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SOW – IQALUIT RIGGING WORK
COAST GUARD IQALUIT MCTS RX SITE
IQALUIT, NU

MARITIME AND CIVIL INFRASTRUCTURE

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TABLE OF CONTENTS

SECTION:	011100 GENERAL INSTRUCTIONS	2
SECTION:	013300 SUBMITTAL PROCEDURES	7
SECTION:	013530 HEALTH AND SAFETY REQUIREMENTS	8
SECTION:	013543 ENVIRONMENTAL PROCEDURES	10
SECTION:	014500 QUALITY CONTROL.....	14
SECTION:	016100 COMMON PRODUCT REQUIREMENTS	16
SECTION:	133613 RIGGING WORK.....	18
APPENDIX A:	SITE LOCATIONS AND PHOTOGRAPHS.....	23
APPENDIX B:	SUMMARY OF SUBMITTALS	26
APPENDIX C:	SITE PLANS.....	27
APPENDIX D:	ANTENNA AND CABLE SCHEDULE.....	29
APPENDIX E:	DRAWINGS	31



SECTION: 011100 GENERAL INSTRUCTIONS

PART 1 - GENERAL

1.1 Minimum Standards

- .1 Perform work in accordance with National Building Code of Canada (NBC) and any other code of provincial, territorial or local application. In the case of any conflict or discrepancy, the more stringent requirements shall apply.
- .1 Meet or exceed requirements of:
 - .1 Contract documents; and
 - .2 Specified standards, codes and referenced documents.

1.2 Description of Work

- .1 Work under this Contract includes but is not limited to the provision of all labour, materials, and equipment required to:
 - .1 Replace 2 VHF antennas and install one UHF antenna;
 - .2 Fabricate and install parts for the modification of one antenna mount as per drawings provided;
 - .3 Fabricate and install three [3] new antenna mounts as per drawings provided;
 - .4 Dispose of two [2] VHF antennas removed from the tower;
 - .5 Supply and install new Tx brackets and cable hangers;
 - .6 Supply and install new cable runs for all CCG antennas;
 - .1 1850 ft of LDF4-50A; and
 - .2 145 ft of RG-213.
 - .7 Supply and install 6" PVC pipe for cable protection; and
 - .8 Supply and install connectors for each end of new cables.
- .2 The following work will be undertaken by others and is hereby excluded:
 - .1 Coast Guard shall supply two [2] VHF antennas for installation;
 - .2 Coast Guard shall supply one UHF antenna for installation;
 - .3 In addition to that supplied by Contractor, Coast Guard shall supply the following amounts of



cable;

- .1 416 ft of LDF4-50A; and
- .2 658 ft of LDF5-50A.

1.3 Submittals

- .1 Mandatory submittals and schedule for submission are detailed below and in Appendix B. The following identifies general requirements only. The relevant sections must be consulted for a complete listing of mandatory content.
- .2 Detailed Schedule:
 - .1 Deadline:
 - .1 No later than ten [10] working days following award.
 - .2 Deliverables:
 - .1 The contractor shall furnish a high level schedule outlining the major construction milestones. Schedule shall clearly define the anticipated start and finish dates of the project.
 - .2 For fieldwork to proceed, all other mandatory submittals must be received and accepted by Coast Guard.
- .3 Proof of Qualifications:
 - .1 Deadline:
 - .1 No later than ten [10] working days following award.
 - .2 Deliverables:
 - .1 The Contractor shall provide the name and contact information for the following project team members:
 - .1 The Project Manager;
 - .2 The Site Forman; and
 - .2 The contractor shall also provide a detailed list of all subcontractors being used to complete the work described herein (Section 011100 – 1.4).
- .4 Construction Plan:
 - .1 Deadline:
 - .1 No less than ten [10] working days prior to mobilization.



.2 Deliverables:

.1 A Construction Plan of sufficient detail to demonstrate that the Contractor has considered all the challenges of the project and is prepared to undertake the works in a competent and professional manner in accordance with all legislation. The submission shall include:

- .1 Project Specific Safety Program (Section 013530);
- .2 Project Environmental Protection Plan (Section 013543); and
- .3 Installation Plan (Section 133613).

.5 As-built and QA/QC:

.1 Deadline:

.1 No more than twenty eight [28] calendar days after construction.

.2 Deliverables:

.1 The following documents shall be forwarded upon completion of the contract:

- .1 Set of red-lined as-built drawings (Section 133613);

1.4 Contractor Qualifications

.1 The work shall be carried out under the supervision and responsibility of a sole specialized Contractor.

.2 The Contractor must be experienced in the installation of buried conduit and antennas.

.3 The Contractor shall designate the following key project members, including any subcontractors. The project members shall have completed projects of similar scope and complexity to the work described herein.

.1 Project Manager: Contact information for the main point of contact for the project shall be provided by the contractor.

.2 Site Forman: Contact information for the main point of contact for the project fieldwork shall be provided by the contractor.

.3 The contractor shall provide a detailed list of all subcontractors being used to complete the work described herein.

.4 Requests to amend the project team, following contract award, must be forwarded in writing. Coast Guard reserves the right to reject any proposal to amend the project team.

1.5 Site Location



- .1 The work is to be completed at the Coast Guard Iqaluit Marine Communication and Traffic Services (MCTS) Receiver (Rx) Site in Iqaluit, NU. The coordinates for the site are: 63°46'9.73"N, 68°31'48.73"W.

1.6 Existing Conditions

- .1 Photographs of the site have been included in Appendix A: Site Locations and Photographs.
- .2 Bidders must make their own estimate of the difficulties associated with all phases of the works.
- .3 The contractor must include in their costs all expenses related to the difficulties of working at the site.

1.7 Contractor's Access to Site

- .1 Contractor is responsible for transportation of all labour, materials and equipment to and from the site, including any and all material furnished or itemized for salvage by Coast Guard.
- .2 The site is accessible by standard vehicle.
- .3 Access to the site is restricted and must be arranged through Coast Guard.
- .4 Contractor is to notify Coast Guard at least five [5] working days prior to any site access.

1.8 Completion, Scheduling and Planning of the Works

- .1 Work may commence as early as practical following the snow melt in the area. Coast Guard recommends not beginning work prior to June 1, 2019.
- .2 Coast Guard's acceptance and approval of mandatory submissions must be obtained before site work can commence.
- .3 Site work shall not commence without written authorization of Coast Guard Project Authority.
- .4 Site work shall be completed no later than August 31, 2019, unless otherwise negotiated and approved in writing.

1.9 Coast Guard Staging Location

- .1 Items to be supplied by, or salvaged to Coast Guard shall be collected or delivered by the Contractor to the following staging location. The Contractor shall be responsible for all transportation costs between the project site and the identified staging location. Material drop off or access to stored goods outside of regular operating hours shall be at the discretion of Coast Guard and may be subject to cost recovery:

- .1 Staging location:



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Iqaluit MCTS Centre
1063 Niuraivik Lane
Iqaluit, NU X0A 0H0

- .2 Advise Coast Guard at least five (5) working days prior to pick-up/delivery
- .3 Shipping/Receiving hours: Monday through Friday, 9:00AM to 3:00PM

1.10 Temporary Facilities

- .1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.
- .2 Arrange, pay for, and maintain temporary electrical power supply as required for construction, and water supply as required, in accordance with governing regulations and ordinances.
- .3 Maintain emergency spills kit on-site at all times.

1.11 Fees, Permits, Certificates and Information

- .1 Contractor shall provide authorities having jurisdiction with all information requested.
 - .1 Contractor shall provide copies to Coast Guard of any documentation submitted to other authorities related to the work described in this document.
- .2 Contractor shall pay fees and obtain certificates and permits required.
- .3 Contractor shall furnish certificates and permits when requested.

1.12 Reference Documents

- .1 The most recent publication or edition of any document referenced in this specification should be used unless the referencing clause states that this clause does not apply.

1.13 Required Submissions

- .1 A summary of the minimum mandatory submissions required can be found in Appendix B. This summary is not an exhaustive list of all submissions required for the duration of the project.
- .2 Additional submissions may be required after award.



SECTION: 013300 SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 General

- .1 This section specifies general requirements and procedures for the Contractor's submissions of documents to Coast Guard for review.
- .2 For each phase of the project, work shall not progress until all mandatory submittals required before the start of that phase have been received, reviewed and accepted by Coast Guard.
- .3 Where items or information is not produced in SI Metric units, converted values are acceptable.
- .4 Contractor's responsibility for errors and omissions in submission is not relieved by Coast Guard's review of the submitted documents.
- .5 Notify Coast Guard, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .6 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Coast Guard's review of submission, unless Coast Guard gives written acceptance of specific deviations.
- .7 Make any changes to submissions that Coast Guard may require consistent with Contract Documents and resubmit as directed by Coast Guard.
- .8 Provide Coast Guard with a written notice, when resubmitting, of any revisions other than those requested by Coast Guard.

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 three [3] working days, or as stipulated in the specifications, for Coast Guard to review the submission.
- .3 The Contractor's Engineer shall stamp and sign any submissions requiring a Professional Engineer's seal certifying his approval of samples, verification of field measurements, and compliance with Contract Documents.



SECTION: 013530 HEALTH AND SAFETY REQUIREMENTS

PART 1 - GENERAL

1.1 Scope

- .1 The Contractor shall be responsible to develop, implement and enforce a safety program which addresses all elements of the work.

1.2 References

- .1 Work under this section shall be undertaken in strict conformance with all listed references, In the case of any conflict or discrepancy the more stringent requirements shall apply.
 - .1 Canada Labour Code Part II - January 2008;
 - .2 NRC-CNRC National Building Code of Canada, 2015;
 - .3 Nunavut Occupational Health and Safety (OHS) Regulations, 2016;
 - .4 Nunavut Safety Act, 2016;
 - .5 Any and all other Provincial/Territorial Regulations and Policies, Worker's Compensation Board Policies or Local municipal regulations pertaining to safety of the contractor's workers.

1.3 Submittals

- .1 Submittals shall be forwarded to Coast Guard in accordance with the provisions of section 013300.
- .2 Project Specific Safety Program
 - .1 Deadline:
 - .1 With Construction Plan
 - .2 Deliverables:
 - .1 Safety Program Document, include:
 - .1 A listing of all activities specific to each phase of the project and their Health & Safety risks or hazards;
 - .2 Detailed descriptions of how the activities are to be carried out as well as methods for mitigating hazards and risks;
 - .3 A listing of personnel responsible for health and safety measures, and Emergency procedures; and



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- .4 Material Safety Data Sheets for hazardous products to be utilized in the execution of the works.
- .3 Contractor shall submit completed Field Level Hazard Assessment (FLHA) forms to Coast Guard upon request.



SECTION: 013543 ENVIRONMENTAL PROCEDURES

PART 1 - GENERAL

1.1 Scope of Work

- .1 The contractor must implement and enforce the following procedures throughout the duration of the work to mitigate potential negative impacts on the surrounding environment.

1.2 References

- .1 Work under this section shall be undertaken in strict conformance with all listed references, In the case of any conflict or discrepancy the more stringent requirements shall apply.
 - .1 Canadian General Standards Board (CGSB)
 - .2 Transportation of Dangerous Goods
 - .3 Canadian Council of Ministers of the Environment (CCME) Documentation
 - .4 Canadian Environmental Protection Act

1.3 Submittals

- .1 Submittals shall be forwarded to Coast Guard in accordance with the provisions of section 013300.
- .2 Contractor shall submit an Environmental Protection Plan
 - .1 Deadline:
 - .1 With Construction Plan
 - .2 Deliverables:
 - .1 Submit a plan addressing procedures to be implemented to mitigate any negative impact on the environment. Detail (if applicable):
 - .1 Equipment features (age, spill containment);
 - .2 Staging, refueling, and cleaning areas;
 - .3 Clean-up and/or containment procedures (including concrete/grout);
 - .4 Waste disposal methods and sites; and
 - .5 Sedimentation control measures.



PART 2 - PRODUCTS

2.1 General

- .1 Avoid use of hazardous products. Use environmentally friendly products where practical.

PART 3 - EXECUTION

3.1 Construction Area

- .1 Confine construction activities to as small an area as practical.
- .2 Establish material storage, cleaning, and refueling areas where impacts to the surrounding environment will be negligible or readily mitigated.

3.2 Stockpiling of materials

- .1 Materials must be stockpiled as far from the shoreline as practical. Tarps must be used to control dust and run-off.
- .2 Stockpiled excavated materials shall be skirted using filter fabric to control run-off of fines during rain and to prevent excavation of soils below stockpiles.

3.3 Disposal of Wastes

- .1 Clean-up the site at the end of each working day.
- .2 All waste material is to be disposed of in a legal manner at a site approved by local authorities. Transporter/hauler must be appropriately licensed.
 - .1 Recycle or reuse materials where possible.
- .3 Fires and burning of rubbish on site not permitted.
- .4 Do not bury rubbish and waste materials on site.

3.4 Clearing and Grubbing

- .1 Only clear vegetation that interferes with construction once approved to do so by Coast Guard.

3.5 Drainage

- .1 Provide temporary drainage and pumping as necessary to keep excavations and site free from water.
 - .1 Suspend works during periods of heavy rainfall and add temporary covers to discourage run-off.
 - .2 Water pumped from excavation shall be adequately treated to ensure that water returning to



the watercourse contains minimal fines. Procedures anticipated for preventing the pumping of fines shall be identified in the environmental protection plan, and may include the following:

- .1 The use of filter bags;
- .2 Straw bale check dams or silt fence;
- .3 Discharge through naturally occurring vegetation.
- .3 The means for controlling silt run-off shall be dependent on the site and the quantity of water pumped, and shall be to the discretion of the CCG site staff.
- .4 Sediment control measures shall be inspected and improved/cleaned/replaced as necessary.

3.6 Pollution Control

- .1 Provide methods, means, and facilities to prevent the contamination of soil, water, and atmosphere from the discharge of pollutants produced by construction operations.
- .2 Vehicles, machinery, and equipment shall be in good repair, equipped with emission controls as applicable and operated within regulatory requirements.
- .3 Abide by local noise by-laws.
- .4 Avoid unnecessary idling of vehicles or heavy machinery.
- .5 Limit use of equipment around the shoreline where possible.
- .6 Implement and maintain dust and particulate control measures in accordance with territorial requirements:
 - .1 All bulk material haul equipment shall be appropriately tarped. Watertight vehicles shall be used to haul wet materials
- .7 Designate a cleaning area for tools to limit water use and runoff. Do not allow deleterious materials to enter waterways. Ensure emptied containers are sealed and stored safely for disposal.
- .8 The contractor shall take all necessary precautions to guard against the release of any noxious substance or pollutant to the environment. In the event of any spill the Contractor shall take immediate action to contain the release and mitigate any impact.
 - .1 Materials and equipment to intercept, contain, and clean-up any spill or other release shall be maintained on site throughout the construction period and must be readily accessible at



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all times.

- .2 Any uncontrolled release of a known contaminant (spills, fire/smoke) shall be reported to appropriate Territorial Authority and Coast Guard. Spills of deleterious substances to be immediately contained and cleaned up in accordance with territorial regulatory requirements.
- .3 Territorial Authority: Nunavut 24-Hour Spill Report Line 1-867-920-8130

3.7 Traffic

- .1 Minimize soil compaction by driving, parking vehicles, and walking, etc. on existing paved roadways/laneways. If soil is impacted by compaction, compensate by restoring areas with new soil, as required.
- .1 Avoid the use of heavy machinery in areas of sensitive slopes. Avoid using machinery on land during wet weather.



SECTION: 014500 QUALITY CONTROL

PART 1 - GENERAL

1.1 Inspection

- .1 Coast Guard or its representative shall have access to the work at all times. If parts of the work are prepared off-site or in a shop, access shall be given to such work throughout the duration of the project.
- .2 In the event the work must be submitted to special testing, inspection or approvals prescribed by Coast Guard in these specifications or provided for in work-site regulations, the request for inspection must be made without unreasonable delay.
- .3 The below list identifies key milestones where the Coast Guard will require an opportunity to take samples/inspect:
 - .1 Location verification: Coast Guard will confirm correct location for trenching of conduit, installation of antennas and termination of cable runs upon arrival of the Contractor to the site. The contractor shall be required to provide access to the site to CCG site staff at all times.

1.2 Procedures

- .1 Provide Coast Guard with advance notice whenever testing is required in accordance with these specifications, so that all parties involved can be present.
- .2 Provide necessary manpower and installations for obtaining and handling samples and material on site.
- .3 Provide access to site if the site is of remote nature whereby the contractor is responsible for providing access to the site

1.3 Rejected Work

- .1 Remove defective work, whether incorporated into the work or not, which has been rejected by Coast Guard as failing to comply with the contract documents. Replace or re-execute in accordance with the Contract Documents.

1.4 Factory Tests

- .1 Submit test certificates as prescribed in the relevant section of the specifications.



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1.5 Acceptance of Work

- .1 Coast Guard will make acceptance visits of work executed by the Contractor at critical milestones identified in the following sections.
- .2 The Contractor shall inform Coast Guard at least five [5] working days before these inspection visits.
- .3 All work shall be completed in compliance with the specifications before requesting the visit for inspection. If the work is not completed or deemed non-compliant, the Contractor shall be responsible for all costs incurred for subsequent inspections.



SECTION: 016100 COMMON PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 General

- .1 Secure Coast Guard approval of all products to be incorporated into the works. Work shall not commence until product data and/or samples have received Coast Guard approval.
- .2 Supply and/or fabricate material and equipment of prescribed quality, with performance conforming to established standards.
- .3 Use new material and equipment unless otherwise specified.
- .4 Ensure replacement parts may be readily procured.
- .5 Use products from one manufacturer for material and equipment of same type or classification, unless otherwise specified.

1.2 Manufacturer's Instructions

- .1 Unless otherwise specified, comply with manufacturer's latest printed instructions for materials and installation methods.
- .2 Notify Coast Guard in writing of any conflict between these specifications and manufacturer's instructions; Coast Guard will designate which document is to be followed.

1.3 Compliance

- .1 When material or equipment is specified by standard or performance specifications, upon request of Coast Guard, obtain an independent testing laboratory report from the manufacturer, stating that material or equipment meets or exceeds specified requirements.

1.4 Substitution

- .1 Where specific products have been specified, proposals for substitution may only be submitted after award of contract. Such requests must include statements of respective costs of items originally specified and the proposed substitution.
- .2 No substitutions will be permitted without prior written approval of Coast Guard. Substitutions will be considered by Coast Guard only when:
 - .1 Materials specified in Contract Documents, are not available or,
 - .2 Delivery date of materials selected from those materials specified would unduly delay completion of contract or,



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- .3 Alternative materials to those specified which are brought to the attention of and considered by Coast Guard as equivalent to the material specified will result in a credit to the Contract amount.
 - .3 Should the proposed substitution be accepted either in whole or in part, the Contractor must assume full responsibility and costs when such substitution affects other work on the project including any and all design or drawing changes required as a result of substitution.
- 1.5 Submittals
- .1 Provide product specifications and/or samples upon request from Coast Guard.



SECTION: 133613 RIGGING WORK

PART 1 - GENERAL

1.1 Scope of Work

- .1 Work under this section includes the supply of all labor, material and equipment required to complete the following:
 - .1 Retrieve from or deliver to Coast Guard all items to be supplied by or salvaged to Coast Guard.
 - .2 Replace 2 VHF antennas and install one UHF antenna;
 - .1 Salvage existing UHF antenna to CCG.
 - .3 Fabricate and install parts for the modification of one antenna mount as per drawings provided;
 - .4 Fabricate and install three [3] new antenna mounts as per drawings provided;
 - .5 Dispose of two [2] VHF antennas removed from the tower;
 - .6 Supply and install new Tx brackets and cable hangers;
 - .7 Supply and install new cable runs for all CCG antennas;
 - .1 1850 ft of LDF4-50A; and
 - .2 145 ft of RG-213.
 - .8 Supply and install 6" PVC pipe for cable protection; and
 - .9 Supply and install connectors for each end of new cables;
- .2 The following work will be undertaken by others and is hereby excluded:
 - .1 Coast Guard shall supply of two [2] VHF antennas for installation;
 - .2 Coast Guard shall supply of one UHF antenna for installation;
 - .3 In addition to that supplied by Contractor, Coast Guard shall supply the following amounts of cable;
 - .1 416 ft of LDF4-50A; and
 - .2 658 ft of LDF5-50A.



1.2 References

- .1 Canada Labour Code Part II – January 2008
- .2 National Building Code of Canada – 2015
- .3 Nunavut Occupational Health and Safety (OHS) Regulations, 2016
- .4 Nunavut Safety Act, 2016
- .5 CSA S37-13 - Antenna Towers and Antenna Supporting Structures
- .6 CAN/CSA S16.1 - Limit States Design of Steel Structures.
- .7 CAN/CSA G164 - Hot Dip Galvanizing of Irregularly Shaped Articles.
- .8 CSA Z259.2.4-15 – Fall Arresters and Vertical Rigid Rails

1.3 Submittals

- .1 Submittals shall be forwarded to Coast Guard in accordance with the provisions of section 013300.
- .2 Installation Plan
 - .1 Deadline:
 - .1 With Construction Plan
 - .2 Deliverables:
 - .1 Plan must clearly demonstrate procedures and methods to be employed to:
 - .1 Install new antennas and mounts;
 - .2 Remove existing cables and install replacement cables.
- .3 As-Built Drawings:
 - .1 Deadline:
 - .1 No later than twenty-eight [28] calendar days after project completion
 - .2 Deliverables:
 - .1 A complete set of as-built drawings detailing any and all amendments or revisions to the previously submitted design drawings or documentation indicating final works are as detailed in design drawings.



1.4 Quality Assurance

.1 Coast Guard's minimum inspection requirements are detailed below:

- .1 The Contractor shall be responsible to notify Coast Guard of the date and time that the works may be inspected.
 - .1 Notice must be provided no less than five [5] working days in advance to permit scheduling of quality assurance testing
 - .2 All deficiencies in the works identified at the time of inspection shall be remedied to the satisfaction of Coast Guard, by the Contractor at their expense.
 - .3 Work shall not progress until inspections have been completed and the Contractor has been provided with written notice to proceed with the works
- .2 Inspections shall take place during tower rigging work to confirm proper placement of mounts, antennas and cables.
- .3 Inspections shall take place upon completion of the work to ensure cables have been terminated to required location and that all equipment operates as expected.

PART 2 - PRODUCTS

2.1 Materials

.1 Bolts, nuts & washers:

- .1 As specified in Mount Installation/Retrofit drawings provided in Appendix E.

2.2 TX Brackets

.1 TX brackets shall be provided by Contractor and shall have enough capacity to accommodate the cable runs shown in the Mount Installation/Retrofit drawings included in Appendix E.

2.3 Transmission Lines

.1 Cable types and lengths required can be found in Appendix D: Antenna and Cable Schedule.

2.4 Cable Hangers

.1 Cable hangers shall be provided by Contractor and must include hangers for all cable runs shown in the Mount Installation/Retrofit drawings included in Appendix E.

2.5 Connectors

.1 All new CCG cables shall be fitted with N-Type connectors at both ends.



- .1 A male N-Type connector shall be fitted to the antenna end; and
- .2 A female N-Type connector shall be fitted to the shelter end.

2.6 PVC Pipe

- .1 PVC pipe will be used to protect the cable from damage.
- .2 For bidding purposed, assume that 50% of the existing PVC pipe can be reused, therefore:
 - .1 366 m (1200 ft) of new PVC pipe shall be provided by Contractor.
- .3 PVC pipe for this portion of the work shall be 6" in diameter.
- .4 Drain holes must be drilled into one side of the pipe to ensure water can escape.
 - .1 See pictures provided in Appendix A for example.

PART 3 - EXECUTION

3.1 Fabrication

- .1 Fabrication will be completed by the Contractor and includes all items shown on the Mount Installation/Retrofit drawing package provided in Appendix E.

3.2 Installation

- .1 Install all antennas and mounts as per Mount Installation/Retrofit drawing package provided in Appendix E.

3.3 Antennas

- .1 Care shall be taken to ensure that no damage is done to any antenna or mounting hardware during removal, storage and handling of any antenna.

3.4 Transmission Lines

- .1 All cabling shall be mounted to mounting plates supplied and installed by Contractor. Cabling shall be supported at intervals and with materials as recommended by manufacturer. Support intervals must also meet CSA S37-13 requirements. The cables are to be supported by proper hoisting grips during installation and attached to the tower using clips designed to remove tension from the cables.
 - .1 The use of wrap lock/tie wrap devices to secure TX lines or cables is not acceptable.
- .2 All lines shall be mounted on the outside of the tower.
- .3 Antennas shall be mounted to the tower leg at the azimuth indicated in Appendix C.



.4 Transmission lines shall be routed through PVC pipe, for protection. Contractor shall provide any materials required to weather proof cable entry.

.1 Contractor must terminate all antenna cables inside shelter to length determined by Coast Guard.

.5 The cables are to be terminated at the upper end with connectors appropriate for that cable.

.6 The free ends will extend into the equipment buildings/racks and will be terminated by the contractor at a location to be determined by Coast Guard at the time of installation.

.7 Cable and connector types are specified in Appendix D.

.8 Every effort shall be made to ensure that the external connections are made waterproof using the best commercial practice.

3.5 PVC Pipe

.1 The property consists of largely uneven terrain and a significant amount of rock is present at the surface. PVC pipe shall be installed such that the shortest reasonable path between the shelter and any tower is used. Connections between sections of conduit shall be attached so as to prevent separation when installed on uneven ground.



