

SPECIFICATION

SUPPLY OF BUILDING MATERIALS
ASSOCIATED WITH NEW BOATHOUSE
AND ASSOCIATED WORKS
FOR MAKKOVIK AND CARTWRIGHT, NL
Project # F6879-167026

PREPARED FOR

Fisheries and Oceans Canada

DATE

December 14, 2016
Revision 1

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1.1 SCOPE

- .1 The work consists of the supply of building materials for new boathouse structures in Makkovik and Cartwright, Labrador. The extent of this contract will only entail the supply of materials listed (as specified) and transportation and offloading of the materials at DFO's facility in Bishop Falls, NL.

1.2 DESCRIPTION OF WORK

- .1 In general, work under this contract consists of:
- Supply of all materials listed on page 2 and 3 of this specification section.
 - Transportation of the building materials and offloading at DFO's facility in Bishop Falls, NL.
 - Lifting, and stockpiling of the material into DFO supplied sea cans, located at the Bishop Falls facility. Note that any large lumber/fencing or other components that cannot fit into the seacan units, are to be palletized and wrapped in weathertight tarps (at the Contractor's expense).

Note that the materials for each site (Makkovik and Cartwright), need to be separate and delivered in a method that allows DFO to easily identify and ship them to the destined site (i.e. the materials are not to be stored or stockpiled in a mixed state). Coordinate all work at the Bishop Falls facility (including offloading, stockpiling and storing), to the approval of the Departmental Representative.

