates, incentives or refund or exemption of any taxes, which cooperation shall include, but not be limited to, making or concurring in the making of an application for any such rebates, incentives, refund or exemption and providing to the Owner copies, or where required, originals of records, invoices, purchase orders and other documentation necessary to support such applications. All such rebates, incentives or refunds shall either be paid to the Owner, or shall be a credit to the Owner against the Contract Price, in the Owner’s discretion.”

- 48.6 Add new paragraph 10.1.7 as follows:

“Customs duties penalties, or any other penalty, fine or assessment levied against the Contractor shall not be treated as a tax or customs duty for purposes of this GC 10.1.”

49. GC 10.2 LAWS, NOTICES, PERMITS, AND FEES

- 49.1 Delete paragraph 10.2.2 in its entirety and substitute the following:

“The Owner has Crown immunity from the *Building Code Act* and the *Planning Act* and will not be obtaining building permits or development approvals. The Owner shall obtain and pay for any permanent easements required for the completion of the Work. The Contractor shall be responsible for all other permissions for access to land.”

49.2 Add to the end of paragraph 10.2.4, the following words:

“Whenever standards of law, ordinances, rules, regulations, codes and orders relating to the Work differ, the most stringent standards shall govern.”

49.3 Amend paragraph 10.2.5 by adding the words, “Subject to paragraph 3.4.1” to the beginning of the paragraph.

- and -

Add the following to the end of the second sentence:

“...and no further Work on the affected components of the Contract shall proceed until these changes to the Contract Documents have been obtained by the Contractor from the Consultant.”

49.4 Amend paragraph 10.2.6 by adding the following sentence at the end of that paragraph:

“In the event the Owner suffers loss or damage as a result of the Contractor’s failure to comply with paragraph 10.2.5, and notwithstanding any limitations described in paragraph 12.1.1, the Contractor agrees to indemnify and to hold harmless the Owner and the Consultant from and against any claims, demands, losses, costs, damages, actions, suits or proceedings resulting from such failure by the Contractor.”

49.5 Amend paragraph 10.2.7 by adding the words “which changes were not or could not have reasonably been known to the Owner or the Contractor, as applicable, at the time of deadline for submission of responses to the RFP and which changes did not arise as a result of a public emergency or other Force Majeure event” to the second line, after the words “authorities having jurisdiction”.

49.6 Add new paragraph 10.2.8 as follows:

“The Contractor shall furnish necessary certificates as evidence that the Work installed conforms with laws and regulations of authorities having jurisdiction, including certificates of compliance for Owner’s occupancy or partial occupancy. These certificates are to be final certificates giving complete clearance of the Work.”

50. GC 10.3 PATENT FEES

41.1 Delete paragraph 10.3.2 in its entirety.

51. GC 10.4 WORKERS’ COMPENSATION

51.1 Amend paragraph 10.4.1 in the first line by deleting the words, “...and the issuance of the final certificate of payment. . .” and replacing them with, “the issuance of the final certificate of payment and with all applications for payment”.

51.2 Add new paragraph 10.4.3 as follows:

“The Contractor shall be solely responsible for its employees and officers and for its Subcontractors and their officers and employees, including ensuring that all required employer filings, contributions, deductions, and payments are made or remitted, as the case may be, with respect to applicable employer health taxes and under the *Employment Insurance Act*, the Canada Pension Plan, the Ontario *Workplace Safety and Insurance Act, 1997*, and all equivalent legislation in any other applicable jurisdiction. Without limiting the generality of the foregoing, the Contractor shall indemnify, defend and hold harmless the Owner, its directors, officers, and employees from all claims, demands, actions, suits or proceedings arising from any health, medical, disability or similar claims which Contractor’s employees or officers or any of its Subcontractors or their officers or employees may make against the Owner, its directors, officers, or employees during or after the Contract Time, whether or not such claims are attributable to the Contractor’s or Subcontractor’s performance of the Work or related to the Contractor’s obligations under this Contract.”

