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SOW - MCTS BUILDING REPLACEMENT AND SITE IMPROVEMENT

CCG Pointe Au Baril MCTS

NEAR

Pointe Au Baril, ON

MARITIME AND CIVIL INFRASTRUCTURE

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SECTION: 011000 GENERAL INSTRUCTIONS

PART 1 - GENERAL

1.1 Minimum Standards

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

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 complete with all appurtenances identified herein, including:
 - .1 Mobilize, operate at, and demobilize from the site;
 - .2 Stage 1: Preparatory site works;
 - .1 Demolition of generator building (asbestos abatement required) and foundation;
 - .2 Demolition of abandoned reinforced tower foundation;
 - .3 Replacement of chain-link fence, including barbed wire topping, footings and gates;
 - .4 Modification of site grounding system.
 - .3 Stage 2: Construct reinforced concrete foundation system; including, but not limited to;
 - .1 Supply and placement of reinforcement and conduits;
 - .2 Supply, consolidation, curing, and finishing of concrete materials; to complete the installation of:
 - .1 New building and generator slab;
 - .2 Wave guide footings;
 - .4 Stage 3: Installation of new MCTS building and generator, including
 - .1 Transport of new building and generator from CCG Base Parry Sound to site;
 - .2 Installation of the of the new equipment building on concrete slab (Stage 2), including;
 - .3 Installation of wave guide bridge;



- .4 Connection of utilities (power/phone) to new trailer [To be completed by CCG].

1.3 Submittals

- .1 Mandatory submittals and schedule for submission are detailed below and in Appendix B2. The following identifies general requirements only. The relevant sections must be consulted for a complete listing of mandatory content.
- .2 Detailed Schedule:
 - .1 Deadline: No later than ten [10] working days following award.
 - .2 Deliverables: Project construction schedule
 - .1 The contractor shall furnish a high-level schedule outlining the major construction milestones. Schedule shall clearly define the anticipated start and finish of the project.
 - .1 Stage 1: Preparatory site works
 - .2 Stage 2: Concrete work and grounding modifications
 - .3 Stage 3: Building installation
- .3 Demolition Plan:
 - .1 Deadline:
 - .1 No less than 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, including:
 - .1 Core Project member contact information (site foreman and project manager);
 - .2 Complete listing of all Subcontractors;
 - .3 Project specific safety program (Section 013530);
 - .4 Project environmental protection plan (Section 013543);
 - .5 Concrete construction plan (Section 033000);
 - .6 Demolition plan (Section 024117); and,
- .4 Construction Plan:
 - .1 Deadline: no less than ten (10) working days prior to mobilization.



- .2 The Construction Plan shall be 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.
- .3 The construction plan is intended to expand on the successful bidder's previously submitted project brief.
- .4 Document must include:
 - .1 Complete listing of Contractor's personnel, include:
 - .1 Core project members (project manager /site foreman) and all site crew, indicate each person's role and responsibilities while on-site.
 - .2 Complete listing of all Subcontractors;
 - .3 Project specific safety program (Section 013530);
 - .4 Project environmental protection program (Section 013543); and,
 - .5 Concrete construction plan (Section 033000)
- .5 Maintenance Package
 - .1 Deadline:
 - .1 21 calendar days following acceptance of the works
 - .2 Deliverables:
 - .1 As-built red-lined drawings
 - .2 Disposal receipts

1.4 Contractor Qualifications

- .1 The work must be carried out under the supervision and responsibility of a sole specialized Contractor.
- .2 The Contractor must have experience in performing similar work.
- .3 All electrical work shall be undertaken by a licensed electrician.

1.5 Site Location

- .1 The site location is at Coast Guard's Pointe Au Baril MCTS site (see Appendix B1 for photographs and map screenshots of the site)
- .2 The site coordinates are 45°33'50.00"N 80°19'18.00"W
- .3 The site is immediately adjacent to Highway 69



- .4 The closest settlement is Pointe Au Baril, ON
- .5 Before tendering, Contractors should familiarize themselves with the location, scope of work, site restrictions, and temporary measures (including snow clearing), if required for completing the work as specified.
- .6 Contractor should note that this work is to be performed on the site of an existing operational tower where radio frequency transmission and reception is occurring.

