



## RETURN BIDS TO:

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Bid Receiving Public Works and Government  
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Vancouver  
British Columbia  
V6Z 0B9  
Bid Fax: (604) 775-9381

## SOLICITATION AMENDMENT MODIFICATION DE L'INVITATION

The referenced document is hereby revised; unless otherwise  
indicated, all other terms and conditions of the Solicitation  
remain the same.

Ce document est par la présente révisé; sauf indication contraire,  
les modalités de l'invitation demeurent les mêmes.

### Comments - Commentaires

Vendor/Firm Name and Address  
Raison sociale et adresse du  
fournisseur/de l'entrepreneur

Issuing Office - Bureau de distribution  
Public Works and Government Services Canada - Pacific  
Region  
800 Burrard Street, Room 219  
800, rue Burrard, pièce 219  
Vancouver  
British C  
V6Z 0B9

<b>Title - Sujet</b> Victoria SAR Station Construction	
<b>Solicitation No. - N° de l'invitation</b> F1700-184521/A	<b>Amendment No. - N° modif.</b> 003
<b>Client Reference No. - N° de référence du client</b>	<b>Date</b> 2019-02-21
<b>GETS Reference No. - N° de référence de SEAG</b> PW-\$PWY-039-8541	
<b>File No. - N° de dossier</b> PWY-8-41217 (039)	<b>CCC No./N° CCC - FMS No./N° VME</b>
<b>Solicitation Closes - L'invitation prend fin</b> <b>at - à 02:00 PM</b> <b>on - le 2019-03-01</b>	<b>Time Zone</b> <b>Fuseau horaire</b> Pacific Standard Time PST
<b>F.O.B. - F.A.B.</b> <b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input checked="" type="checkbox"/> <b>Other-Autre:</b> <input type="checkbox"/>	
<b>Address Enquiries to: - Adresser toutes questions à:</b> Park (PWY), Isabell	<b>Buyer Id - Id de l'acheteur</b> pwy039
<b>Telephone No. - N° de téléphone</b> (604) 365-0073 ( )	<b>FAX No. - N° de FAX</b> (604) 775-9381
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b> DFO - Search and Rescue Station - Victoria, BC	

Instructions: See Herein

Instructions: Voir aux présentes

<b>Delivery Required - Livraison exigée</b>	<b>Delivery Offered - Livraison proposée</b>
<b>Vendor/Firm Name and Address</b> <b>Raison sociale et adresse du fournisseur/de l'entrepreneur</b>	
<b>Telephone No. - N° de téléphone</b> <b>Facsimile No. - N° de télécopieur</b>	
<b>Name and title of person authorized to sign on behalf of Vendor/Firm</b> <b>(type or print)</b> <b>Nom et titre de la personne autorisée à signer au nom du fournisseur/</b> <b>de l'entrepreneur (taper ou écrire en caractères d'imprimerie)</b>	
<b>Signature</b>	<b>Date</b>

Solicitation No. - N° de l'invitation  
F1700-184521

Amd. No. - N° de la modif.  
XXX

Buyer ID - Id de l'acheteur  
pwy039

Client Ref. No. - N° de réf. du client  
XXXXX

File No. - N° du dossier  
XXXXXXXXXXXXX

CCC No./N° CCC - FMS No./N° VME  
XXXXXXXXXXXXX

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**Les documents français seront disponibles sur demande.**

**Amendment 003**

This amendment is issued to publish:

1. Addendum #;
2. A2.01 Main Floor Plan; and,
3. A2.03 Roof Plan.

All other terms and conditions remain unchanged.

*The following changes in the Tender Documents are effective IMMEDIATELY.  
This addendum will form part of the Contract Documents*

**Amend/revise the Standard Contract Documents as follows:**

**Clarifications & General Instructions**

1. Fibreglass windows are based on product supplied by “Cascadia Windows and Doors”. Any other manufacturer of fiberglass windows meeting the specification will also be accepted.

**Contractor Questions**

**Question:**

Regarding specification Section 25 10 02, 2.1.1 “Provide a total of two (2) licenses for each of these software packages and install on a remote computers.”

Please advise if the intention is for the bidder to provide 2 licensed copies of software (1 installed and 1 redundant) or is it to allow for 2 concurrent users of the software from 2 locations?

**Response:**

Refer to attached Mechanical Addendum M01

**Question:**

1. If we are reading it right, the floor elevation is 3.75m.  
The typical foundation section shows 1m from concrete slab to bottom of footing. Putting the footing 750mm to 1m from slab.  
Our 100mm sanitary pipe has an invert of 2.900m as it exits the building. That would put it 850mm down from slab height and directly in the footing.  
Are those numbers represented correctly on the drawings and is that the intent for our piping?
2. Secondly, the interior structural walls would need to be sleeved in many places to accommodate our sanitary piping. Can we get confirmation that is correct and will not be causing structural issues?

**Response:**

1. The design going through the footing in this location is acceptable from a structural and mechanical standpoint.
2. Sleeves are acceptable. Exact location and any rebar modifications can be coordinated during construction with exact location of sleeves.

**Question:**

See attached detailed information on **Scaleo Façade System manufactured by FunderMax** and would also like to be considered an approved equal.

**Response:**

Scaleo Façade System manufactured by FunderMax is acceptable as an alternate exterior cladding system provided aluminium sub-girt system, as recommended by manufacturer, is provided

between cladding and fibreglass clips. Colour / Finish to be chosen from full available manufacturer range.

Supplier: FUNDERMAX NORTH AMERICA, INC. 2015  
Ayrley Town Blvd. Suite 202  
Charlotte, NC 28273, USA  
Tel.: +1 704 280 8490

**Question:**

Spec section 11 31 00 – Residential Appliances 2.1.1 provides a spec for a refrigerator, however the drawing A5.03 states refrigerators are NIC – can you please clarify if these are intended to be part of the contract?

**Response:**

3 refrigerators to be supplied and installed as part of contract.

**Question:**

Can you confirm TV's are supplied by owner or advise otherwise?

**Response:**

TV's are supplied by owner. Only power and conduit are part of contract.

**Question:**

Section 23 31 13 – Fences and Gates, 2.2 Aluminum Fencing states "size to match existing", however the detail 3/A5.04 does not represent the dimension for the existing aluminum fence - Can you please clarify which dimensions are intended for the aluminum picket fence

**Response:**

Match approximate dimensions shown on 3/A5.04. Minor variations to fit manufacturer standards are acceptable. Overall height shown is a minimum.

**Question:**

Should the dryer and washing machine be a single unit, or should they be seperable?

**Response:**

Stackable, separate units.

**Question:**

The window frame colour is not specified on the window schedule. Please confirm what colour the window frames should be.

**Response:**

Window Colour to be Dark Gray. Chosen from manufacturers standard range.

**ARCHITECTURAL**

**REFER TO ARCHITECTURAL DRAWINGS**

**1. Drawing A2.03** (see revised attached)

1. Provide snow guards as indicated on revised roof plan. See also specification sections revisions below.
2. Provide ridge vent between Grid lines 2 and 7

**2. Cladding System**

Scaleo Façade System manufactured by FunderMax is acceptable as an alternate exterior cladding system provided aluminium sub-girt system, as recommended by manufacturer, is provided between cladding and fibreglass clips. Colour / Finish to be chosen from full available manufacturer range.

Supplier: FUNDERMAX NORTH AMERICA, INC. 2015  
Aysley Town Blvd. Suite 202  
Charlotte, NC 28273, USA  
Tel.: +1 704 280 8490

**3. Drawing 1/ A5.03 Elevation [3]**

Refrigerators shown to be supplied as part of contract. – see specification.

**4. Drawing 1/ A2.01 Main Floor Plan**

See revised extent and transitions of flooring. See also revised Resilient Flooring spec below.

**5. Drawing A8.01 Abbreviations**

Revise: S.F -Linoleum sheet flooring

**STRUCTURAL**

Tower Base noted on A2.01: Refer to attached sample for concrete and rebar requirements for tower base for bidding purposes. Final tower design to be provided by tower designer prior to construction. Concrete tower base to be provided in contract. Metal tower not in contract.