52. GC 11.1 INSURANCE

52.1 Add new paragraph 11.1.9 as follows:

"The minimum limits of insurance in this GC 11 – INSURANCE AND CONTRACT SECURITY and in CCDC 41 December 2020 shall be varied to provide the following:

- .1 General Liability Insurance shall have a deductible amount per occurrence of not more than \$50,000;
- .2 Contractor's Pollution Liability Insurance shall have a deductible amount per occurrence of not more than \$50,000; and;
- .3 Broad Form Property Insurance shall have a deductible amount not more than \$50,000.

53. GC 11.2 CONTRACT SECURITY

53.1 Add new paragraph 11.2.3 as follows:

"The Contractor shall provide a performance bond and a labour and materials payment bond, each issued by a bonding company acceptable to Owner and licensed to issue such instruments in the Place of the Work, in the amounts and forms as follows:

- .1 Amount of performance bond shall be equal to not less than 50% of the Contract Price in the form prescribed by the *Construction Act*.
- .2 Amount of labour and material payment bond shall be equal to not less than 50% of the Contract Price in the form prescribed by the *Construction Act*."

53.2 Add new paragraph 11.2.4 as follows:

"The bonds provided in accordance with paragraph 11.2.3 shall guarantee the faithful performance of the Contract in accordance with the Contract Documents, including the requirements for warranties provided for the GC 12.3 – WARRANTY, and the payment of all obligations incurred in the event of the Contractor's default, including but not limited to the following:

- .1 the payment of legal, accounting, architectural, engineering and other Consultant's expenses incurred by the Owner in determining the extent of Work executed and any additional Work required as a result of the interruption of the Work, and its completion; and
- .2 the payment of additional expenses to the Owner in the form of security guard services, light, heat, power, loss of use of premises, and other related costs, payable over the period between the default of the Contract and completion of the Work."

53.3 Add new paragraph 11.2.5 as follows:

"Without limiting the foregoing in any way, the bonds shall indemnify and hold harmless the Owner for and against costs and expenses (including legal and Consultant services and court costs) arising out of or as a consequence of any default of the Contractor under this Contract."

53.4 Add new paragraph 11.2.6 as follows:

"The Contractor shall be responsible for notifying the surety company of any changes made to the Contract during the course of the Work."

53.5 Add new paragraph 11.2.7 as follows:

"The premiums for bonds required by the Contract Documents shall be included in the Contract Price."

53.6 Add new paragraph 11.2.8 as follows:

"Should the Owner require additional bonds by the Contractor or any of his Subcontractors, after the receipt of bids for the Work, the Contract Price shall be increased by the actual costs attributable to providing such bonds. The Contractor shall promptly provide the Owner, through the Consultant, with any such bonds that may be required."

54. GC 12.1 INDEMNIFICATION

54.1 Delete GC 12.1 – INDEMNIFICATION in its entirety and substitute the following:

“12.1.1 The Contractor shall indemnify and hold harmless the Owner and its directors, officers, employees, contractors and agents (collectively the “Owner’s Indemnitees”) from and against all loss, liability, damage, fines, cost, legal cost and disbursement whatsoever arising out of or related to the Work or the Contract Documents (“Loss”), by whomever made, sustained, incurred, brought or prosecuted, arising out of, or in connection with, anything done or omitted to be done by the Contractor in the course of the performance of the Contractor’s obligations under the Contract Documents or otherwise in connection with the Work. The Contractor shall, at the Owner’s election, either assume the defence of every proceeding brought in respect of such Loss, or cooperate with the Owner in the defence, including providing Owner with prompt Notice of any possible Loss and providing the Owner with all information and material relevant to the possible Loss.

12.1.2 GC 12.1 – INDEMNIFICATION shall govern over the provisions of paragraph 1.3.1 of GC 1.3 – RIGHTS AND REMEDIES.

12.1.3 The Contractor shall make full and complete compensation for any bodily injury or death to any person and for any damage caused to the Owner’s or a third party’s physical property by the Contractor’s act or omission.

12.14 The Contractor shall be liable for any claims arising from any personal injuries to or death of any of the Contractor’s employees, subcontractors or suppliers or from any loss of or damage to any property belonging to the Contractor or its employees, subcontractors or suppliers during the performance of the Work unless caused by the negligent act or omission of Owner.