1.6 Existing Conditions

- .1 Bidders must make their own estimate of the difficulties associated with all phases of the works.
- .2 The contractor must include in their costs all expenses related to the difficulties of working at the sites.
- .3 Pictures of the site have been included in Appendix B1.
- .4 A recent Designated Substance Survey (Hazardous Building Materials Assessment) has been completed and is included in Appendix B4.
- .5 A copy of a recent geotechnical subsurface investigation has been included in Appendix B5.

1.7 Contractor's Access to Site

- .1 Contractor is responsible for transportation of all labour, materials, and equipment to and from the sites, including any and all material furnished or itemized for salvage by Coast Guard.
- .2 The site is accessible by truck, via gravel/dirt road.
 - .1 The road is not serviced in the winter. The successful bidder will be responsible for arranging and paying for any snow removal required.
- .3 Contractor may be required by MTO to adhere to Book 7 requirements of the Ontario Traffic Manual: Temporary Conditions.

1.8 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.

1.9 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.

1.10 Protection of Existing Work

.1 Care shall be taken to safeguard any existing structures and/or equipment. Upon completion of the work, all rejected materials, materials declared surplus by Coast Guard, and debris shall be removed from the site.

1.11 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.

PART 2 - PRODUCTS

2.1 Not Used

PART 3 - EXECUTION

3.1 Milestones

.1 Stage 1: All aspects of this stage shall be completed no later than July 31, 2020, or as mutually agreed by CCG contracting officer and contractor.

.2 Stage 2: All aspects of this stage shall be completed no later than 3 weeks following the completion of Stage 1.

.3 Stage 3: All aspects of this stage shall be completed no later than 2 weeks following the completion of Stage 2.



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 Do not proceed with the work until Coast Guard has reviewed submitted documents or samples.
- .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 five (5) 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 General

- .1 Observe construction safety measures of National Building Code 2005, Part 8, Provincial Government, Worker's/Workmen's Compensation Board and municipal authority provided that in any case of conflict or discrepancy the more stringent requirements shall apply.
- .2 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labeling and provision of material safety data sheets acceptable to Labour Canada and Health and Welfare Canada.
- .3 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations, and Quebec Safety Code for the construction industry (latest revision).
- .4 Deliver copies of WHMIS data sheets to Coast Guard on delivery of materials.
- .5 The Contractor shall implement a safety program which shall address all elements of the work.

1.2 Submittals

- .1 Within 5 days of award of Contract, submit to Coast Guard two copies of Contractor's and Sub-Contractor's Project specific safety program including:
 - .1 A listing of all activities specific to 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.
 - .4 Material Safety Data Sheets for hazardous products to be utilized in the execution of the works.



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.
- .2 Canadian General Standards Board (CGSB)
- .3 Transportation of Dangerous Goods
- .4 Canadian Council of Ministers of the Environment (CCME) Documentation
- .5 Canadian Environmental Protection Act

1.3 Submittals

- .1 Project Environmental Protection Program
 - .1 Deadline: With Construction Plan
 - .2 Deliverables:
 - .1 Equipment features (age, spill containment)
 - .2 Staging, refueling, and cleaning areas
 - .3 Concrete wash-out and/or containment procedures.
 - .4 Waste disposal methods and sites

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.

3.3 Disposal of Wastes

- .1 Clean-up the site at the end of each working day.
- .2 All waste material 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.