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APPENDIX A: SITE LOCATIONS AND PHOTOGRAPHS



Figure 1: City Overview, Iqaluit, NU
Note location of project site and staging location



Figure 2: Project Site – Iqaluit MCTS Rx site
63°46'9.73"N, 68°31'48.73"W



Figure 3: Staging Location - Iqaluit MCTS Centre
1063 Niuraivik Lane
Iqaluit, NU X0A 0H0



Figure 4: Existing conduit installed on site



Figure 5: Existing conduit, note drain holes



APPENDIX B: SUMMARY OF SUBMITTALS

Following Contract Award

Deadline	Submission Description	Reference Section(s)
10 working days following award	Detailed schedule	011100 – 1.3.2
	Proof of Qualifications	011100 – 1.3.3
10 working days prior to mobilization	Construction Plan	
	a) Project Specific Safety Program	013530 – 1.3.2
	b) Project Environmental Protection Plan	013543 – 1.3.2
	c) Installation Plan	133613 – 1.3.2
28 calendar days after construction	As-built and QA/QC documents	011100 – 1.3.5
		133613 – 1.3.3
Upon request of Coast Guard	Completed Field Level Hazard Assessment (FLHA) forms	013530 – 1.3.3
	Product specifications and/or samples	016100 – 1.5
	Copies of certified receipts from the disposal sites	024116 – 1.3.4



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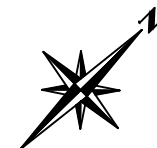
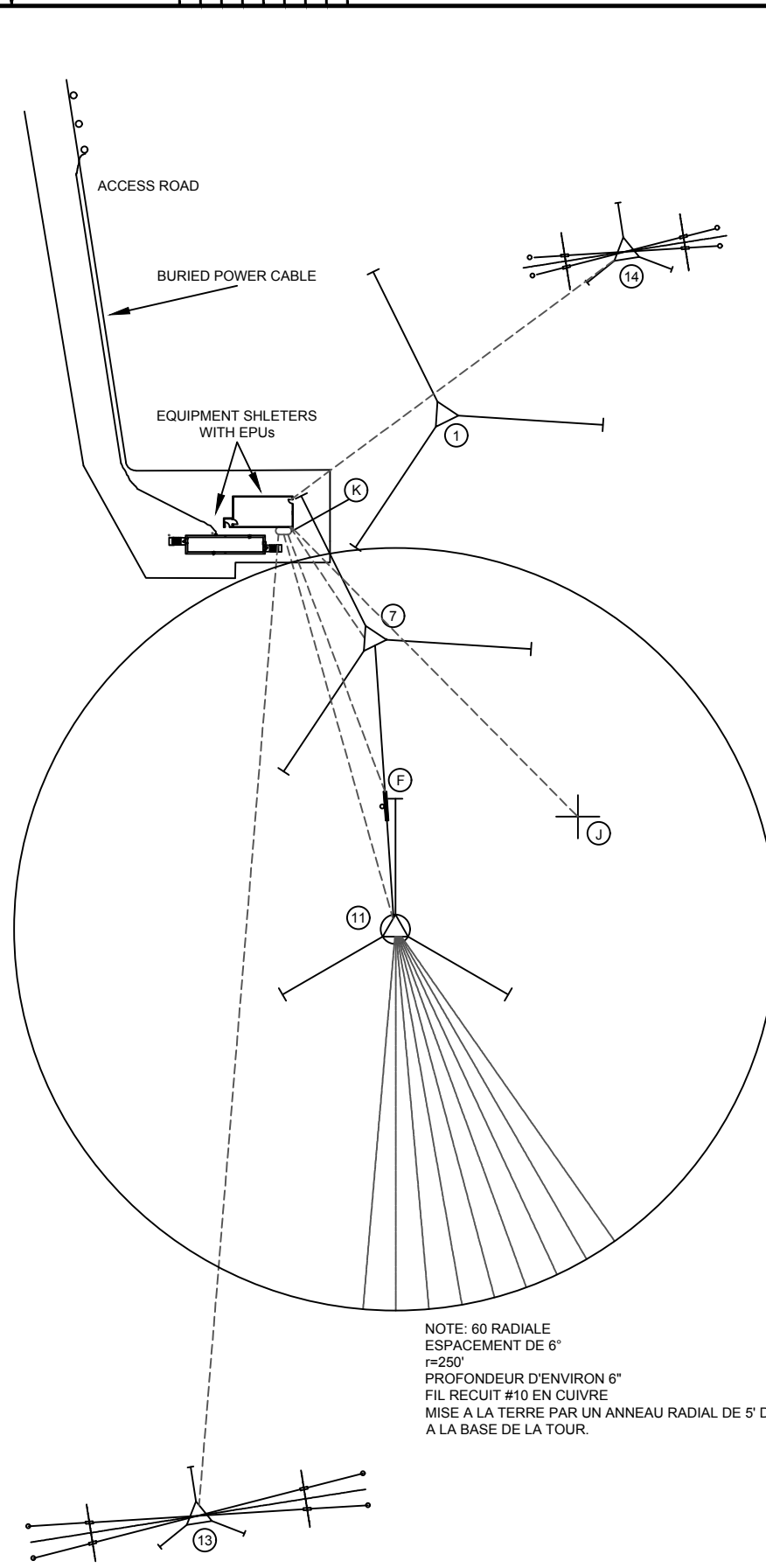
APPENDIX C: SITE PLANS



Key Map for Iqaluit - Site coordinates: 63°46'9.73"N, 68°31'48.73"W

TOWER	HEIGHT	TYPE	FACE WIDTH	MANUFACTURER	OBSTRUCTION LIGHTING
1	110'	GUYED - ALL WELD	30'	ALLAN PIPE FAB	DDLs
7	140'	GUYED - ALL WELD	24'	ADVANCED TOWER	DDLs
11	110'	GUYED - ALL WELD	24'	ADVANCED TOWER	N/A
13	30'	GUYED - ALL WELD	24'	ALLAN PIPE FAB	N/A
14	30'	GUYED - ALL WELD	24'	ALLAN PIPE FAB	N/A

ANTENNA	HOST TOWER	TYPE	OWNER	MANUFACTURER	AZIMUTH	HEIGHT	DESCRIPTION	POLARITY	FREQUENCY	CABLE	LENGTH
A	7	210A4	CCG	SINCLAIR	120°	100'	VHF	VERT.	16, 26	LDF4-50A	295'
B	7	210A4	CCG	SINCLAIR	120°	80'	VHF	VERT.	VOIE 12, 19, 26	LDF4-50A	265'
C	13	TWA	CCG		99°	30'	TRAVELNF WAVE ANT.		4083 4195.6 6298 6206	LDF4-50A	607'
D	14	TWA	CCG		99°	30'	TRVAELINE WAVE ANT.		8228 8360 12474 12230	LDF4-50A	530'
E	1	BVR	CCG	CCG	DMNI	110'	BROADBAND VERT. RADIATOR	VERT.	2182 MAIN 2206 B/U	LDF4-50A	432'
F	7, 11	CFT	CCG		188°	105'	CENTER FEED 'T'		500R VAR.R 2182 R	RG218	288'
H	7	210A2	CCG		190°	9'	TEST ANTENNA VHF	VERT.	172.44	LDF4-50A	135'
I	7	224	NUNAVUT GOVERNMENT	SINCLAIR	120° 120° 80° 240°	140'	EMD ANTENNA	VERT.	148.685	LDF4-50A	265'
J	N/A	625L	CCG	TCI		12'	HF DSC RECEIVING VERTICAL LOOP	VERT.	4207-16804	RG218	445'
K	OLD RX BUILDING	DISH	NAV CANADA	TIL-TEK TA-2424R			LINK ANT.		2.4 GHz		
L	OLD RX BUILDING	UHF COMPROD 426-70	CCG	Yagi	175°	10'	LINK ANT.			LDF4-50A	165'



Vendor / Sous-traitant

NOTES:
1. TRANSMISSION LINES IDENTIFIED AS DASHED LINES.

rev	description	by	date
U	GENERAL REVISION	LL	2018-06-15
T	GENERAL REVISION	SK	2010-02-24
S	REM ANT G, MOVED TOWER 7	SK	2005-03-16
R	GENERAL REVISION	SK	2003-09-19

Asset - Actif
IQUALUIT RX SITE

Drawing - Dessin
SITE PLAN ANTENNA LAYOUT

drawn - dessiné	date
C.H.S	1971-01-05
designed - conception	date
checked - vérifié	date
approved - approuvé	date

CCG ref. no. - no. réf. GCC	scale - échelle
EWT 8055-526	N.T.S
drawing no. - no. dessin	sheet-feuille
CM181-001-AL	01/01
	rev
	U



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Garde côtière
canadienne



APPENDIX D: ANTENNA AND CABLE SCHEDULE



SCHEDULE - ANTENNA AND TRANSMISSION LINES									
ELEMENT / ANTENNA	OWNER	Host Tower	DESCRIPTION	ELEVATION	CONNECTOR	Cable Type	Cable Length Required (ft)	SERVICE REQUIRED	Materials Source
OBSTRUCTION LIGHTING	CCG	7	DOLS	43 m (141 ft)	N/A	Teck	N/A	Hang existing cable in new cable hangers.	Contractor: Cable hangers, TX brackets, Cable
A	CCG	7	Sinclair 210A4	37.8 m (124 ft)	Type N	LDF5-50A	245	Remove and dispose of existing antenna and mount; Remove and dispose of existing cable from tower; Install new antenna mount as per drawings provided; Install new cable on tower in new cable hangers; Install new connectors on new cable; Install new antenna on tower.	Contractor: Antenna, Cable Connectors, Antenna mount Cable hangers TX brackets
B	CCG	7	Sinclair 210A4	27.7 m (90.9 ft)	Type N	LDF5-50A	215	See Antenna A	See Antenna A
C	CCG	13	TRAVELNF WAVE ANT.	9.1 m (30 ft)	Type N	LDF4-50A	557	Replace existing cable with new cable; Install new connectors on new cable; Dispose of existing cable.	Contractor: Cable, Connectors
D	CCG	14	TRAVELNF WAVE ANT.	9.1 m (30 ft)	Type N	LDF4-50A	480	See Antenna C	Contractor: Cable, Connectors
E	CCG	1	Broadband Vertical Radiator	33.5 m (110 ft)	Type N	LDF4-50A	382	See Antenna C	Contractor: Cable, Connectors
F	CCG	7, 11	Center Feed "T"	32 m (105 ft)	Type N	LDF4-50A	238	See Antenna C	CCG: Cable
H	CCG	7	Sinclair 210A2	2.7 m (9 ft)	Type N	RG-213	145	Remove and dispose of existing cable from tower; Install new cable on tower in new cable hangers; Install new connectors on new cable.	Contractor: Connectors Cable, Connectors, Cable hangers, TX brackets
I	NUNAVUT GOVERNMENT	7	Sinclair 224	43 m (141 ft)	N/A	LDF4-50A	267	Modify existing mount as per drawings provided; Hang existing cable in new cable hangers.	Contractor: Cable hangers, TX brackets
J	CCG	N/A	HF DSC Receiving Vertical Loop	3.7 m (12 ft)	Type N	LDF4-50A	395	Replace existing cable with new cable; Install new connectors on new cable; Remove and dispose of existing cable and 2 additional abandoned runs.	Contractor: Cable, Connectors
L	CCG	7	Yagi 425-70	12.2 m (40 ft)	Type N	LDF4-50A	175	Install new antenna mount as per drawings provided; Install new cable on tower in new cable hangers; Install new connectors on new cable; Install new antenna on tower.	See Antenna A

Cable Lengths to be supplied (ft)		
Type	By CCG	By Contractor
LDF4-50A	416	1850
LDF5-50A	658	0
RG-213	0	145



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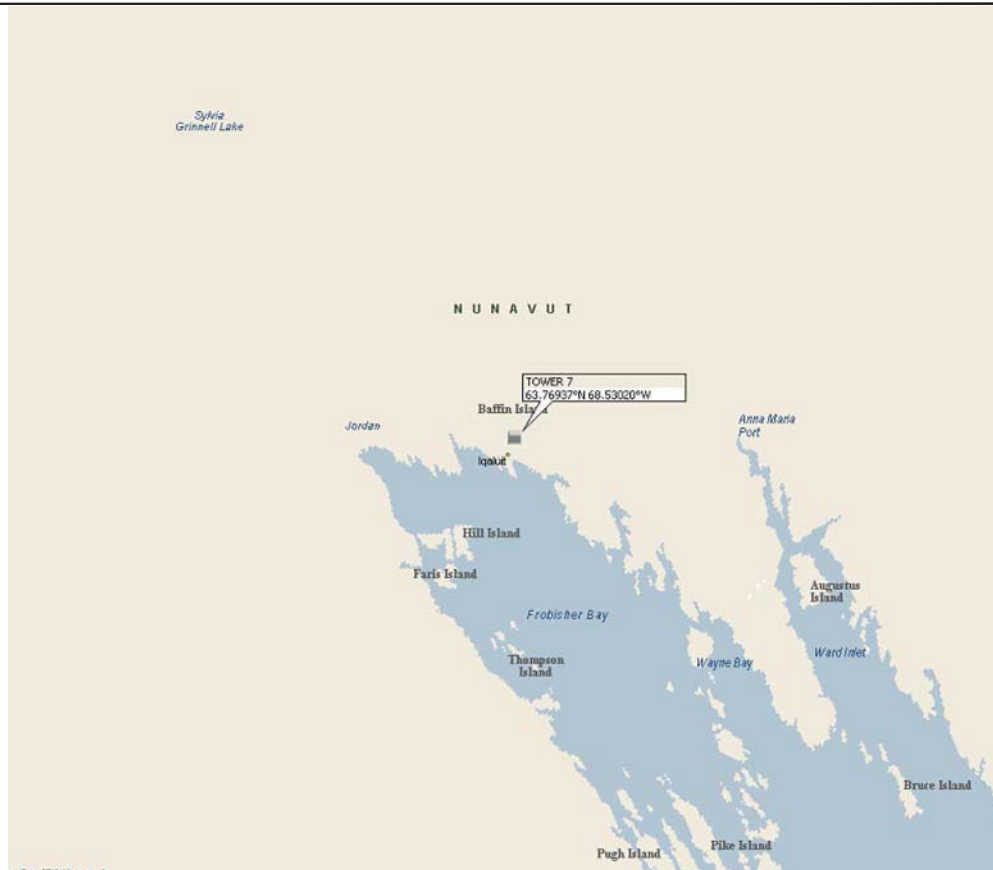
APPENDIX E: DRAWINGS



MOUNT INSTALLATION/RETROFIT

SITE NAME: TOWER 7
SITE NUMBER: N/A
PROJECT: N/A

VICINITY MAP



CODE COMPLIANCE

SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE CANADIAN, PROVINCIAL AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

BUILDING CODE:
 PROVINCE BUILDING CODE

ELECTRICAL CODE:
 CANADIAN ELECTRICAL CODE (LATEST EDITION)
 NATIONAL FIRE CODE (NFC) (LATEST EDITION)

SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:
 CSA S37-13 ANTENNAS, TOWER, AND ANTENNA-SUPPORTING STRUCTURES. CONCRETE MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM TO REQUIREMENTS OF CSA A23.1. TESTING METHODS SHALL CONFORM TO CSA A23.2.
 ALL STEEL FABRICATION AND INSTALLATION SHALL BE IN ACCORDANCE WITH CSA STANDARDS S37-13, AND S16.1 (LATEST EDITION).
 LAPS, ANCHORAGES AND SPLICES SHALL COMPLY WITH THE REQUIREMENTS OF CSA A23.3.
 ALL STEEL SHALL CONFORM TO CSA G40.21 UNLESS NOTED OTHERWISE.

TOWER INFORMATION

PROPERTY INFORMATION:
 SITE TYPE: 42.67m GUYED TOWER

APPROXIMATE LOCATION:
 LATITUDE: 63° 46' 9.73"
 LONGITUDE: -68° 31' 48.73"

RELEVANT SA:
 P-SEC #16403 R01 DATED JULY 21, 2017

RELEVANT AUDIT:
 MAINTENANCE INSPECTION REPORT
 OCTOBER 11, 2016 (15732)

RELEVANT WORK ORDER:
 STRUCTURAL ANALYSIS SCOPE OF WORK
 DATED JULY 06, 2017
 EWT 8055-253/526 RX SITE (TOWER 7)

SHEET INDEX

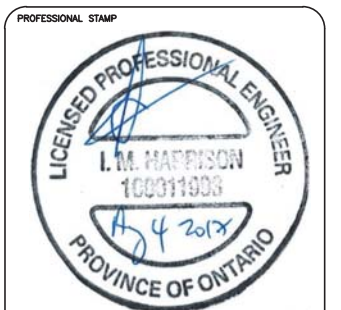
SHEET	REV	DESCRIPTION
T-1	0	TITLE PAGE
G-1	0	GENERAL NOTES
A-1	0	TOWER PROFILE
A-2	0	Tx LAYOUT
A-3	0	ANTENNA MOUNT RETROFIT
A-4	0	ANTENNA MOUNT REPLACEMENT
A-5	0	ANTENNA MOUNT REPLACEMENT
A-6	0	ANTENNA INSTALLATION
F-1	0	PARTS
F-2	0	PARTS

CLIENTS



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 55 NORTHFIELD DR. E.
 SUITE 198
 WATERLOO, ON
 N2K 3T6

PROJECT NUMBER
 16403



IAIN M. HARRISON P.ENG No.: 100011993
 P-SEC CoA No.: 100099550

No.	Description	Date
0	ISSUED FOR CONSTRUCTION	08.04.17

THE INFORMATION CONTAINED IN THIS SET OF DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO THE CLIENT NAMED IS STRICTLY PROHIBITED.

CLIENT NUMBER
 TOWER 7

SITE ADDRESS
 IQALUIT, NUNAVUT

SITE DESIGN
 MOUNT
 INSTALLATION/RETROFIT

SHEET TITLE
 TITLE PAGE

DRAWN BY JWG	SHEET T-1
CHECKED BY DDS	
APPROVED BY IMH	

GENERAL

1. THE GENERAL STRUCTURAL NOTES ARE INTENDED TO AUGMENT THE DRAWINGS AND SPECIFICATIONS. SHOULD CONFLICTS EXIST BETWEEN THE DRAWINGS, SPECIFICATIONS AND/OR THE GENERAL STRUCTURAL NOTES, THE STRICTEST PROVISION SHALL GOVERN.
2. THE STRUCTURE IS DESIGNED TO BE STABLE AFTER THE CONSTRUCTION IS FULLY COMPLETED. THE CREW MUST FOLLOW APPROVED ERECTION PROCEDURES IN ORDER TO ENSURE THE SAFETY OF THE CONSTRUCTION AND ITS PARTS DURING ERECTION.
3. ALL CONSTRUCTION SHALL COMPLY FULLY WITH THE APPLICABLE PROVISIONS OF THE CANADA LABOUR CODE, AND ALL LOCAL GOVERNING CODES. ALL REQUIREMENTS SPECIFIED IN THE CODES SHALL BE ADHERED TO AS IF THEY WERE CALLED FOR OR SHOWN ON THE DRAWINGS.
4. ALL WORK CONSTRUCTED ACCORDING TO THESE DRAWINGS SHALL BE CHECKED AND VERIFIED BY QUALITY ASSURANCE AS DETERMINED BY THE ENGINEER.
5. WHERE STANDARDS ARE IDENTIFIED WITHOUT A RELEASE DATE IN THESE GENERAL NOTES, THE MOST RECENT VERSION SHALL APPLY.

DESIGN LOADS

1. WIND AND ICE LOADS AS PER CSA S37-13. REFERENCE WIND PRESSURE: 633Pa (50 YEAR RECURRENCE - SITE SPECIFIC WIND). 489Pa (10 YEAR RECURRENCE - SITE SPECIFIC WIND).
2. RADIAL ICE: 10mm (CSA S37-13 TABLE E.1)

FOUNDATIONS

1. THE FOUNDATION DESIGN IS BASED ON LOADS SHOWN ON THE DESIGN PROFILE.
2. A SOIL REPORT IS TO BE COMMISSIONED WHEN THE TOWER LOCATION IS DETERMINED. THE PRELIMINARY FOUNDATION DESIGNS ARE TO BE REVISED ACCORDING TO THE PARAMETERS GIVEN IN THE SOIL REPORT.
3. WHERE SITE CONDITIONS DIFFER FROM THESE DRAWINGS, CONSULT THE ENGINEER ON RECORD.
4. A QUALIFIED FOREMAN OR SUPERVISOR SHALL PERFORM A SITE INSPECTION OF THE FOUNDATION INSTALLATION TO INSURE COMPLIANCE WITH THE PLANS.
5. CHECK AREA FOR LOCATION OF UNDERGROUND PIPES, CABLES, CONDUITS, ETC., PRIOR TO EXCAVATION.
6. ALL WORK SHALL BE DONE IN ACCORDANCE WITH LOCAL CODES AND SAFETY REGULATIONS. PROCEDURES FOR PROTECTION OF EXISTING EXCAVATIONS, CONSTRUCTION AND UTILITIES SHALL BE ESTABLISHED PRIOR TO COMMENCEMENT OF FOUNDATION WORK.
7. BRACING, SHORING, AND SLOPING OF EXCAVATIONS SHALL BE DONE IN ACCORDANCE WITH ALL LOCAL AND FEDERAL CODES AND SAFETY REGULATIONS.
8. WELDING OF REINFORCING STEEL AND EMBEDMENTS IS PROHIBITED UNLESS NOTED OTHERWISE ON DRAWINGS.
9. CONCRETE COVERAGE OVER ALL STEEL SHALL CONFORM TO CSA A23.1, APPLICABLE BUILDING CODE MINIMUM REQUIREMENTS, AND AS SHOWN IN STRUCTURAL DETAILS. THE MINIMUM CONCRETE COVER OVER REBAR SHALL BE 75mm (3").
10. INSPECT BOTTOM OF EXCAVATING PRIOR TO PLACING STEEL CAGE AND CONCRETE TO ENSURE NO SIGNIFICANT AMOUNT OF LOOSE SOIL OR FOREIGN MATERIALS REMAINS. BEARING SURFACES TO BE PLACED ON UNDISTURBED SOIL OR ROCK.
11. SPACING DEVICES SHALL BE USED AS REQUIRED TO MAINTAIN SIDE CLEARANCE BETWEEN THE STEEL REINFORCEMENT AND EXCAVATION WALL.
12. CONCRETE SHALL BE PLACED IN THE EXCAVATION WITHOUT UNDUE DELAY, WITH THE USE OF A CHUTE OR HOPPER DEVICE TO DIRECT THE CONCRETE TO FALL WITHIN THE CENTER OF THE STEEL CAGE. CONCRETE SLUMP SHALL NOT BE LESS THAN 20mm (3/4") NOR MORE THAN 80mm (3-1/4"). CONCRETE SHALL NOT BE ALLOWED TO HIT THE STEEL CAGE, WHICH COULD CAUSE SEGREGATION OF THE MATERIAL.
13. BACK FILL SHALL BE PLACED IN 225-300mm (9-12") HORIZONTAL LIFTS AND COMPACTED TO A MINIMUM 95% OF STANDARD PROCTOR DRY DENSITY. THE FILL MATERIAL SHALL BE FREE FROM LARGE ROCKS, WASTE, AND DEBRIS AND SHALL BE PLACED AT OR NEAR THE OPTIMUM MOISTURE CONTENT. ALSO REFER TO THE SOIL REPORT FOR RECOMMENDED BACKFILL/COMPACTED FILL PROCEDURES.
14. CONCRETE MIXED ON SITE IS NOT PERMITTED UNLESS APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.

ROCK ANCHORS

1. ROCK ANCHORS SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. ALL LOOSE AND WEATHERED ROCK IS TO BE REMOVED BEFORE INSTALLATION.
2. THE ANCHORS SHALL BE SECURELY FASTENED IN PLACE TO PREVENT MOVEMENT DURING GROUTING. GROUTING OPERATIONS SHALL BE IN ACCORDANCE WITH PCA RECOMMENDED PRACTICE, AND ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER.
3. ALL EXPOSED STEEL ITEMS FOR ANCHORAGES, INCLUDING ANCHOR BOLTS, SHALL BE ZINC-COATED IN ACCORDANCE WITH CLAUSE 7.2 OF CSA S37-13, OR OTHERWISE SUITABLY PROTECTED. WHERE ANCHORAGE STEEL IS PARTIALLY EMBEDDED IN CONCRETE THE ZINC COATING SHALL EXTEND A MINIMUM OF 50mm (2") INTO THE CONCRETE.
4. ANCHORAGE STEEL BELOW GRADE THAT IS NOT ENCASED IN CONCRETE SHALL BE GALVANIZED, AND FURTHER CORROSION PROTECTION SHALL BE PROVIDED.

CAST-IN-PLACE CONCRETE

1. CONCRETE MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM TO REQUIREMENTS OF CSA A23.1. TESTING METHODS SHALL CONFORM TO CSA A23.2.
2. ALL CONCRETE SHALL HAVE A MINIMUM SPECIFIED 28-DAY COMPRESSIVE STRENGTH OF 30MPa, UNLESS NOTED OTHERWISE.
3. ALL REINFORCING STEEL BARS SHALL CONFORM TO CSA G30.18, AND HAVE A YIELD STRENGTH OF 400MPa, UNLESS NOTED OTHERWISE.
4. LAPS, ANCHORAGES AND SPLICES SHALL COMPLY WITH THE REQUIREMENTS OF CSA A23.3.
5. CONCRETE SHALL BE PLACED WITHIN 3 HOURS OF MIXING.

STRUCTURAL STEEL

1. ALL STEEL FABRICATION AND INSTALLATION SHALL BE IN ACCORDANCE WITH CSA S37-13, AND S16.1 (LATEST EDITION).
2. ALL WELDING SHALL BE DONE IN ACCORDANCE WITH CSA STANDARD W59. ALL WELDING TO BE COMPLETED IN A CWB REGISTERED SHOP. FIELD WELDING IS NOT PERMITTED UNLESS APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION. ALL WELDING TO BE COMPLETED BY CERTIFIED AWS/CWB WELDER AND THEN INSPECTED BY CERTIFIED AWS/CWB WELDING INSPECTOR.
3. BASE MATERIAL SHALL BE CORRECTLY PREHEATED BEFORE WELDING AND POST HEATED AFTER WELDING IN ACCORDANCE WITH THE ENGINEERED WELDING PROCEDURE, WHICH MUST BE APPROVED BY THE CWB.
4. ALL STEEL SOLID ROUND LEGS SHALL CONFORM TO CSA G40.21 GRADE 350W STEEL SPECIFICATION.
5. ALL STEEL ANGLE, PLATE AND MISCELLANEOUS MEMBERS SHALL CONFORM TO CSA G40.21 GRADE 300W STEEL SPECIFICATION.
6. ALL STEEL CHANNEL MEMBERS SHALL CONFORM CSA G40.21 GRADE 300 STEEL SPECIFICATION
7. THE FINISHED DIAMETER OF BOLT HOLES SHALL NOT BE MORE THAN 2mm (1/16") LARGER THAN THE NOMINAL BOLT DIAMETER UNLESS OTHERWISE NOTED.
8. MATERIAL MAY BE CUT BY SHEARING, SAWING, OR CUTTING WITH A ROUTER OR GAS CUT. MATERIAL GREATER THAN 51mm (2") THICKNESS SHALL NOT BE SHEARED.
9. CUT EDGES SHALL BE TRUE AND SMOOTH, AND FREE FROM EXCESSIVE BURRS AND RAGGED BREAKS. SHEARED EDGES OF THICK PLATES SHALL BE PLANED TO A DEPTH OF 6mm (1/4") RE-ENTRANT CUTS SHALL BE AVOIDED. IF USED, THEY SHALL BE FILLETED BY DRILLING PRIOR TO CUTTING.
10. TOLERANCES AS INDICATED IN CSA STANDARD S16.1 SHALL BE CAREFULLY FOLLOWED DURING FABRICATION.
11. PRIOR TO GALVANIZING ALL FABRICATED STEEL SHALL BE THOROUGHLY SHOP INSPECTED AND QUANTITIES COUNTED.
12. ALL BOLTS, WASHERS AND NUTS SHALL CONFORM TO ASTM A325 TYPE N, 5/8"Ø UNLESS NOTED OTHERWISE.
13. BOLTS SHALL BE TIGHTENED USING THE TURN-OF-THE-NUT METHOD AS DESCRIBED IN CSA STANDARD S16.1, UNLESS NOTED OTHERWISE.
14. ALL EXPOSED STEEL AND HARDWARE SHALL BE HOT DIPPED GALVANIZED PER CSA STANDARD G164, AFTER FABRICATION, UNLESS NOTED OTHERWISE.
15. WHEN TOWER REINFORCEMENT IS REQUIRED ON A PAINTED TOWER THE REINFORCEMENT MATERIAL SHALL BE PAINTED IN ACCORDANCE WITH THE REQUIREMENTS OF TRANSPORT CANADA STANDARD 621 OBSTRUCTION MARKING AND LIGHTING. WHITE PAINT SHALL CONFORM WITH UNITED STATES FEDERAL STANDARD FED-STD-595B, PAINT NUMBER 17875. ORANGE PAINT SHALL CONFORM WITH UNITED STATES FEDERAL STANDARD FED-STD-595B, PAINT NUMBER 12197.

GUY WIRES

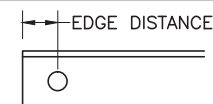
1. ALL GUY WIRES SHALL BE GRADE 180, AND IN ACCORDANCE WITH CSA STANDARD G12, USING HOT ZINC COATED WIRE. GUY HARDWARE ASSEMBLIES SHALL BE RATED TO 100% OF THE GUY BREAKING STRENGTH OR HIGHER, UNLESS OTHERWISE NOTED.
2. GROUNDING OF THE GUYS AT ANCHORS SHALL MEET THE MINIMUM REQUIREMENTS OF CSA STANDARD S37-13.