Cartwright Site					
<u>Item No.</u>	<u>Reference</u>	<u>Notes</u>	<u>Description</u>	<u>Qty</u>	<u>Unit</u>
1	06 10 00	1, 2	Mud Sill: 38 x 184 x 3048 mm (2" x 8" x 10') Pressure Treated Lumber	14	Pieces
2	06 10 00	2	Bottom Plate: 38 x 184 x 3048 mm (2" x 8" x 10') Lumber	14	Pieces
3	06 10 00	2	Intermediate Blocking: 38 x 184 x 3048 mm (2" x 8" x 10') Lumber	56	Pieces
4	06 10 00	2	Double Top Plate: 38 x 184 x 3048 mm (2" x 8" x 10') Lumber	28	Pieces
5	06 10 00	2	Wall Studs: 38 x 184 x 4877 mm (2" x 8" x 16') Lumber	160	Pieces
6	06 10 00	2	Wood Strapping, Ceiling: 19 x 64 x 3048 mm (1" x 3" x 10') Lumber	110	Pieces
7	06 10 00	1, 2	Wood Strapping, Exterior Wall: 19 x 89 x 3048 mm (1" x 4" x 10') Pressure Treated Lumber	172	Pieces
8	06 10 00	3	Exterior Wall Sheathing, Plywood: 13 x 1220 x 2438 mm (1/2" x 4' x 8') Sheets	80	Sheets
9	06 10 00	3	Interior Wall Sheathing, Plywood, T&G, G1S: 13 x 1220 x 2438 mm (1/2" x 4' x 8') Sheets	66	Sheets
10	06 10 00	3	Interior Ceiling Sheathing, Plywood, T&G, G1S: 13 x 1220 x 2438 mm (1/2" x 4' x 8') Sheets	43	Sheets
11	06 10 00	2	Roof Truss Bracing: 38 x 89 x 2438 mm (2" x 4" x 8') Lumber	50	Pieces
12	06 10 00	2	Headers and Facsia: 38 x 286 x 3048 mm (2" x 12" x 10') Lumber	22	Pieces
13	06 10 00	2	Headers: 38 x 286 x 3658 mm (2" x 12" x 12') Lumber	4	Pieces
14	06 10 00	2	Headers: 38 x 286 x 4877 mm (2" x 12" x 16') Lumber	4	Pieces
15	06 10 00	3	Roof Sheathing, Plywood: 19 x 1220 x 2438 mm (3/4" x 4' x 8') Sheets	52	Sheets
16	06 10 00	1, 3	Fascia, Plywood: 19 x 1220 x 2438 mm (3/4" x 4' x 8') Sheets, Pressure Treated	6	Sheets
17	07 13 26		Roof Underlay: Grace Ice and Water Shield (21 m ² /Roll), or Approved Equal	8	Rolls
18	07 21 13	7	Rigid Insulation, Exterior Wall and Below Grade: 50 x 1220 x 2440 mm (2" x 4' x 8') Styrofoam SM, or Approved Equal	97	Sheets
19	07 21 13	7	Rigid Insulation, Foundation Wall and Below Grade: 75 x 1220 x 2440 mm (3" x 4' x 8') Styrofoam SM, or Approved Equal	58	Sheets
20	07 21 16	6	Batt Insulation, Exterior Walls: Unfaced Glass Fibre Batts, Propink EcoTouch R30, 15 1/2" X 48", 11 pieces/bundle,by Owens Corning, or Approved Equal	40	Bundle
21	07 21 23	4	Loose Fill Insulation (Blown-In): AttiCat Pink by Owens Corning (at RSI 10.5 (R60), 3.2 m ² /Bag), or Approved Equal	40	Bags
22	07 26 00	5	Polyethylene Vapour Barrier, Ceiling and Walls: 10 mil (0.25 mm) Duchesne Ultra+ (93 m2/Roll), or Approved Equal	4	Rolls
23	07 26 00	5	Polyethylene Vapour Barrier, Beneath Slab: 15 mil (0.38 mm) Duchesne Ultra+ (93 m2/Roll), or Approved Equal	2	Rolls
24	07 27 00	8	Building Paper (Air Barrier), Exterior Walls: DuPont Tyvek Home Wrap (83.4 m ² /Roll), or Approved Equal	3	Rolls
25		N/A	Thru Vents at Eaves: 24" (snap at perforation for 16" truss spacing) raft-R-mate Attic Rafter Vent by Owens Corning, or Approved Equal	30	Pieces
26		N/A	Concrete Board, Foundation Wall: 11 x 914 x 1524 mm (7/16" x 3' x 5') Wonder Board Lite Backerboard, or Approved Equal	32	Sheets