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 encourage run-off
- .2 Control disposal or runoff of water containing suspended materials or other harmful substances by constructing appropriate control measures (sand bags/silt fence)
 - .1 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 provincial 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 all times.
- .2 Any uncontrolled release of a known contaminant (spills, fire/smoke) shall be reported to appropriate Provincial Authority and Coast Guard. Spills of deleterious substances to be immediately contained and cleaned up in accordance with provincial regulatory requirements.
- .1 Provincial Authority: Ontario Spills Action Centre 1-800-268-6060



SECTION: 014500 QUALITY CONTROL

PART 1 - GENERAL

1.1 Inspection

- .1 Canadian 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 constructions must be submitted to special testing, inspection or approvals prescribed by Canadian Coast Guard in these specifications or provided for in work-site regulations, the request for inspection must be made without unreasonable delay.

1.2 Procedures

- .1 Provide Canadian Coast Guard with advance notice whenever testing is required in accordance with these specifications, so that all parties involved can be present.
- .2 Submit samples and material required for testing as per specifications without unreasonable delay and in a predetermined order so as not to delay work in progress.
- .3 Provide necessary manpower and installations for obtaining and handling samples and material on site.

1.3 Rejected Work

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

1.4 Tests and Mixture Formulas

- .1 Supply test reports and required mixture formulas.

1.5 Factory Tests

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

1.6 Acceptance of Work

- .1 Canadian 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 Canadian Coast Guard at least three (3) 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 replacements 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 Canadian Coast Guard in writing of any conflict between these specifications and manufacturer's instructions; Canadian 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 Canadian 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 Canadian Coast Guard. Substitutions will be considered by Canadian 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,
 - .3 Alternative materials to those specified which are brought to the attention of and considered by Canadian Coast Guard as equivalent to the material specified will result in a credit to the Contract amount.



SECTION: 024117 DEMOLITION

PART 1 - GENERAL

1.1 Scope of Work

- .1 Work of this section includes the supply of all labour, material, and equipment, necessary to complete the following:
 - .1 Demolition and disposal of the following:
 - .1 Stage 1:
 - .1 Fencing and concrete footings (Approximately 100m);
 - .2 Generator building (Approximately 3.05m x 3.66m); and;
 - .3 Abandoned tower foundation (Approximately 0.6m x 0.6 m);
 - .2 All disposal shall be done at a licensed waste disposal facility.

1.2 Related Sections

- .1 Not used

1.3 References

- .1 Work under this section shall be undertaken in strict conformance with the most recent version of all listed references, In the case of any conflict or discrepancy the more stringent requirements shall apply.
 - .1 CAN/CSA-S350 (Latest Edition) Code of Practice for Safety in Demolition of Structures.
 - .2 Canada Labour Code Part II
 - .3 NRC-CNRC National Building Code of Canada
 - .4 Ontario Occupational Health and Safety Act and Regulations
 - .5 CAN/CSA-A23.1-04 Concrete Materials and Methods of Concrete Construction

1.4 Submittals

- .1 Submittals shall be forwarded to Coast Guard in accordance with the provisions of section 013300.
 - .1 Demolition Plan:
 - .1 Deadline:
 - .1 No less than 10 working days prior to mobilization



.2 Deliverables:

- .1 Method of demolition including all associated tasks and schedule;
- .2 Methods for protecting the site from demolition debris.
- .3 The ultimate disposal location of all waste materials and debris.
 - .1 Include documentation detailing regulatory approval for waste disposal facility and transporter.
- .3 Work under this section shall not proceed until written approval of the demolition plan has been received from the Coast Guard.
- .4 Submit copies of certified receipts from the disposal sites for all material removed from the work site upon request.

1.5 Existing Conditions

- .1 Reinforced concrete foundation Appendix B1.
- .2 A drawing of the site plan is included in Appendix B3.
- .3 A designated substance report is included in Appendix B4.

PART 2 - PRODUCTS

2.1 General

- .1 Not used

PART 3 - EXECUTION

3.1 General

- .1 Work under this section shall be continuous and proceed without interruption unless otherwise approved by Coast Guard.