**SPECIFICATION**

**SECTION 09 65 10 Resilient Flooring**

Delete

Entire SECTION 09 65 10 Resilient Flooring

Add

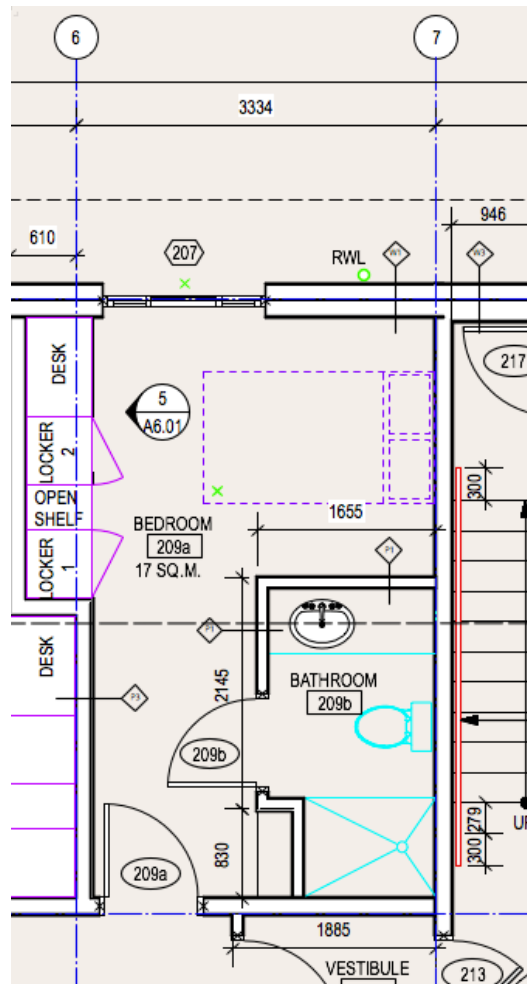
New SECTION 09 65 10 Resilient Flooring.  
See attached revised section.

**Question:**

Detail 2 A5.03, Page A2.02. Please provide locker specification and details.

**Response:**

Correct detail is 5/ A6.01 for desks and lockers in all dorms.  
 See part plan below.

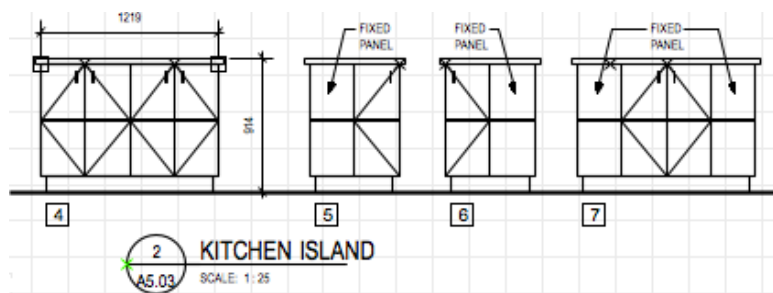


**Question:**

Details on A5.03 indicates that this detail is not used.

**Response:**

Refers to Kitchen Island



**SECTION 07 61 00 Sheet Metal Roofing**

Add

**1. 10 Snow guards**

- .1 Provide a complete, engineered, snow guard system.
  - .1 System to be designed to be clamped to the standing seams of the metal roof system, no fastening through the roof panels will be allowed.
  - .2 Coordinate the snow retention system with the roof panel system. Snow guard system colour to match that of the roof panels.
  - .3 All loads incurred by snow retention system are transferred to the roof panel system and must be designed to accept these additional loads.
  - .4 Submit shop drawings for the complete system under the seal of a Structural Engineer registered in British Columbia, for wind and snow loads.
- .2 Description: proprietary, engineered devices to retain snow from sliding off roof eaves.
- .3 Fabrication of a typical snow guard system will include
  - .1 Snow guard blocks/flags: extruded and milled 6061-T6 aluminum.
  - .2 Tubing: 25 mm o.d. x 3 mm wall thickness 6005-T5 aluminum.
  - .3 Threaded couplings: 125 mm long 6061-T6 aluminum.
  - .4 End caps: Type 302 stainless steel.
  - .5 End collars: 6061 T-6 aluminum shaft collars.
  - .6 Fasteners: Type 302 or Type 304 stainless steel.
  - .7 Finish: powder coated, in colour selected by the Consultant to match roofing.

**End of Addendum**

This Addendum forms part of the Contract Documents for the above Project and amends the original drawings and Specifications. The following revisions supersede the information contained in the original drawings and Specifications issued to the extent referenced and shall become part thereof. No adjustment to the Contract Price will be considered or allowed due to the Contractor or to any Sub-Contractor or Supplier not being familiar with this Addendum.

## **Specifications**

### **1.1 Section 25 10 02 EMCS: Program**

- .1 Provide a central laptop computer suitable for the heavy graphics and data acquisition requirements of a building DDC controls system.
- .2 Mobile laptop computer complete with hardware and software requirements to access the building DDC systems from any CCG Base network point.
- .3 Laptop to have the following minimum requirements:
  - .1 Windows 10 Professional.
  - .2 Intel Core i7 2.50 GHz.
  - .3 15-17" Full HD (1920 x 1080) Screen.
  - .4 8 GB, DDR4 SDRAM.
  - .5 512 GB SSD Hard drive.
- .4 Locate the computer as directed by the Departmental Representative and connect to the internet service via WiFi as required to allow for remote monitoring and control of other building DDC systems.
- .5 Install specified DDC software on this computer and set up points trending.

## **Drawings**

### **1.2 Drawing M0.02 - Schedules**

- .1 VRF Condensing Unit and Heat Pump Schedule
  - Round ceiling cassettes may be square or rectangular with four way distribution.
  - Note that these ceiling cassettes are designed to be located between the floor joists and ceiling joists. The provided units shall be fully coordinated with structural to fit within the structure.

## **Questions**

Q: "Do you know if/what the existing EMCS system is? If there is one I assume the system for this project would be from the same manufacturer?"

A: The CCG Base does not have a published DDC standard or manufacturer. The graphics and user interface shall be reviewed by Departmental Representative for approvals. Refer to specifications for graphics approval process.

**END OF ADDENDUM M01**



**Part 1 General**

**1.1 REFERENCES**

- .1 ASTM E84-12c - Standard Test Method for Surface Burning Characteristics of Building Materials.
- .2 ASTM F1861-08(2012)e1 - Standard Specification for Resilient Wall Base.
- .3 ASTM F1860-14e1 - Standard Specification for Rubber Sheet Floor Covering With Backing.
- .4 ASTM F2034 – 18 - Standard Specification for Sheet Linoleum Floor Covering
- .5 CAN/ULC-S102.2-10 - Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings and Miscellaneous Materials and Assemblies.
- .6 Green Guard Environmental Institute
  - .1 Greenguard Certification
- .7 South Coast Air Quality Management District (SCAQMD), California State
  - .1 SCAQMD Rule 1168-05, Adhesives and Sealants Applications.

**1.2 SUBMITTALS FOR REVIEW**

- .1 Section 01 33 00: Submission procedures.
- .2 Submit Workplace hazardous materials information system (WHIMS) Material Safety Data Sheets (MSDS)
  - .1 Indicate precautions for workers when handling flooring preparation and installation products.
  - .2 Indicate VOC content of flooring preparation and installation products.
- .3 Product Data: Provide data on specified products, describing performance, physical characteristics, sizes, patterns and colours available.
- .4 Shop Drawings: Indicate seaming plan.
- .5 Samples:
  - .1 Submit two (2) samples of manufacturer's standard colour range, one (1) to Departmental Representative and one (1) to Consultant, for colour selection.

**CLOSEOUT SUBMITTALS**

- .6 Section 01 78 00: Submission procedures.
- .7 Operation and Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.

**1.3 MAINTENANCE MATERIAL SUBMITTALS**

- .1 Section 01 78 00: Maintenance and extra material requirements.
- .2 Extra Stock Materials: Provide 5 sq.m of flooring, 15 lin m of base material specified.

**1.4 QUALITY ASSURANCE**

- .1 Installer Qualifications: Company specializing in performing the work of this section with minimum three (3) years documented.

**1.5 DELIVERY, STORAGE, AND PROTECTION**

- .1 Transport, handle, store, and protect products. In accordance with manufacturers specifications
- .2 Protect roll materials from damage by storing on end.