27		N/A	Weeping Tile, Foundation Drainage: Ø100mm Perforated c/w Filter Sock; 30.5 m/Roll; by Corex Drain Pipe, or Approved Equal	2	Rolls
28		N/A	Roof Vent: Colour - Black, Slope Roof Model #303 (1:3 roof slope) c/w Wire Mesh, by Maximum Ventilation, or Approved Equal	2	Vents
29		N/A	Welded Wire Mesh, Floor Slab: 150 x 150 x MW 18.7/MW 18.7 WWM, 1220 x 2440 mm (4' x 8') sheets	45	Sheets
30		N/A	Sill Gasket: 140 mm wide x 25 m long (5-1/2" x 82'), per Roll, FoamSealR by Ownes Corning or approved equal.	2	Rolls
31		N/A	Sheet Metal Roofing: 5400 mm long x 1090 mm wide (after forming) per sheet, full lengths, 24 Ga., Colour QC262 Black, 35mm Profile TR11 by Duchesne, or Approved Equal	28	sheets
32		N/A	Preformed Metal Siding: 4720 mm long x 914 mm wide (after forming) per sheet, full lengths, 26 Ga., Colour QC260 Slate Blue, 19mm Profile LC23 by Duchesne, or Approved Equal	50	sheets
33		N/A	Sectional Metal Overhead Door (to attached specification): 3048 mm x 3048 mm, manually operated, RSI 3.2, to attached specification, Model G-5200 by Garaga, or Approved Equal	1	Each
34		N/A	Sectional Metal Overhead Door (to attached specification): 4267 mm x 4267 mm, RSI 3.2, w/ electric operator, to attached specification, Model G-5200 by Garaga, or Approved Equal	1	Each
35	32 31 13 (and Appendix A)	9	Chain Link Fence	150	linear metres
35	32 31 13 (and Appendix A)	9	Chain Link Fence Gate (8m long)	1	Each
36		10	2" EMT conduit	8	liner metres
37		10	2 1/2" RGS service mast	8	linear metres
38		10	Service mast spool kit	1	Each
39		10	#12 BX wiring	5	coils
40		10	#1 RW90 wiring	25	linear metres
41		10	#6 ground wire	16	linear metres
42		10	ground rods	3	Each
43		10	Octagon outlet boxes	14	Each
44		10	wrap around sectional boxes for Bx	30	Each
NOTES:					
1	Pressure Treated material to be Alkaline Copper Quaternary (ACQ).				
2	Lumber: No. 1/2 grade, S4S, Moisture content 19% (S-Dry) or less, to CAN/CSA-0141 and NLGA.				
3	Panel Materials to CAN/CSA-0325.0; Douglas Fir Plywood to CSA 0121; Canadian Softwood Plywood to CSA 0151.				
4	Mineral Fibre Insulation: to CAN/ULC-S702, asbestos free, Type 5 blowing wool, suitable for application by pneumatic equipment.				
5	Vapour Retarders: to CAN/CGSB-51.34, Vapour Barrier, Polyethylene Sheet, for Use in Building Construction.				
6	Blanket Insulation: to ASTM C665, Type 1, Specification for Mineral-Fibre Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.				
7	Board Insulation: to CAN/ULC S701, Type IV, RSI 0.88/25 mm, Extruded Polystyrene (XPS), for use below grade and exterior walls.				
8	Air Barriers: to CAN/CGSB-51.32, spunbonded olefin type coated impregnated sheathing paper, single ply.				
9	Chain link fence to be complete with all turnbuckles, mesh, pipe caps, etc., for a complete installaton (as specified).				
10	All electrcial materials to be heavy duty industrial grade, meeting requirements of the Canadian Electrical Code.				