3.2 Protection

- .1 Implement effective controls to catch/collect all building debris during demolition.
- .2 Implement effective controls to prevent injury to workers, property, and local traffic.

3.3 Preparation

- .1 Erect warning signs and barricades.
- .2 Ensure all environmental protection/mitigation measures are in place.
- .3 Ensure all items identified for salvage have been removed and stored.



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3.4 Demolition

- .1 Before commencing work under this section the Contractor must establish the location of all buried services that may interfere with the execution of the work.
- .2 Demolish all identified items in their entirety
- .3 Tower foundation must be demolished to at least .155m below grade
- .4 Ensure that demolition does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution
- .5 Ensure demolition is undertaken safely. If at any period during demolition the safety of the Contractor's staff cannot be maintained take preventative measures, stop work and immediately notify Coast Guard.

3.5 Disposal

- .1 All material for disposal is to be disposed of off-site at a licensed disposal/recycling facility.



SECTION: 033000 CONCRETE WORK

PART 1 - GENERAL

1.1 Scope of Work

- .1 Work of this section includes:
 - .1 The supply of all labour, materials, and equipment necessary to complete the installation of identified concrete items, including but not limited to,
 - .1 Concrete slab (Approximately 65m²)
 - .2 Waveguide Piers (3 to 5 piers)
 - .2 Any and all supplemental measures to be undertaken in consideration of the reasonably anticipated climatic conditions during the pour and throughout the curing period.

1.2 Related Sections:

- .1 Electrical (260500).

1.3 References

- .1 Work under this section must be undertaken in strict conformance with the most recent version of all listed references, In the case of any conflict or discrepancy the more stringent requirements shall apply.
 - .1 Canada Labour Code Part II.
 - .2 NRC-CNRC National Building Code of Canada.
 - .3 Ontario Occupational Health and Safety Act and Regulations.
 - .4 CAN/CSA-A23.1-04 Concrete Materials and Methods of Concrete Construction.
 - .5 CAN/CSA A23.2-04 Methods of Test and Standard Practices for Concrete.
 - .6 CAN/CSA-G30.18 Billet Steel Bars for Concrete Reinforcement.
 - .7 CAN/CSA S269.3 Concrete Formwork.
 - .8 ACI Specification 306 Cold Weather Concreting.

1.4 Submittals

- .1 Concrete construction plan
 - .1 Deadline: furnish with Construction Plan
 - .2 Deliverables: provide the following documentation:



- .1 Concrete supplier,
- .2 Summary of mix properties and admixtures;
 - .1 Detail material and sources of material to be used for class of concrete.
 - .1 Format of submission as per OPSF 1350-1 or similar
 - .3 Shop drawings for formwork;
 - .4 Concrete quality control plan detailing concrete placement methods and curing procedures, include:
 - .1 Anticipated haul routes, distances and duration;
 - .2 Detail proposed procedures to be employed when elapsed time between batching and placement exceeds 120 minutes.
 - .3 Placement methods and procedures to control consolidation/segregation;
 - .4 Location of necessary cold joints;
 - .5 Finishing procedures;
 - .6 Curing methods and schedule;
 - .7 Strength requirements for structural stability;
 - .8 Clean-up procedures; and,
 - .9 Mitigation measures to account for hot or cold temperatures where reasonably anticipated during the construction period.
- .2 Quality Control Certification
 - .1 Coast Guards minimum inspection requirements are detailed below; The Contractor shall be responsible to notify Coast Guard of the date and time that the works may be inspected. Notice must be provided no less than three (3) working days in advance to permit scheduling of quality assurance testing. 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. Work shall not progress until inspections have been completed and the Contractor has been provided with written notice to proceed with the works. The contractor is responsible for obtaining testing from a third party.
 - .1 Upon completion of formwork and placement of reinforcement; and
 - .2 During execution of concrete placement.