**1.6 ENVIRONMENTAL REQUIREMENTS**

- .1 Store materials for three (3) days prior to installation in area of installation to achieve temperature stability.
- .2 Maintain ambient temperature required by adhesive manufacturer three (3) days prior to, during, and twenty-four (24) hours after installation of materials.

**1.7 WARRANTY**

- .1 Provide flooring manufacturers 5 year written material warranty against excessive wear under normal usage.
- .2 Warranties to start at date of substantial completion.

**Part 2 Products**

**2.1 MATERIALS - SHEET FLOORING RUBBER**

- .1 Rubber Flooring to ASTM F1860:
  - .1 To be installed in rooms: 205- Fitness area; Change rooms, Shower rooms and Drying room.
  - .2 Description: pre-fabricated rubber flooring; calendered and vulcanized with natural and synthetic rubber base, stabilizing agents and pigmentation, manufactured in 2 layers vulcanized together, shore hardness of top layer greater than that of bottom layer.
  - .3 Surface: smooth, permanent no-wax finish.
  - .4 Appearance: solid background colours with random marbleized pattern throughout wear layer.
  - .5 Thickness; Not less than 3 mm
  - .6 Colour: to be selected from manufacturers standard colour range.
  - .7 Flooring systems installed in the building interior shall meet the requirements of the following standards
    - .1 Green Guard Certification
    - .2 SCAQMD 1168

## **2.2 MATERIALS – SHEET FLOORING-LINOLEUM**

- .1 Linoleum sheet flooring to ASTM F 2034
- .2 To be installed in floor areas not indicated for Rubber flooring installation.
  - .1 Allow for installation of two separate colours.
- .3 Description: Homogeneous floor covering made from natural ingredients including linseed oil, rosin binders, wood flour, limestone and dry pigments which are mixed and then calendared onto a natural jute backing.
  - .1 Proprietary high performance UV cured top coat finish that creates a ready to use finish that can be refreshed or repaired.
- .4 2.5mm thickness.
- .5 Jute backing.
- .6 Colour- selected from manufacturers standard colour range.

## **2.3 MATERIALS - BASE**

- .1 Base: ASTM F1861, Type TV thermoplastic rubber; coved profile; top set; premoulded end stops and external corners:
  - .1 Thickness: minimum 3 mm.
  - .2 Heights: 102 mm, unless noted otherwise.
  - .3 Lengths: roll.
  - .4 Colours: selected by Departmental Representative from standard colour range.

## **2.4 ACCESSORIES**

- .1 Subfloor Filler: White premix latex; type recommended by adhesive material manufacturer.
- .2 Primers and Adhesives: Waterproof; types recommended by flooring manufacturer.
  - .1 Adhesives to SCAQMD Rule 1168-05, Adhesives and Sealants Applications.
- .3 Edge Strips: Metal.
- .4 Adhesives: solvent-free waterproof types recommended by respective flooring manufacturer to suit each flooring material and each application condition, with low emission and odour levels.
- .5 Joint sealing/welding material: purpose-made welding thread (rod) of type recommended by respective flooring manufacturers to suit application, colours to match flooring.

## **Part 3 Execution**

### **3.1 EXAMINATION**

- .1 Verify floor and lower wall surfaces are free of substances that may impair adhesion of new adhesive and finish materials.

### **3.2 PREPARATION**

- .1 Remove sub-floor ridges and bumps. Fill minor or local low spots, cracks, joints, holes, and other defects with sub-floor filler to achieve smooth, flat, hard surface.
- .2 Prohibit traffic until filler is cured.
- .3 Ensure wall to receive base is smooth, level, free from waves and other defects, and ready for base installation, refer to section 09 21 16 – Gypsum Board Assemblies.
- .4 Vacuum clean substrate.

### **3.3 INSTALLATION - SHEET FLOORING**

- .1 Install sheet flooring to manufacturers written instructions.
- .2 Spread only enough adhesive to permit installation of materials before initial set.
- .3 Set flooring in place, press with heavy roller to attain full adhesion.
- .4 Lay flooring with joints and seams to produce minimum number of seams.
- .5 Install sheet flooring parallel to length of room. Provide minimum of one third (1/3) full roll width. Double cut sheet; provide butt joint.
- .6 Seal joints of sheet flooring, using welding thread (rod). Form joints uniform in width, appearance and as inconspicuous as possible. Form joints flush, well adhered in place, watertight and free of peaking or projections.
- .7 Terminate flooring at centreline of door openings where floor finish is dissimilar.
- .8 Install edge strips at unprotected or exposed edges, and where flooring terminates.
  - .1 Secure metal strips after installation of flooring with stainless steel screws.
- .9 Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

### **3.4 INSTALLATION - BASE**

- .1 Fit joints tight and vertical. Maintain minimum measurement of 450 mm between joints.
- .2 Mitre internal corners. At external corners and exposed ends, use premoulded units.
- .3 Install base in full bed of adhesive using full spread notched trowel. Cut and fit base neatly at corners, to tight fitting tolerances.
- .4 Install base straight and level to maximum variation of 1:1000.
- .5 Install base on toe kick of cabinets which occur in rooms and areas where resilient flooring is scheduled.
- .6 Scribe and fit to door frames and other interruptions.
- .7 Keep joints tight and well fitted.

### **3.5 CLEANING**

- .1 Do cleaning in accordance with Section 01 74 11 - Cleaning.
- .2 Clean installed work.

- .3 Remove excess adhesive from floor, base, and wall surfaces without damage.
- .4 Clean and seal floor in accordance with manufacturers written instructions.

**3.6 PROTECTION OF FINISHED WORK**

- .1 Prohibit traffic on floor finish for forty-eight (48) hours after installation.

**END OF SECTION**







17886 55th Avenue, Surrey, BC, Canada V3S 6C8  
Tel: 604-576-4755 Fax: 604-576-4855

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<b>CUSTOMER:</b>	CANADIAN COAST GUARD	<b>DATE:</b>	January 13, 2014
<b>PROJECT:</b>	12.0m LDSS TOWER	<b>JOB No:</b>	9757
<b>SITE:</b>	PORT HARDY, BC		

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**REV 1** JAN 14,2014

**DRAWING INDEX**

**ERECTION DRAWINGS**

<b><u>DWG No.</u></b>	<b><u>DRAWING TITLE</u></b>	<b><u>REV</u></b>
9757 D1	DESIGN PROFILE	
9757 E2	TOWER FOUNDATION	
9757 E3	LDSS SECTION '4' ANTI-CLIMB INSTALLATION	
9757 E4	ANTENNA INSTALLATION	
9757 E5	ANTENNA INSTALLATION	
9757 E6	TOWER GROUNDING	1
9757 E7	'CS450' SAFETY CABLE INSTALLATION	
9757 SK100	LDSS SPLICE SECTION INFORMATION	
9757 TEMP	LDSS BASE SECTION '4' TEMPLATE	

