

**DEPARTMENT OF TRANSPORTATION, INFRASTRUCTURE AND ENERGY
Province of Prince Edward Island**

**TENDER FORM AND AGREEMENT
Revision 1**

THIS AGREEMENT made by and between, herein called the Contractor, the Party of the First Part, and The Government of Prince Edward Island as represented by the Minister of Transportation, Infrastructure and Energy, the Party of the Second Part.

WITNESS, AS FOLLOWS:

1. Definitions

The definition of terms used in this Tender Form and Agreement shall conform in all respects to the definition of terms contained in the document entitled "General Provisions and Contract Specifications for Highway Construction", published by the Department of Transportation, Infrastructure and Energy of the Province of Prince Edward Island as amended on the date of closing of Tenders pursuant to this Agreement.

2. General Covenant

The Contractor hereby covenants and agrees with the Minister as herein provided in connection with the following work, namely:

HILLSBOROUGH BRIDGE - STRUCTURAL STEEL STRUT REPLACEMENT DISTRICT 6/12

The scope of this work includes, but is not necessarily limited to the following: the supply of all labour, equipment, and materials necessary to completely remove and replace the structural truss bottom chord strut members as identified in the tender documents and drawings, including; but, not limited to; general mobilization; scaffolding design and erection; environmental controls; removal of existing strut members; supply of structural members, including shop coating; remaining steel connection member preparation; field drilling holes; structural steel installation; field bolting; field cutting of diaphragm member; stiffener plate supply, fabrication, installation and field welding; surface preparation and coating application; final clean up and all other ancillaries required to complete the work to the satisfaction of the Owner.

TENDER CLOSES:

**Tuesday, July 24th, 2:00 PM
11 Kent Street, 3rd floor Jones Building, Charlottetown, PEI**

3. No Implied Contract

It is hereby understood and agreed between the parties hereto that no implied contract of any kind whatsoever, by, or on behalf, of the Minister shall arise or be implied from anything contained in this Contract, or from any position or situation of the parties at any time, and that this Contract made by the Minister is, and shall be, the only Contract upon which any rights against the Minister are to be founded.

4. How Party of the First Part is Read

Whenever this Contract is entered into by more than one party or parties of the first part, the word "Contractor" shall be read "Contractors," and pronouns in the contract referring to the Contractors shall be read as plural and whenever a corporation is the Party of the First Part, the said pronouns shall be read accordingly.

5. Consideration of Clauses as Covenants

Wherever it is stipulated that anything shall be done or performed by either of the Parties hereto, it shall have the same effect and be constructed as if such Party had entered into a covenant with the other Party to do or perform the same, and as if such covenant had been expressly made on the part of the Contractor, not only on the Contractor's own behalf, but also on the behalf of the Contractor's legal representative, successors or assigns; and as if any such covenant on the part of the Minister has been made on behalf of the Minister, and the Minister's successors in office.

6. Contractors Submission Respecting the Agreement

The Contractor shall, as part of the Contractor's submission respecting this Contract, complete the attached Schedule B, Identification of Principles; Schedule C, Schedule of Tendered Unit Prices; Schedule D, Schedule of Equipment to be used on the work; and Schedule E, Schedule of Sub-Contractors.

The Contract, including all appended schedules, shall be completed in complete conformity with the instructions to bidders contained in the document entitled "General Provisions and Contract Specification for Highway Construction".

In presenting the Contractor's submission for consideration by the Minister, the Contractor understands that until, and unless, the Contract is endorsed by the Minister, no Contract between the parties shall exist and the Minister shall not be bound to endorse any Contract.

7. Performance by Contractor

The Contractor, at the Contractor's own expense, shall, except as herein otherwise specifically provided, furnish and provide all and every kind of labour and superintendence, services, tools, implements, machinery, plant materials, articles and whatsoever is necessary for the due execution of the work. The Contractor shall fully construct and erect the work in the most thorough, professional and substantial manner, in every respect to the satisfaction and approval

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of the Engineer. The Contractor shall complete the work within the time specified herein and deliver it to the Minister in the manner and upon the terms and conditions of the Contract.

8. Bid and Performance Security

The Contractor hereby and herewith deposits with and delivers to the Minister, as security of the due fulfilment of the Contract, one of the following, which shall remain in effect for a minimum of 30 days after tender closing:

- OR a) a Certified Cheque in the amount stipulated in Schedule A - Schedule of Special Provisions.
- OR b) a Bank Draft in the amount stipulated in Schedule A - Schedule of Special Provisions.
- OR c) a Bid Format irrevocable standby Letter of Credit on a Government approved form in the amount stipulated in Schedule A - Schedule of Special Provisions.
- OR d) a Bid Bond in the amount stipulated in Schedule A - Schedule of Special Provisions. The Bond shall be from a surety company authorized to carry on business in Canada guaranteeing to supply a Performance Bond equal to 50% of the contract value, excluding HST, and a Labour and Material Bond equal to 25% of the contract value, excluding HST.

Performance Security must be filed with the Department before work on the project commences. This security shall be held and retained by the Minister for the due and faithful performance, observance and fulfilment by the Contractor of all the covenants, provisos, agreements, conditions and reservations in this Contract contained on the part of the Contractors to be observed, performed and complied with shall be in the form of:

- OR a) a Certified Cheque in the amount of ten percent (10%) of the Contract value, excluding HST, which shall be retained until the warranty period (one (1) year after substantial completion) has elapsed.
- OR b) a Bank Draft in the amount of ten percent (10%) of the Contract value, excluding HST, which shall be retained until the warranty period (one (1) year after substantial completion) has elapsed.
- OR c) a Performance Format irrevocable standby Letter of Credit on a Government approved form in the amount of ten percent (10%) of the Contract value, excluding HST, which shall be retained until the warranty period (one (1) year after substantial completion) has elapsed.
- OR

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- d) a Performance Bond equal to 50% of the contract value, excluding HST, and a Labour and Materials Bond equal to 25% of the contract value, excluding HST, both of which shall be retained until the warranty period (one (1) year after substantial completion) has elapsed.

All performance security which has an expiry date which precedes the end of warranty date must be renewed prior to the time that the security would expire. The bidder will forfeit security to the Minister if the bidder fails to enter into or carry out the Contract when called upon to do so.

It is understood and agreed that the Contractor assumes risk and must bear any loss in respect to the performance security as aforesaid, occasioned by the failure or insolvency of the banks on which any cheque was drawn or in which any deposit was made in connection with the security aforesaid.

If at any time hereafter the said Contractor should make default under the said Contract, or if the Minister acting under the powers reserved in the said Contract shall determine that the said works, or any portion thereof remaining to be done, should be taken out of the hands of the Contractor and be completed in any manner or way whatsoever than by the Contractor, or if the Contractor refuses or neglects to pay for work done or materials supplied by any person in connection with the said work, the Minister may, in either case dispose of said security for the carrying out of the construction and completion of the work of the Contract or for paying any salaries or wages for work done, or any accounts for materials supplied for the said works that may be left unpaid by the said Contractor.

In the event of any breach, default or non-performance being made or suffered by the Contractor in or in respect of any of the terms and conditions, covenants, provisions, agreements, or restrictions herein contained, which on the part of the said Contractor should be observed, performed or complied with, the said security so delivered to or deposited with the Minister or by the Minister received in respect thereof, shall by the contractor, be forfeited absolutely to the Minister.

Upon the due and faithful performance, observance and fulfilment by the Contractor of all the terms, provisions, covenants, agreements, conditions, reservations, hereinbefore contained, on the part of the Contractor to be observed, performed and complied with, the Minister shall surrender the performance security.

9. Minister Covenants to Pay

In consideration of the faithful performance by the Contractor of all and singular covenants, agreements and provisions of the Contract, the Minister hereby covenants and agrees with the Contractor that, on the full completion by the Contractor of all the work as specified in the Contract, within the time specified and limited for the final completion thereof, and to the entire satisfaction of the Engineer to be evidenced by the certificate of the Engineer in writing, the said Minister will well and truly pay, or cause to be paid, to the said Contractor the amount of the Contract price, representing the actual quantities in the several items in the Schedule of Prices, identified as Schedule C to this Contract, at the unit prices or lump sum prices quoted by the Contractor. This amount paid to the Contractor as above, shall include all and every kind of work, labour, superintendence, services, tools, implements, machinery, plant materials, articles and

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things whatsoever necessary for the full execution and completion of the work to the entire satisfaction of the Engineer.

10. Final Payment

It is hereby agreed by the parties hereto that the payment of the final amount due under the Contract, and the adjustment and payment of any bills that may be rendered for work done, in accordance with any alteration in or addition to the same, shall release the Minister from any and all claims or liability on account of work performed under the said Contract or any alteration in or addition to the same.

11. No Waiver

It is hereby agreed that no condoning, excusing, or overlooking by the Minister, or any person acting on the Minister's behalf on previous occasions of breaches or defaults similar to that for which any action is taken or power is exercised, or forfeiture is claimed or enforced against the Contractor, shall be taken as a waiver of any provisions of the Contract, or as defeating, affecting or prejudicing in any way the right of the Minister under the Contract.

12. Components of the Contract

Any and all plans or drawings prepared by the Department, the document titled "General Provisions and Contract Specifications for Highway Construction", the advertisement, the Tender Form and Agreement together with Schedule A, Schedule of Special Provisions; Schedule B, Identification of Principals; Schedule C, Schedule of Tendered Unit Prices; Schedule D, Schedule of Equipment; and Schedule E, Schedule of Sub-Contractors, as well as any addenda which may be issued by the Department pursuant to this Contract shall hereby be a part of this Contract as fully and to the same effect as if the same had been set forth at length in the body of the Contract.

