
PWGSC Ontario
Region Project
Number 104365

Specification
Title Sheet

Section 00001
NOVEMBER 1999

Project Title BURLINGTON LIFT BRIDGE
HAMILTON , ONTARIO
NEW DECK GRATING

Project Number 104365

Project Date NOVEMBER 15, 1999

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- 1 Submission of Quotation .1 If the Engineer determines that the cost of the work will be affected due to a contemplated change, the Contractor shall submit a quotation to the Engineer in accordance with the instructions specified herein.
- 2 General .1 Quotations for Contemplated Change Notices must include a detailed breakdown of all labour, material, plant and equipment costs incurred by the Contractor. Quotations from subcontractors involved in the change must also be supported by similarly detailed breakdowns of the subcontractors' costs.
- .2 It is the responsibility of the Contractor to ensure that all subcontractors' quotations included in the Contractor's quotation to the Engineer are fair and reasonable in view of the terms expressed herein.
- .3 The labour hours required for the contemplated change shall be based on the estimated number of hours to perform the work.
- .4 Time spent by a working foreman may be included in the number of labour hours, at a rate agreed to in writing by the Contractor and the Engineer.
- .5 Time attributable to material handling, productivity factors and approved rest periods is to be included in the number of hours required by the contemplated change and will not be paid as a separate item under hourly rates.
- .6 Mark-ups referred to in Sections 5 and 6 below are not to be included in the hourly labour rates.
- .7 Credit for work deleted will only be for the work directly associated with the changes stipulated in the particular Contemplated Change Notice.
- .8 When a change deletes work which has not yet been performed, the Engineer is entitled to an adjustment in the Contract Amount equal to the
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- 2 General
(Cont'd)
- .8 (Cont'd)
cost the Contractor would have incurred had the work not been deleted.
- .9 Mark-ups referred to in Sections 5 and 6 below shall not be applied to any credit amounts for deleted work.
- .10 In those cases where the change involves additions and deletions to the work, the percentage mark-ups referred to in Sections 5 and 6 below shall apply only when the cost of the additions minus the cost of the deletions would result in an increase in the Contract Amount. The percentage allowance shall only be applied to that portion of the costs of the additions that is in excess of the cost of the deletions.
- .11 If the contemplated change in the work necessitates a change in the contract completion date, or has an impact on the work, the Contractor shall identify and include the resulting cost in the breakdown of its quotation to the Engineer.
- .12 The work shall conform to the contract documents unless otherwise stated in the Contemplated Change Notice, Change Order or Site Instruction (1) signed by the Architect/Engineer.
- .1 .1 Contemplated Change Notice, form PWGSC-2140.
- .2 .2 Change Order, form PWGSC-610.
- .3 .3 Site Information, form PWGSC-599.
- .13 Upon acceptance of the Contractor's quotation by the Engineer, the Engineer shall prepare and issue the formal Change Order.
- 3 Hourly Labour
Rates
- .1 The hourly labour rates listed in the Contractor's quotation shall be determined in accordance with the collective agreements that are applicable at the site of the work and shall include:
- .1 .1 The base rate of pay.
- .2 .2 Vacation pay.
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- 3 Hourly Labour Rates
(Cont'd)
- .1 (Cont'd)
- .3 Benefits which includes:
- .1 Welfare contributions.
 - .2 Pension contributions.
 - .3 Union dues.
 - .4 Training and industry funds contributions.
 - .5 Other applicable benefits, if any, that can be substantiated by the Contractor.
- .4 Statutory and legislated requirements, assessed and payable under statutory authority, which includes
- .1 Employment Insurance contributions.
 - .2 Canada Pension Plan or Quebec Pension Plan contributions.
 - .3 Worker's Compensation Board or Commission de la santé et de la sécurité du travail premiums.
 - .4 Public Liability and Property Damage insurance premiums.
 - .5 Health tax premiums.
- .2 In the case of non-union labour, all rates claimed shall be in accordance with the terms of the Labour Conditions forming part of this contract and the Contractor must provide satisfactory proof of the rates actually paid. Non-union rates shall not exceed rates payable under any applicable collective trade agreement unless approved in writing by the Engineer.
- 4 Material, Plant and Equipment Costs
- .1 The costs of all purchases and rentals must be based on the actual amount paid to the suppliers by the Contractor or subcontractor and said costs are to include all applicable discounts.
- 5 Allowance on Work by Own Forces
- .1 A mark-up, equal to 20% of the cost of all labour, material, plant and equipment furnished or supplied by the Contractor or subcontractor that is required by the contemplated change, shall be added to the Contractor's or subcontractor's quotation as full compensation for:

5 Allowance on Work by Own Forces (Cont'd)

.1 (Cont'd)

.1 All supervision, coordination, administration, overhead, margin and the risk of undertaking the work within the stipulated amount.

.2 Miscellaneous additional costs related to:

.1 The purchase or rental of material, plant and equipment.

.2 The purchase of small tools and supplies.

.3 Safety and protection measures.

.4 Permits, bonds, insurance, engineering, as-built drawings, commissioning and site office.

6 Allowance on Work by Subcontractors

.1 A mark-up, equal to 15% of the total of all quotations received from subcontractors, shall be added to the Contractor's quotation as full compensation for:

.1 All supervision, coordination, administration, overhead, margin and the risk of undertaking the work within the stipulated amount.

.2 Miscellaneous costs related to:

.1 Safety and protection measures.

.2 Permits, bonds, insurance, engineering, as-built drawings, commissioning and site office.

1 Construction
Safety Measures

- .1 Observe and enforce construction safety measures required by National Building Code 1995, Part 8 Safety Measures at Construction and Demolition Sites, Occupational Health and Safety Act and Regulations for Construction Projects, Revised Statutes of Ontario 1990, Chapter O.1 as amended, O. Reg. 213/91 as amended by O. Reg. 631/94, R.R.O. 1990, Reg. 834, O. Reg. 838/90 (Asbestos), O. Reg. 843/90 (Lead), O. Reg. 845/90 (Silica), Workplace Safety and Insurance Board and municipal statutes and authorities.
- .2 In event of conflict between any provisions of above authorities the most stringent provision governs.
- .3 Where applicable the Contractor shall be designated "Contractor", as defined by Ontario Act.
- .4 Provide within 5 working days after award of Contract to Engineer, two copies of Contractor's and sub-contractors':
 - .1 Safety Policy and Program.
 - .2 Safety Communication Plan.
 - .3 Emergency Preparedness Plan.
 - .4 WSIB - Workplace Safety and Insurance Board LTI rating and CAD 7 form.
 - .5 A copy of contractor's and sub-contractor WSIB most recent Cad-7 form.

2 Fire Safety
Requirements

- .1 Fire Commissioner of Canada, No. 301, Standard for Construction Operations, and No. 302, Standard for Welding and Cutting, June 1982 and Fire Protection Standard for Correctional Institutions - Treasury Board Personnel Management Manual, Occupational Safety and Health Chapter 3-6, Feb. 1992.
- .2 This standard may be viewed at:
 - Human Resources Development Canada
 - Labour Program
 - Fire Protection Engineering Services

 - 4900 Yonge Street
 - 8th Floor
 - Willowdale, Ontario M2N 6A6

and copies may be obtained from:

2 Fire Safety Requirements (Cont'd) .2 This standard may be viewed at: (Cont'd)

Human Resources Development Canada
Labour Program
Fire Protection Engineering Services
Ottawa, Ontario K1A 0J2

3 Overloading .1 Ensure no part of Work is subjected to a load which will endanger its safety or will cause permanent deformation.