FIELD ERECTION

1. THE CREW SHOULD COMPLY WITH ALL INSTALLATION PROCEDURES. SAFEGUARDS AND MEANS AND METHODS OF CONSTRUCTION. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF OHSA AND THE CANADIAN LABOUR CODE, (LATEST EDITION)
2. ERECTION METHODS AND TOLERANCES SHALL COMPLY WITH CSA STANDARD S37-13. MINIMUM RECOMMENDED WEATHER CONDITIONS THAT SHOULD BE OBSERVED TO ENSURE A SAFE WORKING CONDITION SHALL BE: WIND SPEED NOT TO EXCEED 30 KM/H, AND NO THUNDERSTORMS FORECASTED.
3. ALL PRECAUTIONS AND EFFORTS SHALL BE TAKEN TO ENSURE TOWER STABILITY DURING ERECTION.
4. TEMPORARY GUYS, IF REQUIRED BY INSTALLATION PROCEDURE, SHALL BE REMOVED AFTER THE NEXT PERMANENT GUY WIRE HAS BEEN INSTALLED BEFORE CONTINUING TOWER ERECTION. ALL BOLTS SHALL BE INSTALLED AND TIGHTENED AS ERECTION PROGRESSES ABOVE PERMANENT GUYS.
5. TOWER SHALL BE PLUMBED AND RE-TENSIONED IN CALM WEATHER. INITIAL TENSION VALUES SHOWN ON PLANS ARE FOR NORMAL TEMPERATURES FOR THE SITE.
6. INSTALLATION OF THE TRANSMISSION LINES SHALL BE AS SHOWN ON THE LAYOUT DRAWINGS AND IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS AND INSTALLATION INSTRUCTIONS.
7. ANY STRUCTURAL MEMBERS THAT HAVE DAMAGED GALVANIZED SURFACES SHALL BE CLEANED AND TOUCHED UP WITH THREE COATS OF ZINC-RICH PAINT, ACCORDING TO CSA STANDARD G189.
8. UPON COMPLETION OF ALL WORK, THE SITE SHALL BE CLEANED OF ALL DEBRIS AS REQUIRED. ANY SURPLUS MATERIALS NOT REMOVED FROM THE SITE SHALL BE NEATLY STORED IN AN AREA DESIGNATED BY THE OWNER'S REPRESENTATIVE.

MAINTAIN MINIMUM EDGE DISTANCES UNLESS NOTED OTHERWISE:

- 22mm FOR 1/2" HARDWARE
- 28mm FOR 5/8" HARDWARE
- 32mm FOR 3/4" HARDWARE
- 38mm FOR 7/8" HARDWARE
- 44mm FOR 1" HARDWARE



CLIENTS



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 SUITE 198
 WATERLOO, ON
 N2K 3T6

PROJECT NUMBER
16403

PROFESSIONAL STAMP

 IAIN M. HARRISON P.ENG No.: 100011993
 P-SEC CoA No.: 100099550

REVISIONS		
No.	Description	Date
0	ISSUED FOR CONSTRUCTION	08.04.17

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CLIENT NUMBER
TOWER 7

SITE ADDRESS
IQALUIT, NUNAVUT

SITE DESIGN
**MOUNT
 INSTALLATION/RETROFIT**

SHEET TITLE
GENERAL NOTES

DRAWN BY JWG	SHEET G-1
CHECKED BY DDS	
APPROVED BY IMH	

DESIGN SPECIFICATION: CSA-S37-13
 WIND PRESSURE: 633 Pa (50 YEAR), 489 Pa (10 YEAR)
 RADIAL ICE: 10mm
 IMPORTANCE FACTOR: 1.00
 SERVICEABILITY FACTOR: 1.00

Single	0.305		
X	0.610	A	
Single	0.305		
SR 51			
SR 19			
DIAGONALS (44W)			
HORIZONTALS			
PANEL TYPE			
PANEL HEIGHT (m)			
LEGS (44W)			

- EL. = 42.67m
- EL. = 39.62m
- EL. = 36.58m
- EL. = 33.53m
- EL. = 30.48m
- EL. = 27.43m
- EL. = 24.38m
- EL. = 21.34m
- EL. = 18.29m
- EL. = 15.24m
- EL. = 12.19m
- EL. = 9.14m
- EL. = 6.10m
- EL. = 3.05m
- EL. = 0.00m

TOWER PROFILE

MAXIMUM BASE REACTIONS (FACTORED AS PER CSA-S37-13)
 DOWNLOAD (KN): 192.5
 SHEAR (KN): 10.1
 TORSION (KNm): -3.0

SCOPE OF WORK (SOW):

- A. MODIFY EXISTING MOUNT FOR EL. 43.0m EMO ANTENNA AT TOP OF TOWER. SEE DWG A-3.
- B. REPLACE EXISTING MOUNT FOR SRL 210-C4 ANTENNA AT 37.8m. SEE DWG A-4.
- C. REPLACE EXISTING MOUNT FOR SRL 210-C4 ANTENNA AT 27.7m. SEE DWG A-5.
- D. INSTALL NEW MOUNT AND PROPOSED YAGI 425-70 ANTENNA AT 12.2m. SEE DWG A-6.

MEMBER LEGEND

- A SR 19 (44W)
- B TR-PL3x0.25+SR3/4 (44W)
- C L76x76x6 (44W)

LONG WIRE ANTENNA SPANNING BETWEEN TOWERS 7 AND 11

3-B5 11/16 IT = 25.80 kN

3-B5 11/16 IT = 25.80 kN

ANCHOR REACTIONS

ANCHOR #	AZIMUTH (deg)	RADIUS (m)	ELEVATION (m)	HORIZ LOAD (kN)	VERT LOAD (kN)	AXIAL LOAD (kN)	ANGLE (deg)
A1	90	28.96	0.00	28.60	21.03	35.50	36.33
B1	210	28.96	0.00	27.42	20.16	34.04	36.33
C1	330	28.96	0.00	28.46	20.92	35.32	36.33
A2	90	32.00	0.00	27.29	36.52	45.59	53.24
B2	210	32.00	0.00	27.08	36.25	45.25	53.24
C2	330	32.00	0.00	27.31	36.55	45.63	53.24

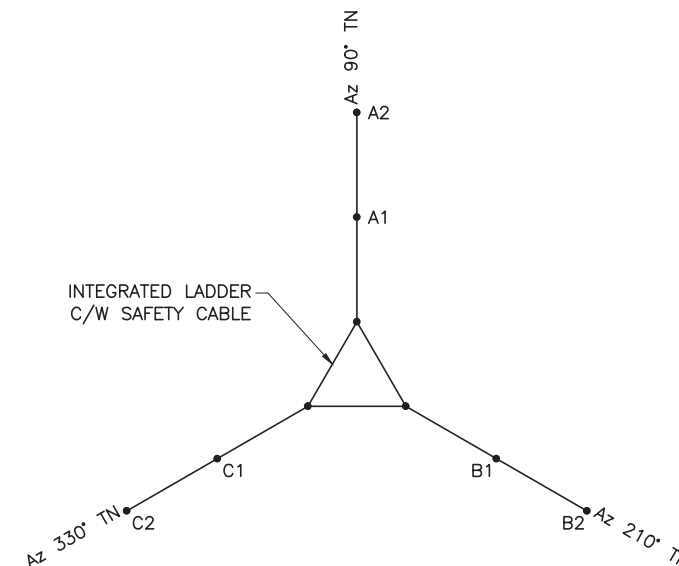
APPURTENANCE INFORMATION:

Height		Appurtenance *						TX Line		Status ***	Owner
ft	m	Qty	Description / Type	Equipment	Location	Mount	Azimuth ° **	Qty	Type		
141.0	43.0	1	EMO Antenna	—	Centre	Pipe Mt.	120, 120, 80, 240	1	LDF4-50A	EX	Nu. Gov.
141.0	43.0	1	DOL	—	B	Leg Mt.	None OMNI	1	Teck	EX	CCG
124.0	37.8	1	<<Sindair>> SRL 210-C4	—	B	—	120	1	LDF5-50A	EX	CCG
90.9	27.7	1	<<Sindair>> SRL 210-C4	—	B	—	120	1	LDF5-50A	EX	CCG
40.0	12.2	1	Yagi 425-70	—	B	—	175	1	LDF4-50A	PR	CCG
9.0	2.7	1	<<Sindair>> SRL 110.2	—	C	—	190	1	3/8" Cable	EX	CCG

* Leg A is denoted as the leg closest to True North in a clockwise direction (which was 90° TN)
 ** The azimuths are ±10° and have been adjusted based on True North and the magnetic declination
 *** Existing (EX), Future (FU), Imminent Future (IMF), or Proposed (PR)

NOTES:

- CONTRACTOR IS RESPONSIBLE TO MAKE PROVISIONS TO SUPPORT OR WORK AROUND EXISTING ANTENNAS, TRANSMISSION LINES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL MEASUREMENTS AT THE SITE BEFORE PROCEEDING WITH FABRICATION AND INSTALLATION OF ANY MATERIALS. ANY DISCREPANCIES SHOULD IMMEDIATELY BE FORWARDED TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
- THESE DRAWINGS DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, TECHNIQUES, SEQUENCES AND PROCEDURES.
- REQUIRED MODIFICATIONS TO BE COMPLETED IN CALM WEATHER WITH WIND VELOCITY LESS THAN 30 KM/HR.
- ALL STEEL FABRICATION AND CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF CSA S37-13 STANDARDS.
- ALL NEW STEEL SHALL BE HOT DIP GALVANIZED AS PER CSA STANDARD G164.
- ALL STRUCTURAL STEEL SHALL CONFORM TO G40.21 300W MATERIAL & STANDARDS UNLESS OTHERWISE NOTED.
- ANY DAMAGE TO GALVANIZING SHALL BE COATED WITH ZINC RICH PAINT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- SEE GENERAL NOTES FOR FURTHER GENERAL & INSTALLATION NOTES.
- ALL WORK TO BE DONE IN ACCORDANCE WITH CLIENT SPECIFICATIONS AND ALL RELEVANT CODES.
- POSITION NEW TX LINES ALONGSIDE EXISTING PER TERMS OF LATEST STRUCTURAL ANALYSIS (P-SEC 16403 R01). SEE DRAWING A-2.



TOWER SECTION

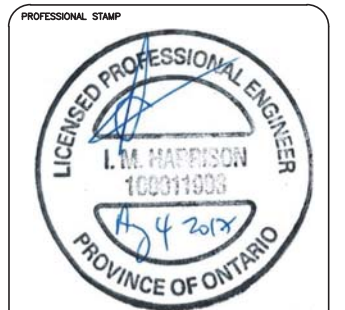
SEE DWG A-2 FOR Tx-LINE LAYOUT

CLIENTS



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P-SEC
 PIER STRUCTURAL ENGINEERING CORP.
 ph: 519-885-3806
 fx: 519-884-3806
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 55 NORTHFIELD DR. E.
 SUITE 198
 WATERLOO, ON
 N2K 3T6

PROJECT NUMBER
16403



IAN M. HARRISON P.ENG No.: 100011993
 P-SEC CoA No.: 100099550

No.	Description	Date
0	ISSUED FOR CONSTRUCTION	08.04.17

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CLIENT NUMBER
TOWER 7

SITE ADDRESS
IQUALUIT, NUNAVUT

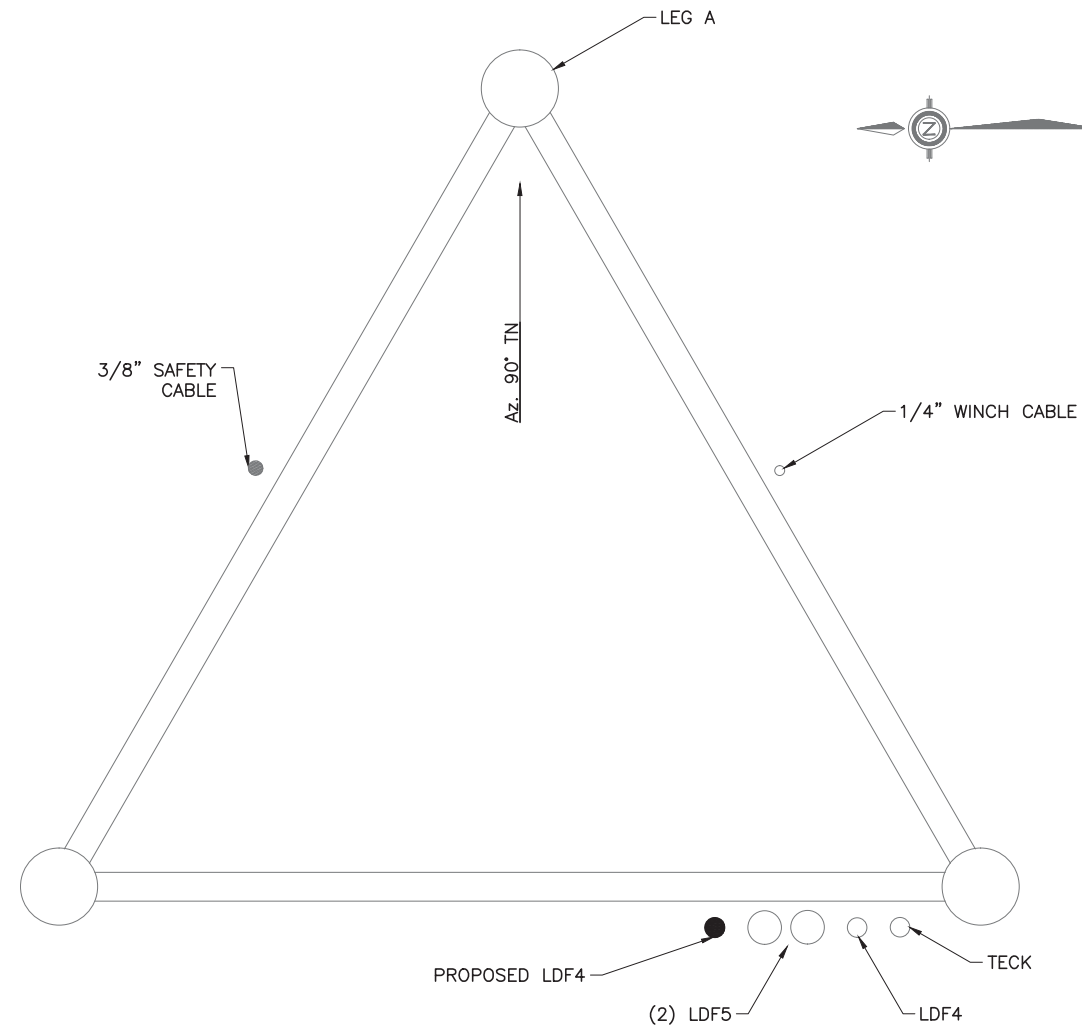
SITE DESIGN
MOUNT INSTALLATION/RETROFIT

SHEET TITLE
TOWER PROFILE

DRAWN BY JWG	SHEET A-1
CHECKED BY DDS	
APPROVED BY IMH	

NOTES:

1. ROUTE TX LINES IN THE MANNER SHOWN ALONG EXISTING TX LADDER. FOLLOW CLIENT AND MANUFACTURER INSTALLATION RECOMMENDATIONS.
2. REFERENCE P-SEC MAINTENANCE INSPECTION REPORT #15732 DATED OCT 11, 2016.
3. THE CREW SHALL COMPLY WITH ALL INSTALLATION PROCEDURES, SAFEGUARDS AND MEANS AND METHODS OF CONSTRUCTION.




Tx LAYOUT

CLIENTS



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ph: 519-885-3806
 fx: 519-884-3806
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 WATERLOO, ON
 N2K 3T6
 PIER STRUCTURAL ENGINEERING Corp.

PROJECT NUMBER

16403

PROFESSIONAL STAMP



IAN M. HARRISON P.ENG No.: 100011993
 P-SEC CoA No.: 100099550

REVISIONS

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TOWER 7

SITE ADDRESS

IQUALUIT, NUNAVUT

SITE DESIGN

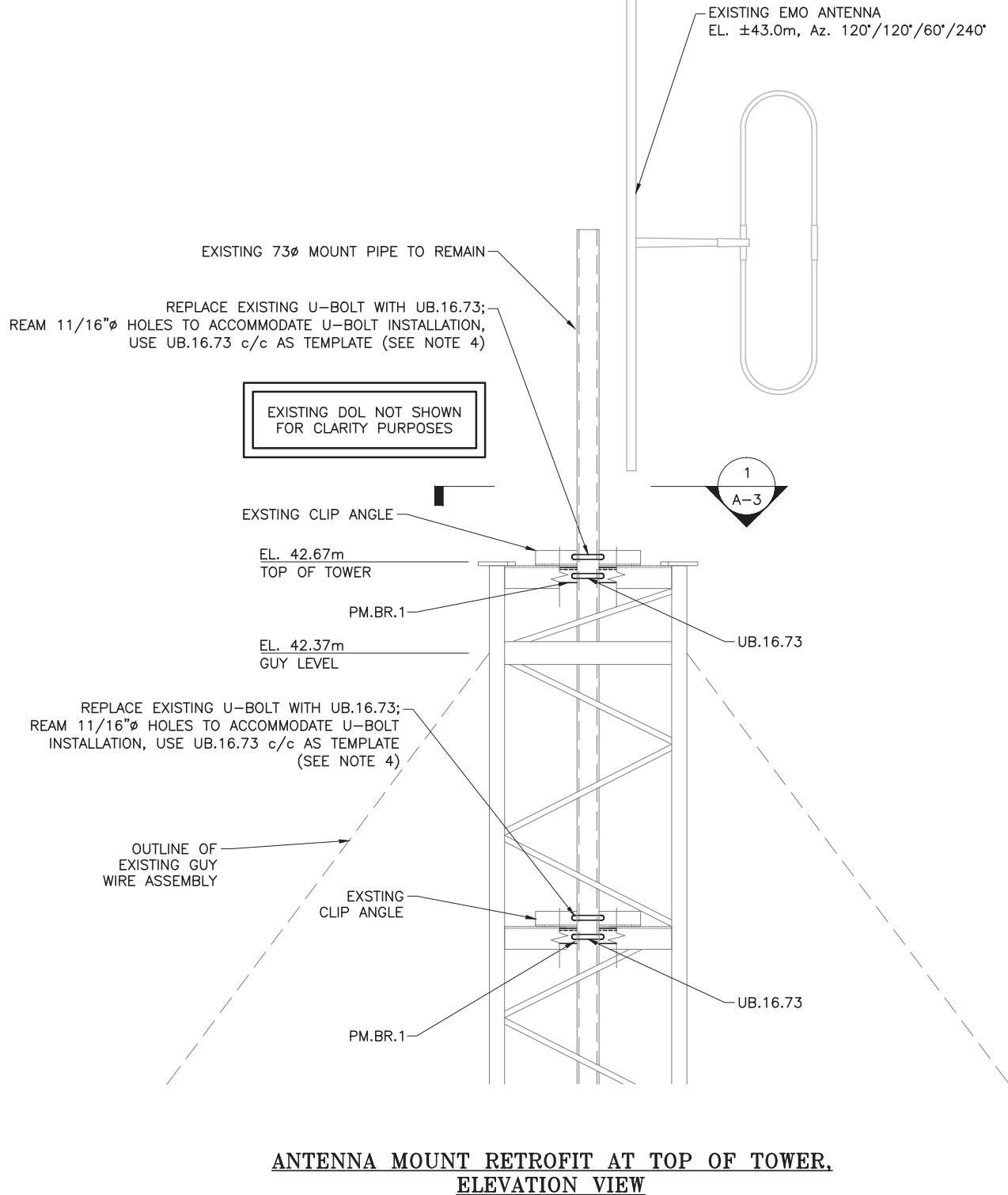
MOUNT
 INSTALLATION/RETROFIT

SHEET TITLE

Tx LAYOUT

DRAWN BY	JWG	SHEET	A-2
CHECKED BY	DDS		
APPROVED BY	IMH		

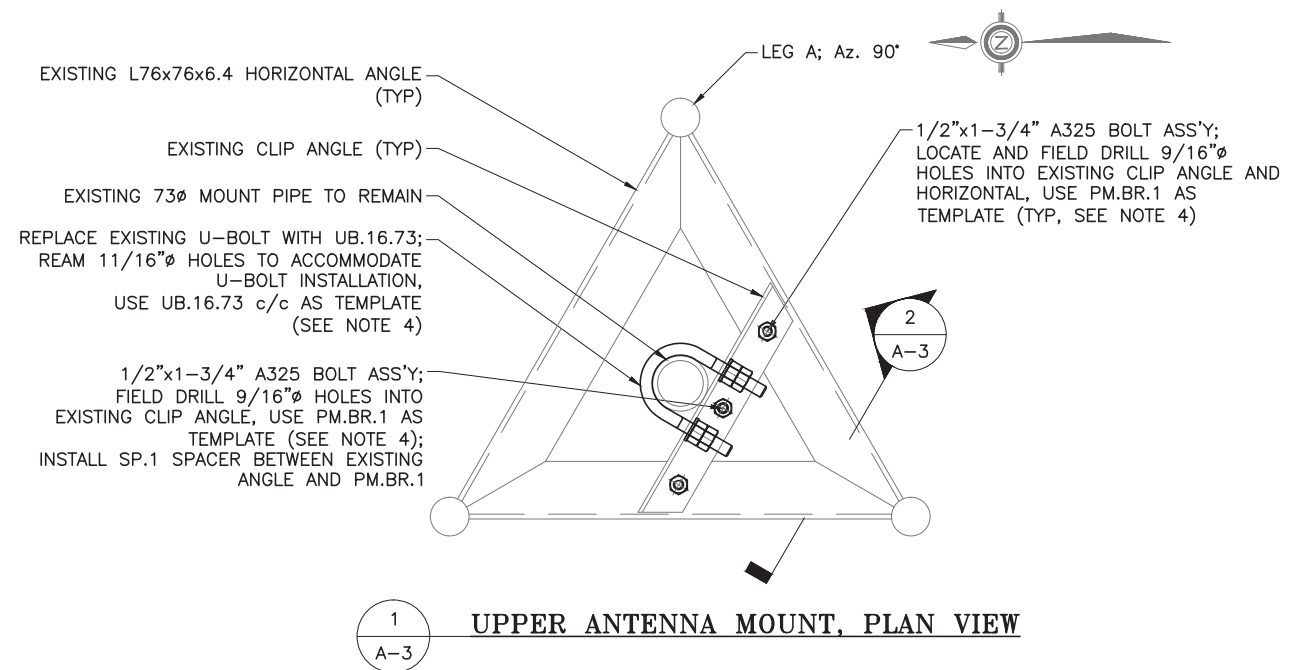
BILL OF MATERIALS		
PART No.	DESCRIPTION	QTY
PM.BR.1	PIPE MOUNT BRACKET (FITS 73Ø)	2
SP.1	SPACER	2
UB.16.73	5/8" U-BOLT ASS'Y (FITS 73Ø)	4
-	1/2"x1-3/4" A325 BOLT ASS'Y HDG	6



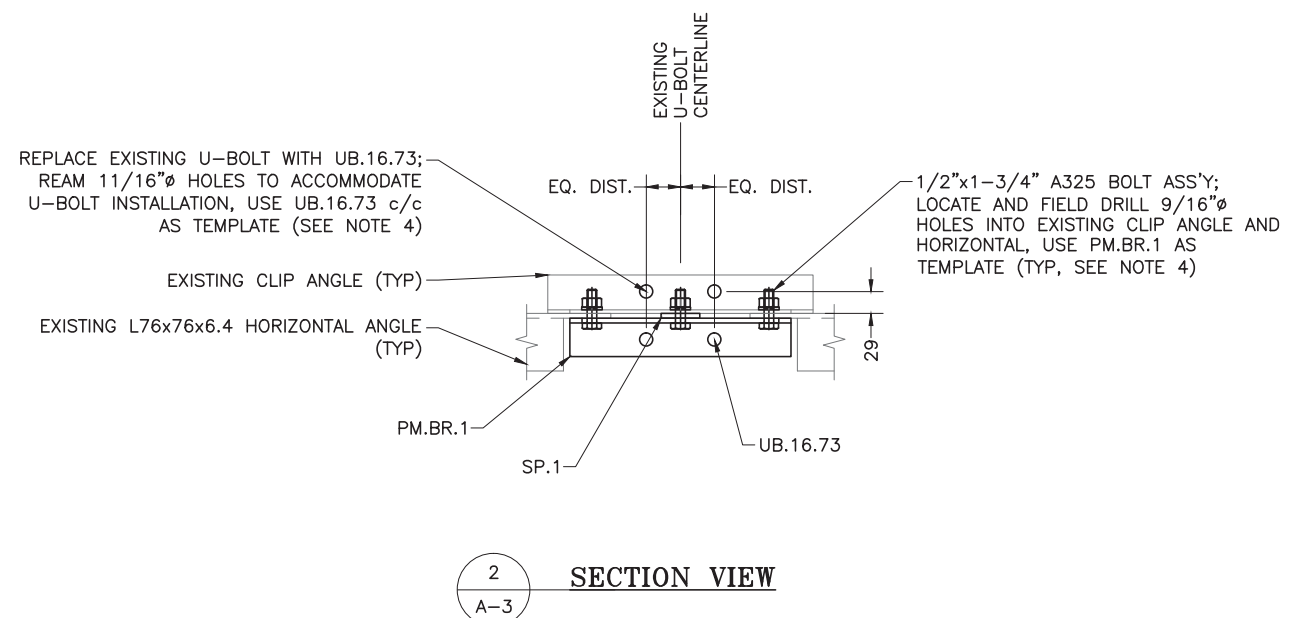
**ANTENNA MOUNT RETROFIT AT TOP OF TOWER,
ELEVATION VIEW**

NOTES ON INSTALLATION

1. INSTALL MOUNT MODIFICATION IN ACCORDANCE WITH ALL MANUFACTURER'S/CLIENT INSTALLATION SPECIFICATIONS.
2. CONTRACTOR IS RESPONSIBLE TO MAKE PROVISIONS TO SUPPORT OR WORK AROUND EXISTING ANTENNAS, MOUNT AND TRANSMISSION LINES.
3. MAY REQUIRE DETACHING AND RE-ATTACHING EXISTING TX LINES TO ACCOMMODATE MOUNT INSTALLATION; NEW TX LINE HARDWARE MAY BE REQUIRED. CONTRACTOR TO FIELD VERIFY.
4. APPLY TWO LAYERS OF COLD GALVANIZING TO ALL FIELD CUTS, FIELD DRILLED HOLES AND FIELD WELDING USING ZRC GALVALITE OR ZINGA COMPOUND.
5. THE REQUIRED MODIFICATIONS TO BE COMPLETED IN CALM WEATHER WITH WIND VELOCITY LESS THAN 30 KM/H AT GROUND ELEVATION.