Makkovik Site					
<u>Item No.</u>	<u>Reference</u>	<u>Notes</u>	<u>Description</u>	<u>Qty</u>	<u>Unit</u>
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8	Air Barriers: to CAN/CGSB-51.32, spunbonded olefin type coated impregnated sheathing paper, single ply.				
9	Chain link fence to be complete with all turnbuckles, mesh, pipe caps, etc., for a complete installaton (as specified).				
10	All electrcial materials to be heavy duty industrial grade, meeting requirements of the Canadian Electrical Code.				

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|---------------------------|----|---|
| <u>1.3 COST BREAKDOWN</u> | .1 | This will be a lump sum project. |
| <u>1.4 WORK SCHEDULE</u> | .1 | Submit within 7 work days of notification of acceptance of bid, a schedule showing commencement and completion of all work within the time stated on the Bid and Acceptance Form and the date stated in the bid acceptance letter. |
| | .2 | Provide sufficient details in schedule to clearly illustrate entire implementation plan, depicting efficient coordination of tasks and resources, to achieve completion of work on time and permit effective monitoring of work progress in relation to established milestones. |
| | .3 | As a minimum, work schedule to be prepared and submitted in the form of Bar (GANTT) Charts, indicating work activities, tasks and other project elements, their anticipated durations and planned dates for achieving key activities and major project milestones provided in sufficient details and supported by narratives to demonstrate a reasonable plan for completion of project within designated time. |
| <u>1.5 PROTECTION</u> | .1 | Deliver, transport and store all materials to prevent damage by any means. |
| | .2 | Replace all materials damaged in transit or storage to the satisfaction of Departmental Representative and at no cost to Canada. |

PART 1 - GENERAL

1.1 SUBMITTAL
GENERAL REQUIREMENTS

- .1 Submit to Departmental Representative, shop drawings and product data associated with all building materials to be supplied under this contract.
- .2 Submit with reasonable promptness and in orderly sequence so as to allow for Departmental Representative's review and not cause delay in Work. Failure to submit in ample time will not be considered sufficient reason for an extension of Contract time and no claim for extension by reason of such default will be allowed.
- .3 Do not proceed with work until relevant submissions are reviewed by Departmental Representative.
- .4 Present product data in SI Metric units.
- .5 Where items or information is not produced in SI Metric units, provide soft converted values.
- .6 Review submittals prior to submission to Departmental Representative.
 - .1 Submittals not stamped, signed, dated and identified as to specific project will be returned unexamined by Departmental Representative and considered rejected.
- .7 Submittal format: paper originals, or alternatively clear and fully legible photocopies of originals. Departmental Representative, will accept email submissions.