4 Falsework .1 Design and construct falsework in accordance with CSA-S269.1-1975.

5 Scaffolding .1 Design and construct scaffolding in accordance with CAN/CSA-S269.2-M87.

6 Special Protection and Precautions .1 Comply with the requirements of the Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and the provision of material safety data sheets (MSDS) acceptable to Labour Canada.

PART 1 - GENERAL

- 1.1 Description .1 This section describes the work related to sandblasting, cleaning, chalking and painting on top flanges and exposed surfaces of existing girders and floor beams supported the new grating deck.
- 1.2 Related Section .1 Section 1561, Environmental Protection.
- 1.3 References .1 CGSB 1-GP-12c-68, Standard Paint Colors.
.2 CGSB 1-GP-171M-79, Coating, Inorganic Zinc.
.3 Steel structural Painting Council.
.4 SIS 055900, Pictorial Surface Preparation standards, Swedish Standard Institution.
- 1.4 Samples .1 Paints must be approved by Engineer before use on project. Submit one 2 L sample of paint to Engineer at least 1 weeks prior to commencement of painting for analysis and acceptance. Mark samples with name of project, its location, paint manufacturer's name and address, name of paint, CGSB standard number and manufacturers paint code number.
.2 Enable Engineer to take two 2 L samples of each paint delivered to site, one sample from manufacturer's containers and one sample from painters' pot.
- 1.5 Environmental Protection .1 Comply with the requirements of the environmental section 01561 when performing the removal of lead paint, sandblasting and other extraneous material. Temporary enclosures for collection, capture and disposal all paint, sandblasting and other extraneous material shall be required.
.2 Comply with the regulation respecting lead made under the Occupational Health and Safety
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1.5 Environmental Protection (Cont'd) .2 (Cont'd)
Act, Revised Statutes of Ontario, 1980,
Chapter 321, Ontario Regulation 536/81, as
amended by O. Reg. 23/87.

1.6 Existing Girders and Beams .1 Report to engineer for any severely corroded
steel members and corroded pits have the depth
more than 6mm in thickness.

PART 2 - PRODUCTS

2.1 Materials .1 Paint system:
.1 Paint shall be a high solids with zinc
primer, high build epoxy or urethane mastic
intermediate coat and high build urethane top
coat suitable for the intended use on steel
structure for cold weather application.
.2 Primer for exposed steel: Inorganic
zinc, single component, moisture curing having
a proven performance to satisfaction of
Engineer, standard of acceptance, Ameron's
Dimetcote 9, Carboline's Carbozinc 11 or
approved equal.
.3 Primer will lap existing paint 100 mm
and to be compatible with existing coatings.
.4 Intermediate coat/Bond coat: high build
epoxy or urethane mastic coating, moisture
curing having a proven performance to
satisfaction of Engineer, standard of
acceptance Ameron's Amerlock 400, aluminum or
Carboline's Carbomastic 15 L/o or approved
equal.
.5 Top coat: high build urethane coating,
standard of acceptance Ameron's Amerlock 400,
Carboline's Carbomastic 801 or approved equal.
.6 Color of finish coats to be a haze green
to match existing to CGSB standard 1-GP-12C.
Prime coat and intermediate coat each to be of
different shade of green from the top coat
such that each coat is easily identified.
.7 All paint material to be compatible with
surface to which it is being applied.
.2 Sand for sandblasting: to Steel Structures
Painting Council (SSPC) on blast cleaning.
.3 Chalking compound: self levelling silicone
caulking with good bond characteristics to

2.1 Materials
(Cont'd)

- .3 Chalking compound: (Cont'd)
steel members and new paint upon approval by
Engineer.

PART 3 - EXECUTION

3.1 Preparation of
Surfaces

- .1 Structural Steel surfaces to be repainted.
.1 Clean surfaces by removing rust, loose,
cracked, brittle, mill scale, welding slag,
dirt, oil, grease and other foreign
substances.
.2 Commercial Blast cleaning to Steel
Structures Painting Council Standard SSPC-SP6.
.3 Do not apply paint until prepared
surfaces have been accepted by Engineer.
.4 Apply a dry air jet to all cleaned
surfaces to remove any loose material prior to
painting.

3.2 Protection of
Surfaces

- .1 Protect surfaces not to be painted and if
damaged, clean and restore such surfaces to
original condition.
.2 Apply prime, paint, or pretreatment after
surface has been cleaned and before
deterioration of surface occurs.
.3 Clean surfaces again if rusting occurs after
completion of surface preparation, .
.4 Prevent contamination of cleaned surfaces by
salts, acids, alkalis, other corrosive
chemicals, before prime coat is applied and
between applications of remaining coats of
paint. Remove such contaminants from surface
and apply paint immediately.
.5 Protect cleaned and freshly painted surfaces
from dust and other contaminants to approval
of Engineer.
.6 All edges, flanges, inaccessible corners,
welds, etc. shall be hand striped using an
acceptable brush or roller according to the
coatings manufacturer's data sheets.
.7 No inhibitors are permitted.
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3.3 Mixing Paint

- .1 Do not dilute or thin paint for brush application; use as received from manufacturer.
- .2 Mix ingredients in container before use and ensure breaking up of lumps, complete dispersion of settled pigment, and a uniform composition.
- .3 Mix paint often enough during application to keep pigment in suspension and composition uniform.
- .4 Mixing or keeping paint in suspension by means of an air stream bubbling under paint surface will not be permitted.
- .5 Provide a copy of paint manufactures instructions to engineer. These instructions will become part of this specification.

3.4 Paint Coat

- .1 Paint prepared surfaces in accordance with the following:
 - .1 one primer coat to minimum dry film thickness of 0.0625 and maximum of 0.100mm; (2.5 to 4.0 mils).
 - .2 one intermediate coat to minimum dry film thickness of 0.125 and maximum of 0.175 mm; (5.0 tp 7.0 mils).
 - .3 one top coat to minimum dry film thickness of 0.075 and maximum of 0.125 mm; (3.0 to 5.0 mils).
 - .4 the total paint dry film thickness shall be a minimum of 0.250 mm (10 mils) and a maximum of 0.400 mm (16 mils).
 - .5 thickness measurement will be taken according to SSPC-2 thickness specification.

3.5 Installation of Caulking

- .1 Caulk open seams at contact surfaces of built up members with material approved by Engineer, before second undercoat of primer is applied.
 - .2 Caulk the corroded pit areas on the existing stringers and beams with material approved by engineer, before second undercoat of primer is applied.
 - .3 The caulk shall be level and smooth for new paint work.
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3.5 Installation
of Caulking
(Cont'd)

- .4 All caulking work shall be inspected by engineer before painting.
- .5 Apply caulking compound to manufacturer's instructions.