13. Completion of Work

The Contractor agrees to complete the work on or before 20th of December, 2018

14. FOIPP Clause

1. By submitting your bid, you agree to disclosure of the information supplied, subject to the provisions of the Freedom of Information and Protection of Privacy Act (FOIPP).
2. Anything submitted in your bid that you consider to be "confidential information" because of its proprietary nature should be marked as "confidential" and will be subject to appropriate consideration under the Freedom of Information and Protection of Privacy Act.
3. During the delivery and installation of goods and/or services, you may have access to confidential or personal information. Should this occur, you must ensure that such information is not released to any third party or unauthorized individual.

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- 4. Any information provided on this contract may be subject to release under the Freedom of Information and Protection of Privacy Act. You will be consulted prior to the release of any information.

IN WITNESS WHEREOF the parties hereto have hereby caused these presents to be signed and sealed on the dates stated.

SIGNED, SEALED AND DELIVERED
by the Contractor on the day
of , 2018

SIGNED, SEALED AND DELIVERED
by the Minister on the day
of , 2018.

.....
CONTRACTOR

.....
MINISTER

In the presence of:

.....

In the presence of:

.....

SCHEDULE 'A'
SCHEDULE OF SPECIAL PROVISIONS
Revision 0, June 29th, 2018

HILLSBOROUGH BRIDGE - STRUCTURAL STEEL STRENGTHENING

1. GENERAL PROVISIONS AND CONTRACT SPECIFICATIONS for HIGHWAY CONSTRUCTION

This Document can be accessed online at:

www.princeedwardisland.ca/sites/default/files/publications/2018_specifications_manual_0.pdf

2. SECTION 102.07 - BID AND PERFORMANCE SECURITY

The stipulated Bid Security amount shall be thirty thousand dollars (\$200,000).

Upon award, the successful Contractor shall replace the Bid Security by submitting to PEI Department of Transportation, Infrastructure and Energy (the Department) a Performance Security.

The Performance Security shall remain in place until the warranty period expires (one year after substantial completion).

3. SECTION 102.10 - COMPETENCY OF BIDDER

Bidders must be capable of performing the various items of work bid upon. Bidders shall, upon the request of the Department, provide a statement covering experience on similar work and a statement of their financial resources. Bidders shall also provide proof of various certifications as stipulated in the Contract document or in Schedule 'F'.

4. ALTERNATE BIDS

The Department will not be entertaining alternate bids on this project.

5. MANDATORY SITE VISIT

The Department **REQUIRES** that bidders visit the site during the tender period to become familiar with and take into account the existing bridge system and all relevant surrounding site conditions. **The site visit will occur on Friday, July 20th, at 10:30 AM on site. Access to the bridge will be VIA the north (Charlottetown) abutment. Bidders are to have all PPE on them during the site visit (hard hat, safety vest, steel-toed boots). BIDDERS WHO DO NOT ATTEND THE SITE VISIT WILL HAVE THEIR TENDER RETURNED TO THEM UN-OPENED.**

The successful Contractor to have included in tender price all costs associated with performing all aspects of the work which are affected by existing conditions or related existing conditions which arise as a result of performing any aspect of the work. The Contractor shall take into account all associated precautions and/or altered work methods. No additional compensation will be provided for any work items affected by existing site conditions.

Bidders are responsible for their own safety during the site visit, and are not to negatively affect the safety of the travelling public.

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6. SUBMISSIONS

Prior to submission to the Department, the Contractor shall be responsible to review the content of all documents for completeness, correctness, and meeting criteria of the Contract. The Contractor shall also be responsible to coordinate submission's timing such that the Department and/or its Consultant have a reasonable and sufficient amount of time to review submission and return comments so that such comments can be incorporated into the related work without negatively affecting project schedule. Incomplete submissions that do not meet project requirements and/or which may negatively affect the Contractor's construction schedule shall be the responsibility of the Contractor.

All submissions shall be submitted via digital media as much as practically possible, unless otherwise noted and/or agreed to by the Department. Digital submissions shall be Portable Document Format (PDF), with multi-page and drawing file documents created as a file booklet as opposed to individual files, unless booklet byte size is too large for email transmission.

Note that should the Contractor decide to use any part of the Department's drawing(s) to facilitate the preparation of a submission, the Contractor shall first remove from the drawing(s) all references connected to the Department (provincial logo, title block text, engineer's seal, etc).

7. SECTION 102.13 - SCHEDULING OF THE WORK

The number of working days stipulated for this Contract is **Ninety (90)** working days; No claims for delays caused by whatever external agencies or factors shall be allowed. The Contractor shall work Saturdays (if he deems necessary to meet deadline) and/or maximize the hours per day on site.

The overall project completion date shall be no later than **December 20th, 2018**.

All bidders shall supply a Preliminary Construction Schedule with his Tender Documents for review by the Department.

Prior to Contract award, the selected Bidder shall submit a detailed Final Construction Schedule to the Department for review. The Final Construction Schedule shall identify all primary work activities (eg: mobilization; scaffolding; steel preparation; structural steel modifications; coating; etc., etc). The Final Schedule shall indicate applicable time lines and milestones for all work activities.

Throughout the project the Contractor shall notify the Department of any situations that may negatively affect the project's Final Construction Schedule.

The Contractor shall, upon the Department's request at any time throughout the project, update and submit to the Department an updated Construction Schedule as deems required to reflect any circumstances that may cause the need for an updated Schedule.

8. SECTION 103.03 - EXTRA WORK

The Cost of any extra work shall not include the costs of service vehicles nor the wages of the supervisory personnel except under special circumstances authorized by the Engineer.

Extra work shall be defined as work activity, or service, on its own or part of a larger component of work to be performed, which is not already included as a cost item in the project's Schedule C.

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Note that a Department bridge construction representative (project manager, engineer) shall compare the as-tendered scope of work versus the concerned scope of work to determine whether the concerned work is indeed extra work.

Any extra work which is to be conducted under a Time and Materials System shall be agreed to by both parties, and shall be complimented with the appropriate supplemental information, including, but not limited to:

- a) Labour: Submit (for each worker) name, date(s), description of work performed, time of day work performed, man hours, and associated rates;
- b) Material: Submit identification, quantity, backup invoices, and associated costs for each;
- c) Service or rentals: Submit supporting documentation verifying costs for each item;
- d) Equipment: Submit identification, date(s), description of work performed, time of day work performed, quantity of hours, as well as the equipments year, make, and model. Equipment charges shall be paid based on the Province of PEI Machinery Rental Rates.

Failure to provide the above information, or any other documentation requested by the Engineer to assist verification of actual cost incurred, shall be cause for rejection of the Claim. All claims shall be submitted within thirty (30) days of the extra work being complete, or within the associated progress claim period. Failure to provide the requested documentation in a timely manner may result in a delay of payment for the extra claim, with no incremental extra compensation entertained.

Note that a Department bridge construction representative (data collector, project manager, engineer) must be notified prior to the Contractor performing any activities He deems to be extra work. A bridge representative also must be notified of any non-activity items the Contractors deems extra (eg: lost time and delays, meals, accommodations, services, etc) prior to these costs being incurred by the Contractor. Failure to notify may result in non-consideration of payment.

Note that the Department reserves the right to consider a lump sum cost proposal (complete with a detailed breakdown of costs as per the Time and Materials breakdown above) from the Contractor. This consideration not does eliminate the Department's option to pay for extra work via Time and Materials.

Note that the Department also reserves the right to award any extra work to a third party other than the Contractor.

9. SECTION 103.04 - FINAL CLEANUP

Site cleanup to existing road, structure, and surrounding area within the contract limits will be considered incidental to the performance of the work and shall be part of this Contract's scope of work. Refer to section 103.04 for more information.

10. SECTION 104.08 - CONTRACTOR'S RESPONSIBILITY

The Contractor shall identify and place a competent and reliable representative with authority to act for the Contractor in charge of the work. The representative shall be responsible for all aspects of the work, including, but not limited to the Contractor's own forces, any and all sub-contractors, suppliers, etc., reviewing, verifying and approving any claims for additional work submitted by sub-contractors, and organizing each day's work plan in light of completing the work within the allotted time frame. No compensation shall be given for any extra work. See Clause 103.03 above.

11. SECTION 104.10 - DAMAGE BY VEHICLES OR OTHER EQUIPMENT

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Any damage to any structure elements, or adjacent property, during any activity due to vehicles, heavy equipment, or any other equipment controlled by the Contractor shall be repaired or replaced as determined by the Department and at the Contractor's expense. Do not park heavy equipment on roadway. Refer to section 104.10 for more information.

Reinstatement of existing asphalt, shoulders, ditches, adjacent property, or any other existing feature which is outside the project limits, yet which is damaged by the Contractor, shall be at the Contractor's expense with no additional cost to the Contract. Determination and extent of damage shall be at the discretion of the Department. Reinstatement shall be reasonably to that condition prior to project start.

12. SECTION 104.17 - ENVIRONMENTAL PROTECTION

Dispose of demolished materials at an approved disposal site in accordance with applicable Provincial Environmental Guidelines.

The Contractor shall be responsible to apply, obtain, and pay for all environmental permits such as but not limited to waste disposal, creosote disposal, pit material, etc. The Contractor shall provide copies of applicable permits to the Department upon request.

Any related permits applied for in advance by the Department on behalf of the successful Contractor are made solely in the interest of the project schedule. Any permits issued to the Department shall automatically become the entire responsibility of the Contractor with respect to performing all work activities in compliance with the concerned permits.

The Contractor shall be responsible to apply for, pay for, and submit a copy to the Department of both a Hazardous Waste Permit and a Pit Permit.

The Contractor shall develop and submit to the Department (for the Department's review and comment prior to the project's start-up meeting with the Contractor) an Environmental Control Drawing(s) indicating the type and extent of each environmental control. This drawing shall be developed based on the Contractor's proposed work methods and procedures, coincident with the work activities within the time frame of the project.