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1.1 SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00.
- .2 Submit to Departmental Representative, copies of the following documents including updates.
 - .1 Site specific Health and Safety Plan.
 - .2 Certificate of clearance from Workplace Health Safety and Compensation Commission (Assessment Services Department) of Newfoundland and Labrador.
- .3 Departmental Representative will review Health and Safety Plan and provide comments. The Contractor will revise the Plan as appropriate and resubmit within five (5) work days after receipt of comments.
- .4 Departmental Representative's review and comments made of the Plan shall not be construed as an endorsement, approval or implied warranty of any kind by Canada and does not reduce Contractor's overall responsibility for Occupational Health and Safety of the Work.
- .5 Submit revisions and updates made to the Plan during the course of Work.

1.2 COMPLIANCE REQUIREMENTS

- .1 Comply with the Occupational Health and Safety Act for the Province of Newfoundland and Labrador, and the Occupational Health and Safety Regulations made pursuant to the Act.
- .2 Comply with Canada Labour Code Part II, (entitled Occupational Health and Safety) and the Canada Occupational Health and Safety Regulations (COSH) as well as any other regulations made pursuant to the

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Act.

- .1 The Canada Labour Code can be viewed at:
[www.http://laws.justice.gc.ca/en/L-2/](http://laws.justice.gc.ca/en/L-2/)
- .2 COSH can be viewed at:
[www.http://laws.justice.gc.ca/eng/SOR-86-304/ne.html](http://laws.justice.gc.ca/eng/SOR-86-304/ne.html).
- .3 A copy may be obtained at: Canadian Government Publishing Public Works & Government Services Canada Ottawa, Ontario, K1A 0S9 Tel: (819) 956-4800 (1-800-635-7943) Publication No. L31-85/2000 E or F).

- .3 Maintain Workers Compensation Coverage in good standing for duration of Contract. Provide proof through submission of Certificate of Clearance from Workplace Health, Safety and Compensation Commission (Assessment Services Department) of Newfoundland and Labrador.

1.3 RESPONSIBILITY

- .1 Be responsible for health and safety of persons on site, safety of property and for protection of persons and environment adjacent to the site to extent that they may be affected by conduct of Work.
- .2 Comply with and enforce compliance by all workers, sub-contractors and other persons granted access to work site with safety requirements of Contract Documents, applicable Federal, Provincial, and local by-laws, regulations, and ordinances, and with site specific Health and Safety Plan.

1.4 HEALTH AND SAFETY PLAN

- .1 Prior to commencement of Work, develop written Health and Safety Plan specific to the work. Implement, maintain, and enforce Plan for entire duration of Work and until final demobilization from site.

PART 1 **PRODUCTS**

1.1 **FRAMING AND LUMBER MATERIALS**

- .1 Lumber: unless specified otherwise, softwood, No. 1 or No. 2 grade, S4S, moisture content 19% (S-dry) or less in accordance with following standards:
 - .1 CAN/CSA-0141.
 - .2 NLGA Standard Grading Rules for Canadian Lumber.
- .2 Framing and board lumber: in accordance with NBC.
- .3 Furring, blocking, nailing strips, grounds, rough bucks, fascia backing and sleepers:
 - .1 Board sizes: "Standard" or better grade.
 - .2 Dimension sizes: "Standard" light framing or better grade.
 - .3 Post and timbers sizes: "Standard" or better grade.
- .4 Pressure treated material to be Alkaline Copper Quaternary (ACQ).

1.2 **PANEL MATERIALS**

- .1 Plywood, OSB and wood based composite panels: to CAN/CSA-0325.0.
- .2 Douglas fir plywood (DFP): to CSA 0121, standard construction.
- .3 Canadian softwood plywood (CSP): to CSA 0151, standard construction.

1.3 **ACCESSORIES**

- .1 Exterior wall sheathing paper/air barrier: to CAN/CGSB-51.32 single ply, spunbonded olefin type coated impregnated as indicated.
- .2 Sill Gasket: closed cell polyurethane or polyethylene.