**FABRICATION MATERIAL LIST**

SHEETS: 1

**HARDWARE MATERIAL LIST**

SHEETS: 1 & 2

1

**BOLT INSTALLATION PROCEDURE**

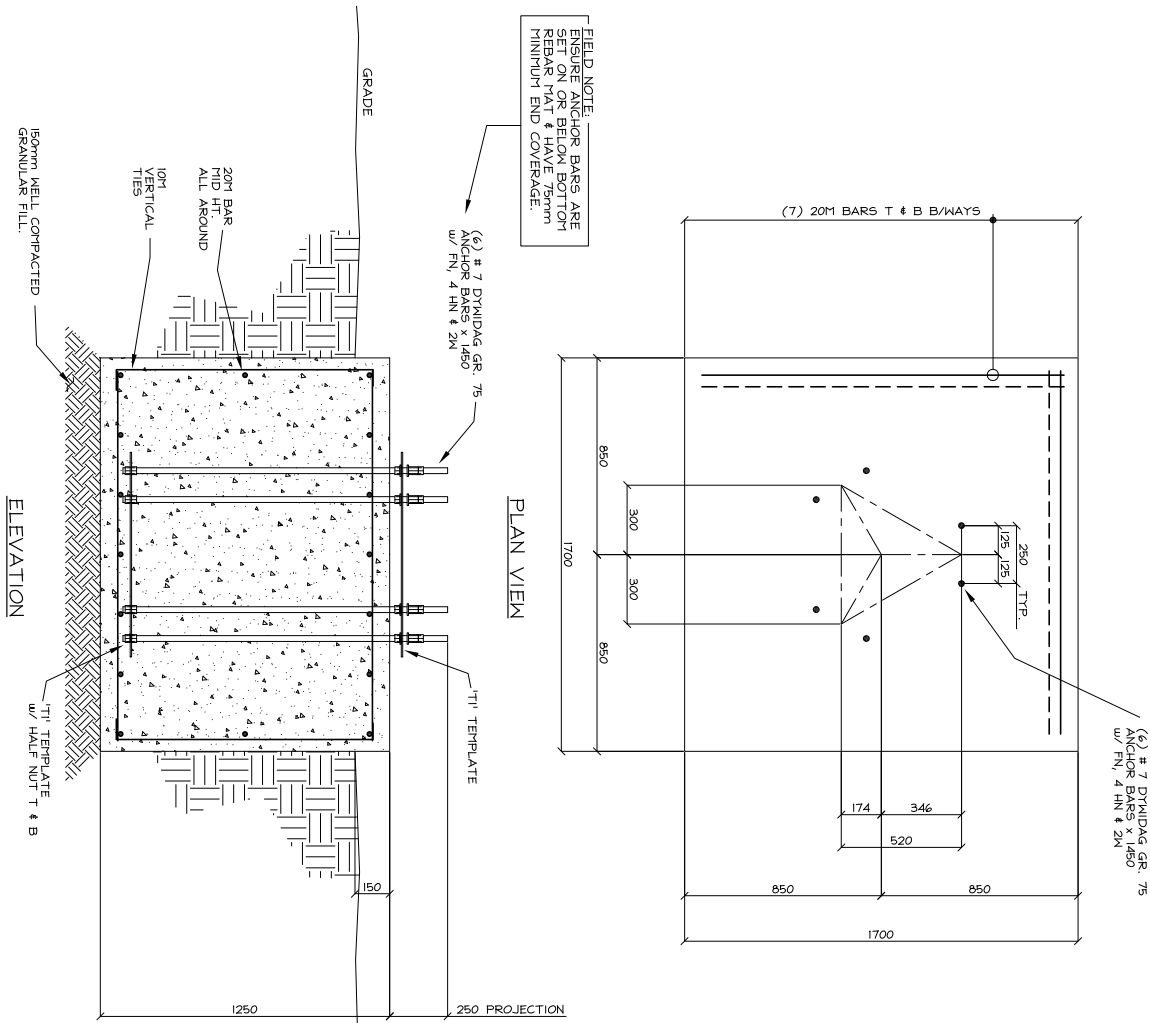
**MATERIAL USAGE REPORT**





**WEST TOWER<sup>TM</sup>**  
**COMMUNICATIONS LTD**

1/19/2014 10:27



GENERAL FOUNDATION CONSTRUCTION NOTES

1. CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 30 MPa AT 28 DAYS, EXPOSURE CLASS F1.
2. ALL CONCRETE WORK SHALL CONFORM TO CSA STANDARD A23.1; A23.2
3. MINIMUM CONCRETE COVER OVER REBAR IS 75mm UNO.
4. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 20mm.
5. REINFORCING MATERIAL SHALL BE IN ACCORDANCE WITH CAN/CSA G30.18 (R2002) GRADE 400.
6. ALL REBAR (HORIZONTAL & VERTICAL) SHALL BE SECURELY WIRE TIED TO PREVENT DISPLACEMENT DURING POURING OF CONCRETE.
7. CONCRETE SHALL BE BEDDED AND GRANULAR FILL TO 95% MODIFIED PROCTOR DRY DENSITY.
8. POUR CONCRETE PAD ON UNDISTURBED SOIL.
9. BACKFILL SHALL BE SELECTED MATERIAL, WELL COMPACTED IN LAYERS NOT EXCEEDING 300mm.
10. BACKFILL SHALL BE PLACED SO AS TO PREVENT THE ACCUMULATION OF WATER AROUND THE FOUNDATION.
11. COLD CONSTRUCTION JOINTS TO BE THOROUGHLY CLEANED & WETTED PRIOR TO SECOND POUR.

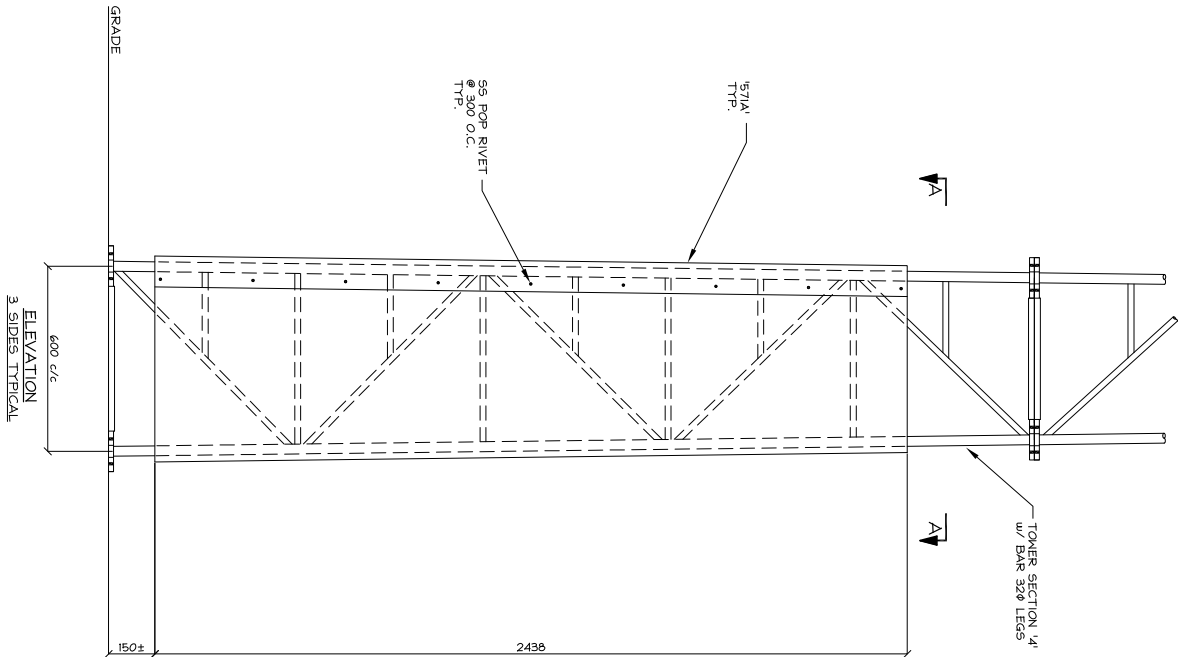
FOUNDATION AND ANCHOR TOLERANCES

1. CONCRETE DIMENSIONS:  $\pm 25mm$
2. DEPTH OF FOUNDATIONS, PLUS 75mm OR MINUS 0.
3. REINFORCING STEEL PLACEMENT:  $\pm 10mm$  INCLUDING CONCRETE COVER.
4. PROJECTIONS OF EMBEDMENTS:  $\pm 6mm$ .
5. VERTICAL EMBEDMENTS OUT OF PLUMB: 3mm.
6. FACE SPREAD DIMENSION CENTER TO CENTER OF ANCHOR BOLT CIRCLES:  $\pm 10mm$  PER 1524mm OF FACE SPREAD.
7. MAXIMUM DISTANCE FROM CENTRELINE OF ANCHOR BOLTS TO CENTRELINE OF FOUNDATION: 1/24th OF PIER DIAMETER UP TO A MAXIMUM OF 51mm.
8. MAXIMUM DIFFERENCE BETWEEN ANY TWO FOUNDATION ELEVATIONS 50mm.
9. ANCHOR BOLT SPACING:  $\pm 10mm$ .
10. ANCHOR BOLT LOCATION:  $\pm 0.5$ .
11. ANCHOR BOLT CIRCLE DIAMETER:  $\pm 20mm$ .