12.15 Notwithstanding any other provision of the Contract Documents:

- (a) The Owner shall not be responsible for indirect, consequential, special, incidental or contingent damages of any nature whatsoever, including loss or revenue or profit or damages resulting from interruption of service or transmission. This limitation shall apply regardless of the form of action, damage, claim, liability, cost, expense or loss, whether in contract (including fundamental breach), statute, tort (including negligence), or otherwise, and regardless of whether the Owner has been advised of the possibility of such damages; and,
- (b) Any express or implied reference to the Owner providing an indemnity or any other form of indebtedness or contingent liability that would directly or indirectly increase the indebtedness or contingent liabilities of the Owner or the Province of Ontario, whether at the time of execution of this Agreement or at any time during the performance of the Work and the Warranty Period, shall be void and of no legal effect in accordance with s.28 of the Financial Administration Act, R.S.O. 1990, c. F.12.

12.16 The Contractor shall indemnify the Owner and the Owner Indemnitees and save them harmless from and against all Loss incurred by the Owner arising from:

- (a) any decision or interpretation by any court or governmental authority that: (i) any of the Contractor’s employees are an employee of the Owner; or (ii) the Owner is liable to pay statutory contributions or deductions in respect of any of the Contractor’s employees under any laws, including employment insurance, provincial health insurance, income tax or other employment matters;
- (b) any health, medical disability or similar claims which the Contractor or Contractor’s employees may have during or after the term of this Agreement;
- (c) a claim by any third party against the Owner alleging that the Deliverables and their use by the Owner, infringes any Intellectual Property Rights;
- (d) safety infractions committed by the Contractor under the Occupational Health and Safety Act or any other laws, guidelines or public health orders regulating health and safety at the Work Site;

- (e) any claims against the Owner for the failure of the Contractor to protect the confidentiality of Confidential Information;
- (f) exposure to, or the presence of, toxic or hazardous substances or materials which were either brought on to the Work Site by the Contractor or the Contractor mishandled or handled negligently or improperly the substances or materials;
- (g) a claim from adjacent landowners or other third parties regarding damage to their property due to the Work; and
- (h) the release into the environment of materials resulting from the Work that contain Environmental Contaminants during the transportation of such materials from the Work Site to the approved waste disposal site.

55. GC 12.2 WAIVER OF CLAIMS

55.1 Delete GC 12.2 – WAIVER OF CLAIMS in its entirety and substitute the following:

“12.2.1 Waiver of Claims by Owner

As of the date of the final certificate for payment, the Owner expressly waives and releases the Contractor from all claims against the Contractor including without limitation those that might arise from the negligence or breach of contract by the Contractor except one or more of the following:

- .1 those made in writing prior to the date of the final certificate for payment and still unsettled;
- .2 those arising from the provisions of GC 12.1 – INDEMNIFICATION or GC 12.3 – WARRANTY;
- .3 those arising from the provisions of paragraph 9.6.1 of GC 9.6 – IMPACT ASSESSMENTS and arising from the Contractor failing to comply with the mitigation plans in the Impact Assessment Reports or failing to assess impacts and implement mitigation plans for impacts that arise during the Work;
- .4 those arising from the provisions of paragraph 9.2.5 of GC 9.2 – TOXIC AND HAZARDOUS SUBSTANCES and arising from the Contractor bringing or introducing any toxic or hazardous substances and materials to the Place of the Work after the Contractor commences the Work;
- .5 those arising from the provisions of paragraph 9.5.1 of GC 9.5 – MOULD and arising from the Contractor bringing or introducing mould to the Place of the Work; or
- .6 those made in writing within a period of six (6) years from the date of Substantial Performance of the Work, as set out in the certificate of Substantial Performance of the Work, arising from the Contractor's performance of the Contract with respect to material defects or deficiencies in the Work.

12.2.2 Waiver of Claims by Contractor

As of the date of the final certificate for payment, the Contractor expressly waives and releases the Owner from all claims against the Owner including without limitation those that might arise from the negligence or breach of contract by the Owner except:

- .1 those made in writing prior to the Contractor's application for final payment and still unsettled; and
- .2 those arising from the provisions of GC 9.3 – TOXIC AND HAZARDOUS SUBSTANCES, GC 9.5 – MOULD, or GC 10.3 – PATENT FEES.