3.5 Application

- .1 Apply paint by spraying.
 - .2 Coating spraying equipment shall be clean and in good condition with sufficient selection of air caps and tips to meet the requirement of the coatings manufacturer's recommendations.
 - .3 All coating materials shall be delivered to the work site in Supplier's original containers with labels and seals unbroken. They shall be kept in a locked, well ventilated storage place assigned for this purpose.
 - .4 Do not apply paint when:
 - .1 Temperatures are below or exceed the manufacturer's recommendations.
 - .2 Temperature of surface is over 35 degree Celsius unless paint is formulated for application at higher temperatures.
 - .3 Fog or mist occur at site; it is raining or snowing; there is a danger of rain or snow.
 - .4 Surface to be painted is wet, damp or frosted.
 - .5 Surface temperature is less than 3 degree Celsius above the dew point.
 - .6 Detrimental change in weather may occur within two hours.
 - .7 Wind speed exceed 15 km per hour unless the Contractor can demonstrate to the Engineer that adequate precautions have been made available which are acceptable to the Engineer.
 - .5 Apply paint in accordance with the manufacturer's recommendations. The manufacturer's specifications and codings are part of this specification.
 - .6 At time of application of the paint, the degree of cleanliness specified must exist.
 - .7 When paint must be applied in damp or cold weather, heat surface and surrounding air to comply with temperature and humidity
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3.5 Application
(Cont'd)

- .7 (Cont'd)
conditions specified in 3.5.4. Protect until paint is dry or until weather conditions are suitable.
 - .8 Remove paint which is damaged after application, prepare surface again and repaint same as undamaged areas.
 - .9 Apply each coat of paint as a continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.
 - .10 Brush application (if suitable for paint):
 - .1 Work paint into cracks, crevices corners and leading edges of flanges etc. and paint surfaces not accessible to brushes by spray, daubers or sheepskins.
 - .2 Brush out runs and sags.
 - .3 Leave a minimum of brush marks in finished paint surface.
 - .4 Remove runs and sags from finished work and repaint.
 - .11 Spray application:
 - .1 Provide and maintain equipment that is suitable for intended propose, capable of properly atomizing paint to be applied, and equipped with suitable pressure regulators and gauges.
 - .2 Provide traps or separators to remove oil and water from compressed air and drain periodically during operations.
 - .3 Keep paint ingredients properly mixed in spray ;pots or containers agitators must be used.
 - .4 Apply paint in a uniform layer, with overlapping at edges of spray pattern.
 - .5 Bush out immediately all runs and sags.
 - .6 Use equipment recommended by manufacturer to work paint into cracks, crevices and places which are not adequately painted by spray.
 - .7 Remove runs and sags and repair before proceeding with another coat, as directed by the Engineer.
 - .8 Any overspraying onto surfaces not to be painted will be removed at the Contractor's cost.
 - .12 All coatings for the purpose of this specification shall be fully cured prior to
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3.5 Application
(Cont'd)

- .12 (Cont'd)
being accepted by the Engineer. No accelerators for this purpose of force curing the coating system will be accepted.
- .13 All repair procedures shall be approved by the Engineer. In the case of removal, the work shall be replace by work and materials which shall conform to the specification. this clause shall have full effect regardless of the fact that the defective work may have been previously inspected by the Engineer.

3.6 Inspection

- .1 All material and equipment furnished, and work done, shall be subject to inspection by the Engineer. All inspections will be in accordance with CGSB 31-GP-404a, including SSPC-VIS-1-89 and "Good Painting Practice" by Steel Structures Painting Council.
- .2 Such inspection shall not relieve the Contractor of the responsibility for furnishing the qualified labour , equipment, staging, etc., necessary to meet the requirements of this specification, or the accessibility of the work place for the purposes of inspection.
- .3 The Contractor shall ask for the Engineer's approval only after conducting his own thorough inspection, and after he is satisfied he has met all the requirements of the specification. If requested, the Contractor will keep accurate record containing details such as weather, temperatures, dew points and times for the various coating application.

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- .2 Primer for exposed steel: Inorganic zinc, single component, moisture curing having a proven performance to satisfaction of Engineer, standard of acceptance, Ameron's Dimetcote 9, Carboline's Carbozinc 11 or approved equal.
- .3 Primer will lap existing paint 100 mm and to be compatible with existing coatings.
- .4 Intermediate coat/Bond coat: high build epoxy or urethane mastic coating, moisture curing having a proven performance to satisfaction of Engineer, standard of acceptance Ameron's Amerlock 400, aluminum or Carboline's Carbomastic 15 L/o or approved equal.
- .5 Top coat: high build urethane coating, standard of acceptance Ameron's Amerlock 400, Carboline's Carbomastic 801 or approved equal.
- .6 Color of finish coats to be a haze green to match existing to CGSB standard 1-GP-12C. Prime coat and intermediate coat each to be of different shade of green from the top coat such that each coat is easily identified.
- .7 All paint material to be compatible with surface to which it is being applied.

.2 Sand for sandblasting: to Steel Structures Painting Council (SSPC) on blast cleaning.

.3 Chalking compound: self levelling silicone caulking with good bond characteristics to

2.1 Materials
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Surfaces

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deterioration of surface occurs.
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completion of surface preparation,.
.4 Prevent contamination of cleaned surfaces by
salts, acids, alkalis, other corrosive
chemicals, before prime coat is applied and
between applications of remaining coats of
paint. Remove such contaminants from surface
and apply paint immediately.
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acceptable brush or roller according to the
coatings manufacturer's data sheets.
.7 No inhibitors are permitted.

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- .2 Mix ingredients in container before use and ensure breaking up of lumps, complete dispersion of settled pigment, and a uniform composition.
- .3 Mix paint often enough during application to keep pigment in suspension and composition uniform.
- .4 Mixing or keeping paint in suspension by means of an air stream bubbling under paint surface will not be permitted.
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 - .3 one top coat to minimum dry film thickness of 0.075 and maximum of 0.125 mm; (3.0 to 5.0 mils).
 - .4 the total paint dry film thickness shall be a minimum of 0.250 mm (10 mils) and a maximum of 0.400 mm (16 mils).
 - .5 thickness measurement will be taken according to SSPC-2 thickness specification.

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- .5 Apply caulking compound to manufacturer's instructions.

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- .3 All coating materials shall be delivered to the work site in Supplier's original containers with labels and seals unbroken. They shall be kept in a locked, well ventilated storage place assigned for this purpose.
- .4 Do not apply paint when:
 - .1 Temperatures are below or exceed the manufacturer's recommendations.
 - .2 Temperature of surface is over 35 degree Celsius unless paint is formulated for application at higher temperatures.
 - .3 Fog or mist occur at site; it is raining or snowing; there is a danger of rain or snow.
 - .4 Surface to be painted is wet, damp or frosted.
 - .5 Surface temperature is less than 3 degree Celsius above the dew point.
 - .6 Detrimental change in weather may occur within two hours.
 - .7 Wind speed exceed 15 km per hour unless the Contractor can demonstrate to the Engineer that adequate precautions have been made available which are acceptable to the Engineer.
- .5 Apply paint in accordance with the manufacturer's recommendations. The manufacturer's specifications and codings are part of this specification.
- .6 At time of application of the paint, the degree of cleanliness specified must exist.
- .7 When paint must be applied in damp or cold weather, heat surface and surrounding air to comply with temperature and humidity