PART 1 **PRODUCTS**

1.1 **SHEET MATERIALS THERMAL BARRIER AND AIR/VAPOUR BARRIER**

- .1 Roof Underlay: Grace Ice and Water Shield, or approved Equal

PART 1 **PRODUCTS**

1.1 **INSULATION**

- .1 Extruded polystyrene (XPS): for use below grade and exterior walls to CAN/ULC S701, Type IV, RSI 0.88 per 25 mm, Styrofoam SM by Dow Chemical or approved equal.

PART 1 **PRODUCTS**

1.1 **INSULATION**

- .1 Thermal batt and blanket mineral fibre:
 - .1 Un-faced glass fiber thermal insulation to ASTM C665 Type I.

PART 1 **PRODUCTS**

1.1 **MATERIALS**

.1 Mineral fibre insulation: to CAN/ULC-S702, asbestos-free mineral fibre.

.1 Type 5 - blowing wool, suitable for application by means of pneumatic equipment.

PART 1 **PRODUCTS**

1.1 **SHEET VAPOUR RETARDER**

- .1 Polyethylene film: to CAN/CGSB-51.34, thickness as indicated with a water vapour permeance of not greater than 45 ng/(P·s·m²), flame spread rating of less than 150 to CAN/ULC S102.

PART 1 **PRODUCTS**

1.1 **EXTERIOR WALL SHEATHING PAPER**

- .1 Spunbonded olefin type coated impregnated sheathing paper to CAN/CGSB-51.32 single ply.

PART 1 **PRODUCTS**

1.1 **STEEL SIDING AND COMPONENTS**

- .1 Strip siding: to CGSB 93.4, Type A vertical, Class plain.
 - .1 Finish coating: silicone modified polyester (SMP) topcoat system.
 - .2 Colour: colour selected by Owner's Representative.
 - .3 Gloss: 30 ± 5.
 - .4 Thickness: 24 gauge (0.61 mm) base metal thickness.
 - .5 Profile: 19mm, Duchesne Steel Profile LC 23, or approved equal.

PART 1 **PRODUCTS**

1.1 **SHEET METAL MATERIALS**

- .1 Aluminum-zinc alloy coated steel sheet: to ASTM A792/A792M, commercial quality, with AZ 150 coating, prefinished.

1.2 **PREFINISHED STEEL SHEET**

- .1 VOC content for surface coatings and touch up coatings for prefinished metal sheet maximum 250g/L.
- .2 Surface coatings and touch up coatings manufactured or formulated without aromatic solvents, formaldehyde, halogenated solvents, mercury, lead, cadimium, hexavelant chromium and their compounds will be acceptable for use on this project.
- .3 Prefinished steel with factory applied polyvinylidene fluoride.
 - .1 Finish coating: silicone modified polyester (SMP) topcoat system.
 - .2 Colour selected by Owner's Representative from manufacturer's standard range.
 - .3 Specular gloss: 30 units +/-5 to ASTM D523.
 - .4 Coating thickness: not less than 22 micrometres.
 - .5 Resistance to accelerated weathering for chalk rating of 8, colour fade 5 units or less and erosion rate less than 20% to ASTM D822 as follows:
 - .1 Outdoor exposure period 2500 hours.
 - .2 Humidity resistance exposure period 5000 hours.
 - .6 Profile: 35mm, Duchesne Steel Roofing Profile TR 11. Or approved equal.

PART 1 **PRODUCTS**

1.1 **ROOF VENTS**

- .1 Slope Roof Model #303 by Ventilation Maximum, or
approved equal, complete with wire mesh.
- .2 Color by Owner from standard color range.

PART 1 **PRODUCTS**

1.1 **MATERIALS**

- .1 Galvanized steel sheet: commercial quality Z275 zinc coating.
- .2 Primer: to CGSB-1-GP-181, for galvanized steel surfaces.
- .3 Insulation: to meet design requirements.
- .4 Glazing: Plastic glazing, to CAN2-12.12-M79, clear, acrylic sheet, 3.2 mm thick, light transmission of 80% minimum.
- .5 Cable: multi-strand galvanized steel aircraft cable.