All environmental controls shall be in place prior to and during related project activities. Refer to specific bid items for related description and measurement of payment for some environmental controls. Controls without a bid item (such as but not limited to Emergency Response Kit) shall be considered incidental to the project with no additional compensation provided.

Payment shall be made for only those controls which are incorporated into the site and serve as an environmental control.

The type, location, and extent of all environmental controls shall be coordinated with both the Department's Environmental Management Section and the Department's Bridge Project Manager. Installation of a control and its extent, without the Project Manager's knowledge, shall not be paid by the Department.

The Contractor shall be responsible to monitor (on a daily basis, including non-work days such as weekends or Holidays) all environmental controls. All environmental controls shall be maintained and/or replaced by the Contractor (at no additional cost to the Department) throughout the entire duration of the project such that controls are effectively performing their function.

The Contractor shall provide all labour, materials, and equipment required for the installation, secure attachment, handling, and disposal of a collection system for all timber material waste generated as a result of drilling, cutting, and installing hardware, etc into any timber members. No timber material

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waste shall be permitted to enter the watercourse (neither directly nor indirectly). This item also includes the loading, transport from site, and disposal off site of all collected waste. This item shall have no cost line item and shall be considered incidental to the project.

No additional compensation will be provided for this item.

13. SECTION 106 - PROSECUTION AND PROGRESS, OCCUPATIONAL HEALTH AND SAFETY (OH&S) ACT AND REGULATIONS

No additional compensation shall be provided for this item. All work shall be performed in accordance with the PEI Occupational Health and Safety (OH&S) Act and Regulations.

The Contractor shall submit to the Department a copy of all OH&S reports (independent of report content) related to this construction site. The Contractor shall also submit to the Department written documentation of corrective/remedial measures taken to address any issued identified as requiring such in an OH&S report.

The Contractor shall submit to the Department a copy of a clearance letter issued to the Contractor by the PEI Workers Compensation Board indicating that the Contractor is in good standing. The Contractor shall submit to the Department additional copies verifying renewal of good standing status throughout the duration of the project.

The Contractor shall develop and submit to the Department a site specific Fall Protection Plan (including an associated Rescue Plan) in accordance with the PEI Occupational Health and Safety Act and Regulations.

The Contractor shall fully complete and submit to the Department (prior to mobilizing on site) the attached Hazard Assessment Form and the attached Pre-Construction Contractor Site Safety Check List. Alternatively, the Contractor may elect to use his/her own forms provided they meet or exceed (at the Department's discretion) those provided.

The Contractor is responsible to ensure that the work is performed in a safe manner and that all personal protective equipment, equipment, etc., are in good working order and safe working condition. The Contractor is also responsible to ensure that his labourers, traffic control personnel, and skilled trades people have been adequately trained in their respective roles and duties, as well as their rights and responsibilities under the PEI Occupational Health and Safety Act and Regulations.

The Contractor shall submit to the Department (prior to mobilizing on site) a signed written document stating:

- a) all equipment to be used for this project has been and will be safety maintained and is safe for use;
- b) all workers have and will be safety trained to perform work activities for this project; and
- c) all personal protective equipment used for this project meets latest CSA Standards.

This document shall be applicable for all equipment and workers whether under the direct operation/direction of the Contractor or a Subcontractor. The Contractor shall also submit to the Department Safety Inspection Certificates of any cranes to be used on site or in the Department's Storage Yard.

Note for any circumstance whereby traffic control personnel are required on site, the Contractor shall prepare and submit to the Department a site specific Traffic Control Plan prepared by a certified Traffic Control Manager. The Traffic Control Plan shall be developed in accordance with the Prince

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Edward Island Temporary Workplace Traffic Control Manual (latest edition). Note that the Traffic Control Manual is a document with minimum guidelines. The Traffic Control Manager shall also be on site at all times while traffic control personnel are on site.

Note for any circumstance whereby traffic control personnel are utilized on site, the Contractor shall fully complete and submit to the Department on a weekly basis (for each applicable day within that week) the attached Daily Traffic Control Checklist. This form shall be completed in full each working day by the Contractor prior to mobilizing any equipment or work personnel on site, as well as just after demobilizing any equipment or work personnel on site.

The Contractor is responsible to ensure that all equipment can safely enter, manoeuvre within, and exit the site. The Contractor shall take measures to ensure trucks can safely enter, manoeuvre within, queue, load, off-load, and exit the site. This includes measures to provide adequate and safe turning areas as required. The Contractor shall be required to arrange and pay for any off-site areas required to facilitate truck/equipment utilization.

The Contractor shall submit to the Department upon request any documentation (example: tool box meeting minutes, incident reports, accident reports, training certificates, etc) related to safety for this project.

Delivery of earth material shall be by tandem truck only. Delivery via trailers shall not be permitted, except for rip rap material. Any other circumstances must be approved by the Department.

In accordance with Chapter 0-1, Part 2, of the Occupational Health and Safety Regulations, the Contractor shall provide portable toilet during construction.

14. BID ITEM # 20306 - EXCAVATION: EARTH SURPLUS/SUITABLE

The unit price bid for this item shall include the handling of surplus material to be later used as common borrow material for embankment stabilization within the project site. The Department will determine on site the identification and extent of material deemed surplus suitable. The unit rate bid for this item shall include the excavation, loading, transportation locally within this project's site, stockpiling, supply and installing filter fabric over the entire exposed area of stockpiled material (and securely weighing it down), periodic maintenance of weigh-down system, removal and disposal of filter fabric, reloading, transportation, placement, grading, and compaction of the material. Contractor to determine, in conjunction with the Department representative, the extent of excavation so to place any equipment and/or manoeuvre trucks or equipment within the site.

The Contractor is responsible for providing a separate area within this site to temporarily store the material and ensure that it is secured for use by the Department. Note that as much material as practically possible shall first be used as surplus/suitable prior to being designated under a separate cost item. No additional compensation shall be entertained for any part thereof required to conduct the work as intended.

For the purpose of determining the volume of material excavated, the Contractor shall be responsible for all costs to perform a site survey of the excavated area (both prior to and after excavation) and submit to the Department a digital file (autocad file) indicating digital sketches of applicable cross sections used to determine the volume of material. The sketches shall also indicate the associated volume of material in units of cubic metres. The survey results are to be referenced to the Department's site survey benchmark. The Department will provide to the Contractor an Autocad file indicating the results (coordinates and ground elevations) of the Department's site topographical survey of the existing conditions. This data shall be used by the Contractor to aid in determining the volume of material excavated.

Note that the Department shall determine on site, during excavation, the vertical extent of excavation

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within the existing roadbed from the mass excavation from the foundation areas back to the project limits.

The Contractor shall take due care during all ground disturbing activities on the site relative to possibly unearthing items of cultural significance. If any such items are unearthed all ground disturbing activities shall halt until applicable authorities are notified and proper care and attention has been undertaken.

15. BID ITEM # 20701 - GRANULAR BASE: A

The unit bid price for this item shall include the supply, placement, and compaction of Class 'A' granular base for the cast-in-place concrete wall. Contractor shall determine and verify quantity of material required prior to ordering and site delivery. Use and extent of material may also be determined on site by Department representative.

16. BID ITEM # 21203 - SUPPLY & PLACE TOPSOIL

The lump sum price bid for this item shall include the provision of topsoil for repairing areas of damaged sods on the exterior of the proposed wall on the east and west sides. The price shall include the supply, placement, levelling and grading of the topsoil for future acceptance of hydroseed.

17. BID ITEM # 21302 - RANDOM RIP-RAP: R5

The unit bid price for this item shall include the supply and placement of random R5 rip rap as indicated on the drawings, or as directed on site by the Department. Use and extent of material may also be determined on site by Department representative. The Contractor shall co-ordinate delivery of material on site such that it is dumped off a truck only once on site prior to its final placement. Contractor shall determine and verify quantity of material required prior to ordering and site delivery.

Note that all rip rap material shall be granite and meet the Department's Technical Specification Clause 213.02 for Class 1 material.

18. BID ITEM # 21302 - RANDOM RIP-RAP: R25

The unit bid price for this item shall include the supply and placement of random R25 rip rap as indicated on the drawings, or as directed on site by the Department. Use and extent of material may also be determined on site by Department representative. The Contractor shall co-ordinate delivery of material on site such that it is dumped off a truck only once on site prior to its final placement. Contractor shall determine and verify quantity of material required prior to ordering and site delivery.

Note that all rip rap material shall be granite and meet the Department's Technical Specification Clause 213.02 for Class 1 material.

Note that the Department's specification for the percent finer by mass for the 260mm size shall read 0%, not 40-55%.

19. BID ITEM # 21801 - FILTER FABRIC

The unit bid price for this item shall include the supply and placement of filter fabric as indicated on the drawings or as required for other purposes such as but not limited to environmental controls.

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Note that the cost associated with filter fabric which is included as part of other cost items shall not be included as part of this cost item. Filter fabric shall be type N3 at all locations.

20. BID ITEM # 120101 - CHAIN LINK FENCE

The unit bid price for this item shall include the fabrication, hot-dip galvanizing, supply and installation of a new steel security fence to completely enclose the north and south abutments of the Hillsborough Bridge.

The unit bid price for the above listed item shall be full compensation for all steel sections (minimum grade as indicated on the drawings), fabricated, hot-dipped galvanized (720 g/cm² as per ASTM A123), delivered to the site and installed on the cast-in-place concrete wall as indicated on the drawings. Submit shop drawings (indicating member sizes, member grade, and connection detail, welded connections) to the Department for review at no additional cost to the Contract. Refer to attached Schedule 'F' and the drawings.

Fabrication and installation of cover plates shall be performed by a company certified with the Canadian Welding Bureau, CAN/CSA W47.1, Division 1.

All welders involved with the fabrication and installation of cover plates shall be certified with the Canadian Welding Bureau for the processes and positions related to the associated fabrication.