3.6 Application
(Cont'd)

- .7 (Cont'd)
conditions specified in 3.5.4. Protect until paint is dry or until weather conditions are suitable.
- .8 Remove paint which is damaged after application, prepare surface again and repaint same as undamaged areas.
- .9 Apply each coat of paint as a continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.
- .10 Brush application (if suitable for paint):
 - .1 Work paint into cracks, crevices corners and leading edges of flanges etc. and paint surfaces not accessible to brushes by spray, daubers or sheepskins.
 - .2 Brush out runs and sags.
 - .3 Leave a minimum of brush marks in finished paint surface.
 - .4 Remove runs and sags from finished work and repaint.
- .11 Spray application:
 - .1 Provide and maintain equipment that is suitable for intended propose, capable of properly atomizing paint to be applied, and equipped with suitable pressure regulators and gauges.
 - .2 Provide traps or separators to remove oil and water from compressed air and drain periodically during operations.
 - .3 Keep paint ingredients properly mixed in spray ;pots or containers agitators must be used.
 - .4 Apply paint in a uniform layer, with overlapping at edges of spray pattern.
 - .5 Bush out immediately all runs and sags.
 - .6 Use equipment recommended by manufacturer to work paint into cracks, crevices and places which are not adequately painted by spray.
 - .7 Remove runs and sags and repair before proceeding with another coat, as directed by the Engineer.
 - .8 Any overspraying onto surfaces not to be painted will be removed at the Contractor's cost.
- .12 All coatings for the purpose of this specification shall be fully cured prior to

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being accepted by the Engineer. No accelerators for this purpose of force curing the coating system will be accepted.
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- 3.7 Inspection .1 All material and equipment furnished, and work done, shall be subject to inspection by the Engineer. All inspections will be in accordance with CGSB 31-GP-404a, including SSPC-VIS-1-89 and "Good Painting Practice" by Steel Structures Painting Council.
- .2 Such inspection shall not relieve the Contractor of the responsibility for furnishing the qualified labour , equipment, staging, etc., necessary to meet the requirements of this specification, or the accessibility of the work place for the purposes of inspection.
- .3 The Contractor shall ask for the Engineer's approval only after conducting his own thorough inspection, and after he is satisfied he has met all the requirements of the specification. If requested, the Contractor will keep accurate record containing details such as weather, temperatures, dew points and times for the various coating application.

Engineer for review. Clearly indicate shapes, mass and dimensions of members, assembly relationships, materials to be used, bolts, weld types and sizes, the methods of erection.

- .2 Fabrication and erection drawings to be submitted in metric dimensions and sizes. Fabricator may show dimensions and sizes in Imperial System in brackets next to metric dimensions and sizes if required to suit his operations and equipment.
- .3 Attach to drawings applicable welding procedures, stamped and approved by Canadian Welding Bureau.
- .4 Regardless of review of fabrication and erection drawings by Engineer, be responsible for correctness of dimensions, fit of parts and compliance with Contract plans and specifications issued by Engineer.
- .5 Do not commence fabrication until Engineer has reviewed and accepted drawings. Be responsible for ordering of materials prior to acceptance of drawings.
- .6 After final review by Engineer, submit four (4) sets of drawings for distribution.
- .7 Do not make changes or revisions to reviewed drawings without consent of Engineer.

1.6 Test Reports

- .1 Prior to fabrication, provide Engineer with two (2) copies of steel producer's certificates in accordance with CAN/CSA-G40.20.

1.7 Requirement of Regulatory Agencies

- .1 Adhere to applicable codes relating to design and fabrication of steel deck grating.

1.8 Test Reports

- .1 Prior to fabrication, provide Engineer with five (5) copies of steel producer's certificates in accordance with CAN/CSA-G40.20.

PART 2 - PRODUCTS

2.1 Materials

- .1 Structural steel:
 - .1 General Requirements: to CSA Standards G40.21 and G40.20.
 - .2 Steel grades: to grades indicated on drawings.
- .2 Welding electrodes: to CSA Standard W48 series.
- .3 Bridge Deck Grating:
 - .1 130mm 4-way open grid bridge decking (see Dwg).
 - .2 Steel grade: to CSA G40.20, grade 300W or equivalent.
 - .3 Main rolled beams, 5.51#, 132mm deep, spaced at 190mm.
 - .4 Secondary bars 51x 6 spaced at 95mm intersecting Main rolled beams.
 - .5 Supplemental bars 25x 6 spaced at 95mm on center with Main rolled beams
 - .6 Diagonal bars 25x 6 connect alternately at Main bars and Supplemental bars.
 - .7 End trim bars: 130x 6 or 51x 6
 - .8 Welding connection at all intersections of bars in deck grating panels.
 - .9 Finish: sand-blasted clean, not painted.
 - .10 Preferred width of panel: 2.4m (approx)
 - .11 Weight of flooring: 18.5 psf (approx)
 - .12 Provide for welded field splices.
 - .13 All bars to be serrated to provide skid resistance; serrations: 10 wide x 5 deep.

PART 3 - EXECUTION

3.1 Marking

- .1 Mark materials in accordance with CSA Standard G40.20; however, do not use die stamp. Place marking at locations not visible from exterior after erection.
- .2 Match marking: Shop mark splices for fit and match.

3.2 Fabrication

- .1 Fabricate structural steel to AASHTO Standard Specifications for Highway Bridges, 1989, Division II, clauses 10.4 to 10.33 inclusive, unless otherwise specified.
- .2 Welding:

- .1 Welding to CSA Standard W59 including dimensional tolerances.
- .2 Certification of welding company to Division 3 of CSA Standard W47.1.
- .3 Do welding in shop.
- .4 Do not weld at locations where weld is not specified.

- .3 Finish: Do shearing, cutting, chipping and machining neatly and accurately. Finish members true to line, free from twists, bends, open joints, and sharp corners and edges.--

- .4 Allowable tolerances for grating panels: Finish panels to following
 - .1 Panel width: +0mm, -3mm
 - .2 Panel length: ± 6 mm
 - .3 Squareness: ± 12 mm (diagonal)
 - .4 Transverse camber (width): .005 x width
 - .5 Longitudinal camber (length): .003 x length
 - .6 Side bow (sweep): ± 6 mm/ 3m
 - .7 Main bar verticality: ± 3 mm
 - .8 Cross bar verticality: ± 2 mm

- .5 Do not correct mispunched or misdrilled members by welding unless otherwise approved by Engineer.

3.3 Delivery and Storage

- .1 Perform work necessary to ensure safe delivery and storage. Provide protective blocking for lifting, transporting, and storing. Exercise care during fabrication, transportation and erection so as not to stain or damage members, and in particular to avoid notches in edges of members or to cause excessive stresses.

- 2 Clearly mark mass on members weighing more than three tonnes.

- .3 Ensure that no portion of steel comes into contact with ground.

- .4 Be responsible for steel deck grating panels until final acceptance by Engineer.

- .5 Provide Engineer with delivery schedules not less than seven (7) days prior to shipping.

.6 Ship small parts such as bolts, nuts, washers and pins in containers not exceeding 150 kg gross mass. Clearly mark, on outside of each container, a list and description of material contained therein.

.7 Location of storage: Burlington Channel Lift Bridge
1157 Beach Boulevard
Hamilton, Ontario L8H 6Z9
Bridgmaster: Tim Egan (905)544-3236

3.4 Railing

.1 New railing to be completely galvanized.