PART 2 - PRODUCTS

2.1 Concrete Mix

- .1 Concrete is expected to be plant batched or ready-mix.
- .2 Concrete must meet or exceed performance criteria as established below
 - .1 Plastic state,
 - .1 Plastic characteristics of the supplied mix may be modified when it is clearly demonstrated that any such amendment will have no detrimental impact on the hardened properties, long term durability nor visual appearance of the cured mix.
 - .2 Hardened state
 - .1 Class of exposure, F-1
 - .2 Air entrainment, Category 1
 - .3 Compressive strength: 30 Mpa at 28 days min
 - .4 Creep and shrinkage to minimized as practical

2.2 Water

- .1 Water utilized for the production concrete must be potable.

2.3 Formwork

- .1 Must be in accordance with CAN CSA S269.3.

2.4 Reinforcement

- .1 Bars: as detailed CAN CSA - G30.18, Grade 400.

2.5 Other concrete materials:

- .1 As detailed in CAN CSA A23.1.

PART 3 - EXECUTION

3.1 General

- .1 Concrete must be placed, finished, and cured in accordance with the provided drawings (See Appendix B3) and the Contractor's submitted construction plan.

3.2 Preparation

- .1 Preparation must not commence until bearing surfaces have been inspected by Coast Guard.
- .2 Remove all loose and deleterious material.



- .3 Place reinforcement in accordance with engineer's drawing specifications (Appendix B3). Concrete cover to be as stipulated in CAN CSA A23.1
- .4 Verify placement of electrical conduit, install support bracing as necessary.
- .5 Surfaces to be heated as necessary to account for climatic conditions at the time of the pour.

3.3 Delivery

- .1 Concrete must be delivered to site in accordance with submitted construction plan.
- .2 Contractor must ensure continuous concrete delivery taking all reasonable action to avoid the development of cold joints.

3.4 Placement

- .1 Concrete placement must not commence; until formwork, reinforcement and conduit have been inspected by Coast Guard member or representative; (48hr notice required)
- .2 Contractor must place, finish and cure concrete as per CAN CSA A23.1 making all adjustment necessary to account for climatic conditions anticipated during the curing period.
- .3 Concrete must be placed in one continuous pour. The development of cold joints must be previously approved in writing (construction plan).
- .4 Finish exposed concrete surfaces to provide a lightly brushed non-skid surface, unless otherwise specified in the submitted foundation design.
- .5 Contractor must provide samples as required during placement operation for the performance of quality assurance testing.

3.5 Curing

- .1 Must be undertaken in accordance with CAN CSA A23.1



SECTION: 260500 ELECTRICAL WORK

PART 1 - GENERAL

1.1 Scope of Work

- .1 Work in this section includes; but, is not limited to the supply of, all labour, material, and equipment necessary to complete:
 - .1 The installation of new building grounding system and conduit;
 - .2 Building utility connections (To be completed by CCG personnel).
- .2 Work of this section excludes the following work which will be undertaken by others:
 - .1 Connection of building ground system to new telecommunications shelter.

1.2 Related Sections

- .1 Concrete Work (033000).
- .2 Demolition (024117).

1.3 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 2006
 - .2 NRC-CNRC National Building Code of Canada
 - .3 Ontario Occupational Health and Safety Act and Regulations for Construction Projects Governing Standards
 - .4 Canadian Standards Association (CSA International)
 - .1 CSA C22.1-[06], Canadian Electrical Code, Part 1 (20th Edition), Safety Standard for Electrical Installations.
 - .1 Motorola R56 standards and guidelines.



1.4 Quality Control

- .1 All electrical work to be carried out by qualified, licensed electricians.
- .2 Grounding standards and practices shall be held to Motorola R56 standards and guidelines for Telecommunication Tower Sites and any deviation from these industry standards shall be made known to Coast Guard.

1.5 Existing Conditions

- .1 Existing electrical and grounding system. (Appendix B3)

PART 2 - MATERIALS

2.1 General

- .1 All materials supplied in this section are to be supplied by the contractor.