12.2.3 GC 12.2 – WAIVER OF CLAIMS shall govern over the provisions of paragraph 1.3.1 of GC 1.3 – RIGHTS AND REMEDIES.”

56. GC 12.3 WARRANTY

- 56.1 Amend paragraph 12.3.2 by adding the words, "Subject to paragraph 3.4.1...." at the beginning of that paragraph.
- 56.2 Delete paragraphs 12.3.4, 12.3.5 and 12.3.6 and substitute the following paragraphs:
- "12.3.4 The Contractor shall correct promptly, at no additional cost to the Owner, defects or deficiencies in the Work that appear, prior to and during the warranty period. Any Work repaired or replaced during the warranty period shall be re-warranted for an additional 12 months from the date of completion of the repair or replacement. Notwithstanding the expiration of the warranty period, the Contractor shall not be relieved of its obligations to correct any defects or deficiencies in the Work of which notice has been given to the Contractor prior to the expiration of the Warranty Period.
- 12.3.5 The Contractor shall, within fourteen (14) days after receiving written instructions from the Owner or the Consultant, unless otherwise agreed to by the Owner, make good, in a permanent manner satisfactory to the Consultant, any defects or deficiencies discovered in the work.
- 12.3.6 The decision of the Consultant shall be final as to the existence of such defects or deficiencies, the necessity of remedying same, and the remedial measures required.
- 12.3.7 If the Contractor fails to do the work to correct the defects or deficiencies, the Owner shall be entitled to carry out such work by its own forces or by other contractors and if such work is work which the Contractor should have carried out at the Contractor's own expense, the Owner shall be entitled to recover from the Contractor the cost thereof or may deduct the same from any monies due or that become due to the Contractor, including the warranty holdback.
- 12.3.8 Any insurance, contract security, surety or deposit required by the Contract Documents shall remain in full effect at the expense of the Contractor during the warranty period.
- 12.3.9 The Contractor shall be responsible for the costs for inspection and testing for the correction of defects or deficiencies. The Owner shall have the right to deduct the cost of the inspection and testing from any monies owed to the Contractor.
- 12.3.10 The Owner may hold back, if set out in the Contract Documents, on each application for payment, advance payment or progress draw, 2.5% of the total amount payable under each such application for payment, advance payment or progress draw as security for the Contractor's performance of its warranty obligations. In the event the Contractor fails to correct a defect or deficiency during the warranty period within the required time and/or fails to pay for the redesign, reconstruction and other costs related to damages arising from a defect or deficiency, the Owner shall have the right to use the warranty holdback, or such part of it still being held by the Owner to pay for the costs of remedying the defect or deficiency and any redesign, reconstruction or other costs relating to the defect or deficiency. If the costs are greater than the amount of the warranty holdback, the Contractor shall pay the additional costs upon receipt of an invoice from the Owner. The Contractor shall have the right to invoice the Owner for the balance of the warranty holdback at the end of the warranty period or extended warranty period as described in paragraph 12.3.4.
- 12.3.11 The Contractor shall assign to the Owner all warranties, guarantees or other obligations for Work, services or Products performed or supplied by any Subcontractor, Supplier or other person in connection with the Work and such assignment shall be with the consent of the assigning party where required by law or by the terms of that party's contract. Such assignment shall be in addition to, and shall in no way limit, the warranty rights of the Owner under the Contract Documents. Until the expiry of the relevant warranty periods enforceable against the Contractor, the Owner shall have in its custody all warranties, guarantees and other obligations to third parties respecting the Work.
- 12.3.12 The Contractor's obligations under this GC 12.3 shall continue notwithstanding any withholding of payment made by the Owner under GC 5.8 – WITHHOLDING OF PAYMENT or by performance by the Owner directly or through other forces of the Contractor's obligations under this Contract, where the Contractor is in default in the performance of such obligations."