.2 Verify alignment of railing in field and make necessary adjustments to insure fit to Engineer's satisfaction.

.3 Verify with Engineer on method for insuring continuity with approach railing.

3.5 Demolition & Removal

.1 Demolish and remove all items shown on drawings.

.2 Remove existing curbs and railings on bridge.

.3 Clean and paint all exposed contact surfaces.

.4 Remove and evacuate existing deck grating.

.5 Submit demolition method and procedure for Engineer's approval.

.6 Clean off all excess weld deposits on all support beams.

.7 No cuts in the top flanges will be tolerated.

.8 Rectify all damages to Engineer's satisfaction.

.9 Clean and paint top and bottom surfaces of top flanges in harmony with the welding of the grating.

PART 1 - GENERAL

1.1 Description

- .1 This section specifies requirements and procedures for traffic control to ensure protection of work and safety of public to satisfaction of Engineer.

1.2 References

- .1 Uniform Traffic Control Devices for Canada, (UTCD) (distributed by Transportation Association of Canada).
- .2 Manual of Uniform Traffic Control Devices for Streets and Highways, US FHWA, Part IV.

PART 2 - PRODUCTS

2.1 Traffic Control Devices

- .1 Barricades, signs, delineators, warning lights, traffic lights, flag person's paddles and other devices shall be in strict accordance with PART D of manual, Uniform Traffic Control Devices for Canada, (Metric Edition), distributed by Transportation Association of Canada (TAC).
- .2 Signs, barricades, delineators, and flag person's paddles shall be reflectorized to show same shape and color by night as by day.

PART 3 - EXECUTION

3.1 General

- .1 Maintain single lane traffic in each direction at all times. Conduct operations so as to create a minimum of inconvenience to traffic.
- .2 Provide traffic control through use of an approved traffic signal system.
- .3 Continue using approved traffic signal system during period between end of working day and start of next work shift.
- .4 Provide a continuous concrete traffic barrier between work area and traffic lanes.

3.2 Operational Requirements

- .1 Maintain existing conditions for traffic throughout period of contract except that, when required for construction under

contract and when measures have been taken as specified herein and approved by Engineer to protect and control vehicular traffic, existing conditions for traffic to be restricted as follows:

- .1 One lane of traffic in each direction.
 - .2 Speed limit reduced to 40 km/hr.
- .2 Obtain the Engineer's approval on period and timing of any traffic interruption expected to exceed ten (10) minutes. Notify the Engineer 48 hours in advance of any period of traffic interruption.
- .3 Provide for safe movement of pedestrians and vehicles travelling through work area in a manner approved by the Engineer.

3.3 Informational and Warning Devices

- .1 Supply, erect, move and maintain all traffic control devices, signs, and other safety measures and provide staff to ensure the safe passage of all traffic over the project from the date of commencement of the work to the date of acceptance by the Engineer. All traffic and warning signs shall be either bilingual or of a symbolic or pictorial type. If bilingual signs are used, the English and French message shall be of equal letter size and at the same elevation with the English on the left and the French on the right.
- .2 Supply and erect signs, delineators, barricades and miscellaneous warning devices as specified in Part D, Temporary Conditions Signs and Devices, of UTCD manual and the Contract drawings for these specifications. Traffic control measures will be monitored by the Engineer, and he may require modifications of these measures from time to time.
- .3 Provide competent supervision during non-working hours to ensure that safety flares, flashing beacons, signs, etc. are in proper working order.
- .4 Meet with Engineer prior to commencement of work to prepare list of signs and other devices required for project. If situation on site changes, revise list to approval of Engineer.
- .5 Continually maintain traffic control devices in use by:
 - .1 Checking signs daily for legibility, damage, suitability and location. Clean, repair or replace to ensure clarity and reflectance.
 - .2 Removing or covering signs which do not apply to conditions existing from day to day.

.6 Assume all liabilities for lights and signs.

3.4 Control of
Public Traffic

- .1 Provide flag persons, trained in accordance with, and properly equipped as specified in, UTC manual in following situations:
 - .1 When vehicular traffic is required to pass working vehicles or equipment which block all or part of travelled roadway.
 - .2 When it is necessary to institute single lane traffic system in each direction through construction area or other blockage where traffic volumes are heavy, approach speeds are high and traffic signal system is not in use.
 - .3 When workmen or equipment are employed on travelled way over brow of hills, around sharp curves or at other location where oncoming traffic would not have adequate advance warning.
 - .4 Where temporary protection is required while other traffic control devices are being erected or taken down.
 - .5 For emergency protection when other traffic control devices are not readily available.
 - .6 In situations where complete protection for workmen, working equipment and public traffic is not provided by other traffic control devices.
 - .7 At each end of restricted sections where pilot cars are required.
 - .8 Delays to public traffic due to contractor's operation: exceeding 10 min.
- .2 Ensure flag persons are conversant with situation necessitating delay and are ready to explain reason and approximate duration to affected public.
- .3 Ensure flag persons are neat in appearance, perform their duties in courteous and diligent manner and are aware of importance in protection of workers and general public.
- .4 Equip each flag person with:
 - .1 Hard hat.
 - .2 Flag person's paddle consisting of a diamond shape, displaying a red stop sign on a white background facing in direction in which traffic is to stop. Reverse side shall be a yellow diamond. Paddle should be reflectorized to show same shape and colour by night as by day.

- .3 Blaze red or blaze orange flag person's vest or jacket.
For flagging during hours of darkness, flag person's vest or jacket shall have reflectorized vertical white stripes, at least two of which are visible on front and two on back of garment.
- .4 For flagging during hours of darkness, a flashlight filled with a red signalling baton or type similar to those used by Police.
- .5 A means of communication for each team of flag persons (field telephones, two-way radios, etc.) where two ends of a restricted section are not intervisible.
- .5 Place RTAC WD-A45 "Flagman" sign ahead of each flag person station. Where a single flag person is required to control a straight one-way section, place "Flagman" signs for both directions of travel.
- .6 Ensure "Flagman" signs are covered or removed when flagging discontinued.
- .7 Locate flag person stations no closer than 20 m from work area.
- .8 Ensure flag persons are familiar with and follow standard flagging procedures:
 - .1 Give signals in clear precise manner to avoid confusion which may develop in mind of traveling public as to meaning of signals given.
 - .2 Stand in a safe position, preferably on center line where flag person, paddle and other devices will be clearly visible and where flag person has unobstructed view of approaching traffic.
 - .3 To stop traffic in daylight, face approaching traffic and extend left arm horizontally across traffic lane with paddle held in upright position and with "Stop" side facing approaching traffic. For greater emphasis, raise right arm with open palm towards approaching traffic. In darkness, supplement paddle by flashlight with red baton attached, held in right hand with arm extended horizontally at right angles to approaching traffic.
 - .4 To slow traffic in daylight, extend left arm horizontally across traffic lane with paddle held in upright position and with yellow side facing approaching traffic. For emphasis, extend right arm horizontally away from body with palm facing down and move slowly up and down through a small arc at right angles to traffic. In darkness, assume same position

- with flashlight with red baton attached held in right hand.
- .5 If above procedure results in traffic slowing below required speed, flag person turns and faces across traffic lane and looks over right shoulder at traffic to be directed. In daylight, extend right arm and move arm in an elliptical manner corresponding to rotation and direction of vehicle wheels. Extend left arm forward across traffic lane with paddle held upright and yellow side facing traffic to be directed. In darkness, take same position but with flashlight with red baton attached in right hand.
 - .6 To keep traffic moving at prevailing speed extend right arm and move in an elliptical manner corresponding to rotation and direction of vehicle wheels. Lower paddle held in left hand behind flag person's leg farthest from approaching traffic so not visible to oncoming traffic. In darkness, use flashlight with red baton attached in right hand.
 - .7 Signal to proceed or proceed slowly may also be given verbally after stopping traffic.
 - .8 Never use flag person's paddle to wave traffic on, or display in other than static position.
 - .9 Where two flag persons are working as a team at opposite ends of a restriction, one flag person shall be designated as Chief Flag person for purpose of coordinating traffic movements. Chief Flag person shall initiate changes in directional flow of traffic and determine duration of each cycle. Where visual signals are used between themselves to assign changes in traffic movements, such signals shall be predetermined and not be such as to be mistaken as traffic flagging signals by public.