2.2 Conduit

- .1 Shall be PVC, sized relative to the contained conductors and complete with all appurtenances necessary for a complete installation.
- .1 Teck 90 cable may be substituted for conduit when conductors are to be buried; however cable must be enclosed in conduit once above grade.

2.3 Conductors

- .1 All conductors shall be copper sized in accordance with CAN/CSA 22.1 unless otherwise detailed in Appendix B3, Drawings.
- .2 Grounding tails connecting the cable waveguide piers to the ground ring conductor shall be tinned stranded copper cable.

PART 3 - EXECUTION

3.1 Grounding

- .1 Install building ground loop as indicated in Appendix B3.
- .2 Install artificial ground electrodes as detailed in Appendix B3.
- .3 Connect electrodes with cable as detailed in Appendix B3. All connections between cables and electrodes shall be exothermic or equivalent irreversible mechanical connection.
- .1 Where indicated in Appendix B3 connection of bonding connectors will be completed by others following future installation of new site appurtenances.
- .2 Where connection is to be completed by others. Contractor shall ensure that a tail equal or exceeding the length indicated in Appendix B3 is provided to permit future connection. All



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such installations are to be buried to a depth of 0.1m, flagged and mapped to ease future excavation.



SECTION: 310000 EARTHWORK

PART 1 - General

1.1 Scope of Work

- .1 Work of this section includes; but, is not limited to the supply of all labour, material, and equipment necessary to:
 - .1 Excavation for the installation of fence footings;
 - .2 Excavation for the installation of wave guide footings;
 - .3 Excavation to expose existing ground loop and ground connections;
 - .4 Excavation of buried service lines as needed;
 - .1 Telephone;
 - .2 Hydro;
 - .5 Restoration of all disturbed areas within the work site,
 - .1 Grading and top dressing of the access driveway and granular compound area;

1.2 Related Sections

- .1 024117 Demolition
- .2 260500 Electrical Work
- .3 033000 Concrete Work
- .4 323113 Chainlink Fences
- .5 338119 Cable Wave Guide Bridge



1.3 References

- .1 Work under this section shall be undertaken in strict conformance with the most recent version of all listed references, In the case of any conflict or discrepancy the more stringent requirements shall apply.
 - .1 Canada Labour Code Part II
 - .2 NRC-CNRC National Building Code of Canada
 - .3 Ontario Occupational Health and Safety Act and Regulations for Construction Projects

1.4 Existing Conditions

- .1 Before commencing the works:
 - .1 establish the location of all buried services that interfere with the execution of the work.
 - .2 document the condition of existing structures (buildings, tower foundation, and all guy anchors), trees and other plants, service poles, wires, and haul routes anticipated to be affected by work.

1.5 Quality Assurance

- .1 Coast Guards minimum inspection requirements are detailed below. The Contractor shall be responsible to notify Coast Guard of the date and time that the works may be inspected. Notice must be provided no less than three (3) working days in advance to permit scheduling of quality assurance testing. 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. Work shall not progress until inspections have been completed and the Contractor has been provided with written notice to proceed with the works.
 - .1 Upon completion of concrete works;
 - .2 Upon completion of the grounding modifications.



PART 2 - Execution

2.1 General

- .1 Keep excavations free of water while work is in progress.
- .2 Protect adjacent structures.
- .3 Protect all buried services.

2.2 Preparation

- .1 Remove all trees impacting work.
 - .1 Removal of trees to be limited where practical.
- .2 Remove fencing as required to gain access to work site.
 - .1 Fencing to be restored upon completion of the works.
 - .2 In the event that access is required for an extended duration. Temporary job site fencing (1.8m high) shall be erected at the end of each working day. Temporary fencing shall be sufficiently secured to prevent easy removal.



SECTION: 323113 CHAINLINK FENCES

PART 1 - GENERAL

1.1 General

- .1 Work of this section includes the supply of all labour, material and equipment required to complete:
 - .1 Replacement of the existing chain-link fence with barbed wire topping, including;
 - .1 Replacement of approximately 100m of fencing; and,
 - .2 Addition of one 24' double gate, 12' single gate and man door.