57. ADD NEW PART 13 AS FOLLOWS:

PART 13 OTHER PROVISIONS

57.1 GC 13.1 OWNERSHIP OF MATERIALS

“13.1.1 Unless otherwise specified, all materials existing at the Place of the Work at the time of execution of the Contract shall remain the property of the Owner. All work and Products delivered to the Place of the Work by the Contractor shall be the property of the Owner. The Contractor shall remove all surplus or rejected materials as its property when notified in writing to do so by the Consultant.”

57.2 GC 13.2 CONTRACTOR DISCHARGE OF LIABILITIES

“13.2.1 In addition to the obligations assumed by the Contractor pursuant to GC 3.7 – SUBCONTRACTORS AND SUPPLIERS, the Contractor agrees to discharge all liabilities incurred by it for labour, materials, services, Subcontractors and Products, used or reasonably required for use in the performance of the Work, except for amounts withheld by reason of legitimate dispute which have been identified to the party or parties, from whom payment has been withheld.”

57.3 GC 13.3 DAILY REPORTS/DAILY LOGS

“13.3.1 The Contractor shall cause its supervisor, or such competent person as it may delegate, to prepare a daily log or diary reporting on weather conditions, work force of the Contractor, Subcontractors, Suppliers and any other forces on site and also record the general nature of Project activities. Such log or diary shall also include any extraordinary or emergency events which may occur and also the identities of any persons who visit the Place of the Work who are not part of the day-to-day work force.

13.3.2 The Contractor shall also maintain records, either at its head office or at the Place of the Work, recording manpower and material resourcing on the Project, including records which document the activities of the Contractor in connection with GC 3.5 – CONSTRUCTION SCHEDULE, and comparing that resourcing to the resourcing anticipated when the most recent version of the schedule was prepared pursuant to GC 3.5 – CONSTRUCTION SCHEDULE.”

57.4 GC 13.4 CONFIDENTIAL INFORMATION

- .1 “The Contractor must not advertise or issue any information, publication, document or article (including photographs or film) for publication or media releases or other publicity relating to the Work or the Owner’s Confidential Information without the prior written approval of the Owner.
- .2 The Contractor must not, and must ensure that the Contractor’s personnel do not, without the prior written approval of ONTC:
 - (a) use Confidential Information other than as necessary for the purposes of fulfilling the Contractor’s obligations under this Contract; or
 - (b) disclose the Confidential Information, other than to the Contractor’s personnel who need the information to enable the Contractor to perform its obligations under this Contract, to the Contractor’s legal advisors, accountants or auditors, or where disclosure is required by law (including disclosure to any stock exchange).
- .3 The Contractor must, within 10 Business Days (or any other period agreed in writing by ONTC) after a direction by the Owner to do so, return or destroy all Confidential Information in the Contractor’s possession, custody or control.
- .4 If the Owner or the Contractor is required by law to disclose Confidential Information, it shall promptly notify the other party so that that party may intervene to prevent the disclosure.
- .5 The Contractor specifically acknowledges that Owner is subject to the Freedom of Information and Protection of Privacy Act, R.S.O. 1990, c. F. 4, and that the Owner may be compelled by law to disclose certain Confidential Information.

.6 The rights and obligations under this Part continue after the termination of this Contract.”

57.5 **GC 13.5 GENERAL**

“13.5.1 Nothing contained in this Agreement shall be deemed or construed by the parties nor by any third party as creating the relationship of principal and agent, landlord and tenant, or of partnership or of joint venture between the parties.

13.5.2 In addition to those provisions which are expressly stated to survive the termination or expiration of this Agreement, the provisions of this Agreement that are by their nature intended to survive termination or expiration of this Agreement shall continue in full force and effect subsequent to and notwithstanding termination or expiration until or unless they are satisfied.

13.5.3 This Agreement may be executed with electronic signatures or may be executed and delivered by electronic transmission and the parties may rely upon all such signatures as though they were original signatures. This Agreement may be executed in counterpart and all such counterparts shall, for all purposes, constitute one agreement binding on the parties.”