All welding to be performed per CAN/CSA W59, latest edition. Drilling of holes and bolted connections shall be done in accordance with CSA S6 and CSA S16.1. Anchor bolts shall be Grade A307, in accordance with ASTM F3125.

The unit price for this item shall also include all costs associated with the on-site storage of material supported/elevated such that it maintains its original non-deformed shape, as well as stored safely so it will remain in stored position.

The Contractor shall submit to the Department mill certificates indicating heat numbers and corresponding chemical composition (components and amounts) for all steel used for this project. Please refer to Schedule 'F' for more details related to this item.

21. BID ITEM # 120202 - SAND BLASTING AND PAINTING

The lump sum bid price shall be full compensation for the supply and application of structural steel coating as indicated on the drawings or in the specifications. The price shall include; but, not be limited to; supply, installation and removal of environmental protection measures; structural steel preparation; sand blasting and safe disposal of sandblasting remnants; cleaning; material storage; supply and application of primer coat; supply and application of successive paint coats; site cleaning and all other ancillaries required to properly coat the repair locations. Refer to the Drawings and Schedule 'F' for further details.

The price shall also include minimum of four (4) site visits from the coatings manufacturer technical representative; once at the start-up meeting; once after steel preparation is complete; once during coating operations and once after the finish coat has hardened. The technical representative shall provide the owner with a written report on their findings, any recommendations made, and certify that the finish product was applied to the complete satisfaction of the manufacturer.

22. BID ITEM # 130018 - HYDROSEEDING

The unit bid price for the above listed item shall include seeding of all topsoiled areas once the

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concerned areas are topsoiled. This shall include all disturbed embankments, ditches, new roadway embankments, etc within the project limits. Acceptable products shall be Flexterra, Firbramulch, or equivalent approved by the Department.

23. BID ITEM # 130803 - CONCRETE REINFORCEMENT

The per kilogram bid price for the above listed item shall be full compensation for the supply and installation of each kilogram of concrete reinforcing steel required. Grade of reinforcing steel shall be 400W. Rebar placement drawings indicating material grade, piece marks and associated bar size and spacing, lap locations and associated lengths, etc shall be submitted to the Department by the Contractor at no extra cost to the Contract. Also include directly on the placement drawing (not on a separate drawing nor document) a detailed bar list indicating a piece mark for all bar types (including straight bars), quantity of bars for each mark, bend type, bend dimensions, total length for each mark, total mass for each mark, and grand total mass for the project. Contractor responsible to review content of placement drawings, for correctness, prior to submitting to the Department. Refer to attached Schedule 'F' and drawings.

The Contractor shall submit to the Department mill certificates indicating heat numbers and corresponding chemical composition (components and amounts) for all reinforcing steel used for this project.

The unit price for this item shall also include all costs associated with the on-site storage of material supported/elevated off the ground such that it does not get contaminated with soil, mud, earthen debris, etc, as well as to maintain the material's shop fabricated shape.

24. BID ITEM # 130806 - CAST-IN-PLACE CONCRETE

The unit bid price for the above listed item shall be full compensation for the mix design for each mix and certification for each mix, delivery, supply, placement, curing, formwork,, false work, accessories, all inserts as shown on the drawings, and all incidentals necessary to complete all concrete work as indicated on the drawings. Refer to attached Schedule 'F' and drawings for further details. No additional compensation shall be provided. The design parameters shall include Silica Fume Blended Cement and a Corrosion Inhibitor, except corrosion inhibitor not required for earth buried concrete (ie footings). NOTE: ALL CONCRETE SHALL BE DESIGNED AS HIGH PERFORMANCE CONCRETE, CLASS C-1 EXPOSURE.

The mix proportions for concrete (indicating mix contents and associated proportions) shall be submitted to the Department for general review. The mix proportion shall be noted as specific for this project. The mix design and certification shall bear a P Eng stamp signed and dated by a professional engineer registered with Engineers PEI. Certification shall state that the mix design will meet or exceed project requirements.

Concrete shall have a 28 day design compressive strength minimum 45 MPa.

Note that the Contractor shall determine and verify the quantity of concrete required prior to ordering and site delivery.

The use of Duraforms® or equivalent product shall not be used on any portion of the work.

The use of snap-off form ties is not permitted on any portion of the work.

This requirement shall also include wet curing for a minimum of 3 consecutive days. Forms shall stay in place during the curing period.

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Any defects such as but not limited to honeycombing, disintegration, spalling, cracking, stratification, segregation, cold joints, etc shall be repaired by the Contractor prior to acceptance by the Department. Determination of defect and extent shall be solely by the Department. The repair method for each type of defect shall be developed by the Contractor and submitted to the Department for review prior to commencing repairs. Repair methods shall address surface preparation / material removals, repair materials, method of placement, and curing measures. All costs associated with defect repair shall be at no additional charge to the Contract.

This item shall also include all costs associated with excavating, constructing, supplying, and installing environmental controls complete with their continued maintenance, clean out and disposal of waste material, decommissioning, removal of environmental controls, filling in, levelling out, and full reinstatement of washout pits to be used for cleaning the concrete trucks' chutes. The Contractor shall account for the quantity of pits required based on the location of concrete truck delivery relative to the site. The location of pit(s) shall be co-ordinated with a Department representative. The Contractor shall arrange, obtain permission, and pay for any pits which may have to be located on adjacent privately owned land. No additional compensation shall be provided for any additional work and/or equipment related to washout pits.

This item shall also include all costs associated with the supply of all labour, materials, and equipment required to fill tie holes, grind smooth exposed top and leading edge of curb, and the removal of any cement paste from the base of exposed vertical surfaces.

Note that any lubrication material used to prime the concrete pump line shall be not be permitted to be placed within nor left as part of the permanent structure. This item shall include all costs associated with the removal from within the concrete pour space all concrete pump line lubrication material. All lubrication material shall be disposed of in coordination with the Department's Environment Management Section (EMS).

25. BID ITEM # 130876 - GENERAL MOBILIZATION AND DEMOBILIZATION

The lump sum bid price for the above listed item shall be full compensation for the mobilization and demobilization of all equipment, material, and labour to and from the site, including land negotiations for storage areas as well as any negotiations with utilities. This item also includes the provision of parking areas for equipment and vehicle parking including any land negotiations for such. This item also includes the supply, placement, and removal from site any earth materials and associated environmental controls required as part of mobilization and demobilization. No additional compensation shall be provided for this item.

This item shall also include allowance for permitting boat traffic to travel through the existing waterway below the concerned construction site. The Contractor shall not impede the flow of boat traffic at any time during this Contract.

Contractor shall provide a site trailer to be shared by the Contractor and Engineer. Trailer shall be equipped with electricity, lights, table, chairs, one (1) screened window and one (1) man door. It is the Contractor's responsibility to find a location near the structure to place the trailer. This item shall be included in the lump sum price bid for this item. The Contractor shall provide heat in the trailer at no additional cost to the Contract.

This item shall also include all costs associated with the design, supply, installation, and eventual removal of any and all staging, scaffolding and platforms required to complete the work. The staging, scaffolding and platforms shall be designed in accordance with CSA S269.1 and 269.2, latest editions and shall meet requirements of the PEI OH&S Act and Regulations. The platforms shall be for use by Contractor, sub-contractor, supplier, the Department, DFO, or any other individual authorized to be on site. Please refer to Schedule 'F' for more details related to this item.

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26. BID ITEM # 131014 - INSPECTION SERVICES

The lump sum bid price for the above listed item shall be full compensation for all testing and inspection services required for the project. Refer to Schedule 'F' for details.

The price shall include the provision of testing firms for weld inspections and coating inspections, including preparation work. Welding inspectors shall be certified to CSA W178.1 and shall provide proof of certification upon request.

Coating inspection personnel shall be certified to the Steel Structures Painting Council SSPC-QP 5 and shall provide proof of certification upon request. This is separate from the manufacturer's technical representative.

Please refer to Schedule 'F' for more details related to this item.

27. BID ITEM # 131056 – BACKFILLING CONCRETE STRUCTURE

The unit bid price for this item shall include the supply and placement of Class 'A' granular backfill against the concrete wall on both sides, including the front and back face of footing. The granular backfill shall be compacted at 300mm lifts.

It is to encompass a 600mm wide envelope behind the backfill element at its base. Tampers or double drum rollers shall be the method of compaction within 900mm of the abutment wall. Contractor shall determine and verify quantity of material required prior to ordering and site delivery. Use and extent of material may also be determined on site by Department representative.

There will be no additional compensation entertained for meeting the required 95% proctor density on the Class A backfill. Refer to attached Schedule 'F' and drawings for further details.

28. BID ITEM # 138116 - STEEL SUPERSTRUCTURE: FAB & ERECT

The Lump sum bid price for the above listed item shall be full compensation for all structural steel sections (minimum grade as indicated on the drawings) delivered to the site for intended use in replacement of the bottom chord transverse struts and shall include the supply, fabrication, preparation and installation of structural steel sections. Submit shop drawings (indicating member sizes, member grade, and connection detail, welded connections) to the Department for review at no additional cost to the Contract. Refer to attached Schedule 'F' and the drawings.

Fabrication and installation of stiffener plates shall be performed by a company certified with the Canadian Welding Bureau, CAN/CSA W47.1, Division 1.

All welders involved with the fabrication and installation of cover plates shall be certified with the Canadian Welding Bureau for the processes and positions related to the associated fabrication.

All welding to be performed per CAN/CSA W59, latest edition. Drilling of holes and bolted connections shall be done in accordance with CSA S6 and CSA S16.1. Bolts shall be Grade A325, Type 1 bolts in accordance with ASTM F3125.

The unit price for this item shall also include all costs associated with the on-site storage of material supported/elevated such that it maintains its original non-deformed shape, as well as stored safely so it will remain in stored position.

The Contractor shall submit to the Department mill certificates indicating heat numbers and

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corresponding chemical composition (components and amounts) for all steel used for this project.