PART 1 - GENERAL

1.1 Environmental
Measures

- .1 Meet or exceed the requirements of all environmental legislation and regulations, including all amendments up to project date provided that in any case of conflict or discrepancy, the more stringent requirements shall apply.

PART 2 - EXECUTION

2.1 Fires

- .1 Fires and burning of rubbish on site will not be permitted.

2.2 Disposal of Wastes

- .1 Do not bury rubbish and waste materials on site.
- .2 Collect all rubbish and waste material and dispose of at an approved land site.
- .3 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways, storm or sanitary sewers.
- .4 When blast cleaning, provide enclosure, screen or trap to confine and contain all abrasive material and paint debris and other extraneous material.
- .5 Do not allow any abrasive material, sand, paint, debris or other foreign material to enter the waterway.
- .6 Hazardous waste such as spent abrasives should be sent to proper waste stations. Manifest will be required by the Engineer.

2.3 Work Adjacent to
Waterways

- .1 Do not dump waste materials or debris in waterways.
- .2 Works performed in and around waterways will be carried out in accordance with regulations of authorities having jurisdiction.
- .3 Remove immediately any solid object inadvertently dropped into the river channel. On conclusion of construction, dispose of all debris to prevent its entry into the stream.
- .4 Re-fuelling of machinery must take place at a safe distance from the waterway as designated by the Engineer.

2.4 Drainage

- .1 Provide temporary drainage and pumping as necessary

to keep site free from water.

- .2 Do not pump water containing suspended materials into waterways, sewer or drainage systems.
- .3 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

2.5 Plant Protection

- .1 When, in opinion of Engineer, negligence of Contractor results in damage or destruction of vegetation, or other environmental or aesthetic features beyond work areas as shown on contract drawings, the Contractor shall be responsible, at his expense, for complete restoration including replacement of trees, shrubs, grass, etc. to satisfaction of Engineer.

2.8 Pollution Control

- .1 Maintain temporary erosion and pollution control features installed under this contract.
- .2 Control emissions from equipment and plant to local authorities emission requirements.
- .3 Prevent abrasive blasting materials and other extraneous materials from contaminating air, land or water by avoiding temporary enclosures, screens or traps.
- .4 Spills of deleterious substances should be immediately contained and cleaned up in accordance with provincial regulatory requirements. Spills should be reported to Ontario Spills Action Centre: 1-800-268-6060.
- .5 Noise levels emitted from construction activities are subject to city by-law requirements.
- .6 During work at night, all necessary steps must be taken to minimize noise to neighbouring communities.

2.9 Storage and Handling of Fuels and

- .1 Locate fuel storage facility a minimum of 100 m from any waterbody in an area approved by the Engineer and

Dangerous Fluids

construct impermeable dykes so that any spillage is contained. Fuelling of vehicles or equipment will not be permitted within 100 m of any waterbody.

- .2 Prevent spillage of gasoline, diesel fuel and other oil products into the waterways and on land. Clean up spills promptly at own cost in accordance with Provincial regulatory requirements. Report any fuel spills immediately to Engineer.
- .3 Proper use of primers, grouts, bonding adhesives and other hazardous substances will be undertaken to prevent their entry into waterways. Substances are to be stored and mixed on protected surfaces away from site to prevent their entry into waterways and contamination of soils.
- .4 Use of turnouts, viewpoints or picnic areas, etc. for oil change and other equipment maintenance will not be permitted. Collect and dispose of used oil filter cartridges and other products of equipment maintenance at industrial waste facility to satisfaction of Engineer.

- 1 General
- .1 Provide one (1) trailer for site office.
 - .2 Locate trailer on site at location designated by Engineer.
- 2 Access
- .1 Provide and maintain adequate access to project site.
 - .2 Maintain roads in safe and clean condition as directed and provide snow removal during period of work.
 - .3 If authorized to use existing roads for access to project site, maintain such roads for duration of Contract and make good damage resulting from Contractors' use of roads.
- 3 Contractor's Site Office
- .1 Provide trailer with office heated to 22 degree Celsius, lighted 750 Lx and ventilated, of sufficient size to accommodate site meetings and furnished with drawing lay down table and telephone; pay telephone is not acceptable.
- 4 Storage Sheds
- .1 Provide adequate weather tight sheds with raised floors, for storage of materials, tools and equipment which are subject to damage by weather.
- 5 Sanitary Facilities
- .1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.
 - .2 Post notices and take such precautions as required by local health authorities. Keep area and premises in sanitary condition.
- 6 Parking
- .1 Parking space and storage area will be made available on site, on Federal property in vicinity. Maintain and administer this space as directed.
- 7 Enclosures
- .1 To prevent material from entering the river and where required for the protection of adjacent property and traffic, erect temporary barriers or enclosures. Any damages to adjacent property, vehicles and public shall be made good by the Contractor at his own expense to the satisfaction of the Engineer.
- 8 Power
- .1 Arrange, pay for and maintain temporary electrical power

supply in accordance with governing regulations and ordinances.

- .2 Install temporary facilities for power such as pole lines and underground cables to approval of local power supply authority.

9 Water Supply

- .1 Arrange, pay for and maintain temporary water supply in accordance with governing regulations and ordinances.

10 Ventilating

- .1 Pay for costs of temporary ventilation used during construction, including costs of installation, fuel, operation, maintenance and removal of equipment. Use of direct-fired heaters discharging waste products into work areas will not be permitted.

- .2 Provide temporary ventilation in enclosed areas as required to:

- .1 Facilitate progress of work.
- .2 Protect work and products against dampness and cold.
- .3 Prevent moisture condensation on surfaces.
- .4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.
- .5 Provide adequate ventilation to meet health regulations for safe working environment.

- .3 Ventilating:

- .1 Prevent accumulations of dust, fumes, mists, vapors or gases in areas occupied during construction.
- .2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.
- .3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.
- .4 Ventilate storage spaces containing hazardous or volatile materials.
- .5 Ventilate temporary sanitary facilities.
- .6 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.

- .4 Maintain strict supervision of operation of temporary heating and ventilating equipment to:

- .1 Conform with applicable codes and standards.
- .2 Enforce safe practices.
- .3 Prevent abuse of services.