FIELD BOLTS:  
6- # 7 DYNIDAG GR. 75 ANCHOR BARS x 1450  
6- # 7 DYNIDAG GR. 75 FULL NUTS  
12- # 7 DYNIDAG GR. 75 WASHERS

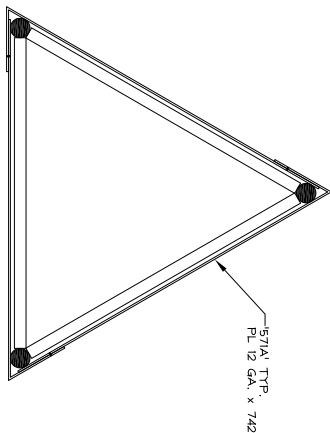
REV	DESCRIPTION	DATE
1	TOWER FOUNDATION	01/19/2014
CUSTOMER: CANADIAN COAST GUARD		
PROJECT: 120m LD55 TOWER		
SITE: PORT HARDY, BC		
<b>WESTTOWER</b> COMMUNICATIONS LTD		
APP'D.	CHK'D.	JOB No.
DWN. LG	DATE: 01-08-14	9757
		DRAWING No. E2

7/9/2014 10:28



FIELD BOLTS:  
27- S5D54S5B5 POP RIVET

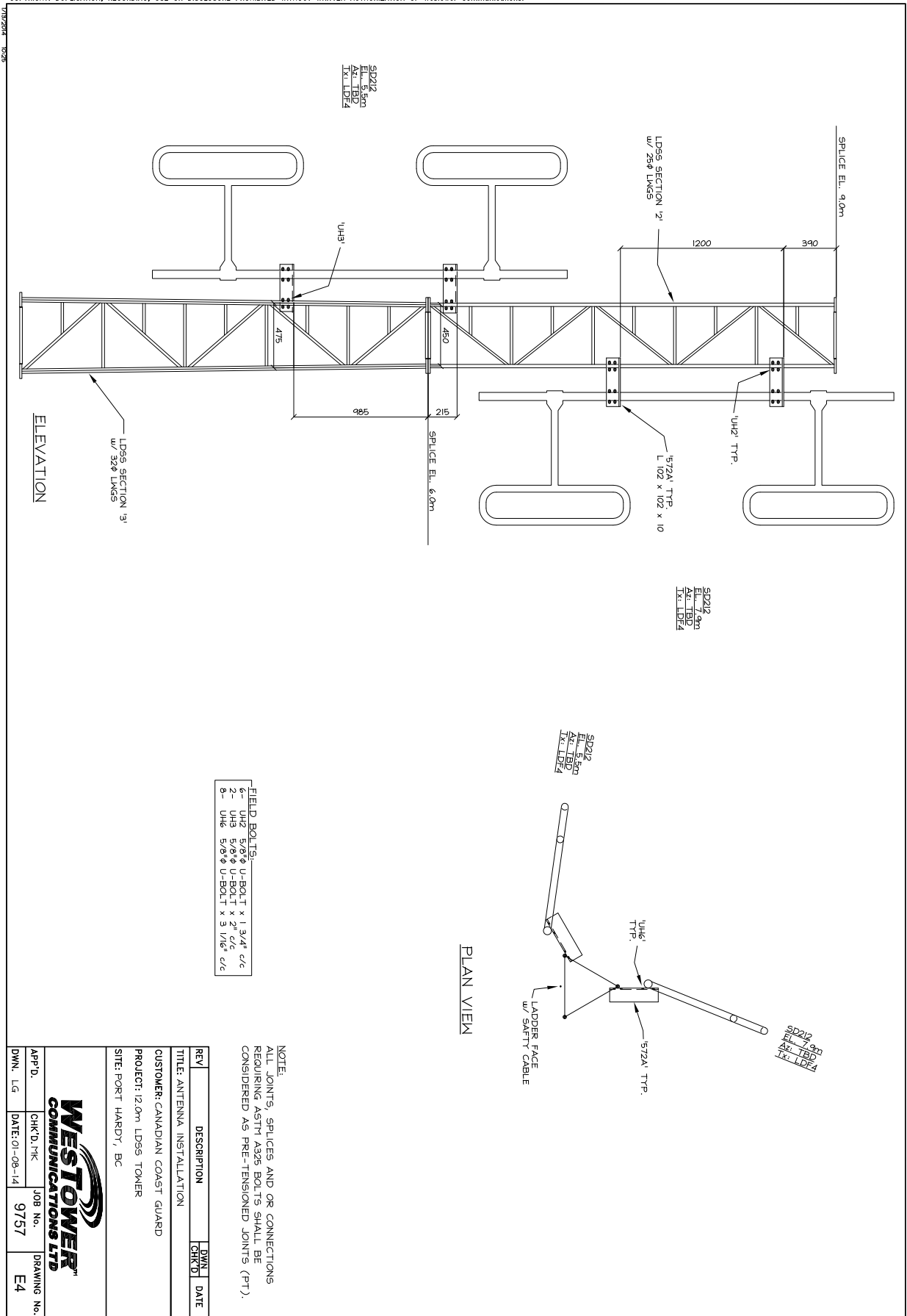
VIEW A-A



REV	DESCRIPTION	DATE
1	LDSS SECTION 4 ANTI-CLIMB INSTALLATION	07/09/2014
2	CUSTOMER: CANADIAN COAST GUARD	
3	PROJECT: 12.0m LDSS TOWER	
4	SITE: PORT HARDY, BC	

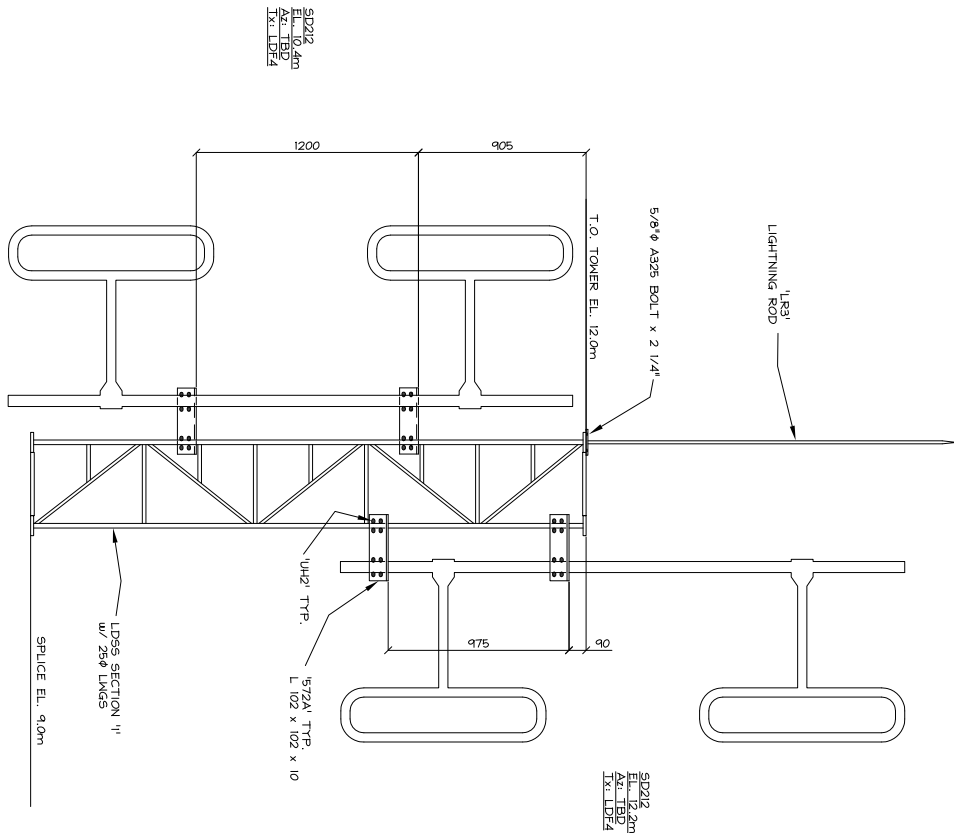
APP'D.	CHK'D.	JOB No.	DRAWING No.
DWN. LG.	DATE: 01-06-14	9757	E3