Please refer to Schedule 'F' for more details related to this item.

29. TRAFFIC CONTROL

It is anticipated that there will not be a requirement for traffic control at this site; however, should traffic control personnel and signage be deemed necessary by the Contractor, then it shall be considered incidental to the work.

30. MEETINGS

The Contractor shall make himself available for meetings with local utilities, local authorities, and the Department representatives for an initial start-up meeting prior to construction to discuss environmental controls, the sequence of construction relative to environmental controls, site safety, schedule, temporary utility locations, traffic management plans, and any other pertinent issues related to the project. This shall be considered incidental to the project. No additional costs shall be entertained for this item.

The Contractor shall also make available his lead construction manager and site superintendent for periodic site meetings to be held throughout the construction time frame. Note that the purpose of the meetings is to discuss relevant issues with the Department, DFO, etc, and not for the Contractor to discuss internal issues nor issues with his sub-contractors, suppliers, etc.. Frequency of meetings will be maximum weekly during initial project stages, and biweekly throughout the remainder of project. This shall be considered incidental to the project. No additional costs shall be entertained for this item.

SCHEDULE B
IDENTIFICATION OF PRINCIPALS

Name of Contractor:

Mailing Address:

Telephone:

Fax:

Principal's Name:

Title:

Mailing Address:

If Contractor is a corporation, indicate in which province of Canada is the corporation registered:

Schedule C

schedule of item for tender

Item Description and Price	Estimated Quantity	Contractor Total Price
SAND BLASTING AND PAINTING		
Section: 1200 Item: 120202		
..... PER L.S.		
..... \$ PER L.S.	1.00	\$
..... 100		
GENERAL MOBILIZATION/DEMOBILIZATION		
Section: 1308 Item: 130876		
..... PER L.S.		
..... \$ PER L.S.	1.00	\$
..... 100		
INSPECTION SERVICES		
Section: 1310 Item: 131014		
..... PER L.S.		
..... \$ PER L.S.	1.00	\$
..... 100		
STEEL SUPERSTRUCT: FAB & ERECT		
Section: 1381 Item: 138116		
..... PER L.S.		
..... \$ PER L.S.	1.00	\$
..... 100		

Total Carried Forward \$

From Previous Page

Total Carried Forward \$

HST \$

Grand Total \$

SCHEDULE D

SCHEDULE OF EQUIPMENT TO BE USED ON THE WORK

SCHEDULE E

SCHEDULE OF SUB-CONTRACTORS

SCHEDULE F
APPENDED ITEMS

ADDENDUMS

GENERAL PROVISIONS and CONTRACT SPECIFICATIONS for HIGHWAY CONSTRUCTION

Contractor's Hazard Assessment Form

Pre-Construction Contractor Safety Checklist Form

Specifications

CBCL Design Drawings S1 to S3 inclusive

CONTRACTOR'S HAZARD ASSESSMENT FORM

Hazard Assessments shall be regularly completed by the Project Manager or Designate. All Employees, Subcontractors, and Visitors ***Shall*** be advised of all hazards noted and shall also be advised of any hazards that develop during the project.

Job Location: _____ **Job Contractor:** _____

Project Manager: _____ **Job Foreman:** _____

Administration Checklist	Circle	Correction Date if "NO"	Generic Hazard Identification	Circle	Correction Date if "NO"
OH&S Act on Site:	Y N		Hydro/Phone Lines:	Y N N/A	
Construction & Safety Regs on Site	Y N		Underground Cables/Pipe:	Y N N/A	
Other Application Job Regs on Site	Y N		Overhead Hazards:	Y N N/A	
Employees Trained as Per Regs:	Y N		Water Hazards:	Y N N/A	
Employees Orientation Completed:	Y N		Applicable Signage in Place:	Y N N/A	

Identified Hazard	Priority	Required Corrective Action	Completed By	Date & Initial

Priority System: *A - Correct Immediately* *B - Correct within 24 hours* *C - Correct within 3 days*

Other Hazards/ Considerations:

Comments:

Completed By:(Print) _____ Signature: _____ Date: _____

Corrective Action:

This Hazard Assessment has been reviewed by the Contractor's Safety Representative. It has been verified by the Contractors Project Manager and the Job Foreman that corrective action has been taken according to priority.

Completed By: (Print) _____ Signature: _____ Date: _____

CONTRACTOR SAFETY CHECKLIST

Use this text as a guideline for completing the attached checklist. This checklist is a general, pre-construction review of the contractor safety program, as well as an information session to identify what the P.E.I. Department of Transportation and Infrastructure Renewal (TIR) requires of our contractors. Where the item requires a submission, ensure that it is received. If the item does not apply, enter N/A for not applicable.

The following information will assist you in establishing what will be reviewed in each section.

1. **Safety Policy:** Each employer is required by law to have a safety policy and program. TIR will ask for and may require a copy of that policy and program.
2. **Safety Representative:** Each contractor is required to advise TIR who their safety representative is. That representative has duties as described in the Occupational Health and Safety Act.
3. **Emergency Procedure:** Each contractor must have a site specific layout and emergency plan complete with emergency phone numbers.
4. **Employee Orientation:** Each and every person working for a contractor, including sub-contractors, will be given an orientation to familiarize them with the site safety program. Unless otherwise specified, each sub-contractor is responsible for the orientation of their workers.
5. **Safe Work Plan:** Most contractors are involved in tasks that subject workers to hazards. In order to ensure that these workers are secured from hazard, the contractor will supply TIR with a written safe work plan which affords protection against the hazards. This plan must be signed by a company representative and communicated to the workers involved in the task.
6. **Personal Protective Equipment Review:** Advise that all workers require CSA Class “B” hard-hat, CSA Grade 1, “Green patch”, (eight inch) footwear, and eye, ear, and respiratory protection as required (boots and hat at all times).
7. **Fall Protection:** Fall restraint or fall arrest protection required where a fall of more than 2.4 meters is possible. **NO EXCEPTIONS.**
8. **Housekeeping:** Advise of daily, or as needed, clean-up requirements.
9. **Tool Box Talks:** Each contractor is required to conduct weekly safety meetings with their forces and advise TIR they have been done.

Contractor Safety Checklist

10. **Material Handling/Storage:** Advise contractor about storage areas and handling of material so as not to endanger their worker or another worker. Stacked material to be banded, chained, blocked, or otherwise secured.
11. **Landing Platforms:** Advise contractor about movement of material on or off platforms. All material to be secured. Platform gates or chains to be kept closed at all times workers are on platform. If not possible, worker to be tied off with fall restraint system independent of platform.
12. **WHMIS Training:** Receive verification that all contractor workers are trained and that the contractor submits the MSDS for chemicals on site.
13. **GFCI:** Advise contractor that all tools are required to have ground fault circuit interrupters (where electricity is supplied by contractor).
14. **Accident Investigations:** Any injury to any of their workers must be investigated and reported to TIR.
15. **Verbal, Written, Gone:** Explain Safety Tolerance Program.
16. **Joint/Worker Safety Committee:** Sites of over 20 workers must establish a safety committee; over 50, an additional worker committee. Workers required to attend committee meetings will do so and not be prevented by employers.
17. **Fire Protection:** All trades involved in performing hot work of any kind are required to provide fire protection at the work location.
18. **Guardrails:** Advise contractors that where temporary removal of guardrails is necessary, the area around them must be cordoned off with a barrier. Guardrails must be replaced as soon as possible.
19. **First Aider:** Each contractor is required to have a first aid kit and trained first aider. Employer must name their first aider.
20. **Visitors:** Advise contractor that any visitors to site must be suitably protected from hazard. They must wear hard hat, safety vest, and proper safety footwear while on site.
21. **Task Lighting:** Review responsibilities of task specific lighting (who provides it).

Contractor Safety Checklist

22. **Swamper/Riggers Competency:** Where cranes are used, the contractor must use a swamper/rigger. They shall provide TIR with a written statement identifying, by name(s), their rigger and that the named person is a competent worker as described in the construction regulations.
23. **Scaffolds:** Review scaffold building requirement:
- ☞ Use all braces required by design.
 - ☞ Access ladder for platform over 1.5 meters.
 - ☞ Full width platform if height over ten feet.
(PEI Regulations require double planks)
 - ☞ Full guardrails and toeboards.
 - ☞ Tied in three times base dimension or use of outriggers.
 - ☞ Engineered over 50 feet in height (standard frame type).
24. **Elevating Work Platforms:**
- ☞ All boom and scissors lifts required to be CSA approved and have approval on machine.
 - ☞ Operators manual required on machine at all times.
 - ☞ Maintenance record on machine at all times.
 - ☞ Operator must receive training in operation of equipment.
 - ☞ Fall protection must be used at all times on a boom lift.
 - ☞ Fall protection required to be used on scissors lift when unit is being moved.
25. **Protruding Rebar:** Installers of reinforcing steel must protect the protruding hazard or make arrangements to have it protected. Removal of protective coverings for task purposes only is allowed, however, protective covering must be replaced as soon as possible.
26. **WCB Clearance Certificates:** Advise contractor that TIR will not release any funds for payment until Workers Compensation Board Clearance Certificate has been received by TIR.