UPPER ANTENNA MOUNT, PLAN VIEW

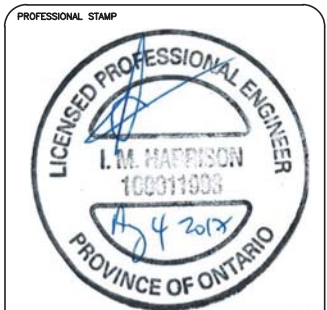


SECTION VIEW



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 SUITE 198
 WATERLOO, ON
 N2K 3T6

PROJECT NUMBER
16403



IAIN M. HARRISON P.ENG No.: 100011993
 P-SEC CoA No.: 100099550

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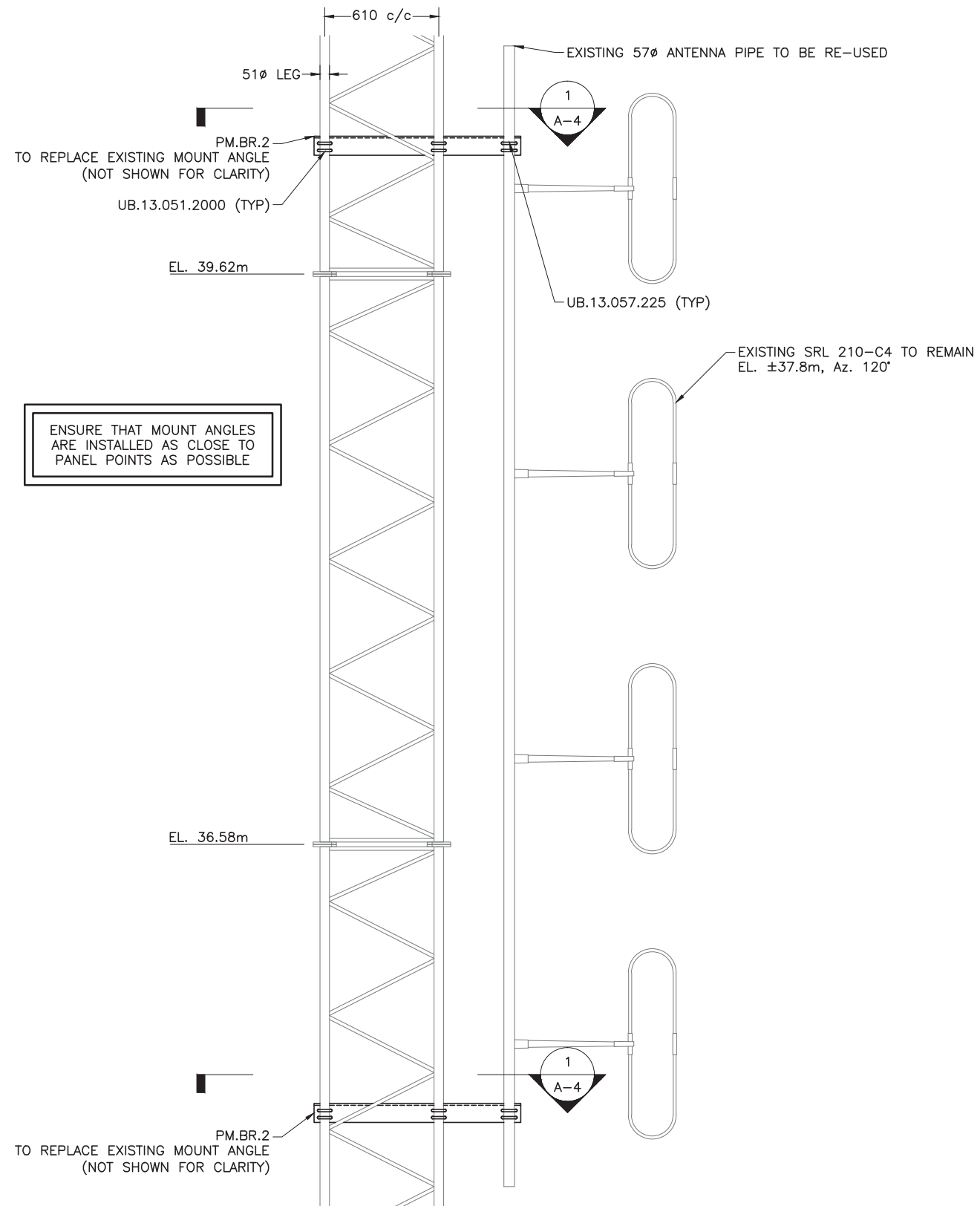
CLIENT NUMBER
TOWER 7

SITE ADDRESS
IQALUIT, NUNAVUT

SITE DESIGN
**MOUNT
INSTALLATION/RETROFIT**

SHEET TITLE
**ANTENNA
MOUNT RETROFIT**

DRAWN BY JWG	SHEET A-3
CHECKED BY DDS	
APPROVED BY IMH	

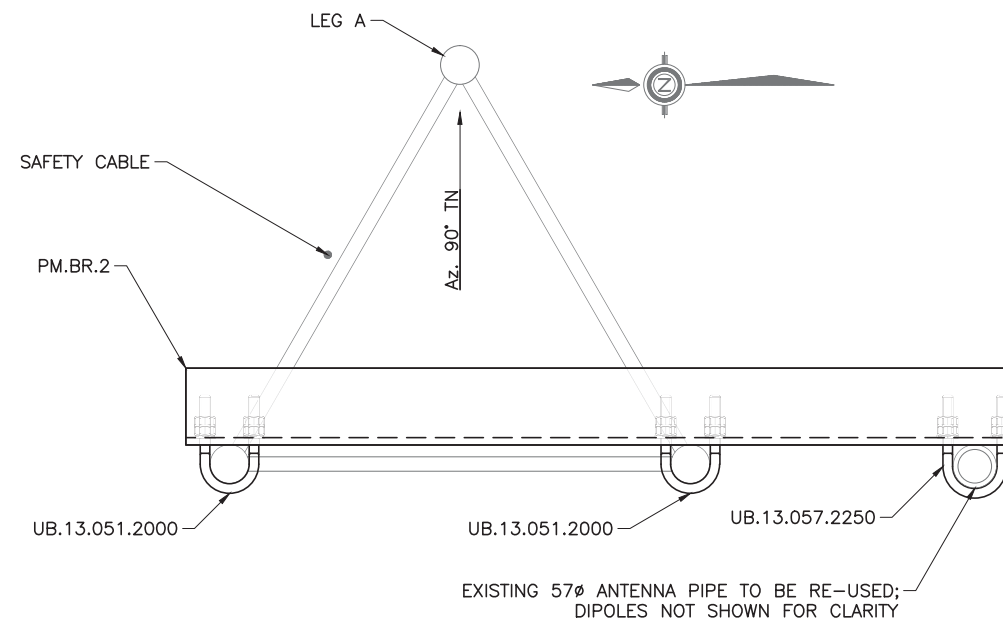


**ANTENNA MOUNT REPLACEMENT DETAILS @ ±37.8m.
FACE BC ELEVATION VIEW**

BILL OF MATERIALS		
PART No.	DESCRIPTION	QTY
PM.BR.2	PIPE MOUNT BRACKET	2
UB.13.051.2000	1/2" U-BOLT ASS'Y (FITS 51Ø LEG)	8
UB.13.057.2250	1/2" U-BOLT ASS'Y (FITS 57Ø PIPE)	4


NOTES ON INSTALLATION

1. POSITION MOUNT ON TOWER SUCH THAT PROPER ELEVATION AND ORIENTATION CAN BE PROVIDED.
2. INSTALL REPLACEMENT MOUNT PARTS AND HARDWARE IN ACCORDANCE WITH ALL MANUFACTURER'S/CLIENT INSTALLATION SPECIFICATIONS.
3. CONTRACTOR IS RESPONSIBLE TO MAKE PROVISIONS TO SUPPORT OR WORK AROUND EXISTING ANTENNAS, MOUNT AND TRANSMISSION LINES.
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5. APPLY TWO LAYERS OF COLD GALVANIZING TO ALL FIELD CUTS, FIELD DRILLED HOLES AND FIELD WELDING USING ZRC GALVALITE OR ZINGA COMPOUND.
6. THE REQUIRED MODIFICATIONS TO BE COMPLETED IN CALM WEATHER WITH WIND VELOCITY LESS THAN 30 KM/H AT GROUND ELEVATION.



**1
A-4 TYPICAL SECTION VIEW**

CLIENTS




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 N2K 3T6

PROJECT NUMBER
16403

PROFESSIONAL STAMP


IAN M. HARRISON P.ENG No.: 100011993
 P-SEC CoA No.: 100099550

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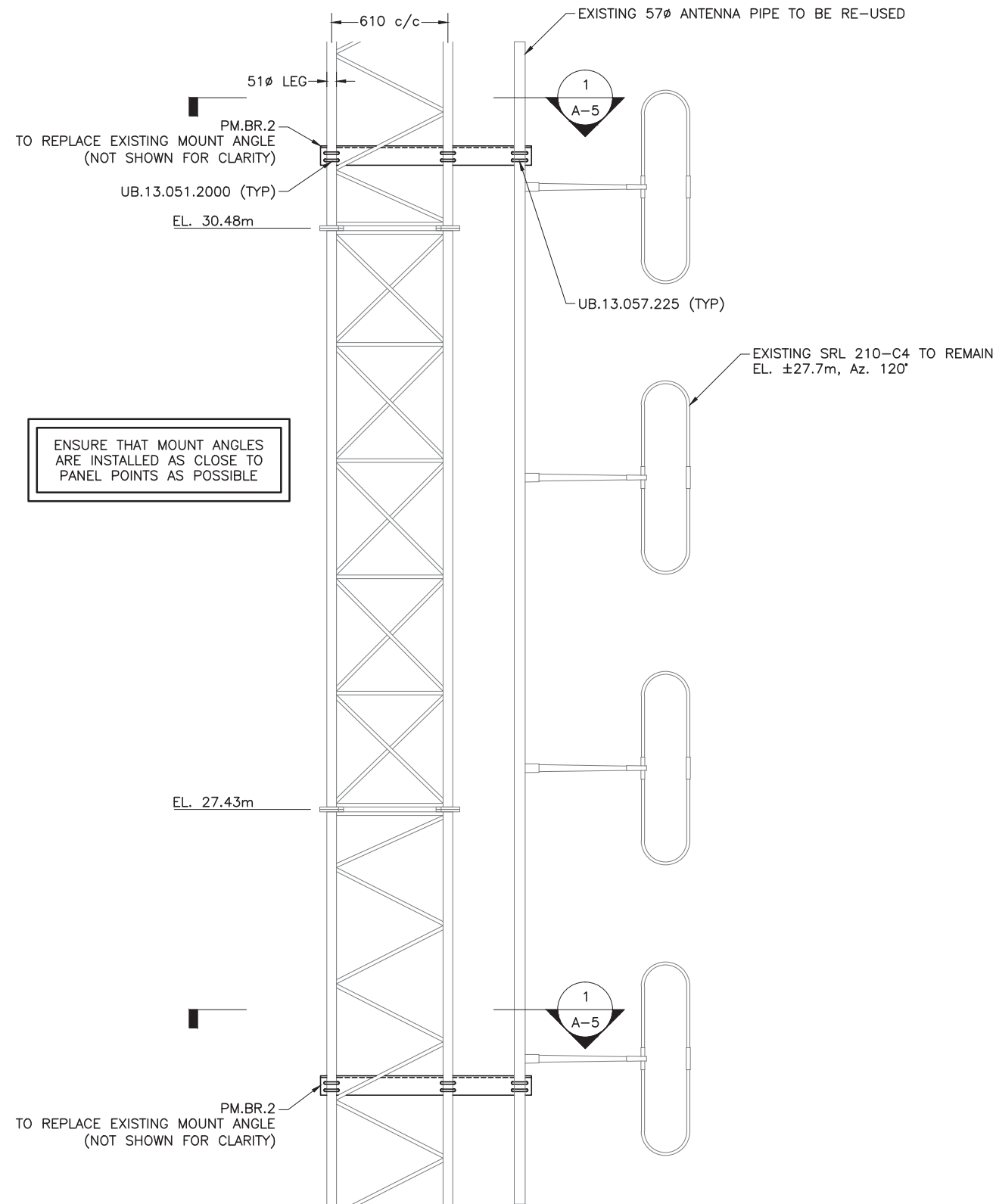
CLIENT NUMBER
TOWER 7

SITE ADDRESS
IQUALUIT, NUNAVUT

SITE DESIGN
**MOUNT
 INSTALLATION/RETROFIT**

SHEET TITLE
**ANTENNA
 MOUNT REPLACEMENT**

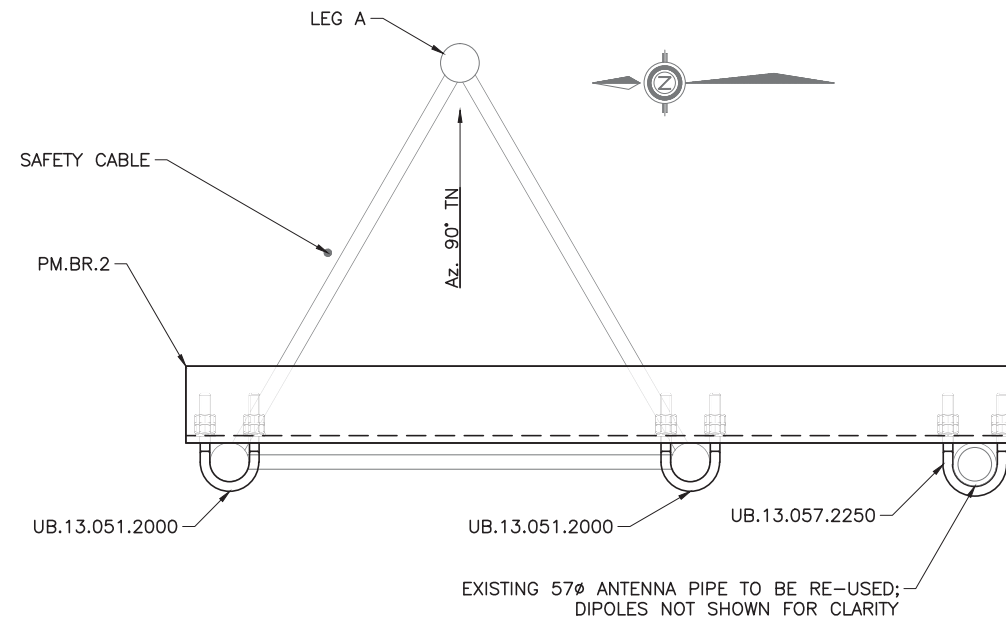
DRAWN BY: **JWG** SHEET
 CHECKED BY: **DDS** **A-4**
 APPROVED BY: **IMH**



BILL OF MATERIALS		
PART No.	DESCRIPTION	QTY
PM.BR.2	PIPE MOUNT BRACKET	2
UB.13.051.2000	1/2" U-BOLT ASS'Y (FITS 51φ LEG)	8
UB.13.057.2250	1/2" U-BOLT ASS'Y (FITS 57φ PIPE)	4

NOTES ON INSTALLATION

1. POSITION MOUNT ON TOWER SUCH THAT PROPER ELEVATION AND ORIENTATION CAN BE PROVIDED.
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6. THE REQUIRED MODIFICATIONS TO BE COMPLETED IN CALM WEATHER WITH WIND VELOCITY LESS THAN 30 KM/H AT GROUND ELEVATION.



1
A-5 TYPICAL SECTION VIEW

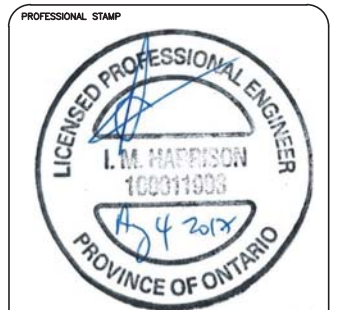
**ANTENNA MOUNT REPLACEMENT DETAILS @ ±27.7m.
FACE BC ELEVATION VIEW**

CLIENTS



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 N2K 3T6

PROJECT NUMBER
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IAIN M. HARRISON P.ENG No.: 100011993
 P-SEC CoA No.: 100099550

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CLIENT NUMBER
TOWER 7

SITE ADDRESS
IQALUIT, NUNAVUT

SITE DESIGN
**MOUNT
 INSTALLATION/RETROFIT**

SHEET TITLE
**ANTENNA
 MOUNT REPLACEMENT**

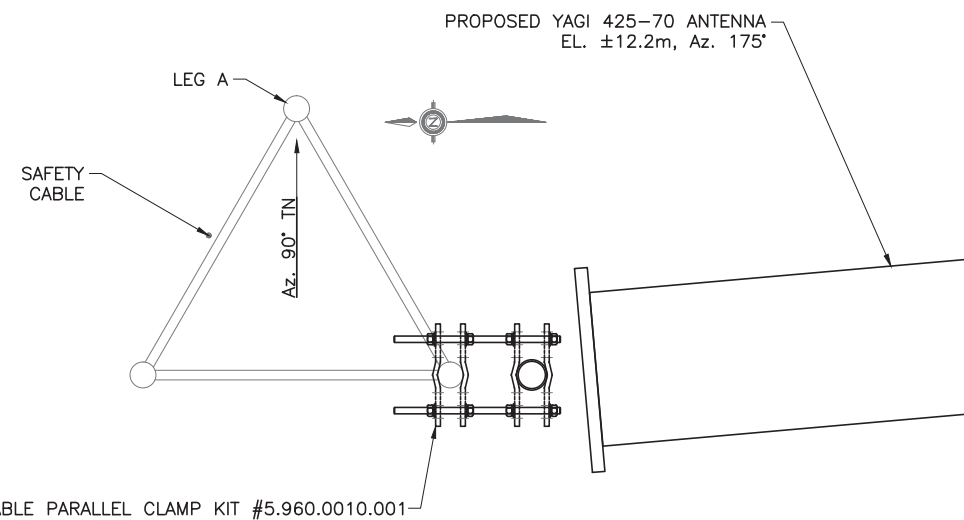
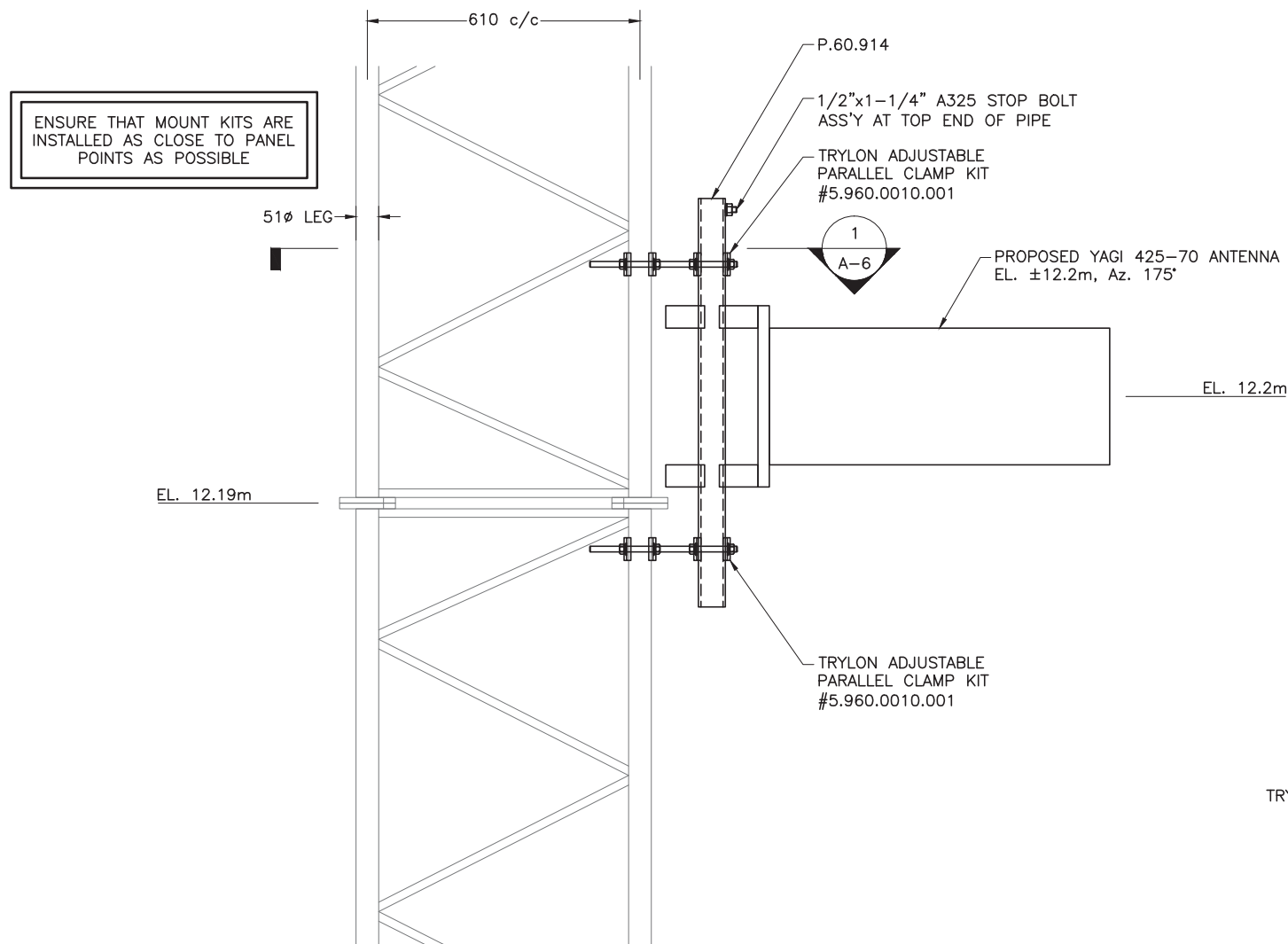
DRAWN BY JWG	SHEET A-5
CHECKED BY DDS	
APPROVED BY IMH	

NOTES ON INSTALLATION

1. POSITION MOUNT ON TOWER SUCH THAT PROPER ELEVATION AND ORIENTATION CAN BE PROVIDED.
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6. THE REQUIRED MODIFICATIONS TO BE COMPLETED IN CALM WEATHER WITH WIND VELOCITY LESS THAN 30 KM/H AT GROUND ELEVATION.

BILL OF MATERIALS - MOUNT PIPE		
PART No.	DESCRIPTION	QTY
P.60.914	60Ø PIPE	1
-	1/2"x1-1/4" A325 BOLT ASS'Y HDG	1

BILL OF MATERIALS - TRYLON KITS		
TRYLON KIT No.	DESCRIPTION	QTY
5.960.0010.001	ADJUSTABLE PARALLEL CLAMP KIT	2



1 A-6 PLAN VIEW @ 19.2m

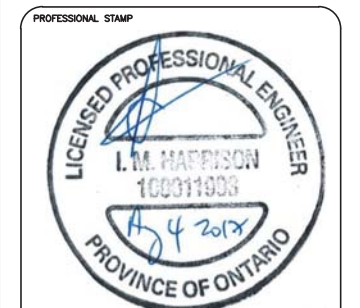
**ANTENNA INSTALLATION DETAILS,
ELEVATION VIEW @ FACE BC**

CLIENTS



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 WATERLOO, ON
 N2K 3T6

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IAIN M. HARRISON P.ENG No.: 100011993
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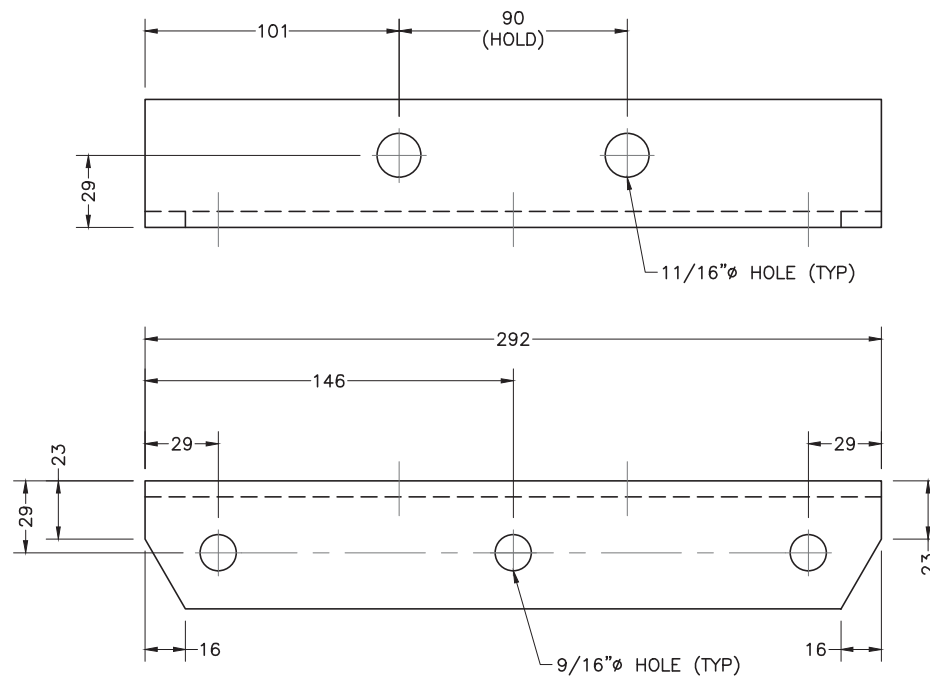
CLIENT NUMBER
TOWER 7

SITE ADDRESS
IQALUIT, NUNAVUT

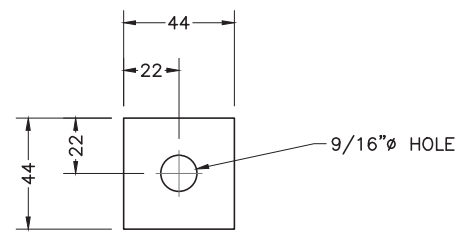
SITE DESIGN
**MOUNT
 INSTALLATION/RETROFIT**

SHEET TITLE
**ANTENNA
 INSTALLATION**

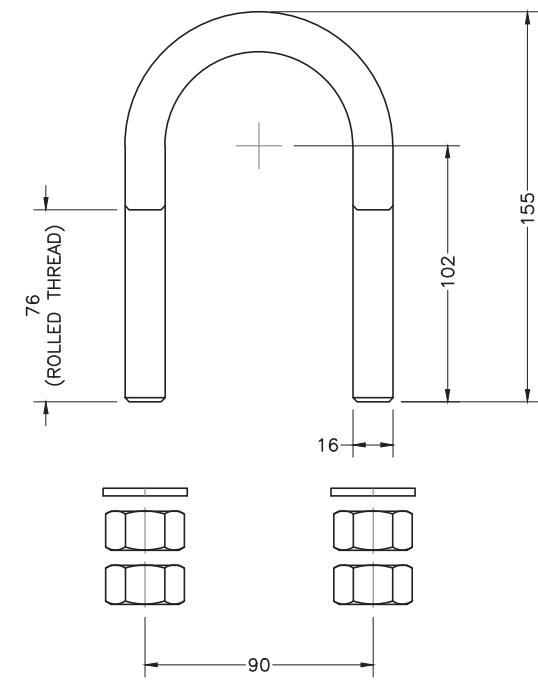
DRAWN BY JWG	SHEET A-6
CHECKED BY DDS	
APPROVED BY IMH	



PM.BR.1
 NAME: PIPE MOUNT BRACKET
 MATERIAL: L 51x51x6.4
 GRADE: G40.21-300W
 FINISH: HDG
 QTY: 2



SP.1
 NAME: SPACER
 MATERIAL: 6.4mm THICK PLATE
 GRADE: G40.21-300W
 FINISH: HDG
 QTY: 2



UB.16.73
 NAME: 5/8" U-BOLT ASSY
 MATERIAL: 5/8" SOLID ROUND BAR
 GRADE: ASTM A307 / Gr.5 NUTS & F.W.
 FINISH: HDG
 QTY: 4

CLIENTS

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 PIER STRUCTURAL ENGINEERING Corp.