1.2 Related Sections

- .1 Structure Demolition, Section 024117

1.3 References

- .1 Work under this section shall be undertaken in strict conformance with the most recent version of all listed references, In the case of any conflict or discrepancy the more stringent requirements shall apply.
 - .1 Canada Labour Code Part II
 - .2 Ontario Occupational Health and Safety Act and Regulations
 - .3 NRC-CNRC National Building Code of Canada
 - .4 Ontario Provincial Standard Specification OPSS 772
 - .5 Ontario Provincial Standard Specification OPSS 1541 Chain-Link Fence Components
 - .6 Construction Specification for Concrete Structures OPSS 904
 - .7 CSA W59-03 (R2008) Welded Steel Construction (Metal Arc Welding)
 - .8 ASTM A123/A 123M-09 Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel
 - .9 ASTM A780M-09 Standard Practice for Repair of Damaged and Uncoated Areas of Hot Dip Galvanized Coatings

1.4 Existing Conditions

- .1 The compound is secured via a chain-link fence with barbed wire topping. A drawing of the existing fence compound is shown in Appendix B3
- .2 The existing fence has a perimeter of approximately 100m. It is to be increased by approximately 10m.



- .3 The existing compound has a [24'] double swing gate opening
- .4 Before commencing work under this section the Contractor must establish the location of all buried services that may interfere with the execution of the work.
- .5 All work of this section shall be witnessed by Coast Guard or its representative.

1.5 Quality Assurance

- .1 The Coast Guard representative may perform a spot visual inspection to determine conformance with the workmanship, design, and dimensional requirements of this specification. Failure to conform to the specification may result in a partial or complete inspection of the installation and removal and replacement of all defective workmanship or materials by the Contractor at their expense.

PART 2 - PRODUCTS

2.1 General

- .1 All materials described in this section shall be supplied by Contractor
- .2 Chain-link fence components shall be according to OPSS 1541

2.2 Concrete

- .1 Concrete shall have a nominal minimum 28-Day compressive strength of 20 MPa.

PART 3 - EXECUTION

3.1 Site Preparation

- .1 Prior to the commencement of fencing operations, all debris shall be removed and ground undulations shall be corrected along the fence line to obtain a smooth and uniform gradient.
- .2 All trees, stumps, and brush along the fence line shall be cut off at ground level and all logs and overhanging branches that interfere with the installation of the fence shall be removed.

3.2 Chain-Link Fence

- .1 Chain-link fence shall be installed at locations specified on drawing in Appendix B3
- .2 All posts shall be installed plumb and to the depth specified on drawings in Appendix B3
- .3 Posts shall be cut to the required height above the ground to present a smooth and uniform profile. Line post spacing shall be in equal horizontal distances with a maximum of 3,000 mm between line posts
- .4 All posts shall be fitted with waterproof metal caps designed to fit and fasten securely over the posts. All line post caps shall carry top wire
- .5 Corner posts shall be installed at horizontal deflections in the fence line of 10 degrees or more



.6 Straining posts shall be installed at equal intervals

3.3 Footings

.1 Concrete placing, curing, and protection from the elements shall be according to OPSS 904

3.4 Bracing

.1 A brace rail shall be placed diagonally across the panel at all ends and gateposts. Corner and straining posts shall be supported with diagonal braces placed on both sides of the post. The higher end of the diagonal brace shall be connected at the terminal post.

.2 End fittings shall be secured by a 6 mm bolt placed through the fitting and braced at both ends of the brace.

3.5 Top Rails, and Bottom Wires

.1 Top rails shall be fastened securely to line post tops using waterproof caps;

.2 Top rails shall be fastened to terminal posts with center bands;

.3 Bottom wires shall be stretched tight and securely fastened to terminal posts with turnbuckles and center bands;

.4 One turnbuckle shall be used between terminal posts.