1.2 **DOORS**

- .1 Fabricate insulated panel doors of interlocking steel sections.
- .2 Fabricate panel frames in a continuous box frame with vertical stiffeners at 600 mm centres.
- .3 Assemble components by means of spot or arc welding or coated rivet system or adhesive and self tapping screws to manufacturer's recommendations.
- .4 Apply shop coat of: galvanizing, primer after fabrication of door. Fabricate doors from steel stock.

1.3 **HEAVY DUTY INDUSTRIAL HARDWARE**

- .1 Track: standard hardware with 75 mm size 2.66 mm core thickness galvanized steel track.
- .2 Track Supports: 2.3 mm core thickness continuous galvanized steel angle track supports.
- .3 Spring counter balance: heavy duty oil tempered torsion spring with manufacturers standard brackets.

- .1 Drum: 200 mm diameter die cast aluminum.
- .2 Shaft: 25 mm diameter galvanized steel.
- .4 Top roller carrier: galvanized Steel 3.04 mm thick adjustable.
- .5 Rollers: full floating grease packed hardened steel, ball bearing size to suit track.
- .6 Roller brackets: adjustable, minimum 2.5 mm galvanized steel.
- .7 Hinges: heavy duty, secured with rivets on self tapping screws.
- .8 Cable: 6 mm diameter galvanized steel aircraft cable.

1.4 ACCESSORIES

- .1 Overhead horizontal track and operator supports: galvanized steel, type and size to suit installation.
- .2 Track guards: 5 mm thick formed sheet 1500 mm high track guards.
- .3 Pusher springs.
- .4 Handles.
 - .1 Flat bar door latch.
 - .2 Handles: operated from outside.
- .5 Two horizontal sliding lock bolts on interior.
- .6 Weatherstripping.
 - .1 Sills: double contact, full width extended neoprene weathertstrip.
 - .2 Jambs and head: extended aluminum and artic grade vinyl weatherstrip to manufacturer's standard.
- .7 Finish ferrous hardware items with minimum zinc coating of 300 g/m² to CSA G164.

1.5 PREFINISHED STEEL SHEET

- .1 Prefinished steel with factory applied silicone modified polyester.
 - .1 Class: F1S
 - .2 Colour as selected by Owner's Representative from manufacturer's standard range.
 - .3 Specular gloss: 30 units + 5 in accordance with ASTM D523.
 - .4 Coating thickness: not less than 25 micrometres.
 - .5 Resistance to accelerated weathering for chalk rating of 8, colour fade 5 units or less and erosion rate less than 20% to ASTM D822 as follows:
 - .1 Outdoor exposure period 1000 hours.
 - .2 Humidity resistance exposure period 1000 hours.

1.6 OPERATION

- .1 Equip doors for operation by:
 - .1 Hand, two handles on inside and outside face of door.
 - .2 Chain hoist with galvanized steel chain.
 - .3 Cable fail safe device.
 - .1 Able to stop door immediately if cable breaks on door free fall. Braking capacity 500 kg.
 - .4 10 x 10 overhead door: manual operation only.
 - .5 14 x 14 overhead door: electrical operation with manual override.

1.7 ELECTRICAL OPERATOR (14 x 14 door only)

- .1 Electrical motors, controller units, remote pushbutton stations, relays and other electrical components: to CSA approval with CSA enclosure.
- .2 Power supply:
 - .1 230V single phase.
 - .2 Motor: 746W (1 HP)

- .3 Confirm that door motor size is adequate for O/H door size and weight.
- .3 Operation:
 - .1 Remote pushbutton stations: flush surface mounted, with "OPEN-STOP-CLOSE" designations on pushbuttons in English.
 - .2 Cable control: pendant hung control to open, close and stop.
- .4 Safety switch: electro-mechanical limit switches for full length of bottom rail of bottom section of door, to stop and reverse door to open position when coming in contact with object on closing cycle or upon failure of any component of the control system. Provide for an automatic lock-out on the door closing circuit until the failure or damage as been corrected.
- .5 Door speed: 300 mm per second.
- .6 Mounting brackets: galvanized steel, size and gauge to suit conditions.
- .7 Liftmaster Hoist (H) Style Operator Logic 5.0, complete with floor level chain, or approved equal.