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 P-SEC CoA No.: 100099550

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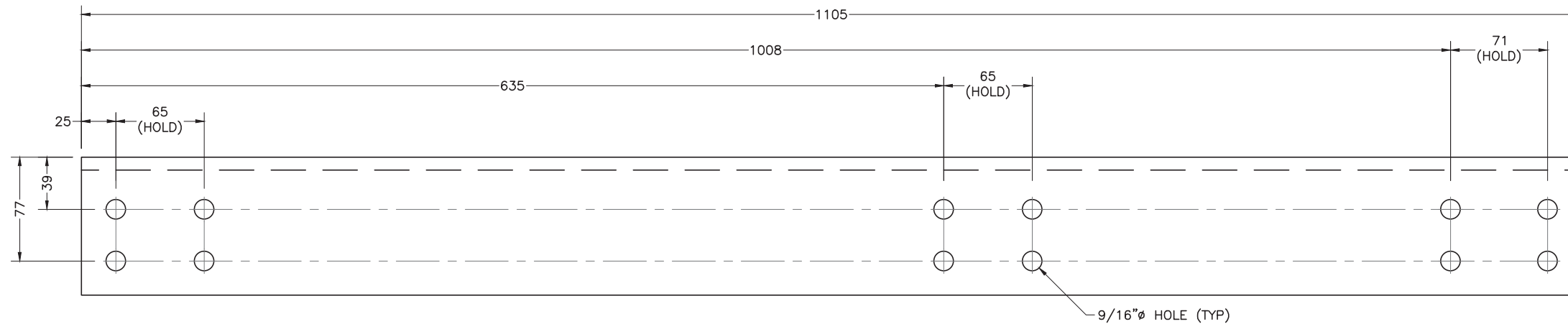
SITE ADDRESS
IQALUIT, NUNAVUT

SITE DESIGN
**MOUNT
 INSTALLATION/RETROFIT**

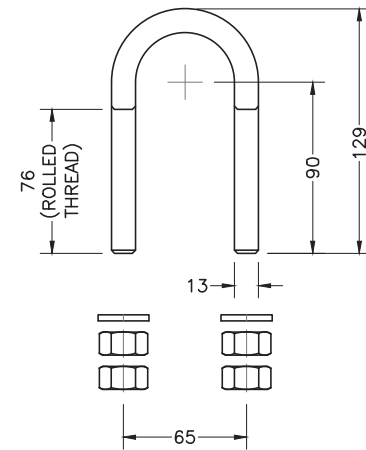
SHEET TITLE
PARTS

DRAWN BY: **JWG**
 CHECKED BY: **DDS**
 APPROVED BY: **IMH**

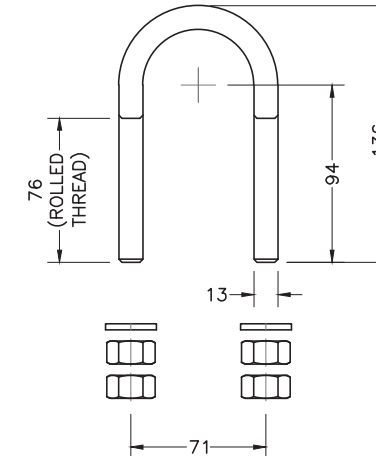
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F-1



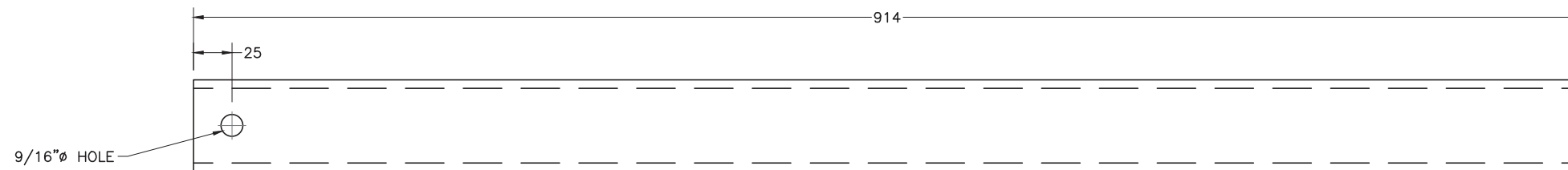
PM.BR.2
 NAME: PIPE MOUNT BRACKET
 MATERIAL: L 102x102x10
 GRADE: G40.21-300W
 FINISH: HDG
 QTY: 4



UB.13.051.2000
 NAME: 1/2" U-BOLT ASSY
 MATERIAL: 1/2" SOLID ROUND BAR
 GRADE: ASTM A307 / Gr.5 NUTS & F.W.
 FINISH: HDG
 QTY: 16



UB.13.057.2250
 NAME: 1/2" U-BOLT ASSY
 MATERIAL: 1/2" SOLID ROUND BAR
 GRADE: ASTM A307 / Gr.5 NUTS & F.W.
 FINISH: HDG
 QTY: 8



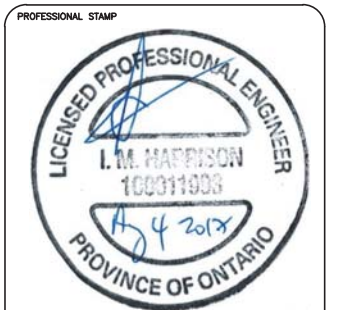
P.60.914
 NAME: PIPE
 MATERIAL: 2" SCH 80 (60mm ϕ x 5.573mm THICK) PIPE
 GRADE: ASTM A53 Gr. A
 FINISH: HDG
 QTY: 1

CLIENTS



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PROJECT NUMBER
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IAN M. HARRISON P.ENG No.: 100011933
 P-SEC CoA No.: 100099550

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CLIENT NUMBER
TOWER 7

SITE ADDRESS
IQALUIT, NUNAVUT

SITE DESIGN
**MOUNT
 INSTALLATION/RETROFIT**

SHEET TITLE
PARTS


DRAWN BY JWG	SHEET F-2
CHECKED BY DDS	
APPROVED BY IMH	

CONSTRUCTION PACKAGE			
DRAWING No.	DESCRIPTION	REVISION	DATE (yy/mmm/dd)
3424.924.100-1	TITLE PAGE	A	08 MAR 17
3424.924.102-1	TOWER PROFILE	B	08 JUNE 16
3424.924.112-1	STAR BASE DETAILS	A	08 MAR 17
3424.924.113-1	GUY ASSEMBLY DETAILS	A	08 MAR 17
3424.924.150-1	FALL PROTECTION DETAILS	B	08 JUNE 16
3424	BILL OF MATERIALS	A	08 MAR 17



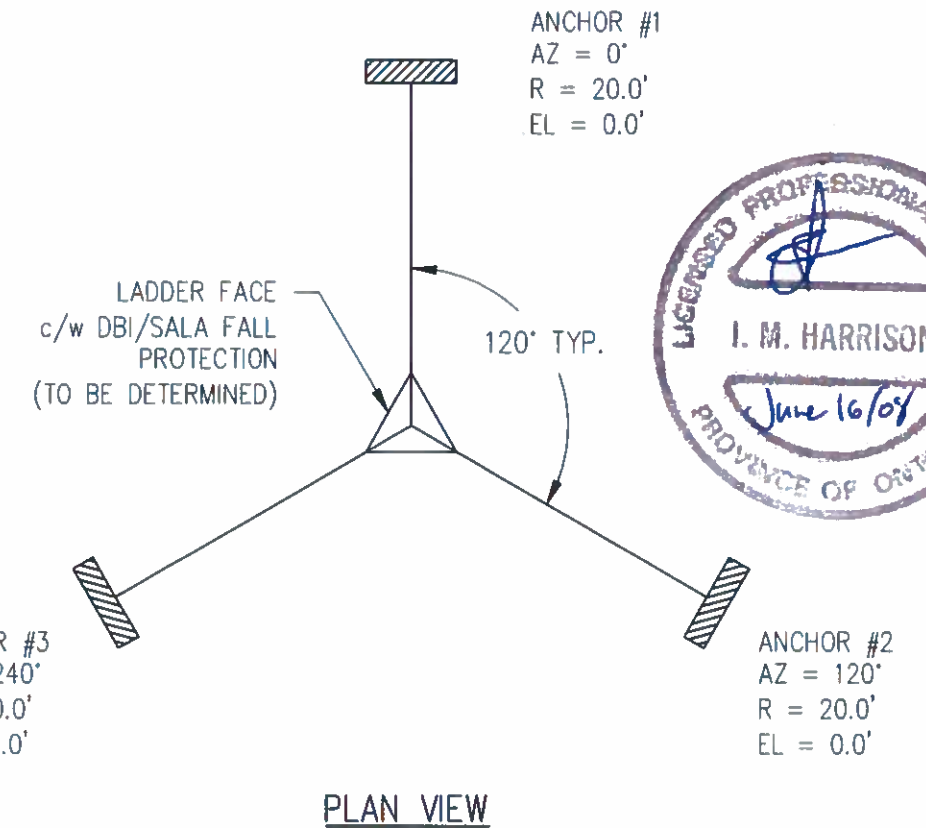
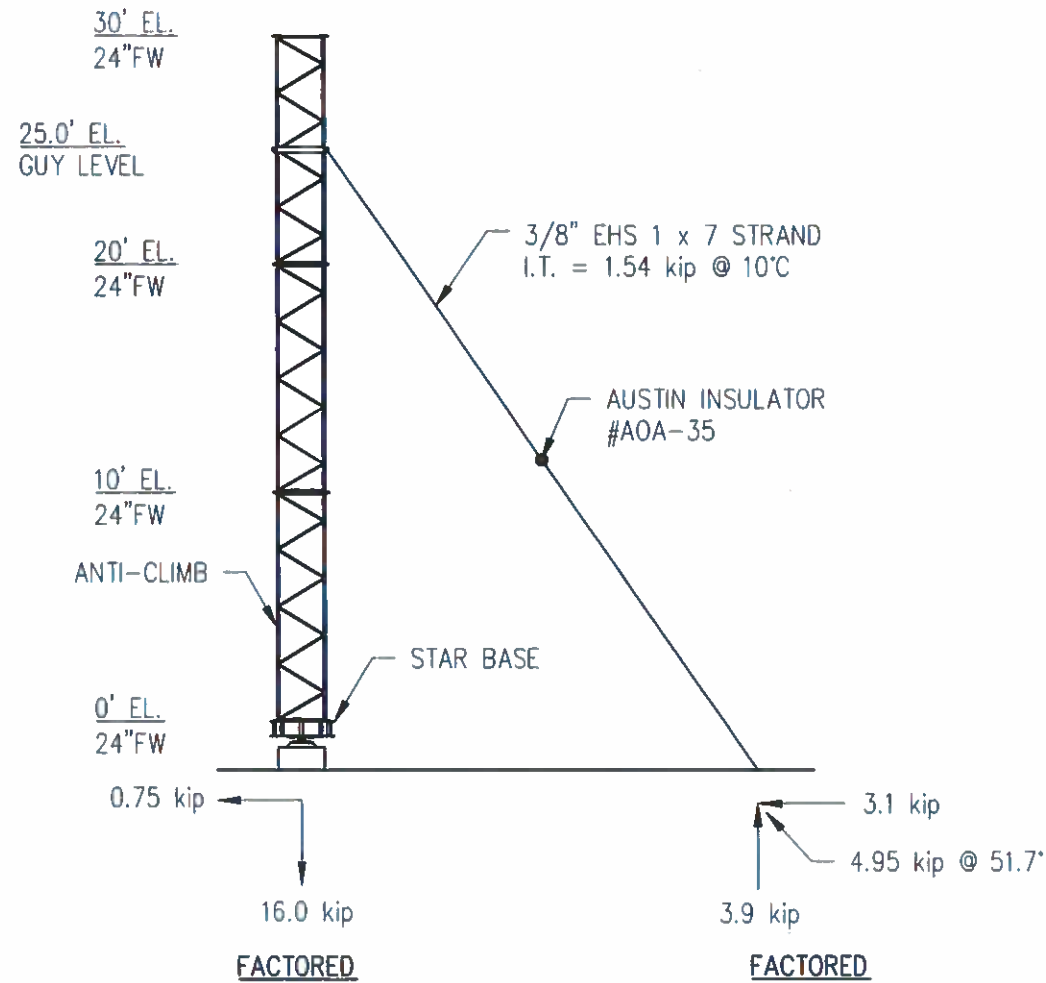
OWNER:	CANADIAN COAST GUARD
SITE NAME / CODE:	IQUALUIT
TOWER HEIGHT / TYPE:	30'24" ALL WELD GUYED TOWER
LOCATION:	NUNAVUT, CANADA

Rev.	Rev'd By:	App'd By:	Rev. Description	Date:	Notes:
A	MO		ISSUE FOR CONSTRUCTION	08 MAR 17	

Project No:		F2563-07-0041	
Project Description:		30' 24" ALL WELD GUYED TOWER	
 ALLAN PIPE FAB INC. 395 DOBBIE DRIVE CAMBRIDGE, ON. CANADA P: (519) 622-6013 F: (519) 622-7062			
Drawn By:	Checked By:	Date:	Scale:
MO		08 MAR 17	1:1
Customer:	Site Name/Code:	Job No:	
CANADIAN COAST GUARD	IQAULUIT, NU	3424	
Drawing Title:		Drawing No.	
TITLE PAGE		3424.924.100-1	

ITEM No.	ANTENNA LOADING						Tx. LINE	
	QTY.	MAKE AND MODEL OF ANTENNA	ELEVATION (ft.)	AZIMUTH (°TN)	DOWN TILT (°)	STATUS	QTY.	DESCRIPTION
1	4	LONG WIRE ANTENNA	30.0	N/A	N/A	INITIAL	2	LDF2-50A
2	1	WIND ANINOMETRE	23.0	N/A	N/A	INITIAL	1	LDF2-50A
3	1	WIND ANINOMETRE	20.0	N/A	N/A	INITIAL	1	LDF2-50A

PAINT	PAINT WHITE (ONLY)						
LEG (50W)	1-1/4" S.R.						924.3.0090.001
HORIZONTAL	3/8" x 3" FLAT BAR						924.3.0001.001
DIAGONAL	3/4" S.R.						924.3.0001.001
SPLICE PAD	PL 4" x 4" x 1/2"						
SPLICE BOLTS	5/8" x 2-1/4" A325 BOLT ASS'Y (3 PER LEG)						
							SECTION No.

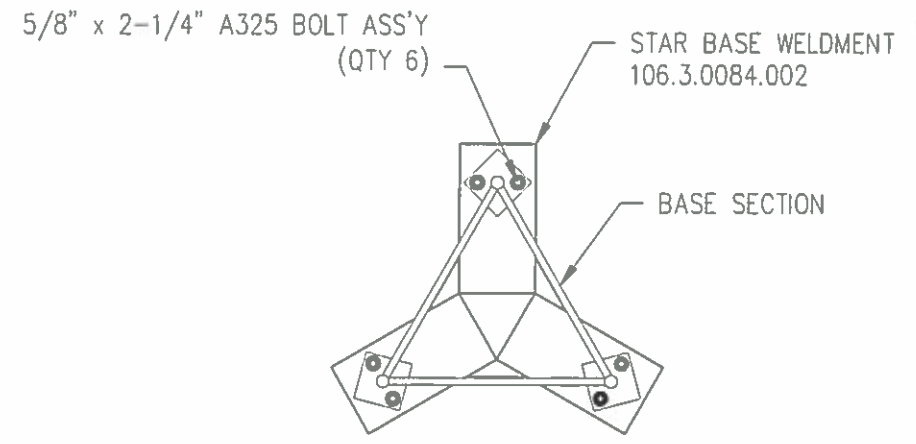
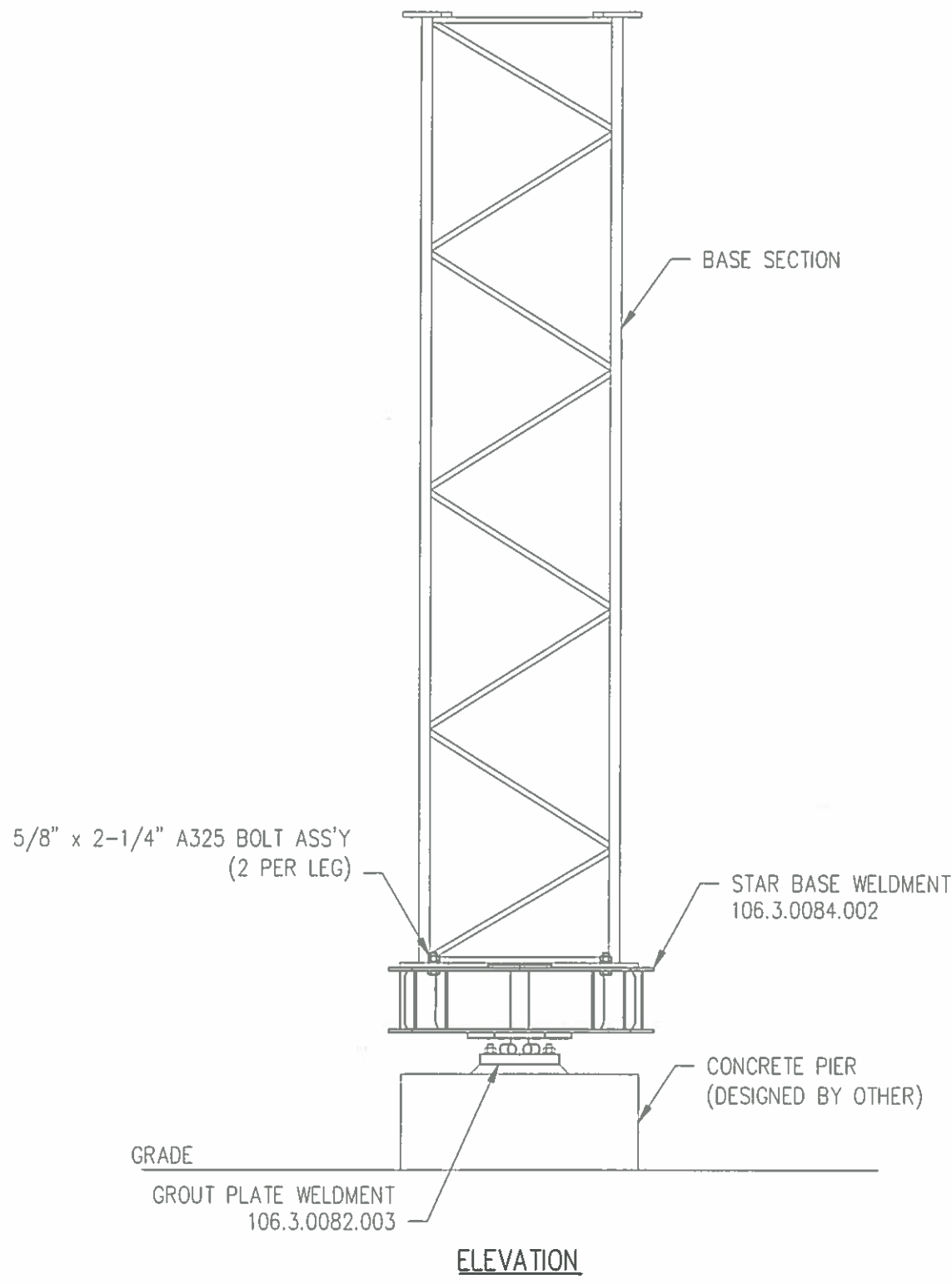


TOWER DESIGNED TO:
 CAN/CSA S37-01
 WIND: 850 Pa
 ICE: 40 mm

Rev.	Rev'd By:	App'd By:	Rev. Description	Date:
A	MO		ISSUE FOR CONSTRUCTION	08 MAR 17
B	MO		REVISED AS PER COMMENTS	08 JUNE 16

- Notes:
- ALL DIMENSIONS ARE IN INCHES
 - ALL STRUCTURAL STEEL SHALL BE G40.21 - 300W (44W) OR 350W (50W) AS REQ'D
 - LIMIT STATES DESIGN, FACTORED LOADING
 - ALL MATERIAL TO BE HOT DIPPED GALVANIZED
 - TOWER FOUNDATION DESIGNED AND SUPPLIED BY OTHER

Project No:		F2563-07-0041	
Project Description:		30' 24" ALL WELD GUYED TOWER	
ALLAN PIPE FAB INC. 395 DOBBIE DRIVE CAMBRIDGE, ON. CANADA P: (519) 622-6013 F: (519) 622-7062			
Drawn By:	Checked By:	Date:	Scale:
MO		08 MAR 17	1:100
Customer:	Site Name/Code:	Job No:	
CANADIAN COAST GUARD	IQUALUIT, NU	3424	
Drawing Title:		Drawing No.	
TOWER PROFILE		3424.924.102-1	




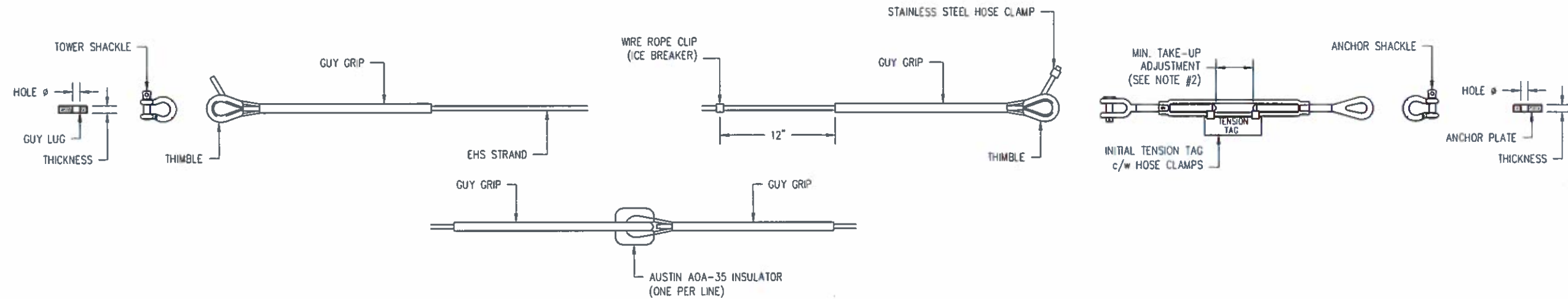
PLAN VIEW



Rev.	Rev'd By:	App'd By:	Rev. Description	Date:
A	MO		ISSUE FOR CONSTRUCTION	08 MAR 17

Notes:
1. ALL DIMENSIONS ARE IN INCHES

Project No:		F2563-07-0041	
Project Description: 30' 24" ALL WELD GUYED TOWER			
 ALLAN PIPE FAB INC. 395 DOBBIE DRIVE CAMBRIDGE, ON. CANADA P: (519) 622-6013 F: (519) 622-7062			
Drawn By: MO	Checked By:	Date: 08 MAR 17	Scale: 1:20
Customer: CANADIAN COAST GUARD	Site Name/Code: IQUALUIT, NU	Job No: 3424	
Drawing Title: STAR BASE DETAILS		Drawing No. 3424.924.112-1	



GUY ASSEMBLY CHART 1 x 7 EHS STRAND																					
ELEV (ft)	GUY LUG		TOWER SHACKLE (S.P.)			THIMBLE (HEAVY)	STRAND (LEFT HAND LAY)		GUY GRIPS (BOTH ENDS)				WIRE ROPE CLIP	THIMBLE (HEAVY)	JAW & EYE TURNBUCKLE		ANCHOR SHACKLE			ANCHOR PLATE	
	PLT THK	HOLE Ø	SIZE	PIN Ø	T. ULT (kips)		DESCRIPTION	T. ULT (kips)	SIZE	PART #	STRENGTH	T. ULT (kips)			SIZE	T. ULT (kips)	SIZE	PIN Ø	T. ULT (kips)	PLT THK	HOLE Ø
25.0	5/8"	5/8"	7/16"	1/2"	18.00	7/16"	3/8" EHS 1 x 7 LL GALV STRAND	15.40	3/8"	GDE-1107	100%	15.40	3/8"	7/16"	5/8" x 12"	26.00	7/16"	1/2"	18.00	5/8"	5/8"



Rev.	Rev'd By	App'd By	Rev. Description	Date
A	MD		ISSUE FOR CONSTRUCTION	DB MAR 17

- Notes:
- ALL DIMENSIONS ARE IN INCHES
 - AS PER CAN/CSA S37-01, CLAUSE 11.5 "FOR INITIAL INSTALLATIONS, THE MINIMUM TAKE-UP ADJUSTMENT AVAILABLE AFTER THE STRUCTURE IS PLUMB AND THE GUY TENSIONS ARE SET SHOULD BE:
 - 6" (150mm) FOR GUYS WITH NOMINAL DIAMETRE OF 1/2" (13mm) AND SMALLER; AND
 - 10" (250mm) FOR GUYS WITH NOMINAL DIAMETRE GREATER THAN 13mm.