Schedule A to the Supplementary Conditions

To satisfy the requirements for a Proper Invoice, the Contractor's application for payment must satisfy the following criteria:

- .1 it is in the form of a written bill, invoice, application for payment, or request for payment;
- .2 it is in writing;
- .3 it contains the Contractor's name, telephone number and mailing address and contact information of the Contractor's project manager;
- .4 it contains the title of the Project and the Owner's contract number or purchase order number under which the work was performed and the related request for qualification, tender, or request for proposal number, as applicable;
- .5 it contains the date the written bill, invoice, application for payment, or request for payment is being issued by the Contractor;
- .6 it identifies the period of time in which the Work, labour, services, Products and/or materials were supplied to the Owner;
- .7 reference to the provisions of the Contract under which payment is being sought (e.g. progress payment / milestone, holdback, final payment, etc.);
- .8 a description, including quantities where appropriate, of the labour, services, Products, or materials, or a portion thereof, that were supplied and form the basis of the Contractor's request for payment;
- .9 the amount the Contractor is requesting to be paid by the Owner, set out in a statement, based on the schedule of values approved under paragraph 5.2.5, separating out any statutory or other holdbacks, set-offs and HST;
- .10 with each application for payment after the first, a written statement that all accounts for labour, services, subcontracts, materials, equipment, Products, and other indebtedness which may have been incurred by the Contractor and for which the Owner might in any way be held responsible have been paid in full up to the previous application for payment, except for amounts properly retained as a holdback or as an identified amount in dispute;
- .11 with the applications for payment of holdback and for final completion, a Statutory Declaration in the form provided by the Owner attached as Schedule B stating that all accounts for labour, services, subcontracts, materials, equipment, Products, and other indebtedness which may have been incurred by the Contractor and for which the Owner might in any way be held responsible have been paid in full up to the previous application for payment, except for amounts properly retained as a holdback or as an identified amount in dispute;
- .12 a current Workplace Safety Insurance Board clearance certificate;
- .13 the progress report required under GC 3.5 CONSTRUCTION SCHEDULE, in the form provided by the Owner attached as Schedule C;
- .14 an updated Construction Schedule in native and .pdf formats;
- .15 if requested by the Owner, a current and valid certificate(s) of insurance for the insurance required under GC 11.1 – INSURANCE;
- .16 the following statement: "Provided this Proper Invoice complies with the requirements of the Contract and provided no Notice of Non-Payment is issued by the Owner, payment is due within 28 days from the date this Proper Invoice is received by the Owner.";

- .17 the name, title, telephone number and mailing address of the person at the place of business of the Contractor to whom payment is to be directed;
- .18 in the case of the Contractor's application for final payment;
 - (a) sufficient evidence that the Contractor has delivered all warranties to the Owner;
 - (b) sufficient evidence that the Place of the Work has been left in a clean and tidy condition, including evidence that any remaining materials, tools, equipment, temporary work, and waste products and debris have been removed from the Place of the Work;
 - (c) landfill waybills for the disposal of the waste products, debris and excess soil removed from the Place of Work in accordance with the waste disposal plan; and
 - (d) an executed, original, full and final release of all claims that may arise as a result of the Work, which full and final release executed by the Contractor shall be in a form approved by the Owner;
- .19 information identifying the authority, whether in the Contract Documents or otherwise, under which the services or materials were supplied;
- .20 any other information that is prescribed in Article A-3, if any, or identified by the Owner as required;
- .21 the amount invoiced to date;
- .22 the percentage of the Contract Price invoiced; and
- .23 the individual value of Change Orders approved during the invoice period and the cumulative value of Change Orders for the Project.



Statutory Declaration of Progress Payment Distribution by Contractor

To be made by the Contractor **prior to payment**
as a condition for release of holdback.

The last application for progress
payment for which the Declarant has
received payment is No. _____

dated _____.