**WESTTOWER™**  
COMMUNICATIONS LTD



7/9/2014 10:24

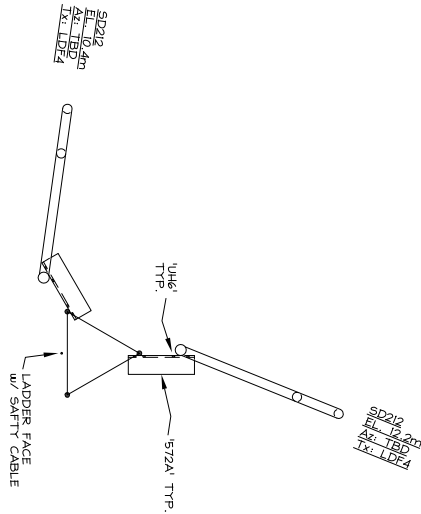
ELEVATION



FIELD BOLTS:  
8- 1/2" 5/8" U-BOLT x 1 3/4" c/c  
8- 1/2" 5/8" U-BOLT x 3 1/8" c/c  
2- 5/8" A325 BOLT x 2 1/4"

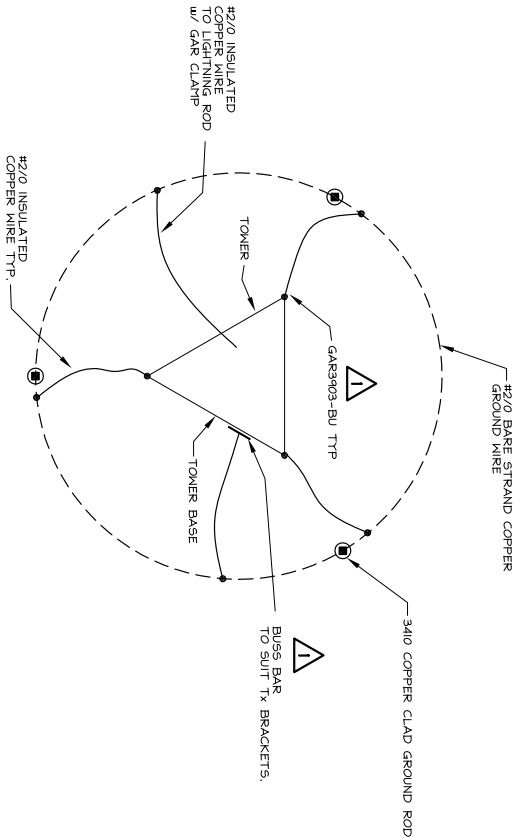
NOTE:  
ALL JOINTS, SPLICES AND OR CONNECTIONS  
REQUIRING ASTM A325 BOLTS SHALL BE  
CONSIDERED AS PRE-TENSIONED JOINTS (PT).

PLAN VIEW



REV	DESCRIPTION	DATE
1	ANTENNA INSTALLATION	7/9/14
CUSTOMER: CANADIAN COAST GUARD		
PROJECT: 12.0m LDSS TOWER		
SITE: PORT HARDY, BC		
APP'D.	CHK'D.	JOB No.
DWN. LG	DATE: 01-06-14	9757
		DRAWING No. E5

7/12/2014 11:00



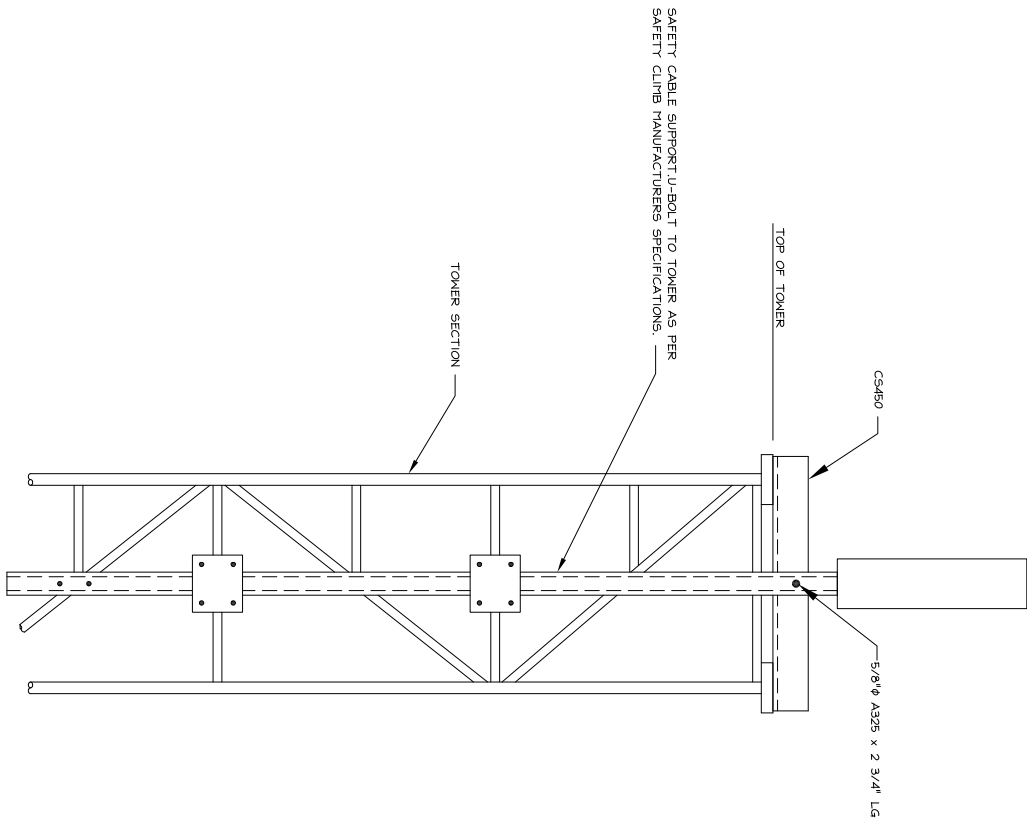
GROUNDING SCHEMATIC ONLY  
DO NOT USE FOR SITE ORIENTATION

FIELD NOTES:

1. PRIOR TO INSTALLING A GROUND SYSTEM CONNECTION, CLEAN ANY PARTS OF PAINT OR OTHER FOREIGN MATTER.
2. ALL CONNECTORS AND CONNECTING WIRE OR CABLE PARTS THAT COME INTO CONTACT WITH THE CONNECTOR SHALL BE PROTECTED BY AN INSULATING COVER OR SHALL BE APPLIED WITH A LIBERAL APPLICATION OF NO-OX-ID.
3. ALL GROUND WIRE BELOW GRADE IS TO BE #2/0 BARE STRAND COPPER.
4. WHERE THERE IS A CONTINUOUS FLOW OF GROUND WIRE (LOOP AROUND BUILDING OR TOWER) CONNECT WIRE TO ROD WITH CADWELD.
5. WHERE THERE IS A SINGLE CONNECTION OF GROUND WIRE TO ROD USE CADWELD HOLID #40E-182G SHOT #40.
6. WHEN THERE IS A WIRE TO WIRE CONNECTION USE CADWELD HOLID #TAC-262G SHOT #40.
7. IN ROCK CONDITIONS, THE CONTRACTOR IS TO SUPPLY 300mm OVERBURDEN FOR EXPOSED COPPER WIRE WHERE POSSIBLE.
8. CONNECT #2/0 INSULATED COPPER WIRE TO SHELTER USING PANDUIT 2/0 2 HOLE LUG TO CONNECT GROUND WIRE TO EQUIPMENT.
9. CONNECT RISER TO GROUND LOOP WITH CADWELD HOLID #TAC-262G SHOT #40.
10. INSTALL GROUNDING ROD APPROXIMATELY 600mm FROM WALLS OR FOUNDATIONS. TOP OF GROUND ROD TO BE 300mm BELOW GRADE.
11. CONNECT TRANSMISSION LINES TO EQUIPMENT SHELTER EXTERIOR GROUNDING BAR IN THE VICINITY OF THE WAVEGUIDE PORT.
12. CONNECT #2/0 BARE STRAND COPPER WIRE BELOW GRADE TO EACH WAVEGUIDE POST WITH PANDUIT 2/0 2 HOLE LUG.
13. COPPER GROUND BARS MUST BE LOCATED 3m MIN FROM EACH OTHER.