- .4 Prevent damage to finishes.
 - .5 Vent direct-fired combustion units to outside.
- 11 Drainage
- .1 Refer to Section 01561 - Environmental Protection for site drainage and pumping requirements.
- 12 Site Signs and Notices
- .1 Provide pavement marking and erect common-use signs and notices related to traffic control, information, instruction, use of equipment, public safety devices, etc. in both official languages or by the use of commonly-understood graphic symbols to the Engineer's approval. Graphic symbols to CAN/CSA-Z321-96.
 - .2 No sign boards or other advertising will be permitted on this project.
 - .3 Maintain approved signs and notices in good condition for duration of project, and dispose of off site on completion of project or earlier if directed by Engineer.
- 13 Scaffolding
- .1 Design, construct and maintain scaffolding in rigid, safe and secure manner, in accordance with CSA S269.2-M87.
 - .2 Remove promptly when no longer required.
- 14 Removal of Temporary Facilities
- .1 Remove temporary facilities from site when directed by Engineer.
 - .2 When project is closed down at end of construction season keep temporary facilities operational until close down or removal is approved by Engineer.
 - .3 Make good all surfaces, including roads, parking areas and lawns which have been affected by temporary facilities.

1 Name and Location

- .1 Burlington Lift Bridge
Hamilton, Ontario

2 General Description
of Work

- .1 Work under this contract covers all items of work describe by plans and specifications including the following:
 - .1 Demolition and removal of existing steel grating deck.
 - .2 Demolition and removal of existing railing on bridge.
 - .3 Fabrication, delivery and installation of new steel grating deck.
 - .4 Fabrication, galvanizing, delivery, and installation of new structural steel railing on bridge.
 - .5 Cleaning and painting of top flanges and exposed surfaces of the supported girders and beams for the new deck.
 - .6 Adequate connection and transition to approach railings.
 - .7 Complete traffic control during entire construction period including flag persons, provision, installation and maintenance of traffic control devices and maintenance and removal of by-pass lanes.
- .2 Perform work during winter months and make appropriate provisions for executing work in the field.

3 Field Measurements

- .1 Before ordering the new deck grating, the contractor must verify all dimensions in the field and confirm with engineer.

4 Cost Breakdown

- .1 Submit within 7 days of contract award, a breakdown of contract price in detail as directed by Engineer and aggregating contract price. After approval by Engineer the cost breakdown will be used as basis for progress payments.

5 Schedule of Work

- .1 The bridge will remain in down position between the dates of January 10, 2000 to March 15, 2000.
- .2 Include following milestones:
 - .1 Complete replacement of deck grating before the reopening of canal for commercial shipping.
- .3 Provide within five (5) working days after Contract award, in a form acceptable to the Engineer schedule showing

anticipated progress stages and final completion of work within time period required by Contract documents.

- .4 Allow in schedule of work sufficient time for review or examination by Engineer, of proposed work procedures, schedules and materials.
- .5 If progress of work should fall behind, take steps required to bring work back to schedule. Do not change schedule without Engineer's approval.
- .6 Pay extra costs to complete work on schedule which may be incurred because of:
 - .1 Increasing the labour force.
 - .2 Increasing working hours either by overtime work or by using shifts.
 - .3 Using more equipment and machinery.
 - .4 Any other procedure which must be used.
- .7 The Contractor shall be held fully responsible for any costs incurred by the Engineer due to the late completion of the Contract.

6 Examination of Site

- .1 Examine site and all conditions likely to affect work before submitting tender.
- .2 Submission of tender is deemed to be confirmation that tenderer has inspected site and is conversant with all conditions affecting execution and completion of work.
- .3 Verify dimensions of existing structures in field before commencement of work.
- .4 Verify with Engineer objects designated to be removed and objects to be preserved.
- .5 During the tender period, the Engineer will conduct a site visit. All bidders will be advised of the date and time.

7 Rights of Others

- .1 The Contractor's attention is drawn to the fact that other contractors and consultants will be working in the nearby area.

8 Applicable Laws
and Bylaws

- .2 Cooperate fully with others working in the aforementioned areas and such cooperation is an obligation under the terms of this contract.
- .1 The Contractor shall comply with all laws and by-laws relating to the Work, whether federal, provincial or municipal, as if the Work were for a person other than Her majesty and shall require compliance therewith by all its subcontractors.
- .2 Evidence of compliance by the Contractor of its obligations related to such applicable laws and by-laws shall be furnished by the Contractor to the Engineer at such times as the Engineer may request.

9 Definition of Terms

- .1 Right-of-way: Area reserved by Department for highway purposes.
- .2 Roadway: Portion of right-of-way within construction limits.
- .3 Substructure:
 - .1 Abutments excluding approach slabs.
 - .2 Piers.

10 Control of Material
and Source Sampling

- .1 Leave site from which material has been removed in neat and presentable condition upon completion of work.
- .2 On award of Contract, supply Engineer with list of names and addresses of suppliers of all materials to be used in work to facilitate arrangements for inspection and sampling of materials at source. Prior inspection does not relieve contractor of responsibility for incorporating in work only materials complying with specification requirements.

11 Inspection and
Testing of Materials

- 1 The cost of all testing and inspection of materials will be paid and arranged by the Engineer. When initial tests and inspections reveal work not to contract requirements, pay

for tests and inspections required by Engineer on corrected work.

- .2 The Contractor shall supply to the Engineer such materials, labour and further assistance as may be required to produce, package and ship all test samples.
- .3 The Contractor shall make known to the Engineer the source of all materials at least one week prior to the time he proposes to use such material.
- .4 The Engineer may employ an inspection and testing company to ensure work conforms to contract documents.

12 Public Convenience
and Safety

- .1 Conduct work so as to assure safety and convenience of general public.
- .2 Regulate operations at all times to protect visitors and campers on Crown lands adjacent to work site.
- .3 Contractor is totally responsible for safety. He shall indemnify and hold harmless the owner, Engineer and their agents from and against claims, losses, costs, damages that arise out of or are attributed to the Contractor's safety performance.--

13 Reference Codes
and Standards

- .1 Materials shall be new and work conform to the applicable standards of the Canadian General Standards Board, the Canadian Standards Association, the National Building Code of Canada (1995) and all applicable Provincial and Municipal codes. In the case of conflict or discrepancy the most stringent requirement shall apply.

14 Taxes

- .1 Pay all taxes properly levied by law (including Federal, Provincial and Municipal).

15 Fees, Permits
Certificates

- .1 Pay all fees and obtain all permits. Provide authorities with plans and information for acceptance certificates. Provide inspection certificate as evidence that work conforms with requirements of Authority having jurisdiction.

16 Fire and Safety

- .1 Provide manpower, materials and coordination to implement all measures described in:
 - .1 National Building Code
 - .2 National Fire Code
 - .3 Treasury Board Canada (TBC) standards, chapters 3-1 to 3-5 inclusive, available from TBC.
 - .4 Labour Program, HRDC, Fire Commissioner of Canada (FCC) standards 301, 302, 374, 401 & 403, available from Fire Protection Engineering Services, Labour Program, HRDC.
 - .5 Obtain standards from following Internet sites:
TBC standards:
<http://info.load-otea.hrhc-drhc.gc.ca/~fireweb/homeen.shtml>
FCC standards:
<http://info.load-otea.hrhc-drhc.gc.ca/~fireweb/standards/fccen.htm>
- .2 Retain standards on site throughout construction.
- .3 Comply with National Building Code (Part 8, Health and Safety Measures at Construction and Demolition Sites) and Provincial Regulations for Construction Projects.