Identification of Contract :

Name of Contract (Location and description of the Work as it appears in the Contract Documents)

Date of Contract : Day : _____ Month : _____ Year : _____

Name of Owner : Ontario Northland Transportation Commission

Name of Contractor:

Name of Declarant :

Position or Title : (of office held with Contractor)

Declaration

I solemnly declare that, as of the date of this declaration, I am an authorized signing officer, partner or sole proprietor of the Contractor named in the Contract identified above, and as such have the authority to bind the Contractor, and have personal knowledge of the fact that all accounts for labour, subcontracts, products, services, and construction machinery and equipment which have been incurred directly by the Contractor in the performance of the work as required by the Contract, and for which the Owner might in any way be held responsible, have been paid in full as required by the Contract up to and including the latest progress payment received, as identified above, except for:

- 1) Holdback monies properly retained,
- 2) Payments deferred by agreement, or
- 3) Amounts withheld by reason of legitimate dispute which have been identified to the party or parties, from who payment has been withheld.

I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath.

Declared before me in _____

City/Town Province

on _____.

Date

Signature of Declarant

A Commissioner for Oaths or Notary Public

Schedule “C” to the Supplementary Conditions

Project Status Report

Project Title:

Reporting Period:

Date:

Project Details:

Planned Budget: Indicate the original contract value

Current Approved Budget: Indicate the original contract value plus approved change orders

Planned Completion: Indicate the contract schedule completion date

Current Project Completion: Fill in revised date if schedule extension approved through change order

Planned Project Percent Complete: How far should they have progressed by this date?

Actual Project Percent Complete: What is their actual percent complete?

Executive Summary

Provide a summary of what happened during the period, any concerns, risks or wins and plans for the upcoming period.

Work Completed in the Period

- List
- List
- List
- List
- List

Work Planned for Next Period

- List
- List
- List
- List

Issues and Concerns

Use this area to identify any concerns related to the project.

Status of Progress

Include a graph to show progress or eliminate this section.

SCHEDULE D:

DUTY TO NOTIFY/EMERGENCY WORKS NOTIFICATION FORM

ONTC DUTY TO NOTIFY / EMERGENCY WORKS NOTIFICATION FORM

SUBMISSION REQUIREMENTS

Contact DFO By Phone 1-855-852-8320 **AND** submit this form to
fisheriesprotection@dfo-mpo.gc.ca

Submit this form to the consultant and the ONTC project manager and to ONTC Legal :
legal@ontarionorthland.ca

MNRF Office: Contact Area MNRF Office

PART 1: NOTIFICATION DETAILS

Type of Notification: ☐ DUTY TO NOTIFY ☐ EMERGENCY WORK

Date of Notification:

Time of Notification:

ONTC Contract #:

DFO PATH File # (if applicable):

PART 2: REPORTING INFORMATION

Name of Person Reporting:

Name of Field Contact:

Telephone #:

Telephone #:

Email:

Email:

PART 3: INCIDENT INFORMATION

☐ Bank failure

☐ Culvert failure

☐ Erosion and Sediment Control Measures Failure

☐ Beaver dam breach

☐ Other (specify):

☐ Hwy shoulder failure

Date of Incident:

Time of Incident:

Location of Site:

Geographic Coordinates (Lat/Long):

Nearest Community (city/town):

Name of Waterbody(ies):
Type (watercourse, lake/pond, ditch):

Indicate if any of the following impacts have occurred or are about to occur:

☐ Fish Kill (if yes, approximately how many): _____

☐ Sediment deposition in channel

☐ Bank failure

☐ Obstruction of fish passage through:

☐ Modification of flows

☐ Channel

☐ Culvert

☐ Other (specify):