REVISED BUS BAR QTY		TK	01/14/14
GARE3403-BU ADDED		DMN	
REV	DESCRIPTION	DMN	DATE
TITLE: TOWER GROUNDING			
CUSTOMER: CANADIAN COAST GUARD			
PROJECT: 12.0m SS TOWER			
SITE: PORT HARDY, BC			
APP'D.	CHK'D, TK	JOB No.	DRAWING No.
DMN, LG	DATE: 01-08-14	9757	E6

7/9/2004 10:29



ELEVATION

FIELD BOLTS:  
ONE - 5/8"φ A325 BOLT x 2 3/4"

REV	DESCRIPTION	DATE
1	CS450 SAFETY CLIMB INSTALLATION	01-05-14
CUSTOMER: CANADIAN COAST GUARD		
PROJECT: 12.0m LD55 TOWER		
SITE: PORT HARDY, BC		
<b>WESTOWER™</b> COMMUNICATIONS LTD		
APP'D.	CHK'D.	JOB No.
DWN. LG.	DATE: 01-05-14	9757
		DRAWING No. E7



\* LENGTH DENOTES BOLT LENGTH WHEN USED AS THE BASE SECTION OF THE TOWER.

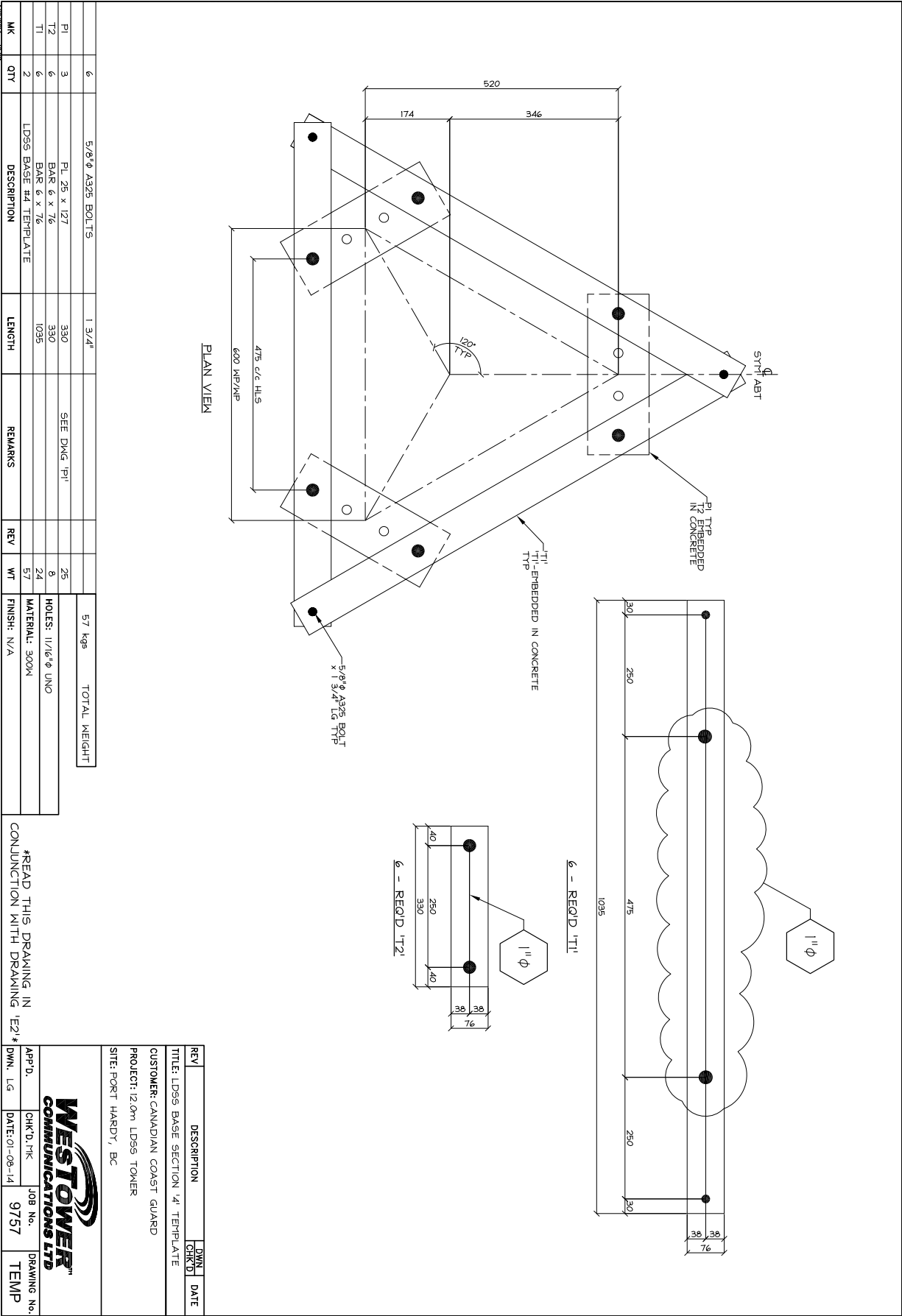



**WEST TOWER<sup>™</sup>**  
COMMUNICATIONS LTD




PROCEDURE	BY	DATE	CHECK	DATE
FABRICATION				
WELDS				

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<div>WESTOWER<sup>TM</sup> COMMUNICATIONS LTD</div>				FABRICATION MATERIAL LIST										JOB No.	SHEET No.	DATE:	DWN. BY:	CHK. BY:	REV.	
CUSTOMER: CANADIAN COAST GUARD				PROJECT: 12.0m LDSS TOWER										9757	1	01-02-14	LG	MK		
				SITE: PORT HARDY, BC																
ITEM	QTY. REQ'D	QTY. SHIP	MARK No.	MATERIAL		LENGTH	DWG No.	REV.	WT		COMMENTS		COLOR							
				DESCRIPTION					(kg)	(lbs)			O	W	O/W					
1				TOWER INSTALLATION			D1													
2	ONE		1'	LDSS SECTION 1'		3000			79	174										
3	ONE		2'	LDSS SECTION 2'		3000			79	174										
4	ONE		3'	LDSS SECTION 3'		3000			112	247										
5	ONE		4'	LDSS SECTION 4'		3000			112	247										
6																				
7																				
8																				
9																				
10				TOWER FOUNDATION			E2													
11	6		T1	BAR 6 x 76		1035	TEMP		24	53		PRE-SHIP								
12	6		T2	BAR 6 x 76		330	TEMP		8	18		PRE-SHIP								
13	3		P1	PL 25 x 127		330			25	55										
14																				
15																				
16																				
17				ANTI-CLIMB INSTALLATION			E3													
18	3		571A	BENT PL 12 GA. x 742		2438	1		116	256										
19																				
20																				
21																				
22				ANTENNA INSTALLATION			E4, E5													
23	8		572A	L 102 x 102 x 10		360	2		42	93										
24	ONE		LR3	BAR 16 DIA.		2000	LR3		4	9										
25																				
26																				
27				SAFETY CABLE INSTALLATION			E7													
28	ONE		CS450	L 102 x 76 x 6		550	CS450		4	9										
29																				
30																				
31																				
32																				
33																				
34																				
35																				
36																				
37																				
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39																				
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41																				
TOTAL WT THIS PAGE:									605	1334										