3.6 Fence Fabric

.1 Fence fabric shall not be installed until the concrete footings have cured for a minimum of 5 Days

.2 Spoils from excavation/drilling must not to hinder site drainage.

.3 The fabric shall be stretched tight and securely fastened to terminal posts with steel tension bars and steel or aluminum tension bands. The longitudinal axis of the diamond pattern shall be perpendicular to the slope of the top rail.

.4 The fabric shall be securely fastened to the line posts, bottom wire, and top rail with wire ties.

.1 The fabric shall not be fastened to any diagonal braces.

.5 Manually fastened round wire ties shall engage one strand of the chain-link fence fabric with one end of the tie by wrapping it with two 360 degree turns and then wrapping the body of the tie around the post or top rail a minimum of 180 degrees. The remaining end of the tie shall be secured to the second strand of the chain-link fence fabric by wrapping it with two 360 degree turns. The fabric and the main body of the tie shall be drawn tightly to the rail or post

.6 Power fastened wire ties shall engage two strands of the chain-link fence fabric at a diamond joint closest to the post or top rail. The manufacturer's installation instructions shall be followed to complete the operation. The ends shall be twisted three full twists or one and one half machine turns. The end of the tie shall be positioned on the post or rail so that it is parallel to the chain-link fence fabric



- .7 The ends of wire ties shall not protrude beyond the vertical plane on either side of the chain-link fence fabric. Protruding ends of wire ties shall be removed.

3.7 Barbed Wire

- .1 Barbed wire shall be installed as per the drawings in Appendix B3. The barbed wire shall be pulled taut to remove all slack and shall be firmly installed in the slots of the barbed wire arms. The ends of the barbed wire shall be securely connected at the terminal posts with brace bands. Barbed wire arms shall be installed with the arm pointing outwards from the compound.

3.8 Gates

- .1 24' double swing gate, 12' single wing gate and man door:
 - .1 Shall be installed at locations indicated in drawings in Appendix B3;
 - .2 Shall have barbed edge at the top facing outward;
 - .3 Shall have a chain hook to hold gates open and double gates shall have a steel gate center rest with a drop bolt for the closed position;

3.9 Grading

- .1 The surface grade within the required gate sweep area shall be low enough to permit free movement of the gate.

3.10 Zinc Coating Repairs

- .1 Cut ends, field drilled holes, and damaged areas of hot dip galvanized coatings on galvanized components shall be repaired according to ASTM A 780.

3.11 Site Restoration

- .1 After fence installation, the site shall be cleaned and trimmed and the ground restored to a neat and original condition existent prior to the fencing operations.



SECTION: 338119 CABLE WAVE GUIDE BRIDGE

PART 1 - GENERAL

1.1 Scope of Work

- .1 Work under this section includes the supply of all labour, material, and equipment required to complete:
 - .1 The installation of the new waveguide bridge; and,
 - .2 The following work will be completed by Coast Guard and is hereby excluded:
 - .1 Supply of the cable waveguide bridge kit; and,
 - .2 Splicing and extension of the transmission cables

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 ;
 - .2 NRC-CNRC National Building Code of Canada; and,

1.3 Related Sections

- .1 Section 033000 Concrete
- .2 Section 260500 Electrical
- .3 Section 310000 Earthwork

PART 2 - PRODUCTS

2.1 General

- .1 All materials described in this section shall be supplied by the Contractor.

2.2 Base grout:

- .1 Non-shrink, gassing, cementitious grout;
 - .1 Sika M-Bed, or approved equal.

PART 3 - EXECUTION

3.1 Installation



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- .1 Install new waveguide system in its entirety as per assembly drawings.
 - .1 Base plates shall be installed on leveling nuts to allow for adjustment of waveguide tray height
 - .2 Grout between all waveguide bridge base plates and prepared concrete foundation.
 - .3 Bridge shall be installed such that run-off is directed toward the tower base.