<p>Immediate Actions Taken: (Describe the activities/works that are being / have been immediately implemented. e.g. mitigation measures, damming / pumping etc.)</p>			
<p>Photos: <input type="checkbox"/> Attached (Where feasible, it is recommended that the photos be submitted with the form or as follow up)</p>			
PART 4: EMERGENCY WORKS			
<p>Description of Proposed Emergency Works: (Be as specific as possible. Describe what work will be undertaken within the next two weeks. E.g. culvert replacement (include existing and new culvert diameter / length / type), slope restoration (include material / method),:</p>			
<p>Mitigation measures: (Describe what measures have been or will be implemented to address the immediate issue. E.g. sediment fence, turbidity curtain, check dam, fish salvage etc.):</p>			
<p>Indicate which of the works will be followed (if applicable):</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Beaver Dam Removal <input type="checkbox"/> Bridge Maintenance <input type="checkbox"/> Ditch maintenance within 30 m of a waterbody <input type="checkbox"/> Riparian vegetation maintenance in existing right-of-way </td> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Culvert Maintenance <input type="checkbox"/> Like-for-like culvert replacement <input type="checkbox"/> Temporary watercourse crossing </td> </tr> </table>		<input type="checkbox"/> Beaver Dam Removal <input type="checkbox"/> Bridge Maintenance <input type="checkbox"/> Ditch maintenance within 30 m of a waterbody <input type="checkbox"/> Riparian vegetation maintenance in existing right-of-way	<input type="checkbox"/> Culvert Maintenance <input type="checkbox"/> Like-for-like culvert replacement <input type="checkbox"/> Temporary watercourse crossing
<input type="checkbox"/> Beaver Dam Removal <input type="checkbox"/> Bridge Maintenance <input type="checkbox"/> Ditch maintenance within 30 m of a waterbody <input type="checkbox"/> Riparian vegetation maintenance in existing right-of-way	<input type="checkbox"/> Culvert Maintenance <input type="checkbox"/> Like-for-like culvert replacement <input type="checkbox"/> Temporary watercourse crossing		
<p>The Emergency Works are (check one):</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"><input type="checkbox"/> Temporary (additional work will be required)</td> <td style="width: 50%;"><input type="checkbox"/> Final (no additional work required)</td> </tr> </table>		<input type="checkbox"/> Temporary (additional work will be required)	<input type="checkbox"/> Final (no additional work required)
<input type="checkbox"/> Temporary (additional work will be required)	<input type="checkbox"/> Final (no additional work required)		
<p>Proposed Start Date: (YYYY/MM/DD)</p>	<p>Proposed End Date: (YYYY/MM/DD)</p>		
PART 5: OTHER AGENCIES NOTIFIED			
<p>Other Agency(ies) Notified: Yes <input type="checkbox"/> No <input type="checkbox"/></p>	<p>Agency(ies) Notified:</p>		
<p>Date Notified:</p>	<p>Incident Report No. (if issued by notified Authority):</p>		

END OF SUPPLEMENTARY CONDITIONS

ONTARIO NORTHLAND – SPECIAL SUPPLEMENTARY CONDITIONS – SCHEDULE OF PRICES
REV 26 MAR 2024

These Special Supplementary Conditions amend the CCDC 4 Agreement and General Conditions and the Ontario Northland Supplementary Conditions – CCDC 4-2011 – Rev 15 NOV 2023. These Special Provisions take precedence over any other provision in any of the Contract Documents.

SSC 1. The Ontario Northland – Supplementary Conditions – CCDC 4 – 2011 – Rev 15 NOV 2023 are hereby amended as follows:

(a) Add new supplementary condition 2A as follows:

“2A ARTICLE A-4 CONTRACT PRICE

2A.1 In Article A-4.1, delete the first sentence and replace it with the following:

The *Schedule of Prices* forms the basis for determining the *Contract Price*. Quantities for *Unit Price* items in the *Schedule of Prices* are estimated.

(b) Delete SC 5.9 and replace it with the following:

“5.9 Delete the definition of “Contract Price” and replace it with the following:

Contract Price

The *Contract Price* is the amount payable by the *Owner* to the *Contractor* for the performance of the *Work* in accordance with the *Unit Prices* established in the *Schedule of Prices* and the method and manner of payment stipulated in the Contract, which is estimated to be the price stipulated in Article A-4.4, including any additional or reduced amounts payable for approved changes in the *Work* as provided for and authorized by the *Owner*.”

(c) Add new SC 5.18.1 as follows:

“Delete the definition of “Schedule of Prices” and replace it with the following:

Schedule of Prices

The *Schedule of Prices* means the following schedule, approved by the *Owner*, subject to adjustment as provided in the *Contract Documents*:

- Schedule A – Schedule of Quantities and Prices RFP 2024 015 – ONTC Bridge Rehabilitations – Mile 69.6 and 69.7 Kapuskasing Subdivision.