				HARDWARE MATERIAL LIST				JOB No.	SHEET No.	DATE:	DWN. BY:	CHK. BY:	REV.
CUSTOMER: CANADIAN COAST GUARD				PROJECT: 12.0m LDSS TOWER				9757	1	01-02-14	LG	MK	1
				SITE: PORT HARDY, BC									
ITEM	QTY. REQ'D	QTY. SHIP	MARK No.	DESCRIPTION	LENGTH	DWG No.	REV.	WT (kg)	WT (lbs)	COMMENTS	COLOR		
				TOWER INSTALLATION		D1, SK100					O	W	O/W
1	6	8		5/8" DIA. A325 BOLT	2 3/4"								
2	18	20		5/8" DIA. A325 BOLT	2 1/2"								
3	24	26		5/8" DIA. WASHERS									
4													
5													
6													
7													
8				TOWER FOUNDATION		E2, TEMP							
9	6			# 7 DYWIDAG GR. 75 ANCHOR BARS	1450					PRE-SHIP			
10	6			# 7 DYWIDAG GR. 75 FULL NUTS						PRE-SHIP			
11	24			# 7 DYWIDAG GR. 75 HALF NUTS						PRE-SHIP			
12	12			# 7 DYWIDAG GR. 75 WASHERS						PRE-SHIP			
13	6	8		5/8" DIA. A325 BOLT	1 3/4"					PRE-SHIP			
14													
15													
16				ANTI-CLIMB INSTALLATION		E3							
17	27	30		SSD54SSBS POP RIVE1S									
18													
19													
20				ANTENNA INSTALLATION		E4, E5							
21	14	16	UH2	5/8" DIA. U-BOLT w/ HARDWARE	1 3/4" C/C								
22	2	4	UH3	5/8" DIA. U-BOLT w/ HARDWARE	2" C/C								
23	16	18	UH6	5/8" DIA. U-BOLT w/ HARDWARE	3 1/16" C/C								
24	2	4		5/8" DIA. A325 BOLT	2 1/4"								
25													
26													
27													
28				TOWER GROUNDING		E6							
29	3			3410 COPPER CLAD GROUND ROD	10'-0"								
30	LIN			2/0 BARE COPPER WIRE	20m								
31	LIN			2/0 INSULATED COPPER WIRE	40m								
32	ONE			BUSS BAR			01-14-14						
33							01-14-14						
34	3	5		CADWELD # GYE-182G SHOT # 115									
35	6	8		CADWELD # TAC-2G2G SHOT # 90									
36	3			GAR3903-BU			01-14-14						
37	ONE			ANGLE ADAPTER KIT			01-14-14			WTC 608-0503			
38													
39													
40													
41													
										TOTAL WT THIS PAGE:			



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ITEM	QTY. REQ'D	QTY. SHIP	MARK No.	MATERIAL		DWG No.	REV.	WT		COMMENTS	COLOR		
				DESCRIPTION	LENGTH meters			(kg)	(lbs)		O	W	OW
42				SAFETY CABLE INSTALLATION	10.0	E7				WT# 701-0003			
43	ONE			SAFETY CABLE - 3/8" DIA 1 x 7 GUY STRAND						WT# 804-0001			
44	ONE		6116410	TOP BRACKET						WT# 804-0003			
45	ONE		6100216	TOP BRACKET ASSEMBLY						WT# 804-0003			
46	ONE		6100090	BOTTOM BRACKET						WT# 804-0004			
47	ONE		6100242	BOTTOM BRACKET HARDWARE						WT# 804-0005			
48	1		6100515	CABLE GUIDES - 90 DEGREE						WT# 804-0007			
49	ONE		6100252	DBI / SALA INSTRUCTION MANUAL & LABEL									
50	ONE	2		5/8" DIA A325 BOLT	2 3/4"								
51													
52													
53													
54													
55													
56													
57													
58													
59													
60	2	2		WESTOWER BOOKSETS									
61													
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## **BOLT INSTALLATION**

Typically, WesTower Communications Ltd. ships bolts loose, protected in kegs or plastic bags, in quantities as specified on the material list. When joints are specified in the contract documents as 'snug-tightened joints' (ST), the procedures for Bolts Not Requiring Pretension shall be followed. For joints which are specified in the contract documents as being 'pre-tensioned joints' (PT), the Turn-of-Nut Method shall be employed as outlined in the procedures for Bolts Requiring Pre-Tensioning. If required by contract, other pre-tensioning methods may be employed however, this would require an expansion of this procedure. Snug-Tight and Turn-of-Nut are defined below. The Foreman will sign off on the as-built drawings indicating the bolts were installed as per specifications.

### **Bolts Not Requiring Pre-Tension**

Bolts that do not require pre-tensioning shall be installed in properly made and aligned holes without undue damage to the threads, to the snug-tight condition.

### **Snug-Tight Condition**

The Snug-Tight Condition is the tightness that exists when all plies in a joint are in firm contact. It is attained by a few impacts of an impact wrench or the full effort of a rigger using a standard spud wrench in bringing all connected plies of a joint into firm contact. Bolt tightening shall progress systematically from the most rigid point in a connection to the free edges. Re-snugging may be required in large joints.

Title: **Bolt Installation**

Revision Date: October 4, 2006

Approved by: Randy Carroll

**WesTower**

**Document: D015**

Page 2 of 4

### Bolts Requiring Pre-Tension

Pre-tensioned bolts shall be tightened to at least the minimum bolt tension given in the following table:

Bolt Diameter		Table 1 Specified Minimum Bolt Pre-Tensions			
Inch	Mm	A325		A490	
		kN	kips	kN	kips
1/2		53	12	67	15
5/8		85	19	107	24
	16	91	20	114	26
3/4		125	28	157	35
	20	142	32	178	40
7/8		174	39	218	49
	22	176	40	220	50
	24	205	46	257	58
1		227	51	285	64
	27	267	60	334	75
1 1/8		249	56	356	80
	30	326	73	408	92
1 1/4		316	71	454	102
1 3/8		378	85	538	121
	36	475	107	595	134
1 1/2		458	103	658	148

### Turn-of Nut Tightening

When all bolts are snug-tight, each bolt in the joint shall then be tightened additionally by the applicable amount of rotation given in the table below, with tightening progressing systematically from the most rigid part of the joint to its free edges. During this operation there shall be no rotation of the part not turned by the wrench, unless the bolt and nut are match-marked to enable the amount of relative rotation to be determined.

### Nut Rotation from Snug-Tight Condition

Disposition of outer faces of	Bolt length	Turn
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Title: **Bolt Installation**

Revision Date: October 4, 2006

Approved by: Randy Carroll

**WesTower**  
**Document: D015**

Page 3 of 4

bolted parts	In multiples of DIA. (D)	Ration of full turn
Both faces normal to bolt axis	$L \leq (4xD)$	1/3
Or one face normal to axis	$(4xD) < L < (8xD)$	1/2
Other sloped 1:20 max. (beveled washer not used)	$(8xD) < L$	2/3
Both faces sloped 1:20 max. From normal to bolt axis (beveled washer not used)	All bolt lengths	3/4

NOTE: Nut rotation is relative to the bolt regardless of whether or not the bolt is turned. Tolerance of rotation:  $\pm 30^\circ$ . This table applies to course-thread heavy-hex structural bolts of all sizes and lengths used with heavy-hex semi-finished nuts.

Bolt length is measured from the underside of the head to the extreme end.

#### Pre-Installation Verification and Arbitration

If required by the contract documents, pre-installation verification shall be carried out in accordance with the 'Specification for Structural Joints using ASTM A325 or A490 Bolts, Section 7 Pre-Installation Verification' prepared by the Research Council on Structural Connections (RCSC)

In particular, if required by the contract documents, a representative sample of at least three (3) complete fastener assemblies of each combination of bolt diameter, length, grade, and lot which are to be used in the work shall be tested on site.

Each of the samples shall be tested in a tension calibrator (Skidmore) to a value of 1.05 times the pre-tension values provided in Table 1. Tension values of the samples shall be recorded by the Foreman and submitted with the as-built drawings.

Title: **Bolt Installation**

Revision Date: October 4, 2006

Approved by: Randy Carroll

**WesTower**

**Document: D015**

Page 4 of 4

If the actual pre-tension developed in any of the samples is less than 1.05 times the minimum specified pre-tension, the cause shall be determined and resolved prior to any fasteners being used in the work.

- . In the event that after inspection any number of bolt pre-tensions are suspect, arbitration in accordance with the procedures outlined in Section 10 of the RCSC shall apply.



## Material Usage Report

**Date:** \_\_\_\_\_

**Job #** \_\_\_\_\_ **Site Name:** \_\_\_\_\_

**Foreman:** \_\_\_\_\_ **Packaged by:** \_\_\_\_\_

**Description:** \_\_\_\_\_  
\_\_\_\_\_

Quantity	Part # or Description
----------	-----------------------

**Project Manager:** \_\_\_\_\_

[illegible]



JOB No.: \_\_\_\_\_

SITE: \_\_\_\_\_

DATE: \_\_\_\_\_

We verify that this project has been completed as per directions supplied by the Project Manager, Customer and any, or all applicable drawings and literature that pertain to this site.  
The site has been cleaned and returned to useable condition.

Signed by: \_\_\_\_\_

Print name: \_\_\_\_\_

Outstanding Items of Note:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_