17 Services

- .1 The Contractor shall arrange for all temporary services such as light, heat, power, water, telephone as necessary for the performance of the work and pay all costs related thereto.
- .2 Notify the Engineer and utility companies of intended interruption of services, obtain requisite permissions.

18 Use of Site
and Facilities

- .1 Execute work with least possible interference or disturbance to the normal use of premises. Make arrangements with Department to facilitate work as stated.

19 Removal Material

- .1 Unless otherwise specified, materials for removal including old grating become the Contractor's property and shall be taken from site and disposed at no cost to engineer.

20 Protection

- .1 Protect finished work against damage until takeover.
- .2 Protect adjacent work against the spread of dust and dirt beyond the work areas.

21 Storage

- .3 Protect operatives and other users of site from all hazards.
- .1 Engineer will assign storage space which shall be equipped and maintained by Contractor.
- .2 Do not unreasonably encumber site with materials or equipment.
- .3 Move stored products or equipment which interfere with operations of Engineer or other Contractors.
- .4 Obtain and pay for use of additional storage or work areas needed for operations.

22 Cutting, Patching and Making Good

- .1 Cut existing surfaces as required to accommodate new work to Engineer's approval.
- .2 Remove all items so shown or specified.
- .3 Patch and make good surfaces cut, damaged or disturbed, to the Engineer's satisfaction.

23 Inspection

- .1 Inspection and testing by the Engineer will not relieve the contractual responsibilities of the Contractor, or replace his quality control.
- .2 Contractor to provide written request for Engineer's inspection of work. Do not proceed to next stage of work without Engineer's approval.

24 Access and Conveyors

- .1 Provide and maintain scaffolding, ladders and conveyors and related devices required for access to work in accordance with relevant Municipal, Provincial and other Regulations.

25 Progress Records and As-built Drawing

- .1 As work progresses, maintain accurate records to show progress and deviations from contract drawings. Just prior to Department's inspection for issuance of final certificate of completion, supply one (1) set of white prints with all deviations neatly inked in red. Engineer will provide two sets of clean white prints.

26 Guarantees

- .1 Before completion of work collect all manufacturer's guarantees and warranties and deposit with the Engineer.

27 Contract Documents

- .1 Drawings and specifications are complementary, items shown or mentioned in one and not in the other are deemed to be included in the contract work.

28 Documents Required

- .1 Maintain at job site, one copy of each of following:
 - .1 Contract drawings
 - .2 Specifications
 - .3 Addenda
 - .4 Reviewed shop drawings
 - .5 Change Orders
 - .6 Other modifications to Contract
 - .7 Field test reports
 - .8 Copy of approved work schedule
 - .9 Manufacturer's installation and application instructions.

29 Project Meetings

- .1 Progress site meetings will be held weekly and, if necessary, as required by the Engineer. Engineer to prepare and distribute the Minutes of each meeting for discussion at the next meeting.

30 Cleanup

- .1 Clean up as work progresses.
- .2 At the end of each work period, and more often if requested by the Engineer, remove debris from site, neatly stack material for use, and clean up generally.

- .3 Upon completion of work remove scaffolding, temporary protection and surplus materials. Make good defects noted at this stage.
- .4 Clean manufactured articles in accordance with manufacturer's directions.
- .5 Clean areas under contract to a condition at least equal to that previously existing and to satisfaction of the Engineer.

PART 1 - GENERAL

1.1 Description

- .1 This section specifies general requirements and procedures for Contractor's submissions of shop drawings, product data, samples and mock-ups to the Engineer for review. Additional specific requirements for submissions are specified in individual sections.
- .2 Do not proceed with work until relevant submissions are reviewed by the Engineer.
- .3 Present shop drawings, product data, samples and mock- ups in SI Metric units.
- .4 Where items or information is not produced in SI Metric units converted values are acceptable.
- .5 Contractor's responsibility for errors and omissions in submission is not relieved by the Engineer's review of submissions.
- .6 Notify the Engineer, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by the Engineer's review of submission, unless the Engineer gives written acceptance of specific deviations.
- .8 Make any changes in submissions which the Engineer may require consistent with Contract Documents and resubmit as directed by the Engineer.
- .9 Notify the Engineer, in writing, when resubmitting, of any revisions other than those requested by the Engineer.

1.2 Submission
Requirements

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

- .2 Allow 7 days for the Engineer's review of each submission.

1.2 Submission
Requirements

- .3 Accompany submissions with transmittal letter, in duplicate, containing:

(cont'd)

- .1 Date.
- .2 Project title and number.
- .3 Contractor's name and address.
- .4 Identification and quantity of each shop drawing, product data and sample.
- .5 Other pertinent data.

.4 Submissions shall include:

- .1 Date and revision dates.
- .2 Project title and number.
- .3 Name and address of:
 - .1 Subcontractor.
 - .2 Supplier.
 - .3 Manufacturer.
- .4 Contractor's stamp, signed by Contractors authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
- .5 Details of appropriate portions of Work as applicable:
 - .1 Fabrication.
 - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
 - .3 Setting or erection details.
 - .4 Capacities.
 - .5 Performance characteristics.
 - .6 Standards
 - .7 Operating weight.

.5 After the Engineer's review, distribute copies.

1.3 Shop Drawings

- .1 Shop drawings: original drawings, or modified standard drawings provided by Contractor, to illustrate details of portions of Work, which are specific to project requirements.
- .2 Maximum sheet size: 1000 x 707 mm.
- .3 Submit shop drawings as follows:
 - .1 five (5) sets of white prints.
- .4 Cross-reference shop drawing information to applicable portions of Contract Documents.

1.4 Shop Drawing Review

- .1 Review of shop drawings by PWGSC is for sole purpose of ascertaining conformance with general concept. This review shall not mean that PWGSC approves the detail

design inherent in shop drawings. Responsibility will remain with contractor and review does not relieve contractor's responsibility for errors and omissions in shop drawings and responsibility for meeting all requirements for construction and in contract documents. Contractor is responsible for dimensions to be confirmed at job site, for information that pertains solely to fabrication processes, techniques of construction and installation and coordination of work of sub-trades.

1.5 Product Data

- .1 Product data: manufacturers catalogue sheets, brochures, literature, performance charts and diagrams, used to illustrate standard manufactured products.
- .2 Submit 2 copies of product data.
- .3 Sheet size: 215 x 280 mm, maximum of 3 modules.
- .4 Delete information not applicable to project.
- .5 Supplement standard information to provide details applicable to project.
- .6 Cross-reference product data information to applicable portions of Contract Documents.

1.6 Samples

- .1 Samples: examples of materials, equipment, quality, finishes, workmanship.
- .2 Where colour, pattern or texture is criterion, submit full range of samples.
- .3 Reviewed and accepted samples will become minimum standard of workmanship and material against which installed work will be verified.

1.7 Mock-ups

- .1 Mock-ups: field installed example of first panel of deck complete with specified materials and workmanship.
- .2 Install first section of mock-up at location acceptable to the Engineer.