Project No:		F2963-07-0041	
Project Description:		30' 24" ALL WELD GUYED TOWER	
ALLAN PIPE FAB INC. 395 DOBBIE DRIVE CAMBRIDGE, ON CANADA P (519) 622-6013 F (519) 622-7062			
Drawn By:	MO	Checked By:	DB MAR 17
Customer:	CANADIAN COAST GUARD	Site Name/Code:	IOAULUIT, NU
Job No:	3424	Scale:	1:1
Drawing Title:	GUY ASSEMBLY DETAILS		Drawing No. 3424.924.113-1

CABLE CONNECTION ANGLE
150.3.0002.001

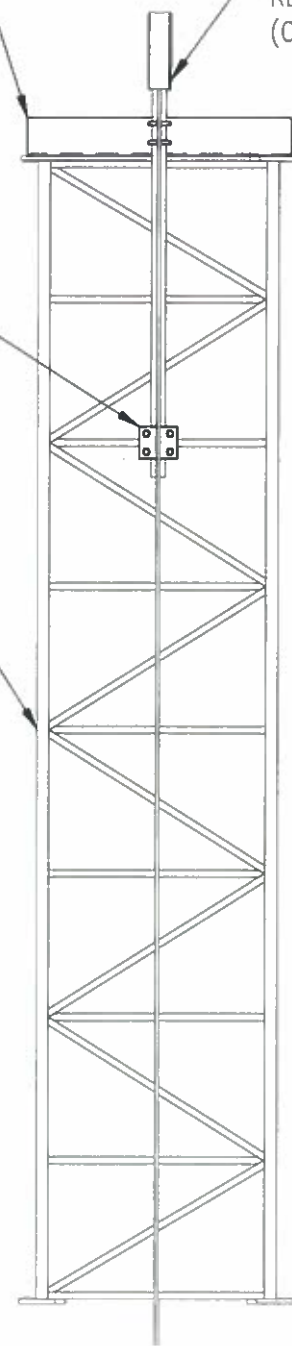
REFER TO DBI/SALA INSTALLATION INSTRUCTIONS
(CONNECT TOP BRACKET TO ANGLE)

EL: 30.0'

REFER TO DBI/SALA INSTALLATION INSTRUCTIONS

TOWER SECTION

EL: 20.0'



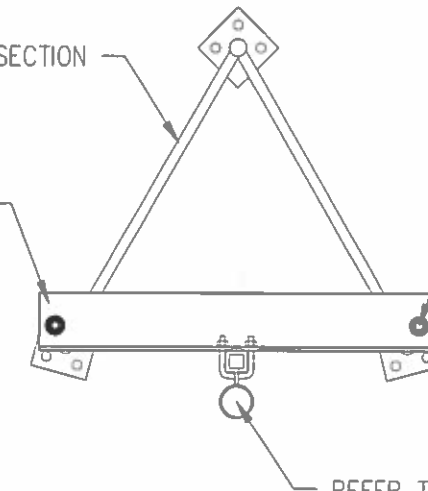
ELEVATION

TOWER SECTION

CABLE CONNECTION ANGLE
150.3.0002.001

(2) 5/8" x 2" A325 BOLT ASS'Y

REFER TO DBI/SALA INSTALLATION INSTRUCTIONS
(CONNECT TOP BRACKET TO ANGLE)



PLAN VIEW



Rev.	Rev'd By:	App'd By:	Rev. Description	Date:
A	MO		ISSUE FOR CONSTRUCTION	08 MAR 17
B	MO		REVISED AS PER COMMENTS	08 JUNE 16

Notes:
1. ALL DIMENSIONS ARE IN INCHES

Project No:	F256J-07-0041
Project Description:	30' 24" ALL WELD GUYED TOWER



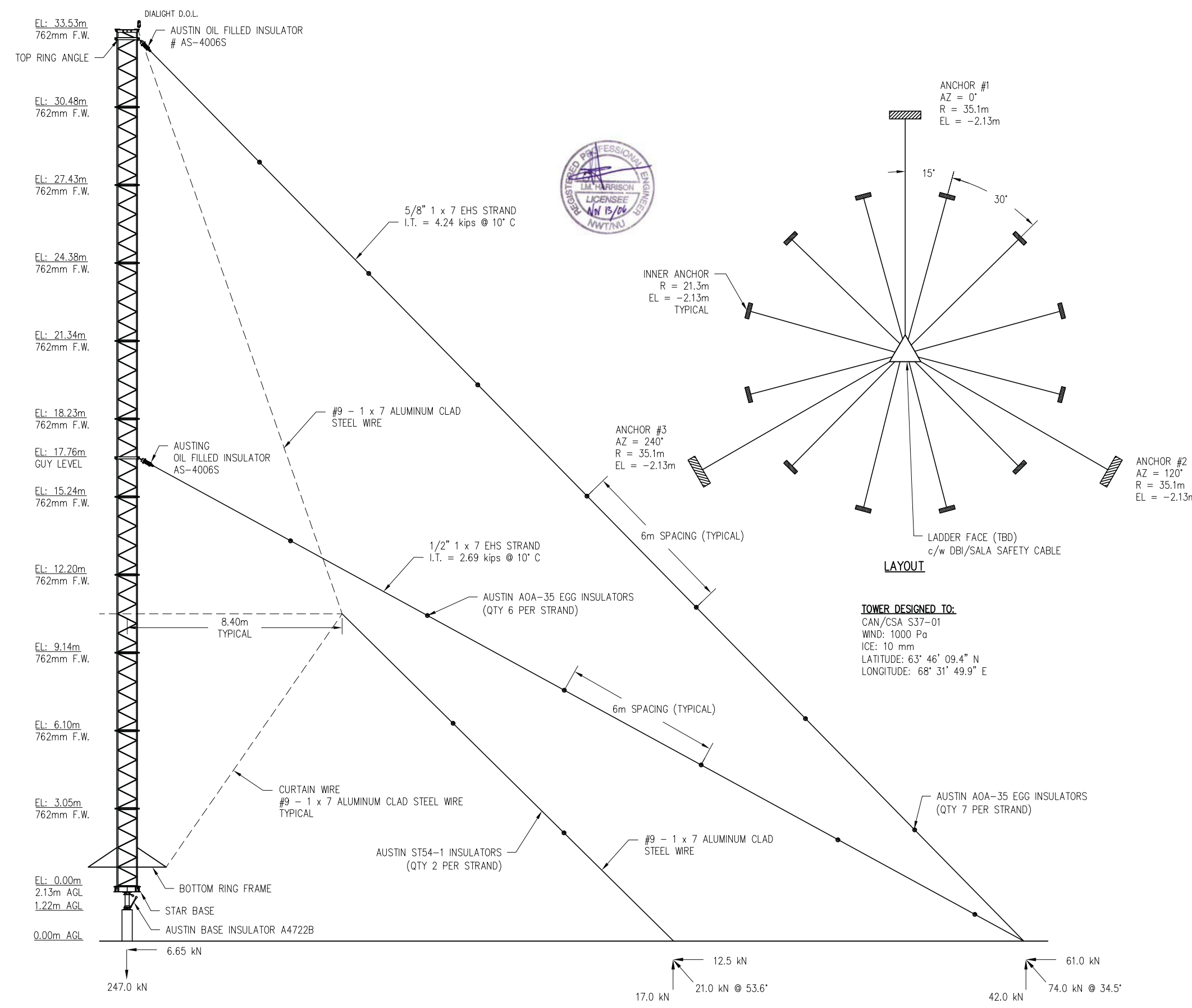
ALLAN PIPE FAB INC.
395 DOBBIE DRIVE
CAMBRIDGE, ON, CANADA
P: (519) 622-6013 F: (519) 622-7062

Drawn By:	MO	Checked By:		Date:	08 MAR 17	Scale:	1:20
Customer:	ADVANTAGE TOWER	Site Name/Code:	IQUALUIT, NU	Job No:	3424		
Drawing Title:	FALL PROTECTION DETAILS					Drawing No.:	3424.924.150-1

Y:\JOB FOLDERS\2914 - Canadian Coast Guards 110'30" AWGT\2 - BOM, DRAWINGS, ENGINEERING DATA\2914.930.102-1.dwg, 11/13/06 1:24:53 PM, Mike Orsan, Allan Pipe Fab Inc

NOTE: PAINT 7 EQUAL BANDS

PAINT					
LEG	1-3/4" SOLID ROUND	3/8" x 3" FLAT BAR			
DIAGONAL	3/4" S.R.				
SPLICE PAD	PL 6" x 6" x 3/4"				
SPLICE BOLTS	1" x 3-1/4" A325 BOLT ASSY (3 PER LEG)				
SECTION No.					
			960.3.0006.001		
			930.3.0004.001		
			930.3.0004.001		
			930.3.0004.001		
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			930.3.0004.001		
			930.3.0004.001		
			930.3.0004.001		



TOWER DESIGNED TO:
 CAN/CSA S37-01
 WIND: 1000 Pa
 ICE: 10 mm
 LATITUDE: 63° 46' 09.4" N
 LONGITUDE: 68° 31' 49.9" E

Rev.	Rev'd By:	App'd By:	Rev. Description	Date	Rev.	Rev'd By:	App'd By:	Rev. Description	Date
A	MO		ISSUE FOR APPROVAL	06 SEP 21					
B	MO		ADDED FACTORED LOADING	06 OCT 19					
C	MO		CHANGED INSULATOR SPACING	06 OCT 24					
D	MO		REVISED TOWER LOADING	06 NOV 13					

Notes:
 1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE
 2. ALL STRUCTURAL STEEL SHALL BE G40.21 - 300W (44W) OR BETTER
 3. LIMIT STATES DESIGN, FACTORED LOADING
 4. ALL MATERIAL TO BE HOT DIPPED GALVANIZED
 5. ALL GUY HARDWARE SHALL BE CROSBY

ALLAN PIPE FAB INC.
 395 DOBBIE DRIVE
 CAMBRIDGE, ON. CANADA
 P: (519) 622-6013 F: (519) 622-7062

Drawn By: MO	Checked By:	Date: 06 SEP 21	Scale: 1:110
Customer: P W & GOVERNMENT	Site Name/Code: IQUALUIT, NUNAVUT	Job No: 2914	
Drawing Title: TOWER PROFILE		Drawing No: 2914.930.102-1	

ADVANCED TOWER LTD.

PAGE 1 OF 2
 JOB# 03-2249
 DATE: OCT.,2003

BILL OF MATERIALS
 140' 24" GUYED TOWER
 22-1795
 CANADIAN COAST GUARD

SHIP BY: JAN. 15/04
 :INSTALLATION DRAWING
 :CUSTOMER

QTY. (1)	PART NO.	DESCRIPTION	INSTALLATION NOTES												
		FOUNDATION MATERIAL													
1	19-775-1	STARMOUNT BASE WELDMENT	BY OTHERS												
		TOWER SECTIONS													
11	24-100-16	2" LEG, 3/4" W-BRC, REG	(6) ORANGE (5) WHITE												
1	24-102-96	2" LEG, 3/4" W-BRC, TOP GUY	11/16" STR. (1) WHITE												
1	24-104-16	2" LEG, 3/4" X-BRC, REG	(1) ORANGE												
1	24-113-96	2" LEG, 3/4" W-BRC, TOP GUY (NO TX HORZ. REQUIRED)	11/16" STR. (1) ORANGE												
		SPLICE BOLTS													
130		5/8" DIA. x 2-1/4" A325 BOLT ASSEMBLIES													
		GUY HARDWARE	16-15D												
1080'		11/16" DIA. BRIDGE STRAND													
12		7/8" HEAVY THIMBLES													
84		11/16" GUY GRIPS													
12		3/4" S.P. ANCHOR SHACKLES													
6		1-1/4" x 18" J/E TURNBUCKLES													
36		AOA 120 GUY INSULATORS													
		<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>ELEV.</th> <th>MAT'L</th> <th>LENGTH</th> <th>C-LGTH</th> </tr> </thead> <tbody> <tr> <td>70'</td> <td>11/16"</td> <td>127'</td> <td>147'</td> </tr> <tr> <td>140'</td> <td>11/16"</td> <td>191'</td> <td>211'</td> </tr> </tbody> </table>	ELEV.	MAT'L	LENGTH	C-LGTH	70'	11/16"	127'	147'	140'	11/16"	191'	211'	
ELEV.	MAT'L	LENGTH	C-LGTH												
70'	11/16"	127'	147'												
140'	11/16"	191'	211'												
		LOCKING HARDWARE	16-26												
3 x 25'		3/16" GALV. CHAIN													
3		3/8" DIA. BOLT ASSEMBLIES C/W (2) NUTS & FLAT WASHERS													
		TOPMOUNT	9-76												
2	9-583-37	2 x 2 x 3/16" CLIP ANGLE - 13-13/16" LG.													
1		2-7/8" O.D. ALUMINUM PIPE - 10'-0" LG.													
2	31-309-11	1/2" DIA. U-BOLTS - 3-5/8" C/C													
		SIDEMOUNTS @ 123' & 93'	9-76												
4	9-717-374	2-1/2 x 2-1/2 x 3/16" L SUPPORT ANGLE - 43-1/2" LG.													
8	31-309-8	1/2" DIA. U-BOLTS - 2-5/8" C/C													
4	31-309-9	1/2" DIA. U-BOLTS - 2-7/8" C/C													
		SAFETY CABLE													
200'		DBI/SALA SAFETY CABLE SYSTEM C/W BRC. HARDWARE (NO SLIDING OR HARNESS)													
		ANTI-CLIMB													
3	6-351-1	A3/4-.125R ALUMINUM EXP. METAL PANELS													
30		MLT 4H LP TYRAPS													

RECEIVED BY
 MAR 17 2004
 FACILITIES ENGINEERING



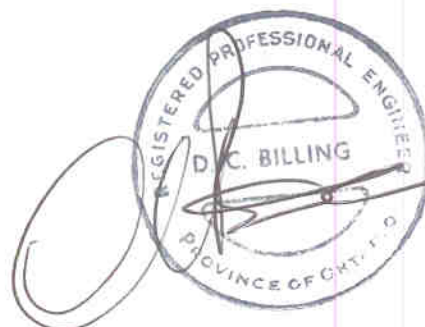
ADVANCED TOWER LTD.

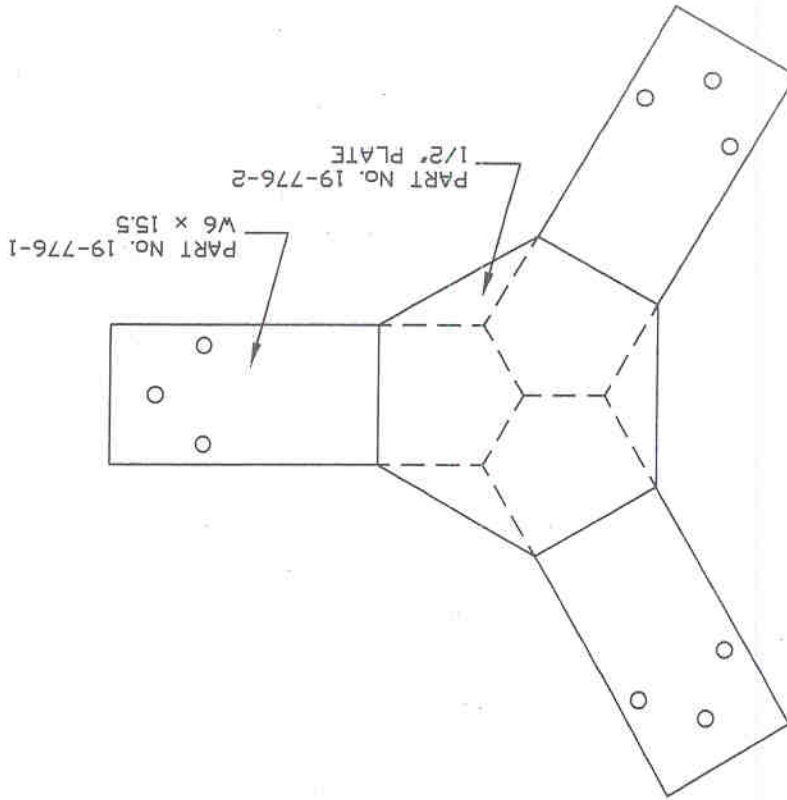
PAGE 2 OF 2
 JOB# **03-2249**
 DATE: OCT.,2003

BILL OF MATERIALS
140' 24" GUYED TOWER
 22-1795
CANADIAN COAST GUARD

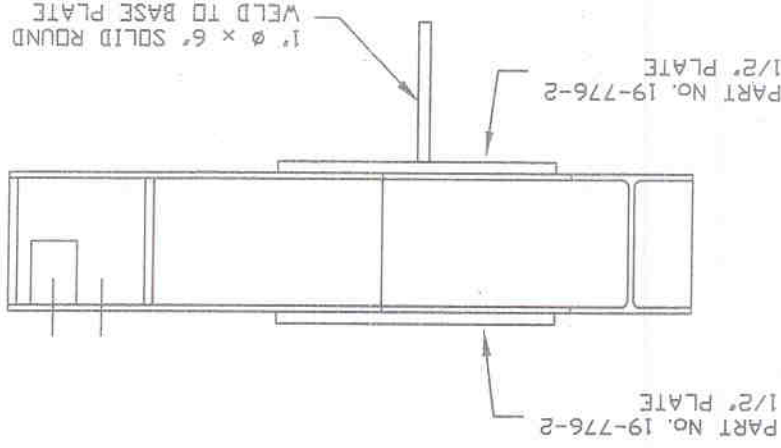
SHIP BY:
 :INSTALLATION DRAWING
 :CUSTOMER

QTY. (1)	PART NO.	DESCRIPTION	INSTALLATION NOTES
		<u>PULLEY MOUNT</u>	31-906
1	31-905-1	PULLEY ASSEMBLY	
2	31-905-2	6 x 6 x 3/8" SUPPORT ANGLE - 29" LG.	
2		5/16" S.P. ANCHOR SHACKLES	
8	31-309-8	1/2" DIA. U-BOLTS - 2-5/8" C/C	
		<u>WINCH MOUNT KIT @ BOTTOM</u>	
1	31-911-1	3 x 3 x 1/4" HSS BRACKET - 28-3/4" LG.	
4	31-310-7	5/8" DIA. U-BOLTS - 2-3/4" C/C	
		<u>LIGHTING</u>	2-207C
1		860-1R01-002 DUAL SERIES DIALIGHT	
1		1" to 3/4" REDUCER BUSHING	
1		3/4 x 7" RIGID NIPPLES	
1		3/4" COUPLER	
3		3/4 x 1/2" REDUCER BUSHINGS	
6		TMC-6550 APPLETON WATERTIGHT CONNECTOR	
10		#2 MARR CONNECTORS	
1	2-146-2	LIGHTING ANGLE BRACKET	
2	31-309-3	1/2" DIA. U-BOLTS - 1-5/8" C/C	
2	2-145-11	ELECT. BOX MOUNTING PLATE	
2		BKXM-2 APPLETON BOX	
2		CBK APPLETON CAST COVER	
2		BKG APPLETON GASKET	
8		#10 - 24 x 1/2" MACHINE SCREWS	
6		3/4" PLUGS (1 WITH DRAIN HOLE)	
4	31-309-8	1/2" DIA. U-BOLTS - 2-5/8" C/C	
2		1/4" DIA. x 1" GR.5 BOLT ASSEMBLIES	
55m		14/2 TECK CABLE	
50		PLT4H PANDUIT STRAPS (@ 3'-0" SPACING)	
1 CAN		ORANGE TOUCH-UP PAINT	
1 CAN		WHITE TOUCH-UP PAINT	
1 SET		BILL OF MATERIALS, INSTALLATION DRAWINGS & PULSE TIMES	





TOP VIEW



PROFILE

FOR F.W. TOWER WITH 5 x 5\"/>

NOTE: SHIP-FIT BASE STARMOUNT TO REGULAR TOWER SECTION

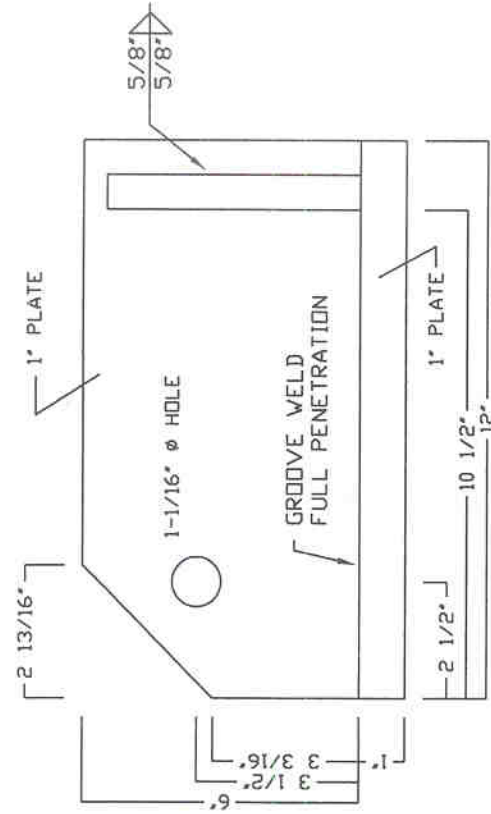
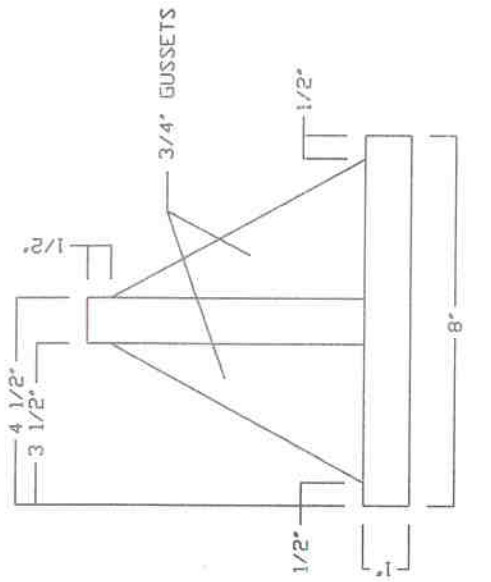


STARMOUNT BASE ASSEMBLY

scale	1 : 8	dr.w. by	S.P.B.
date	OCT., 2003	app.	

ADVANCED TOWER LTD.

no. 19-775

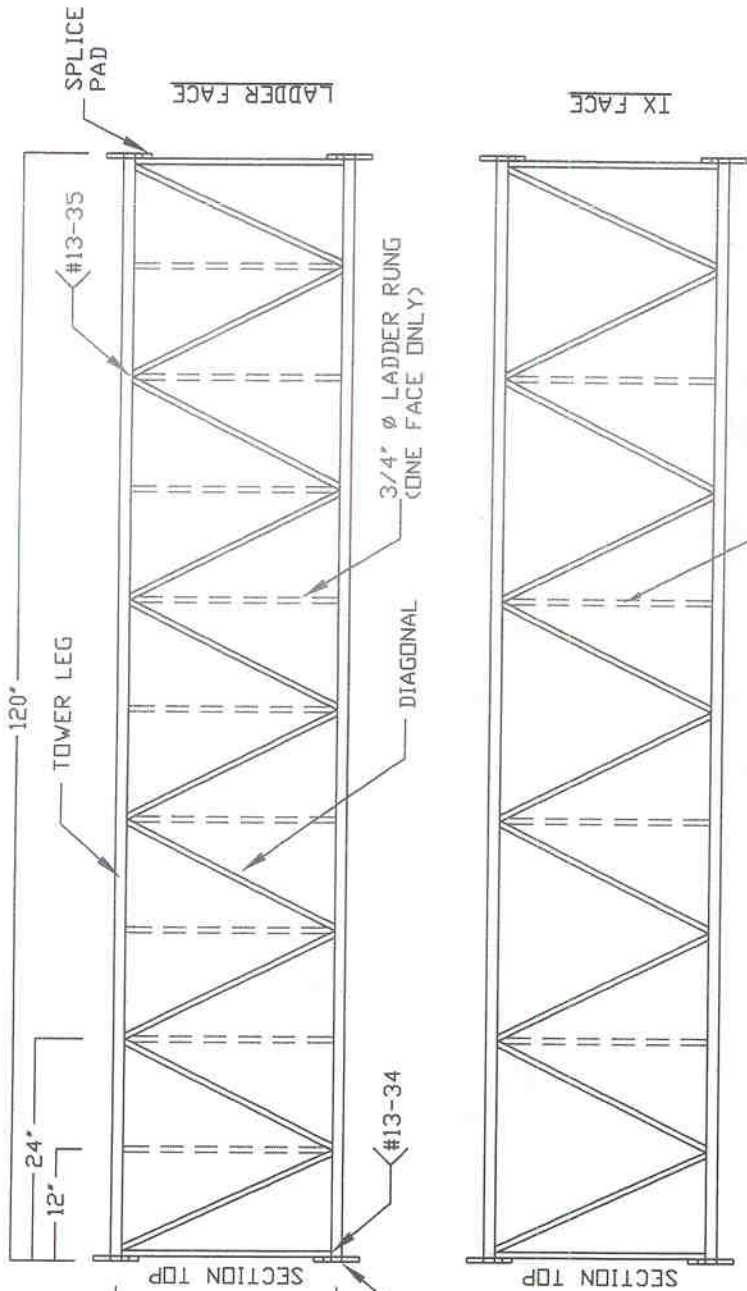


PART No. 19-783-1



ALL MATERIAL HOT DIPPED GALVANIZED STEEL G40.21 MIN. YIELD 44,000 PSI

ANCHOR HEAD WELDMENT	
scale 1 : 4	dr.w. by S.P.B.
date OCT.,2003	app.
ADVANCED TOWER LTD. no. 19-783	



PART No.	LEG SIZE	DIAG. SIZE	HORZ. SIZE	SPLICE PADS	SECTION WEIGHT
24-100-1	1"	5/8"	3/4"	31-56-5	225#
24-100-2	1-1/8"	5/8"	3/4"	31-56-7	245#
24-100-3	1-1/4"	5/8"	3/4"	31-56-9	270#
24-100-4	1-3/8"	5/8"	3/4"	31-56-11	296#
24-100-5	1-1/2"	5/8"	3/4"	31-56-13	325#
24-100-6	1-5/8"	5/8"	3/4"	31-56-14	357#
24-100-7	1-3/4"	5/8"	3/4"	31-2-30	390#
24-100-8	2"	5/8"	3/4"	31-2-24	465#
24-100-9	1"	3/4"	3/4"	31-56-5	256#
24-100-10	1-1/8"	3/4"	3/4"	31-56-7	277#
24-100-11	1-1/4"	3/4"	3/4"	31-56-9	301#
24-100-12	1-3/8"	3/4"	3/4"	31-56-11	327#
24-100-13	1-1/2"	3/4"	3/4"	31-56-13	356#
24-100-14	1-5/8"	3/4"	3/4"	31-56-14	388#
24-100-15	1-3/4"	3/4"	3/4"	31-2-30	421#
24-100-16	2"	3/4"	3/4"	31-2-24	496#

WELD DATA SHEET #13-17

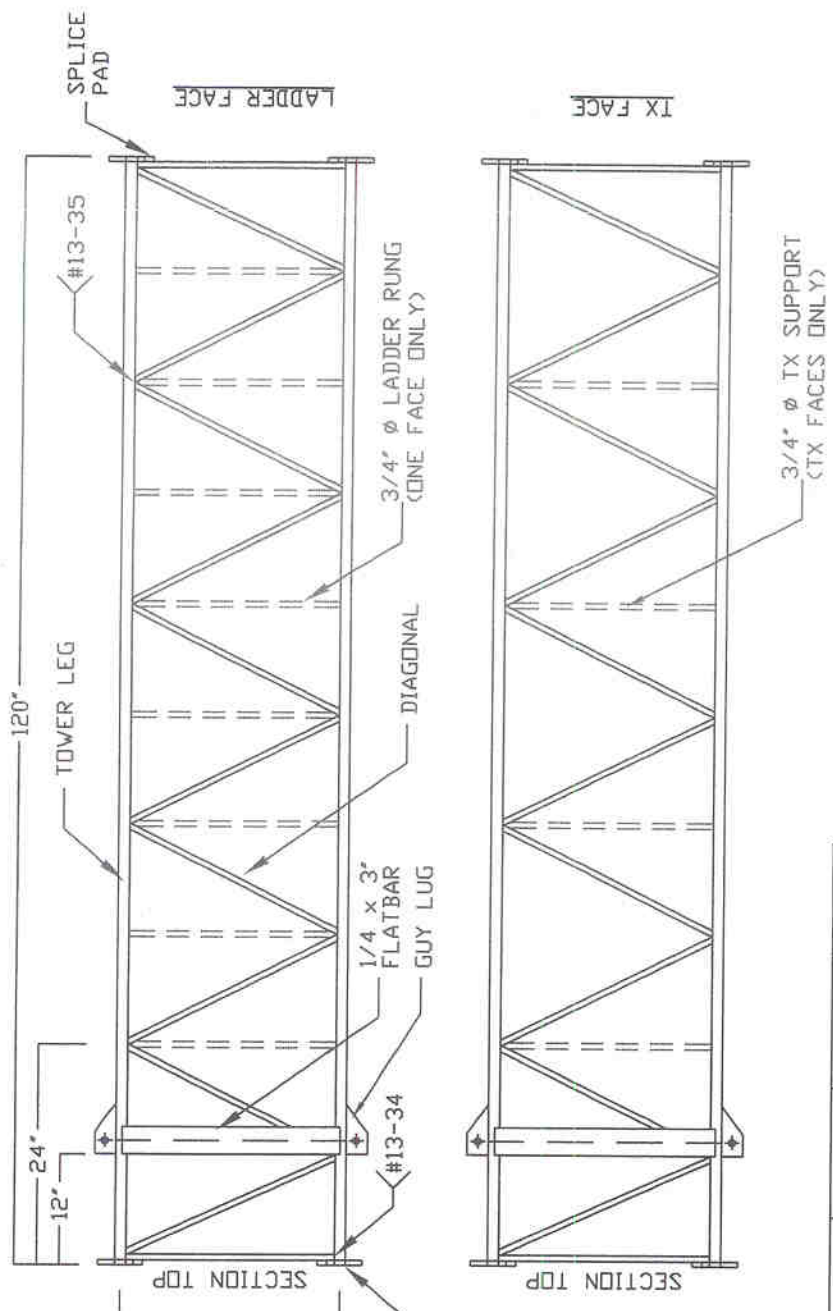


NOTES:
 WELD LADDER RUNGS ON ALL SECTIONS
 WELD TX SUPPORT RUNGS ON SECTIONS ONLY WHERE REQUIRED
 (SEE B.O.M. FOR DETAILS)
 TOTAL DIAGONAL LENGTH 67'
 TOTAL HORIZONTAL LENGTH 12'
 TOTAL LADDER RUNG LENGTH 18'
 ALL MATERIAL HOT DIPPED GALVANIZED
 STEEL G40.21 MIN. YIELD 44,000 PSI

24" REGULAR TOWER SECTION

scale 1 : 20 dr.w. by S.P.B.
 date FEB.,2002 app.