PRE-CONSTRUCTION CONTRACTOR SAFETY CHECKLIST

PROJECT: _____ DATE: _____ CONTRACTOR: _____
 WORK BEING PERFORMED: _____

Print Name _____
 Project Manager/Inspector

Print Name _____
 Contractor Representative

(Sign) _____

(Sign) _____




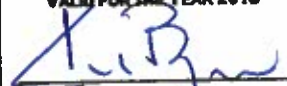
✓ Means Yes

☒ Means No

N/A Not Applicable

- | | |
|--|--|
| <p>1. Safety Policy Submitted <input type="checkbox"/></p> <p>2. Safety Representative <input type="checkbox"/></p> <p>3. Emergency Procedure Review <input type="checkbox"/></p> <p>4. Employee Orientation <input type="checkbox"/></p> <p>5. Written Safe Work Plan Submitted <input type="checkbox"/></p> <p>6. Personal Protective Equipment Review <input type="checkbox"/></p> <ul style="list-style-type: none"> • Hard Hats & Footwear • Safety Glasses • Hearing • Dust & Fumes <p>7. Fall Protection <input type="checkbox"/></p> <p>8. Housekeeping <input type="checkbox"/></p> <p>9. Tool Box Safety Talks (Weekly) <input type="checkbox"/></p> <p>10. Material Handling/Storage <input type="checkbox"/></p> <p>11. Landing Platforms <input type="checkbox"/></p> <p>12. WHMIS Training Verification - MSDS Received <input type="checkbox"/></p> | <p>13. GFCI Requirements <input type="checkbox"/></p> <p>14. Accident/Incident Investigations Notification <input type="checkbox"/></p> <p>15. Verbal, Written, Gone <input type="checkbox"/></p> <p>16. Joint/Worker Safety Committee <input type="checkbox"/></p> <p>17. Fire Protection <input type="checkbox"/></p> <p>18. Guardrails <input type="checkbox"/></p> <p>19. First Aider on Staff - Name Supplied <input type="checkbox"/></p> <p>20. Visitors & Safety Equip. <input type="checkbox"/></p> <p>21. Task Lighting <input type="checkbox"/></p> <p>22. Swampers/Riggers Competency (in writing) <input type="checkbox"/></p> <p>23. Scaffolds <input type="checkbox"/></p> <p>24. Elevating Work Platforms <input type="checkbox"/></p> <p>25. Protruding Rebar Protection <input type="checkbox"/></p> <p>26. WCB Clearance Certificate <input type="checkbox"/></p> |
|--|--|

Hillsborough Bridge Strut & Pier Diaphragm Modifications

Issued for Tender		Jun 29/18	
Issued for 95% Review	CJ	Jun 22/18	JC
<i>Issue or Revision</i>	<i>Reviewed By:</i>	<i>Date</i>	<i>Issued By:</i>
 <p>CBCL LIMITED Consulting Engineers</p>		<div style="border: 1px solid black; padding: 5px;"> <p>THE ASSOCIATION OF PROFESSIONAL ENGINEERS OF THE PROVINCE OF PRINCE EDWARD ISLAND VALID FOR THE YEAR 2018</p>  <p>Kevin K. Bezanson No. 847</p> <p>DATE: <u>June 29, 2018</u></p> <p>LICENSED PROFESSIONAL ENGINEER PROVINCE OF PRINCE EDWARD ISLAND</p> </div>	

PART 1 - GENERAL

- 1.1 RELATED SECTIONS
- .1 Section 09 97 13 - Exterior Painting of Structural Steel Bridges.
- 1.2 REFERENCES
- .1 American Association for State Highway and Transportation Officials (AASHTO)
.1 AASHTO Standard HB-17-2017, Standard Specifications for Highway Bridges.
- .2 American Society for Testing and Materials International, (ASTM)
.1 ASTM F3125/F3125M-15a, Specification for High-Strength Structural Bolts Steel and Alloy Steel, Heat Treated, 120 ksi (830 MPa) and 150 ksi (1040 MPa), Minimum Tensile Strength.
.2 ASTM A123/A123M-17, Standard Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products.
- .3 Canadian Standards Association (CSA International)
.1 CSA-S6-14, Canadian Highway Bridge Design Code.
.2 CSA G40.20-13/G40.21-13(R2018), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
.3 CAN/CSA S16-14, Limit States Design of Steel Structures.
.4 CSA S269.1-16, Falsework and Formwork.
.5 CSA W48-18 Filler Metals and Allied Materials for Metal Arc Welding.
.6 CSA W59-13, Welded Steel Construction, (Metal Arc Welding) (Metric version).
- 1.3 SHOP DRAWINGS
- .1 Submit shop drawings in accordance with PEI TIE submittal procedures.
- .2 Each drawing submitted to bear signature and stamp of qualified professional engineer registered or licensed in Province of Prince Edward Island.
- .3 Indicate shop and erection details including shop splices, cuts, copes, connections, holes, bearing plates, threaded fasteners, and welds. Indicate welds by CSA W59 welding symbols.
- .4 Proposed welding procedures to be stamped and approved by Canadian Welding Bureau.

- 1.3 SHOP DRAWINGS (Cont'd)
- .5 Submit description of methods, temporary bracing and strengthening, sequence of erection and type of equipment proposed for use in erecting structural steel.
 - .6 Submitted falsework drawings to bear signature and stamp of qualified professional engineer registered or licensed in Province of Prince Edward Island.
- 1.4 DELIVERY, STORAGE, AND HANDLING
- .1 Deliver, store and handle steel to prevent damage.
 - .2 Provide protective blocking for lifting, transportation and storing.
 - .1 Exercise care during fabrication, transportation and erection so as not to damage plates.
 - .2 Do not notch edges of members.
 - .3 Do not cause excessive stresses.
 - .3 Do not allow any portion of steel to come into contact with the ground.
 - .4 Provide the Engineer with delivery schedules minimum seven (7) days prior to shipping.
- 1.5 WASTE MANAGEMENT AND DISPOSAL
- .1 Separate and recycle waste materials in accordance with applicable local and provincial regulations.

PART 2 - PRODUCTS

- 2.1 MATERIALS
- .1 Structural steel plate to CSA G40.20/G40.21, grade 300W.
 - .2 Structural steel plate for wide flange shapes: to CSA G40.20/G40.21, grade 350W.
 - .3 High strength type 1 bolts, nuts and washers: to ASTM F3125, Grade A325, Type 1.
 - .4 Welding electrodes: to CSA W48 series.

2.1 MATERIALS
(Cont'd)

- .5 Deposited weld metals in full penetration welds are required to have a minimum Charpy Impact Energy of 27 joules at -30°C in accordance with Appendix A of CSA S6. Provide certification at no additional cost to the Contract.
- .6 Fabrication must not commence prior to the review of shop drawings by the Engineer. Any fabrication done without the reviewed shop drawings may be rejected. Fabricate steel in accordance with CSA W59 and in accordance with the reviewed shop drawings.
- .7 Workmanship and finish must be of the best modern general practice in the bridge fabrication and construction industry. Do stressing, flame cutting and planning carefully and accurately. Pay particular attention to the neatness and uniformity of finish of all parts of the work exposed to view.
- .8 Transport structural steel components in such a manner so as to avoid development of fatigue cracks and deformation. When the components are stored on the job site, place them on timbers so that they do not make contact with the ground and support to avoid fatigue cracking, deformation or over-stressing. Store in a location where they will not be subjected to damage or surface contamination.
- .9 Steel coating: to Section 09 97 13.

2.2 SOURCE QUALITY
CONTROL

- .1 Provide the Engineer prior to fabrication, with two (2) copies of steel producer certificates, in accordance with CSA G40.20/G40.21.
- .2 Base the acceptance criteria for all welding inspections on CSA W59, Section 12, Dynamic Steel Structures.
 - .1 Have all welds visually inspected. Have all full penetration welds, except those specified in webs, 100% inspected by Radiographic or Ultrasonic methods. When welds are tested by the Ultrasonic method, perform spot Radiography on 10% of those welds tested.
 - .2 Fillet welds to have 100 percent of the total weld length tested by magnetic particle inspection.
 - .3 Repair any welds that do not meet the acceptance standards herein. Re-test welds at no additional cost to the Contract.

- 2.2 SOURCE QUALITY CONTROL
(Cont'd)
- .3 Provide suitable facilities and cooperate with inspection organization and the Engineer in carrying out inspection and tests required.

PART 3 - EXECUTION

- 3.1 ERECTION
- .1 Prior to fabrication, measure and verify all dimensions on site.
- .2 Clean steel surfaces to the Engineer's approval when staining or defacing occurs.
- .3 Restrict drifting during assembly to minimum required to bring parts into position without enlarging or distorting holes, and without distorting, kinking or sharply bending metal of any unit.
- .1 Enlarge holes if necessary by reaming only after written approval is obtained from the Engineer.
- .2 Reamed holes not to exceed size of bolt used by more than 2 mm.
- .4 Fabricator to erect the whole of the fabricated structural steel work supplied under the Contract. Supply all materials, tools, equipment, plant and labour necessary for the erection of the steel work. Fabricator to erect the structural steel in accordance with the requirements of the AASHTO specification and CSA S6 specifications.
- .5 If required, one splice per bottom lateral strut member will be acceptable. The splice is to be designed by the Contractor. Submit shop drawings indicating details of the splice. Drawings must be stamped by an engineer licensed to practice in the Province of Prince Edward Island.

- 3.2 INSTALLATION
- .1 Do falsework in accordance with CSA S269.1, except where specified otherwise.
- .2 Do fabrication and erection of structural steel in accordance with CAN/CSA S6 and AASHTO Standard Specifications for Highway Bridges.
- .3 Do welding in accordance with CSA W59, except where specified otherwise.
- .1 Weld only at locations indicated.