PART 1 **PRODUCTS**

1.1 **FLOOR TRENCH DRAIN**

- .1 Klassik Drain K200 by ACO, or approved equal.
- .2 Modular sloping trench drain, polymer concrete,
removable grates, load class B grate type 647Q
stainless longitudinal, closing/outlet end caps.

PART 1 PRODUCTS

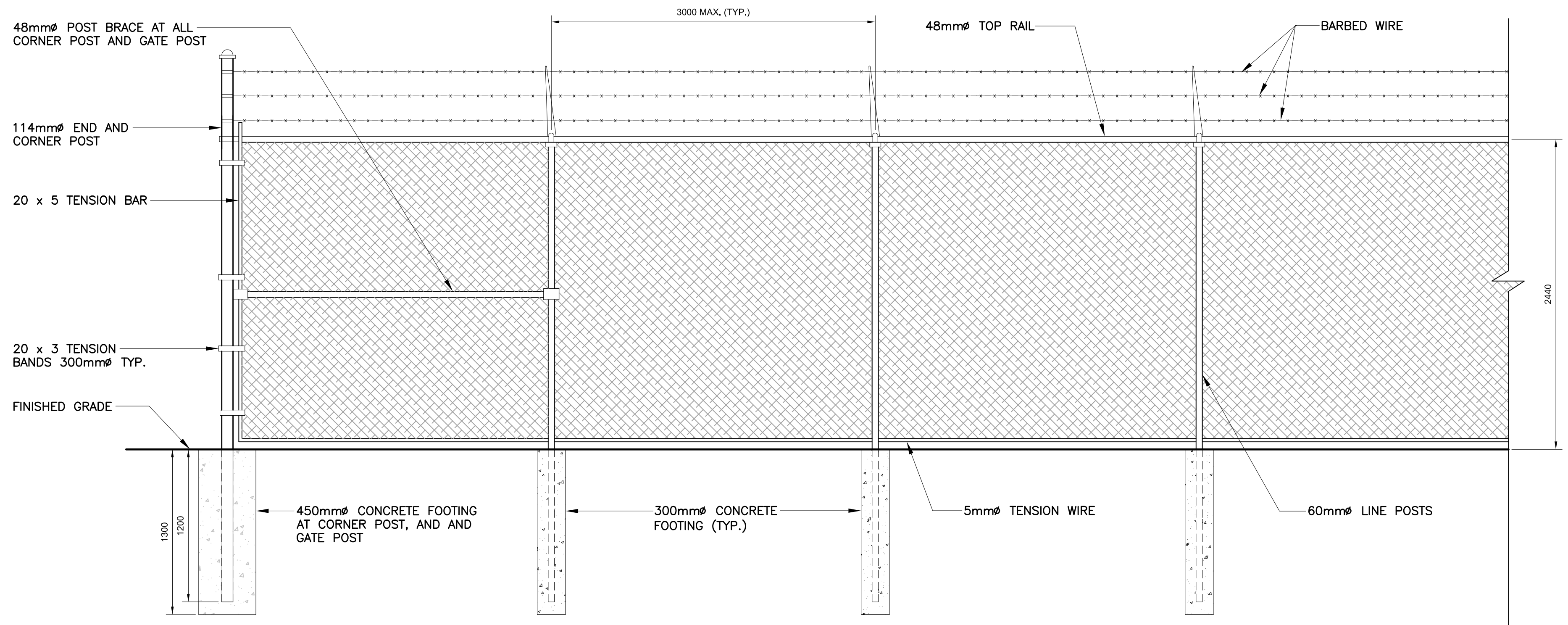
1.1 MATERIALS

- .1 Chain-link fence fabric: to CAN/CGSB-138.1.
 - .1 3.7mm diameter, steel wire, woven in a 50mm mesh, hot dipped galvanized (to an average of 610 g/m2 after weaving).
 - .2 Height of fabric: 2.44m high.
 - .3 Top security barbed wire to manufacturer's recommendations.
- .2 Posts, braces and rails: to CAN/CGSB 138.2 galvanized steel pipe.
 - .1 Dimensions are:
 - .1 End posts - 114mm O.D. and 1.067m longer than the height of fabric.
 - .2 Line posts - 60mm O.D. and 0.838m longer than height of fabric and spaced at 2.4m.
 - .3 Bracing - 48mm O.D.
 - .4 Railing - 48mm O.D.
 - .2 Acceptable material: schedule 40 steel pipe, galvanized.
 - .3 Bottom tension wire: 610 g/m2 single strand, galvanized steel wire, 5mm diameter.
 - .4 Tie wire fasteners: 3.7mm diameter aluminum.
 - .5 Fittings:
 - .1 Tension bars, tension bands, brace bands, rail ends to be fabricated from hot dipped galvanized pressed steel.
 - .6 Gate: as shown sketches attached.

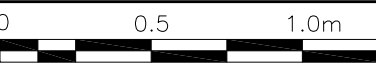
Appendix A:

Sketches

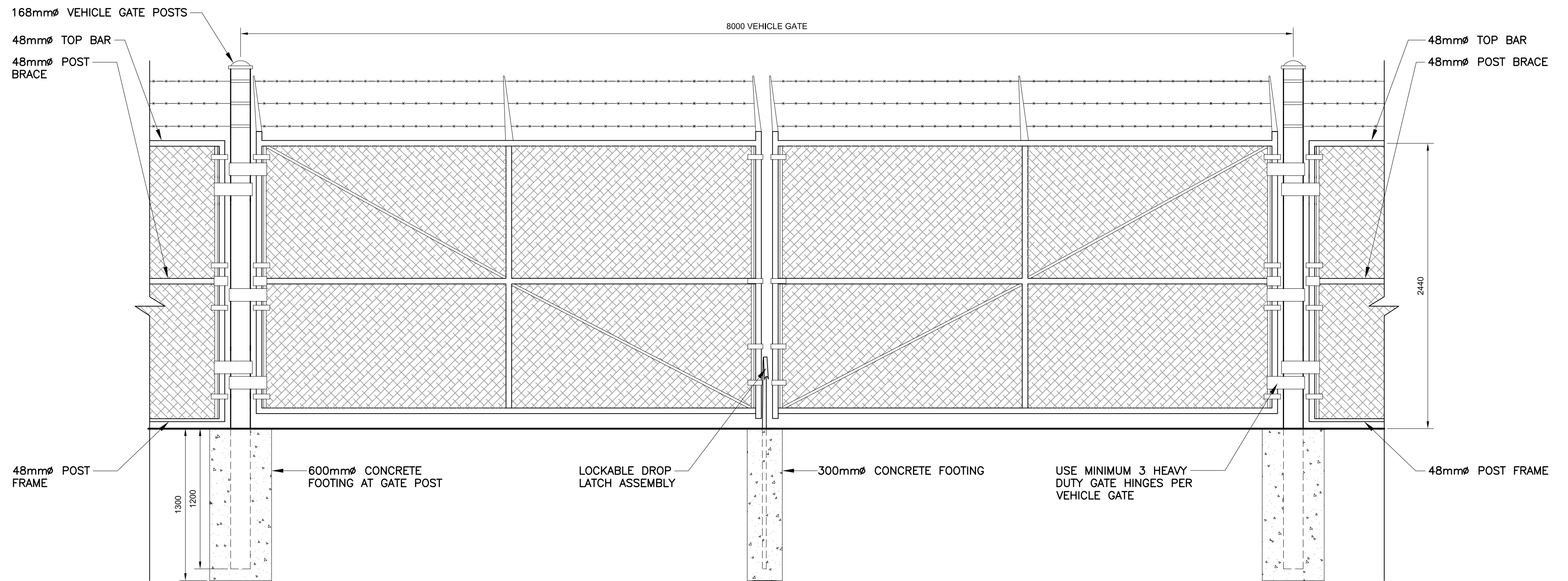
NOTE:
- ALL FENCE, POSTS AND HARDWARE TO BE GALVANIZED



TYPICAL CHAIN LINK FENCE DETAIL



NOTE:
- ALL FENCE, POSTS AND HARDWARE TO BE GALVANIZED



CHAIN LINK FENCE GATES ELEVATION