ADVANCED TOWER LTD. no. 24-100



WELD DATA SHEET #13-17

NOTES:
 WELD LADDER RUNGS ON ALL SECTIONS
 WELD TX SUPPORT RUNGS ON SECTIONS ONLY WHERE REQUIRED
 (SEE B.O.M. FOR DETAILS)
 TOTAL DIAGONAL LENGTH 67'
 TOTAL HORIZONTAL LENGTH 12'
 TOTAL LADDER RUNG LENGTH 18'

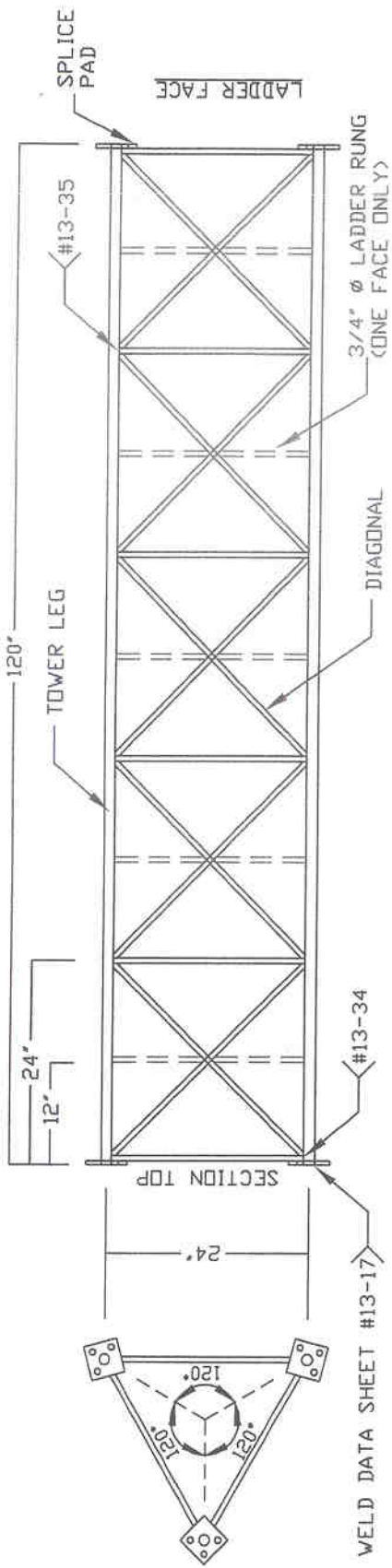
ALL MATERIAL HOT DIPPED GALVANIZED
 STEEL G40.21 MIN. YIELD 44,000 PSI

PART No.	LEG SIZE	DIAG. SIZE	HORZ. SIZE	SPLICE PADS	GUY LUG PART No.	STRAND SIZE	SECTION WEIGHT
24-102-81	1"	5/8"	3/4"	31-56-5	32-45-19	5/8",11/16"	225#
24-102-82	1-1/8"	5/8"	3/4"	31-56-7	32-45-19	5/8",11/16"	246#
24-102-83	1-1/4"	5/8"	3/4"	31-56-9	32-45-19	5/8",11/16"	270#
24-102-84	1-3/8"	5/8"	3/4"	31-56-11	32-45-19	5/8",11/16"	296#
24-102-85	1-1/2"	5/8"	3/4"	31-56-13	32-45-19	5/8",11/16"	325#
24-102-86	1-5/8"	5/8"	3/4"	31-56-14	32-45-19	5/8",11/16"	357#
24-102-87	1-3/4"	5/8"	3/4"	31-2-30	32-45-19	5/8",11/16"	390#
24-102-88	2"	5/8"	3/4"	31-2-24	32-45-19	5/8",11/16"	465#
24-102-89	1"	3/4"	3/4"	31-56-5	32-45-19	5/8",11/16"	256#
24-102-90	1-1/8"	3/4"	3/4"	31-56-7	32-45-19	5/8",11/16"	277#
24-102-91	1-1/4"	3/4"	3/4"	31-56-9	32-45-19	5/8",11/16"	301#
24-102-92	1-3/8"	3/4"	3/4"	31-56-11	32-45-19	5/8",11/16"	327#
24-102-93	1-1/2"	3/4"	3/4"	31-56-13	32-45-19	5/8",11/16"	356#
24-102-94	1-5/8"	3/4"	3/4"	31-56-14	32-45-19	5/8",11/16"	388#
24-102-95	1-3/4"	3/4"	3/4"	31-2-30	32-45-19	5/8",11/16"	421#
24-102-96	2"	3/4"	3/4"	31-2-24	32-45-19	5/8",11/16"	496#

24" TDP GUY TOWER SECTION

scale 1 : 20
 date FEB,2002
 dr.w. by S.P.B.
 app.

ADVANCED TOWER LTD. no. 24-102 F



PART No.	LEG SIZE	DIAG. SIZE	HORZ. SIZE	SPLICE PADS	SECTION WEIGHT
24-104-1	1"	5/8"	3/4"	31-56-5	268#
24-104-2	1-1/8"	5/8"	3/4"	31-56-7	289#
24-104-3	1-1/4"	5/8"	3/4"	31-56-9	313#
24-104-4	1-3/8"	5/8"	3/4"	31-56-11	340#
24-104-5	1-1/2"	5/8"	3/4"	31-56-13	368#
24-104-6	1-5/8"	5/8"	3/4"	31-56-14	400#
24-104-7	1-3/4"	5/8"	3/4"	31-2-30	433#
24-104-8	2"	5/8"	3/4"	31-2-24	508#
24-104-9	1"	3/4"	3/4"	31-56-5	307#
24-104-10	1-1/8"	3/4"	3/4"	31-56-7	328#
24-104-11	1-1/4"	3/4"	3/4"	31-56-9	352#
24-104-12	1-3/8"	3/4"	3/4"	31-56-11	379#
24-104-13	1-1/2"	3/4"	3/4"	31-56-13	407#
24-104-14	1-5/8"	3/4"	3/4"	31-56-14	439#
24-104-15	1-3/4"	3/4"	3/4"	31-2-30	472#
24-104-16	2"	3/4"	3/4"	31-2-24	547#

PART No.	LEG SIZE	DIAG. SIZE	HORZ. SIZE	SPLICE PADS	SECTION WEIGHT
24-104-17	1"	7/8"	3/4"	31-56-5	353#
24-104-18	1-1/8"	7/8"	3/4"	31-56-7	374#
24-104-19	1-1/4"	7/8"	3/4"	31-56-9	398#
24-104-20	1-3/8"	7/8"	3/4"	31-56-11	425#
24-104-21	1-1/2"	7/8"	3/4"	31-56-13	453#
24-104-22	1-5/8"	7/8"	3/4"	31-56-14	485#
24-104-23	1-3/4"	7/8"	3/4"	31-2-30	518#
24-104-24	2"	7/8"	3/4"	31-2-24	593#
24-104-25	1"	1"	3/4"	31-56-5	406#
24-104-26	1-1/8"	1"	3/4"	31-56-7	427#
24-104-27	1-1/4"	1"	3/4"	31-56-9	451#
24-104-28	1-3/8"	1"	3/4"	31-56-11	478#
24-104-29	1-1/2"	1"	3/4"	31-56-13	506#
24-104-30	1-5/8"	1"	3/4"	31-56-14	538#
24-104-31	1-3/4"	1"	3/4"	31-2-30	571#
24-104-32	2"	1"	3/4"	31-2-24	646#

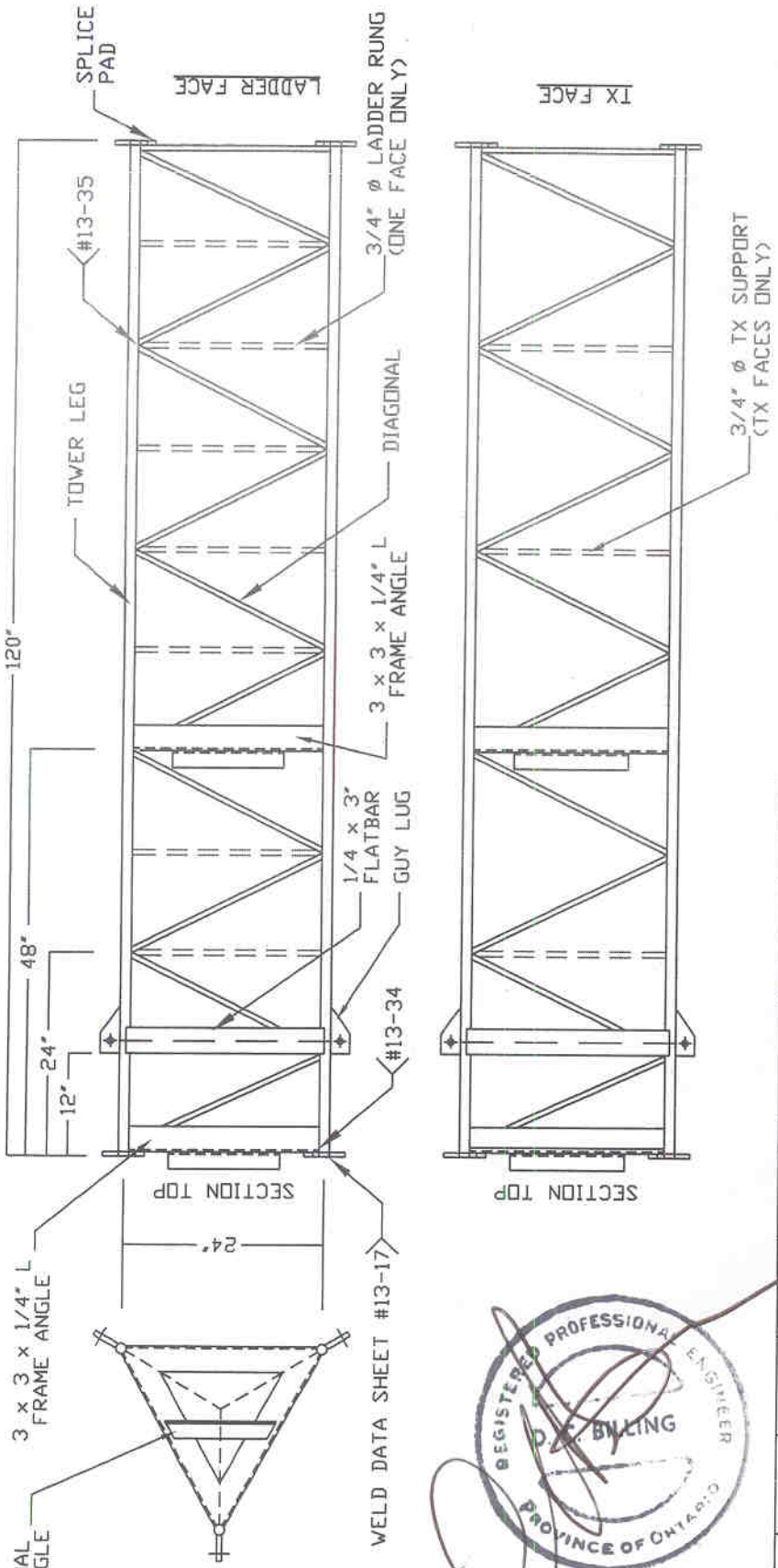


NOTES:
 WELD LADDER RUNGS ON ALL SECTIONS
 TOTAL DIAGONAL LENGTH 85'
 TOTAL HORIZONTAL LENGTH 36'
 TOTAL LADDER RUNG LENGTH 10'

ALL MATERIAL HOT DIPPED GALVANIZED
 STEEL G40.21 MIN. YIELD 44,000 PSI

24" X-BRC. TOWER SECTION

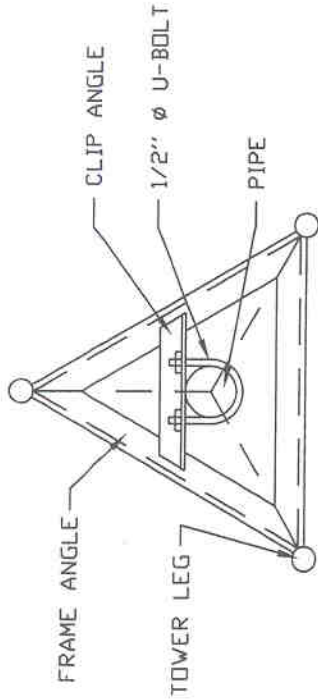
scale 1 : 20 dr.w. by S.P.B.
 date FEB.,2002 app.
 ADVANCED TOWER LTD. no. 24-104



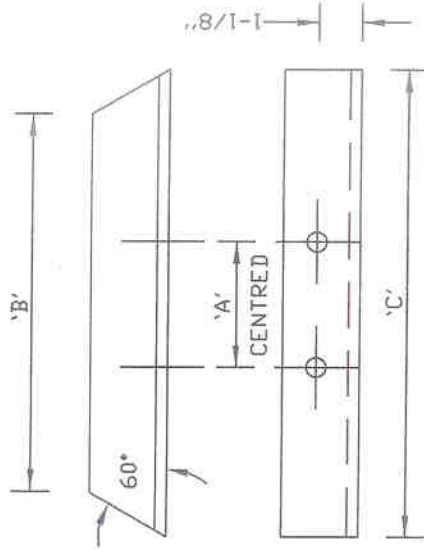
NOTES:
 WELD LADDER RUNGS ON ALL SECTIONS
 WELD TX SUPPORT RUNGS ON SECTIONS ONLY WHERE REQUIRED
 (SEE B.O.M. FOR DETAILS)
 TOTAL DIAGONAL LENGTH 67'
 TOTAL HORIZONTAL LENGTH 12'
 TOTAL LADDER RUNG LENGTH 18'
 ALL MATERIAL HOT DIPPED GALVANIZED
 STEEL G40.21 MIN. YIELD 44,000 PSI

24" W-BRC. TOP TOWER SECTION	
scale	1 : 20
date	DCT., 2003
drw. by	S.P.B.
app.	
ADVANCED TOWER LTD. no. 24-113 F	

PART No.	LEG SIZE	DIAG. SIZE	HORZ. SIZE	SPLICE PADS	GUY LUG PART No.	STRAND SIZE	SECTION WEIGHT
24-113-81	1"	5/8"	3/4"	31-56-5	32-45-19	5/8", 11/16"	225#
24-113-82	1-1/8"	5/8"	3/4"	31-56-7	32-45-19	5/8", 11/16"	246#
24-113-83	1-1/4"	5/8"	3/4"	31-56-9	32-45-19	5/8", 11/16"	270#
24-113-84	1-3/8"	5/8"	3/4"	31-56-11	32-45-19	5/8", 11/16"	296#
24-113-85	1-1/2"	5/8"	3/4"	31-56-13	32-45-19	5/8", 11/16"	325#
24-113-86	1-5/8"	5/8"	3/4"	31-56-14	32-45-19	5/8", 11/16"	357#
24-113-87	1-3/4"	5/8"	3/4"	31-2-30	32-45-19	5/8", 11/16"	390#
24-113-88	2"	5/8"	3/4"	31-2-24	32-45-19	5/8", 11/16"	465#
24-113-89	1"	3/4"	3/4"	31-56-5	32-45-19	5/8", 11/16"	256#
24-113-90	1-1/8"	3/4"	3/4"	31-56-7	32-45-19	5/8", 11/16"	277#
24-113-91	1-1/4"	3/4"	3/4"	31-56-9	32-45-19	5/8", 11/16"	301#
24-113-92	1-3/8"	3/4"	3/4"	31-56-11	32-45-19	5/8", 11/16"	327#
24-113-93	1-1/2"	3/4"	3/4"	31-56-13	32-45-19	5/8", 11/16"	356#
24-113-94	1-5/8"	3/4"	3/4"	31-56-14	32-45-19	5/8", 11/16"	388#
24-113-95	1-3/4"	3/4"	3/4"	31-2-30	32-45-19	5/8", 11/16"	421#
24-113-96	2"	3/4"	3/4"	31-2-24	32-45-19	5/8", 11/16"	496#



MAT'L: 2 x 2 x 3/16" L
ALL HOLES 9/16" ø



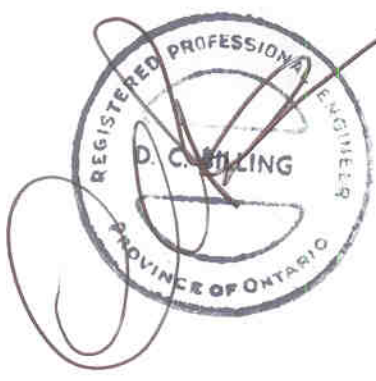
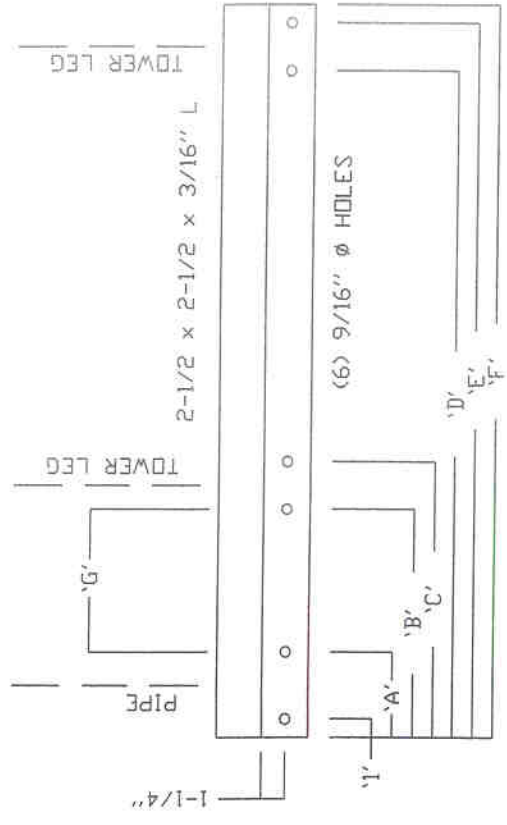
PART DETAIL

PART No.	'A'	'B'	'C'	PIPE O.D.	U-BOLT	TOWER	PART No.	'A'	'B'	'C'	PIPE O.D.	U-BOLT	TOWER
9-583-1	2-5/8"	4-1/16"	6-3/8"	1.9"	31-309-8	12"	9-583-20	3-1/8"	8-1/2"	10-7/8"	2-3/8"	31-309-10	19-1/8"
9-583-2	3-1/8"	3-13/16"	6-1/8"	2-3/8"	31-309-10	12"	9-583-21	3-5/8"	8-1/4"	10-1/2"	2-7/8"	31-309-11	19-1/8"
9-583-3	3-5/8"	3-1/2"	5-13/16"	2-7/8"	31-309-11	12"	9-583-22	4-1/8"	7-15/16"	10-1/4"	3-1/2"	31-309-12	19-1/8"
9-583-4	2-5/8"	4-7/8"	7-1/8"	1.9"	31-309-8	13-1/8"	9-583-23	2-5/8"	9-7/16"	11-3/4"	1.9"	31-309-8	20"
9-583-5	3-1/8"	4-1/2"	6-7/8"	2-3/8"	31-309-10	13-1/8"	9-583-24	3-1/8"	9-1/8"	12-1/2"	2-3/8"	31-309-10	20"
9-583-6	3-5/8"	4-1/4"	6-1/2"	2-7/8"	31-309-11	13-1/8"	9-583-25	3-5/8"	8-7/8"	11-1/8"	2-7/8"	31-309-11	20"
9-583-7	2-5/8"	6-1/16"	8-3/8"	1.9"	31-309-8	15"	9-583-26	4-1/8"	8-1/2"	10-3/4"	3-1/2"	31-309-12	20"
9-583-8	3-1/8"	5-13/16"	8-1/8"	2-3/8"	31-309-10	15"	9-583-27	2-5/8"	10-1/16"	12-3/8"	1.9"	31-309-8	21"
9-583-9	3-5/8"	5-1/2"	7-13/16"	2-7/8"	31-309-11	15"	9-583-28	3-1/8"	9-13/16"	12-1/8"	2-3/8"	31-309-10	21"
9-583-10	4-1/8"	5-3/16"	7-1/2"	3-1/2"	31-309-12	15"	9-583-29	3-5/8"	9-1/2"	11-13/16"	2-7/8"	31-309-11	21"
9-583-11	2-5/8"	6-7/8"	9-1/8"	1.9"	31-309-8	16-1/8"	9-583-30	4-1/8"	9-3/16"	11-1/2"	3-1/2"	31-309-12	21"
9-583-12	3-1/8"	6-1/2"	8-7/8"	2-3/8"	31-309-10	16-1/8"	9-583-31	2-5/8"	10-7/8"	13-1/8"	1.9"	31-309-8	22-1/8"
9-583-13	3-5/8"	6-1/4"	8-1/2"	2-7/8"	31-309-11	16-1/8"	9-583-32	3-1/8"	10-1/2"	12-7/8"	2-3/8"	31-309-10	22-1/8"
9-583-14	4-1/8"	5-15/16"	8-1/4"	3-1/2"	31-309-12	16-1/8"	9-583-33	3-5/8"	10-1/4"	12-1/2"	2-7/8"	31-309-11	22-1/8"
9-583-15	2-5/8"	8-1/16"	10-3/8"	1.9"	31-309-8	18"	9-583-34	4-1/8"	9-15/16"	12-1/4"	3-1/2"	31-309-12	22-1/8"
9-583-16	3-1/8"	7-13/16"	10-1/8"	2-3/8"	31-309-10	18"	9-583-35	2-5/8"	12-1/16"	14-3/8"	1.9"	31-309-8	24"
9-583-17	3-5/8"	7-1/2"	9-13/16"	2-7/8"	31-309-11	18"	9-583-36	3-1/8"	11-13/16"	14-1/8"	2-3/8"	31-309-10	24"
9-583-18	4-1/8"	7-3/16"	9-1/2"	3-1/2"	31-309-12	18"	9-583-37	3-5/8"	11-1/2"	13-13/16"	2-7/8"	31-309-11	24"
9-583-19	2-5/8"	8-7/8"	11-1/8"	1.9"	31-309-8	19-1/8"	9-583-38	4-1/8"	11-3/16"	13-1/2"	3-1/2"	31-309-12	24"



TOPMOUNT CLIP ANGLES

scale	NDT TO SCALE	drw. by	S.P.B.
date	SEPT., 1994	app.	
ADVANCED TOWER LTD.			no. 9-583



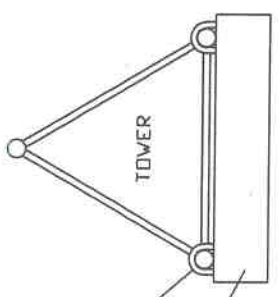
PART NO.	'A'	'B'	'C'	'D'	'E'	'F'	'G'	F.W.	LEG Ø	PIPE O.D.
9-717-371	4-1/8"	10-1/8"	12-3/4"	48-3/8"	51"	52"	6"	38-1/4"	2"	2-3/8"
9-717-372	3-5/8"	10-3/8"	13"	47-7/8"	50-1/2"	51-1/2"	6-3/4"	37-1/2"	2"	1.9"
9-717-373	3-5/8"	9-5/8"	12-1/4"	48-5/8"	51-1/4"	52-1/4"	6"	39"	2"	1.9"
9-717-374	3-7/8"	15-3/8"	18-1/2"	39-7/8"	42-1/2"	43-1/2"	12-1"	24-1"	2"	2-1/4"
9-717-375										
9-717-376										
9-717-377										
9-717-378										
9-717-379										
9-717-380										

STEEL G40.21 MIN. YIELD 44,000 PSI
ALL MATERIAL HOT DIPPED GALVANIZED

PIPEMOUNT SUPPORT ANGLE

scale NDT TO SCALE
date JAN., 2003
dr.w. by
app.

ADVANCED TOWER LTD. no. 9-717ZM



1/2" ϕ U-BOLTS
#31-309-8

PART No.
31-905-2

TOWER



±93' ELEV.

PART No.
31-905-2

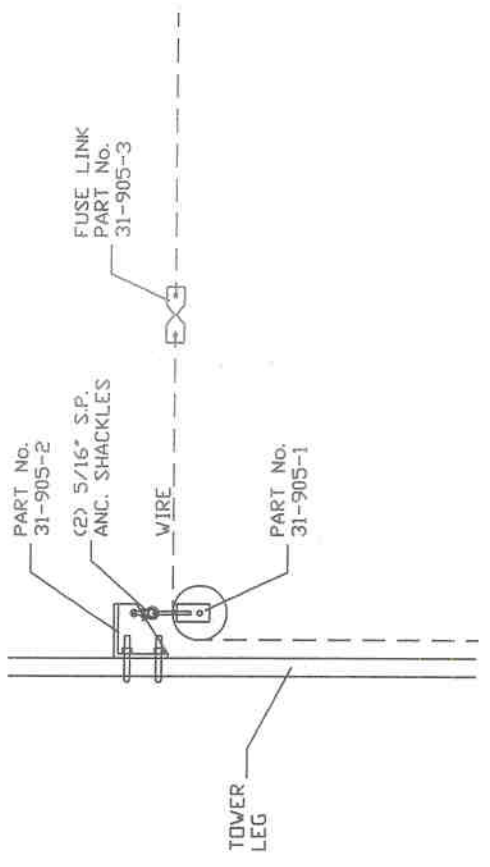
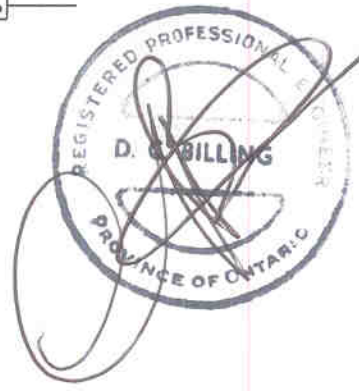
PART No.
31-905-1



MOUNT WINCH HERE

PART No.
31-905-2

TOWER BASE



PART No.
31-905-2

FUSE LINK
PART No.
31-905-3

WIRE

TOWER
LEG

PART No.
31-905-1

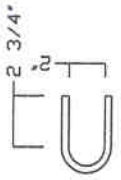
ALL MATERIAL HOT DIPPED GALVANIZED
STEEL G40.21 MIN. YIELD 44,000 PSI

PULLEY MOUNT INSTALLATION

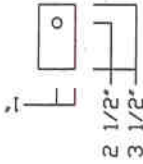
scale	1 : 20	dr.w. by	S.P.B.
date	OCT., 2003	app.	