3.2 INSTALLATION
(Cont'd)

- .4 High strength bolting: in accordance with CAN/CSA S6 and CAN/CSA S16. Use 'turn-of-nut' tightening method to bring bolts to the slip critical condition.
- .5 Finish: members true to line, free from twists, bends, open joints, sharp corners and sharp edges.
- .6 Allowable tolerance for bolt holes:
- .1 Matching holes for bolts to line up so that dowel 2 mm less in diameter than hole passes freely through assembled members at right angles to such members.
 - .2 Finish holes not more than 2 mm in diameter larger than diameter of bolt unless otherwise specified by the Engineer. Drill holes (do not punch) at all field splice and end diaphragm connection locations.
 - .3 Centre-to-centre distance between any two(2) holes of group to vary by not more than 1 mm from dimensioned distance between such holes.
 - .4 Centre-to-centre distance between any two (2) groups of holes to vary not more than following:

<u>Centre-to-Centre</u> <u>distance in metres</u>	<u>Tolerance in plus or</u> <u>minus mm</u>
less than 10	1
10 to 20	2
20 to 30	3

- .5 Correct mispunched or misdrilled members only as directed by the Engineer.
- .7 Shop splices:
 - .1 Use complete joint penetration groove welds finished flush.
 - .2 Details of butt joints to CSA W59.
 - .3 Use only as approved by the Engineer.
- .8 Mark members in accordance with CSA G40.20/G40.21.
 - .1 Do not use die stamping.
 - .2 Place marking at locations not visible from exterior after erection when steel is to be left in unpainted condition.
- .9 Detail all bolts and install with threads excluded from shear planes.

3.3 PIER DIAPHRAGM
STIFFENING - GENERAL
PROCEDURE

- .1 Submit a repair procedure for approval.

PART 1 - GENERAL

1.1 RELATED
SECTIONS

- .1 Structural Steel For Bridges: Section 05 12 33.

1.2 REFERENCES

- .1 ASTM D4417-14, Standard Test Method for Field Measurement of Surface Profile of Blast Cleaned Steel.
- .2 ASTM D4541-17, Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers.
- .3 ASTM D4414-95(R2013), Standard Practice for Measurement of Wet Film Thickness by Notch Gauges.
- .4 ASTM E337-15, Standard Test Method for Measuring Humidity with a Psychrometer.
- .5 CAN/CGSB-1.146-99, Cold Curing, Gloss Epoxy Coating.
- .6 The Society for Protective Coatings (SSPC):
.1 SSPC SP1-2016, Solvent Cleaning.
.2 SSPC SP2-2004, Hand Tool Cleaning.
.3 SSPC SP3-2004, Power Tool Cleaning.
.4 SSPC SP6-2007/NACE No. 3, Commercial Blast Cleaning.
.5 SSPC SP10-2006, Joint Surface Preparation Standard: Near White Metal Blast Cleaning.
.6 SSPC SP15-2013, Commercial Grade Power Tool Cleaning.
.7 SSPC AB1-2016, Mineral and Slag Abrasives.
.8 SSPC AB2-2000, Cleanliness of Recycled Ferrous Metal Abrasives.
.9 SSPC AB3-2004, Ferrous Metallic Abrasives.
.10 SSPC VIS1-2002, Guide and Reference Photographs for Steel Surfaces Prepared by Dry Abrasive Blast Cleaning
.11 SSPC VIS3-2004, Guide and Reference Photographs for Steel Surfaces Prepared by Hand and Power Tool Cleaning
.12 SSPC PA1-2016, Shop, Field and Maintenance Painting of Steel
.13 SSPC PA2-2016, Procedure for Determining Conformance to Dry Coating Thickness Requirements
.14 SSPC PA Guide 3-82, A Guide to Safety in Paint Applications.
.15 SSPC Good Painting Practices, Volume 1, 4th Edition.

1.2 REFERENCES
(Cont'd)

- .6 (Cont'd)
.16 SSPC Guide 6-15, Guide for Containing Surface Preparation Debris Generated during Paint Removal Operations.
.17 SSPC PA-Guide 11-2008, Protecting Edges, Crevices, and Irregular Steel Surfaces by Stripe Coating.

1.3 QUALITY
ASSURANCE

- .1 Test paint materials and application equipment for compatibility prior to application.
- .2 Have the painting contractor provide the Engineer with affidavits stating only "first-line" products have been used on this Contract.
- .3 Paint manufacturer must be represented by a qualified technical representative, trained as a paint inspector, with a minimum five (5) years experience.
- .4 The manufacturer's technical representative must make a minimum of one (1) inspection prior to and during application to ensure proper application.
- .5 After inspection, have the manufacturer's representative provide a written report to the Engineer within five (5) working days.
- .6 Record the quality of surface preparation and measurements of surface profile, temperature, humidity, dew point and dry film thickness (DFT). Submit a written documentation of the results to the Engineer on a daily basis.
- .7 Acceptability of surface preparation will be based on the applicable SSPC surface preparation specifications and pre-trial standards given in SSPC VIS1 and SSPC VIS3.
- .8 Accommodate the Owner's right to perform, at the Owner's expense, the following measurements:
.1 Surface profile measurements will be made using a spring micrometer and an extra coarse pressure sensitive replica tape in accordance with ASTM D4417.
.2 DFT measurements using Type 2 constant pressure magnetic gauges and must be in accordance with SSPC-PA-2, Measurement of Dry Coating Thickness with Magnetic Gauges. Determination of the DFT of each coat made in accordance with SSPC PA2.

1.3 QUALITY
ASSURANCE
(Cont'd)

- .9 Submit quality assurance documents upon request, and include the following as required:
 - .1 Test reports.
 - .2 Material certificates and documents.
 - .3 Surface preparation, painting, curing and other operational procedures.
 - .4 Welding/bolting procedures.
 - .5 Quality control plan.
 - .6 Inspection and test plan.
 - .7 Qualifications and experience of preparation and coating application personnel.
- .10 Review project specifications and application procedures with coatings manufacturers as required. Submit inconsistencies between these specifications and manufacturer's standards to the Engineer prior to application of coating materials. Unless notified to the contrary, project specifications will be considered to be in compliance with the manufacturer's standards.
- .11 Coatings applicators must be certified by the SSPC as qualified coatings applicators.
- .12 The Engineer reserves the right to perform shop or field inspections at any time during the Work.

1.4 SURFACE AND
ENVIRONMENTAL
REQUIREMENTS FOR
PAINTING

- .1 Do not apply paint finish in areas where dust or potential surface contaminants are being generated.
- .2 The conditions of paint application and curing shall be when the air temperature, substrate surface temperature and relative humidity area within the recommended ranges by the manufacturer.
- .3 Provide adequate ventilation or isolation measures to protect against toxic fumes.
- .4 Apply paint only to adequately prepared surfaces.
- .5 Apply paint only when previous coat of paint is dry or adequately cured to manufacturer's recommendations.

1.5 START-UP
MEETING

- .1 After award of Contract and prior to the painting and coating work, hold a start-up meeting with the following people present:
 - .1 The Owner.
 - .2 The Engineer.

1.7 PRODUCT
DELIVERY, STORAGE
AND HANDLING
(Cont'd)

- .3 Remove damaged, opened and rejected materials from site.
- .4 Deliver material to job site and have them checked by the coatings contractor for completeness and shipping damage prior to job start.
- .5 All material must be factory pre-weighed and pre-packaged in single, easy to manage batches to eliminate on-site mixing errors. No on-site weighting or volumetric measurements allowed.
- .6 Observe manufacturer's recommendations for storage and handling.
- .7 Store materials and supplies away from heat generating devices.
- .8 Store temperature sensitive products above minimum temperature as recommended by manufacturer.
- .9 Keep areas used for storage, cleaning and preparation, clean and orderly to approval of the Engineer. After completion of operations, return areas to clean condition to approval of the Engineer.
- .10 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling storage, and disposal of hazardous materials.
- .11 Fire Safety Requirements:
 - .1 Provide fire extinguisher adjacent to storage area.
 - .2 Store oily rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.
 - .3 Handle, store, use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada.

1.8 SUBMITTALS

- .1 Submit product data and manufacturer's installation/application instructions for each paint and coating product to be used in accordance with PEI TIE submittal procedures.

- 1.8 SUBMITTALS
(Cont'd)
- .2 Submit the names of paint manufacturers and local supplier. Confirm painting requirements and submit colour schedule for approval prior to ordering of products.
 - .3 Upon completion, submit records of products used. List products in relation to finish system and include the following:
 - .1 Product name, type and use.
 - .2 Manufacturer's product number.
 - .3 Colour numbers.
 - .4 Manufacturer's Material Safety Data Sheets (MSDS).

PART 2 - PRODUCTS

- 2.1 MATERIALS
- .1 Enclosure system: special considerations are necessary due to numerous factors including but not limited to the nature of the wind loads for this exposed area, the aspect of this work occurring adjacent to the City of Charlottetown and the Town of Stratford active public highways and the size of the structures to be enclosed to adequately contain all residue, spent blast medium and paint overspray. Therefore, the arrangement and materials for the enclosure and its securement system must be properly addressed by a Professional engineer registered or licensed to practice in the Province of Prince Edward Island. An acceptable tarpaulin assembly must include the Monarflex sheeting system or approved equivalent.
 - .2 Painting system: supply paint materials from a single manufacturer of first grade standard manufacture, with at least a one (1) year shelf life and use in accordance with the manufacturer's written directions. The painting system will be primarily a three (3) coat system over surfaces indicated on the Project Drawings with an additional stripe coat over edges that are susceptible to a thinner coating build up.
 - .1 All areas indicated to receive the following field applied paint system as manufactured by the products listed herein or an approved equivalent system. Use all products in accordance with the manufacturer's written instructions especially with respect to storage, handling, surface preparation, application, temperature, humidity and curing.
 - .2 Primer: one (1) coat of 3-4 mils Dry Film Thickness (DFT) of inorganic zinc primer.