ADVANCED TOWER LTD. no. 31-906

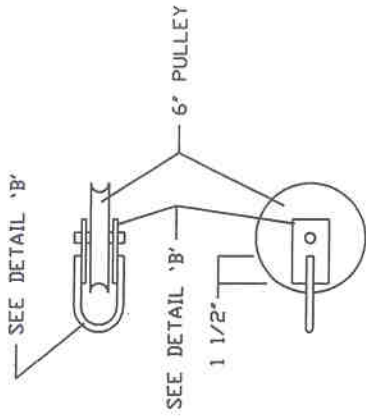
TOTAL LENGTH 9-7/8"



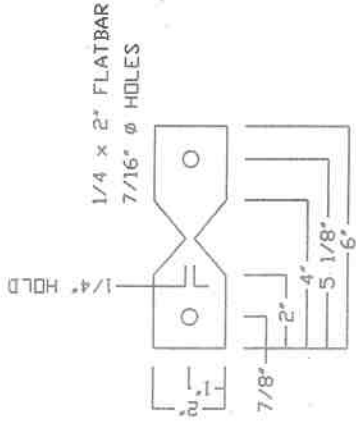
MAT'L: 3/8" ϕ S.R.
DETAIL 'B'



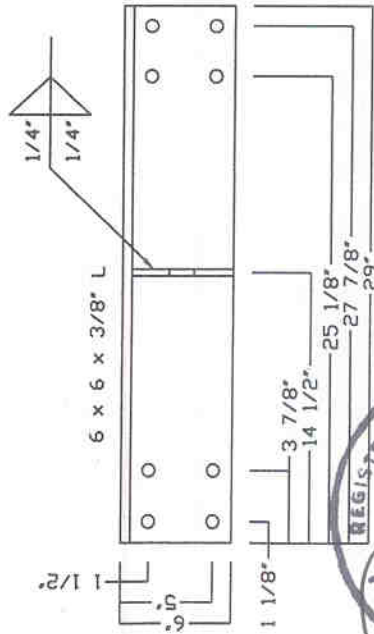
MAT'L: 1/4" x 2" F.B.
DETAIL 'C'



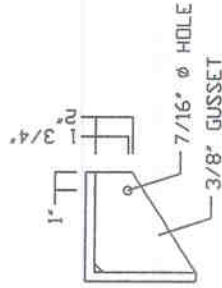
PART No. 31-905-1
SCALE - 1 : 10



PART No. 31-905-2
SCALE - 1 : 5



PART No. 31-905-2
SCALE - 1 : 10



NOTE: ALL HOLES 9/16" ϕ
UNLESS NOTED OTHERWISE

ALL MATERIAL HOT DIPPED GALVANIZED
STEEL G40.21 MIN. YIELD 44,000 PSI

PULLEY MOUNT PARTS

scale	AS SHOWN	dr.w. by	S.P.B.
date	DCT., 2003	app.	

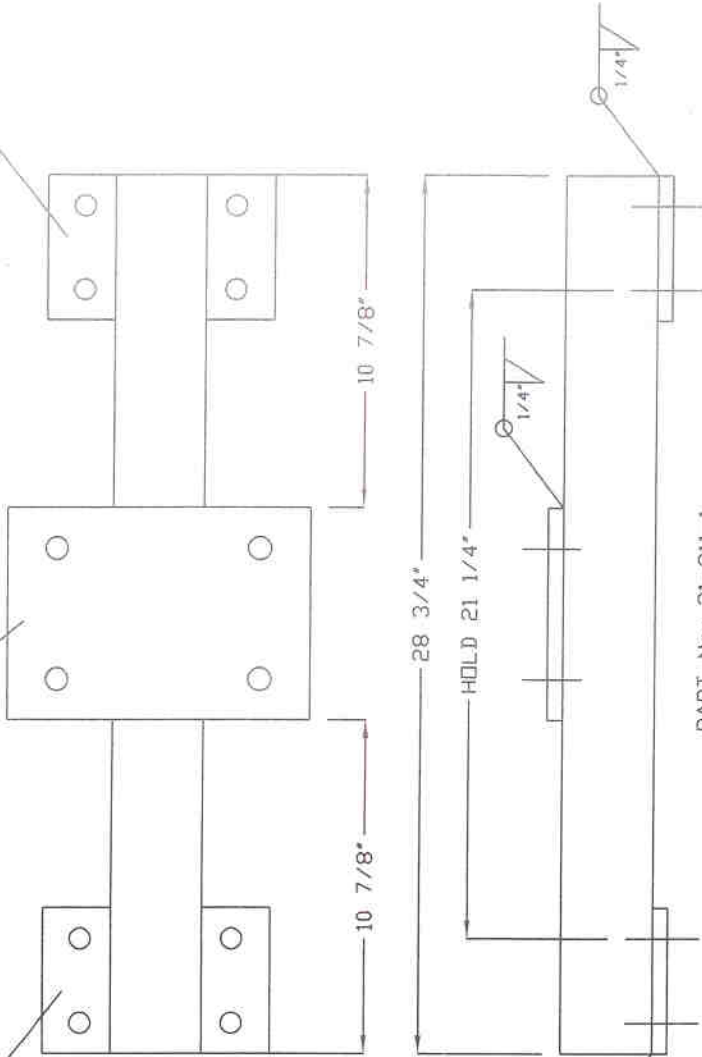
ADVANCED TOWER LTD. no. 31-905



PART No.: 31-911-3

PART No.: 31-911-2

PART No.: 31-911-3



PART No.: 31-911-1

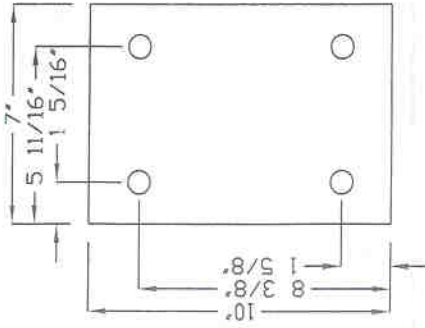
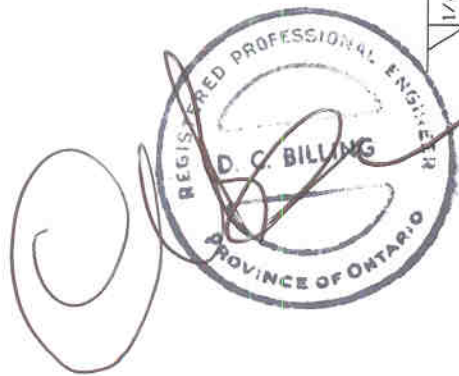
MAT'L: 3x3x0.250" HSS

ALL MATERIAL HOT DIPPED GALVANIZED
C1018 COLD ROLLED STEEL

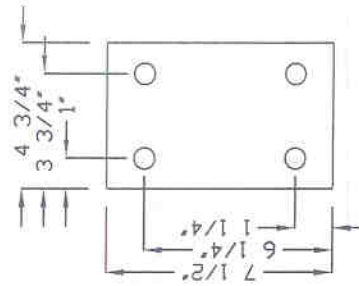
WINCH BRACKET

scale	NDT TO SCALE	drw. by	M.C.L.
date	JAN., 2004	app.	

ADVANCED TOWER LTD. no. 31-911

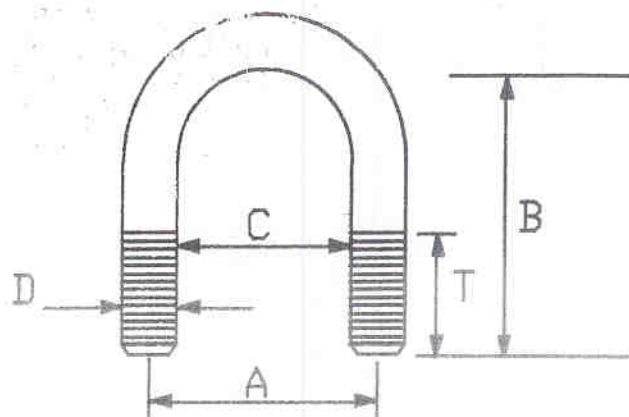


PART No.: 31-911-2
MAT'L: 1/2" PLATE
(4) 3/4" Ø HOLES

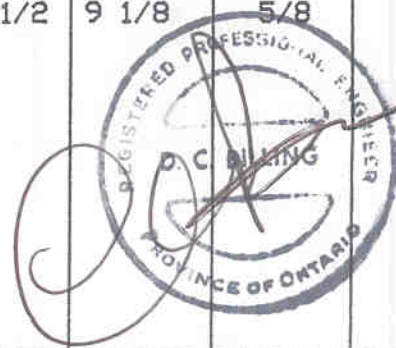


PART No.: 31-911-3
MAT'L: 1/2" PLATE
(4) 11/16" Ø HOLES

REVISED FEB. 19/92 - B & T LENGTHS



PART NO.	PIPE SIZE	S.R. O.D.	A C/C	B DEPTH	C	D DIA.	T THREAD
31-310-1		7/8	1 5/8	2	1	5/8	1 1/8
31-310-2	3/4	1	1 3/4	2 1/2	1 1/8	5/8	1 1/2
31-310-3		1 1/8	1 7/8	2 1/2	1 1/4	5/8	1 1/2
31-310-4	1	1 1/4	2	2 3/4	1 3/8	5/8	1 1/2
31-310-5		1 1/2	2 1/4	3 1/2	1 5/8	5/8	2
31-310-6	1 1/4	1 3/4	2 1/2	3 3/4	1 7/8	5/8	2
31-310-7	1 1/2	2	2 3/4	4	2 1/8	5/8	2
31-310-8		2 1/4	3	4 1/4	2 3/8	5/8	2
31-310-9	2	2 1/2	3 1/4	4 1/2	2 5/8	5/8	2
31-310-10	2 1/2	3	3 3/4	6	3 1/8	5/8	3
31-310-11	3	3 1/2	4 1/4	6 1/2	3 5/8	5/8	3
31-310-12	3 1/2	4	4 3/4	7	4 1/8	5/8	3
31-310-13	4	4 1/2	5 1/4	7 1/2	4 5/8	5/8	3
31-310-14		5	5 3/4	8	5 1/8	5/8	3
31-310-15	5	5 9/16	6 3/8	8 1/2	5 3/4	5/8	3
31-310-16	6	6 5/8	7 3/4	9 1/2	7 1/8	5/8	3
31-310-17	8	8 5/8	9 3/4	11 1/2	9 1/8	5/8	3



STANDARD 5/8" ϕ U-BOLTS

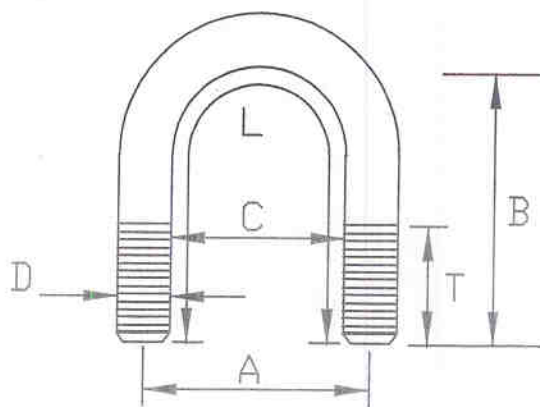
scale _____

date JAN. 1990

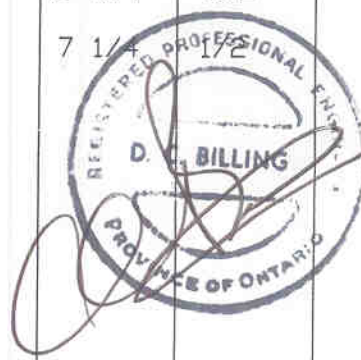
drw. by S.P.B.

app. _____

ADVANCED TOWER LTD. n.o. 31-310



PART NO.	PIPE SIZE	S.R. O.D.	A C/C	B DEPTH	C	D DIA.	T THREAD
31-309-1		3/4	1 3/8	2	7/8	1/2	1 1/4
31-309-2		7/8	1 1/2	2	1	1/2	1 1/8
31-309-3	3/4	1	1 5/8	2 1/2	1 1/8	1/2	1 5/8
31-309-4		1 1/8	1 3/4	2 1/2	1 1/4	1/2	1 1/2
31-309-5	1	1 1/4	1 7/8	2 3/4	1 3/8	1/2	2
31-309-6		1 1/2	2 1/8	3	1 5/8	1/2	1 1/2
31-309-7	1 1/4	1 3/4	2 3/8	3 1/4	1 7/8	1/2	2
31-309-8	1 1/2	2	2 5/8	3 1/2	2 1/8	1/2	2
31-309-9		2 1/4	2 7/8	3 3/4	2 3/8	1/2	2
31-309-10	2	2 1/2	3 1/8	4 3/4	2 5/8	1/2	2 3/4
31-309-11	2 1/2	3	3 5/8	4 1/2	3 1/8	1/2	2
31-309-12	3	3 1/2	4 1/8	5	3 5/8	1/2	2
31-309-13	3 1/2	4	4 5/8	5 1/2	4 1/8	1/2	2
31-309-14	4	4 1/2	5 1/8	7	4 5/8	1/2	3
31-309-15		5	5 5/8	7	5 1/8	1/2	3
31-309-16	5	5 9/16	6 1/4	7	5 3/4	1/2	2
31-309-17	6		7 3/4	9	7 1/4	1/2	2



ALL MATERIAL HOT DIPPED GALVANIZED
C1018 COLD ROLLED STEEL

STANDARD U-BOLTS

scale

date

JAN, 1990

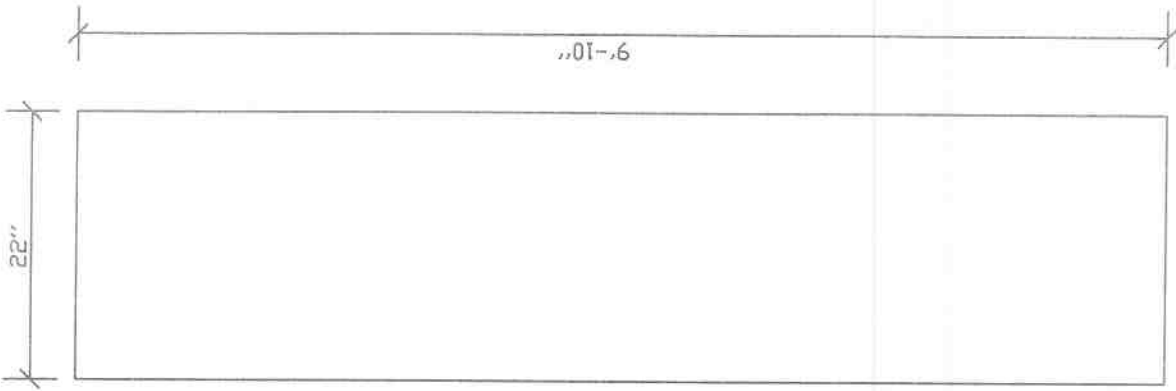
dr.w. by
app.

S.P.B.

ADVANCED TOWER LTD.

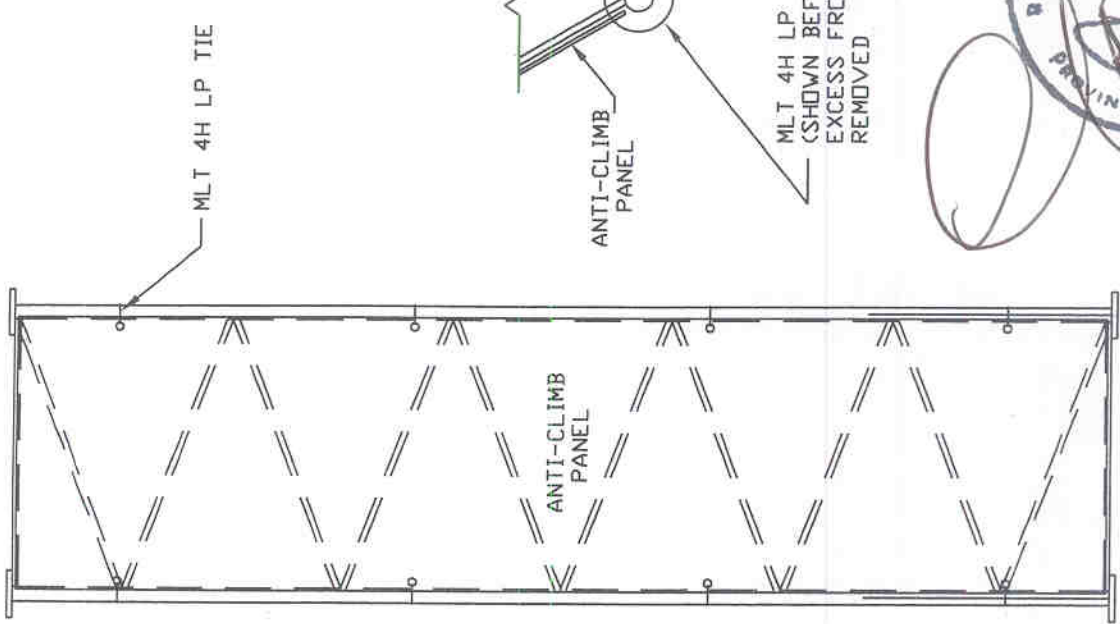
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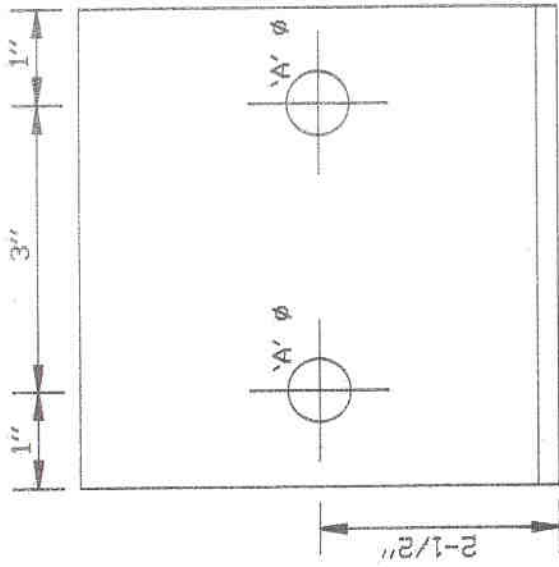
31-309



PART No. 6-351-1
 MAT'L: A3/4-125R ALUMINUM EXP. METAL

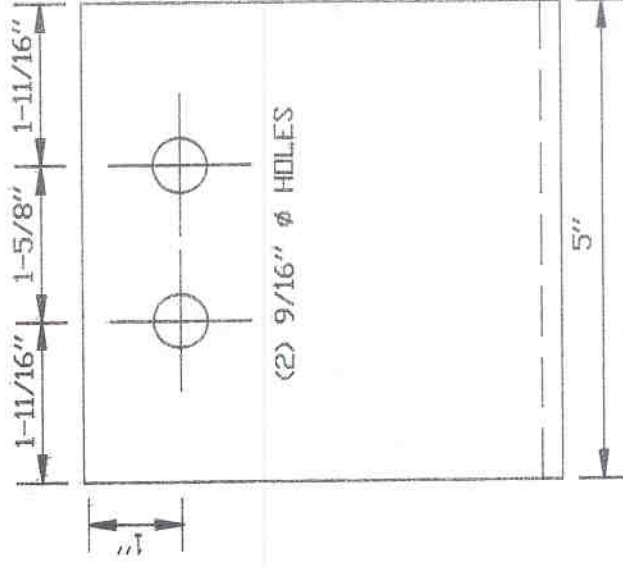
ANTI-CLIMB - 24" REG. SECTION	
Scale	NOT TO SCALE
date	OCT., 2003
drw. by	S.P.B.
app.	
ADVANCED TOWER LTD. no. 6-351	





MAT'L: 5 x 5 x 1/4" L

PART No.	'A' ϕ
2-146-1	13/16"
2-146-2	11/16"

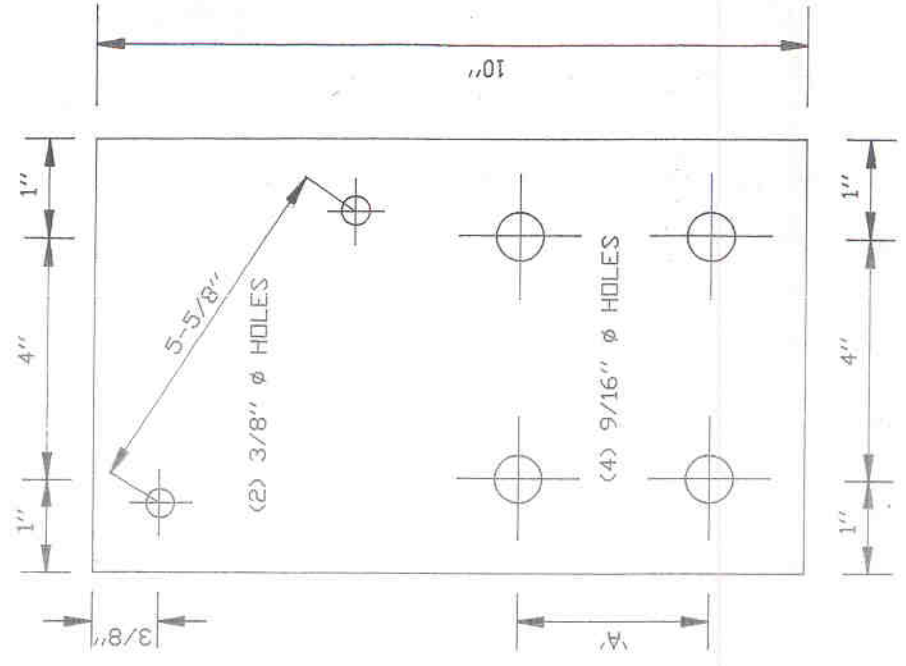


LIGHTING ANGLE BRACKET
FOR 5 x 5" PAD

Scale 1" = 2" drw. by S.P.B.
date APRIL, 1992 app. 2-146

ADVANCED TOWER LTD. No. 2-146

MOUNTING PLATE FOR MOUNTING ELECTRICAL BOX TO ROUND LEG



MAT'L: 1/4 X 6" FLATBAR



PART NO.	LEG SIZE	U-BOLT	'A'
2-145-1	3/4" ϕ	31-309-1	1-3/8"
2-145-2	7/8" ϕ	31-309-2	1-1/2"
2-145-3	1" ϕ	31-309-3	1-5/8"
2-145-4	1-1/8" ϕ	31-309-4	1-3/4"
2-145-5	1-1/4" ϕ	31-309-5	1-7/8"
2-145-6	1-3/8" ϕ	31-309-6	2-1/8"
2-145-7	1-1/2" ϕ	31-309-6	2-1/8"
2-145-8	1-5/8" ϕ	31-309-7	2-3/8"
2-145-9	1-3/4" ϕ	31-309-7	2-3/8"
2-145-10	1-7/8" ϕ	31-309-8	2-5/8"
2-145-11	2" ϕ	31-309-8	2-5/8"
2-145-12	2-1/8" ϕ	31-309-9	2-7/8"
2-145-13	2-1/4" ϕ	31-309-9	2-7/8"
2-145-14	2-1/2" ϕ	31-309-10	3-1/8"
2-145-15	2-7/8" ϕ	31-309-11	3-5/8"
2-145-16	3-1/2" ϕ	31-309-12	4-1/8"
2-145-17	4" ϕ	31-309-13	4-5/8"
2-145-18	4-1/2" ϕ	31-309-14	5-1/8"
2-145-19	5" ϕ	31-309-15	5-5/8"
2-145-20	5-9/16" ϕ	31-309-16	6-1/4"
2-145-21	6-5/8" ϕ	31-309-17	7-3/4"

NOTE: REVISED FROM 2-137 WITH NEW U-BOLT SIZES.

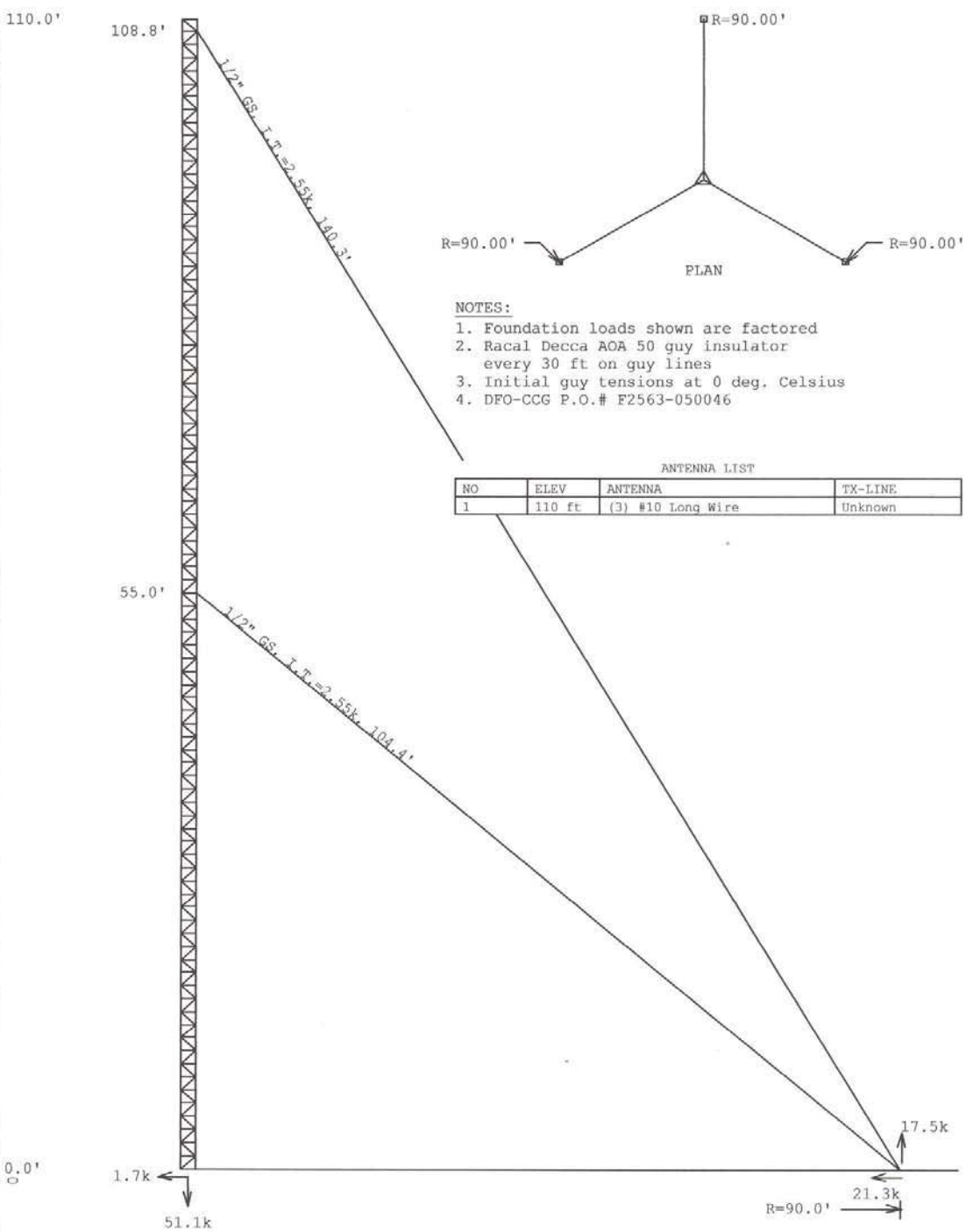
MOUNTING PLATE FOR MOUNTING ELEC. BOX

Scale NOT TO SCALE drw. by S.P.B.

date JAN., 1990 app.

ADVANCED TOWER LTD. no. 2-145


Leg	44	SR 1-1/4" ϕ
Diagonal	44	SR 5/8" ϕ
Horizontal	44	SR 5/8" ϕ
Brace Bolts	A325	0.525
Face Width	0	2.0'
Panel Height#Panels	0	1.2' #88



- NOTES:**
1. Foundation loads shown are factored
 2. Racal Decca AOA 50 guy insulator every 30 ft on guy lines
 3. Initial guy tensions at 0 deg. Celsius
 4. DFO-CCG P.O.# F2563-050046

ANTENNA LIST

NO	ELEV	ANTENNA	TX-LINE
1	110 ft	(3) #10 Long Wire	Unknown



Advantage Tower Ltd.
 Box 1 Site 21 RR9, Calgary, Alta. T2J 5G5
 Phone: (403) 201-7983 Fax: (403) 201-7963

Client: DFO-Canadian Coast Guard Job No: 1028 Date: 2 mar 2006
 Location: 110 ft guyed - Iqaluit, NU Tower Height: 110.00'
 Standard: CSA/S37-01 Design Wind & Ice: 1000 Pa, 40 mm ice