- 2.1 MATERIALS (Cont'd)
- .2 (Cont'd)
- .3 Stripe coat: apply a stripe coat of contrasting colour from the primer and apply an intermediate over all sharp and rolled edges, cutouts and welds. Apply one (1) coat of 4-6 mils DFT of high build modified aluminum epoxy mastic.
- .4 Intermediate Coat: one (1) coat of 4-6 mils high build modified aluminum epoxy mastic. Coordinate colour with the Engineer. It must contrast from the primer and stripe coats.
- .5 Top coat: one (1) coat of 4-6 mils DFT of high build polyurethane top coat. Coordinate colour with the Engineer. It must contrast from the intermediate coat.
- .6 Field touch-up: minor damaged coating areas with the same system.
- .7 Approved coating systems:
- .1 Ameron: Dimetcote 9 Inorganic Zinc, Amerlock 400AL Aluminmastic, Ameron 450H Aliphatic Polyurethane.
- .2 Carboline: Carbozinc II Inorganic Zinc, Carbomastic 15L/O, Carbothane 133LH
- .3 Devoe: Cathacoat 304 Inorganic Zinc, Bar Rust 236 Aluminum Epoxy, Devthane 389H Urethane Enamel.
- .4 International: Interzinc 22 Inorganic Zinc, Interplus 256 Aluminum Epoxy, Interthane 870 UH5.
- .3 Use thinners and cleaners of type and brand recommended by the paint manufacturer.
- .4 Paint materials for each coating system/formula to be products of a single manufacturer.

PART 3 - EXECUTION

- 3.1 EXAMINATION
- .1 Confirm environmental requirements are met before commencing Work.
- .2 Confirm surfaces to receive finish paint are satisfactory for specified materials; have been provided as specified in the Work of other Sections; will not adversely affect execution, permanence, or quality of Work; and can be put into an acceptable condition by means of preparation specified in this Section.
- .3 Test all surfaces for moisture content with an electronic moisture meter.

3.1 EXAMINATION
(Cont'd)

- .4 Maintain at site at all times until Work is completed a moisture meter, hydrometer and thermometer to verify surface and environmental conditions.
- .5 Correct defective painting and finishing Work resulting from application to unsatisfactory surfaces.

3.2 PREPARATION

- .1 Generally:
 - .1 Remove from surfaces grease, oil, dirt, dust, ridges and other soil and materials that would adversely affect the adhesion or appearance of finish coatings. Clean surfaces using LPWC (2500 to 3500 psi) power wash using a caustic degrease or by solvent cleaning.
 - .2 Grind smooth surfaces without adversely affecting structural integrity to remove cracks, holes, ridges and similar blemishes to the satisfaction of the Engineer.
 - .3 Neutralize highly alkaline surfaces with a neutralizing wash of 4% solution of zinc sulphate. Substitute 4% solution of tetrapotassium pyrophosphate for surfaces to receive latex paints. Brush off residue before painting.
 - .4 Perform a soluble salt test using a Chlor-test to determine the level of soluble salts. Minimum industry standards are: chloride 20mg/sq. cm, Nitrates 25mg/sq. cm, sulfates 40mg/sq. cm. If soluble salt tests indicate higher than acceptable levels after pressure washing or solvent cleaning, a cleaning agent may be required to effectively remove soluble salts from the steel surface. Carry out pressure washing followed by a thorough freshwater rinsing using clean potable water.
 - .5 Scrub mildewed surfaces with a solution of tri-sodium phosphate, bleach with a solution of one part sodium hypochlorite (Javex) to three (3) parts of water, and rinse with clear water.
 - .6 Cleaning surfaces of dust by blowing with compressed air will not be permitted. Vacuum out all dust before wiping surfaces clean. Contain all spent blast medium and debris, recover, test and dispose of in accordance with the requirements of PEI TIE Standard Specifications.
 - .7 Grind, fill or treat surface defects revealed by blast cleaning in the appropriate manner to provide smooth coating surfaces.

3.2 PREPARATION
(Cont'd)

- .1 (Cont'd)
- .8 Cool the compressed, oil free air used for abrasive blasting after compression and must not have a higher temperature or humidity than the ambient conditions. Perform a "Blotter Test" per ASTM D4414 from time to time to confirm that the air is free from oil and excessive moisture.
- .9 Test all surfaces for moisture content before commencing painting. Do not apply paint to surfaces when moisture content exceeds 12 percent as determined by an approved moisture device.
- .10 Determine that the profile (anchor pattern) meets the requirements of the paint system using replica tape and micrometer and/or profile depth gauge as per ASTM D4417.
- .11 Prior to applications on previously coated surfaces, verify surfaces are dry, clean and free of dust, dirt, oil, wax, grease and wax and clean with manufacturer's recommended non film-forming solvent. Remove rust according to SSPC SP-3 and touch up with one coat of primer before applying finish coats.
- .2 All steel surfaces must be dry abrasive blasted according to the manufacturer recommended surface preparation (SSPC-SP-6 commercial blast).
- .3 Verify surface cleanliness by comparing cleaned surfaces to SSPC VIS-1.
- .4 Areas that are determined by the Engineer to be inaccessible to dry abrasive blasting must be prepared according to SSPC SP-15, SP-2 or SP-3.
- .5 Confirm the degree of cleanliness and surface profile achieved are measured and documented by the Contractor's quality control representative.

3.3 APPLICATION

- .1 Apply coatings as indicated on the Project Drawings.
- .2 Only apply primer to steel plate surfaces in contact with one another.
- .3 Generally:
- .1 Perform Work of this Section under supervision of an experienced foreman. Use clean equipment designed for purpose intended, and under directions and specific recommendations of manufacturers whose materials are used.
- .2 Obtain approval from the Engineer before proceeding with application of finishes to surfaces for which a formula is not given in Specification.

3.3 APPLICATION
(Cont'd)

.3 (Cont'd)

.3 Remove spatters of paint finish materials from adjacent surfaces by methods not harmful to the surfaces.

.4 Do all painting application and methods in strict accordance with the recommendations of the applicable CGSB Standards and applicable section of SSPC, manufacturer's instructions and subject to the approval of the Engineer. Provide the number and dry film thickness (DFT) of coats specified.

.5 Only apply paint only within temperature and humidity limits established by the manufacturer of the materials.

.6 Keep paint well mixed and stirred while being applied. Do not thin paint unless approved by the manufacturer and the Engineer, and only with such materials and to such extent as not to damage paint.

.7 Uniformly apply all paint without sags, runs, spots, or other blemishes.

.8 Applied coating to have pull-off adhesion greater than 2.75 MPa in accordance with ASTM D4541 for structural steel and metal fabrications.

.9 Do not apply paint to wet or contaminated surfaces.

.10 Primer must be applied within eight (8) hours of the time of blast cleaning.

.11 Allow minimum curing time as specified by the manufacturer before handling the component or applying the subsequent coat of paint.

.12 Prior to application of the finish coat, clean primed surfaces of all non-compatible surface residue primed surfaces of all non-compatible surface residue by use of soft bristle brushes or brooms, compressed air or water.

.13 Correct defective painting and finishing Work resulting from application to unsatisfactory surfaces.

.14 Have experienced painters perform painting in accordance with the written recommendations of the paint manufacturer. Correct work which shows carelessness, lack of skill, or is defective under SSPC, NACE or the product manufacturer's specifications at no additional expense to the Contract.

.4 Finishing methods:

.1 Force paint into pores, angles and crevices of well cleaned surfaces and in such a manner as will assure a continuous even coat making contact with all parts of the surface and producing a film free of air bubbles, strips and thin spots.

3.3 APPLICATION
(Cont'd)

- .4 (Cont'd)
- .2 Apply finishing materials at proper consistency, free from overspray, brush marks, sags, crawls, streaks, runs, laps, skips, voids, pinholes, missed areas, and other visible defects, and with even colour, sheen and texture.
- .3 Apply finishing materials to ensure full coverage, and at a rate not to exceed that recommended by the manufacturer for the applicable surface.
- .4 Make clean true junctions with no overlap between adjoining applications of finish coatings.
- .5 Leave all parts clean and true to details with no undue amount of coating in corners and depressions.
- .6 If evidence is inconclusive that a specified coat has been applied, apply a full coat of finishing material before proceeding with next coat. Coats not approved shall be redone, as no credit will be given for those not approved.
- .7 Obtain approval of each coat of finishing material before proceeding with next coat. Coats not approved shall be redone, as no credit will be given for those not approved.
- .8 Apply each coat only after preceding coat is dry and hard, or as otherwise directed by material manufacturer.
- .9 Sand surfaces lightly between coats on steel surfaces to remove defects visible from a distance up to 1500 mm.
- .5 Priming:
- .1 Verify the extent of surfaces primed under Work of other Sections. Include the priming of unprimed surfaces in Work of this Section.
- .6 Painting:
- .1 Apply paint by an approved spraying procedure. Discontinue spraying where directed by the Engineer and employ other conventional brush or roller application procedures.
- .2 Apply materials in accordance with the manufacturer's recommendations, taking into careful consideration all temperature and humidity application limitations of the painting system and the work area as noted earlier in this Section. Uniformly apply protective coatings and free from blemishes, shadows, streaks, splatters, etc. Properly coat edges and fill all cracks and crevices with paint if applicable.
- .3 Do not add thinners to catalyse epoxy paint systems unless approved by the Engineer.

3.3 APPLICATION
(Cont'd)

.6

(Cont'd)

.4 Any surfaces noted to have holidays, pits or other coating irregularities after the final coat will require complete re-coating if necessary to cover paint lines.

.5 Unless otherwise specified, the maximum allowable film thickness must be those recommended by the paint manufacturer.

.6 Apply first coat and pre-treatments as soon as practicable after the surface has been cleaned so as to prevent contamination of the surface. Repair damage to the first coat as specified before applying successive coats. Apply successive coats as soon as practicable to avoid inter-coat contamination, but not so soon as to cause lifting or wrinkling.

3.4 TOUCH UP AND
REPAIR

.1

Painting system: perform repair of paint defects using the same surface preparation, paint system and products as specified for adjacent surfaces, except as otherwise specified. Surfaces previously blast cleaned as specified need only be power wire brushed. Paint surfaces with two (2) component epoxy adjacent to areas of touch up and repair wipe with a solvent recommended by the paint manufacturer and lightly wire-brushed before being re-coated. Extend recoating of defective areas a minimum of 75mm into the existing coat.