



AIDS TO NAVIGATION: A6180 – LL 481.5 SPILSBURY POINT
3-PILE DOLPHIN CONSTRUCTION
CANADIAN COAST GUARD (CCG)

CCG WESTERN REGION MARITIME AND CIVIL INFRASTRUCTURE
CCG PROJECT REFERENCES: A6180 – 220SP

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SPECIFICATIONS

SECTION NO.	SECTION TITLE	NO. OF PAGES
DIVISION 01 – GENERAL REQUIREMENTS		
00 01 10	Table of Contents	1
01 11 00	Summary of Work	5
01 33 00	Submittal Procedures	2
01 35 29	Health and Safety	3
01 35 43	Environmental Procedures	6
01 45 00	Quality Control	1
DIVISION 02 – EXISTING CONDITIONS		
02 41 16	Structure Demolition	4
DIVISION 31 – EARTHWORK		
31 62 16	Steel Piles	4

APPENDICIES

APPENDIX	SECTION TITLE	NO. OF PAGES
Appendix A	Site Location and Photos	2
Appendix B	Environmental Protection Measures	21

CANADIAN COAST GUARD (CCG) DRAWINGS

DRAWING NO.	DRAWING TITLE	SHEET NUMBER
24400	NAV-AID REBUILD	01
24400	NAV-AID REBUILD DETAILS	02



PART 1 GENERAL

1.1 BACKGROUND

The Canadian Coast Guard (CCG) is a Special Operating Agency of the Department of Fisheries and Oceans Canada (DFO) that helps to ensure safe and accessible waterways for Canadians. Within its mandate, the CCG has the responsibility to provide aids to navigation, and marine communications and traffic management services that contribute to the safety, accessibility and security of Canadian waters.

Through an external contact, the CCG has been notified of an Aid to Navigation (AtoN) which instability in the surrounding soil is causing erosion issues that may eventually lead to failure of the AtoN. This proposed work is required to improve the structural condition and to improve the safety of those who maintain them.

The Contractor is to assist CCG construction crews by providing the requirements as described in the following Sections.

1.2 OBJECTIVE

Canadian Coast Guard Marine Navigational Services will be deleting and rebuilding the existing navigational aid LL 481.5 Spilsbury Point located at the northernmost peninsula of Hernando Island (50° 00' 12.11" N; 124° 56' 39.38" W). As a result, the CCG requires the existing concrete base, fibre-reinforced plastic (FRP) tower, aluminum ledger and all associated components be fully removed from its current position so a new tower can be constructed.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

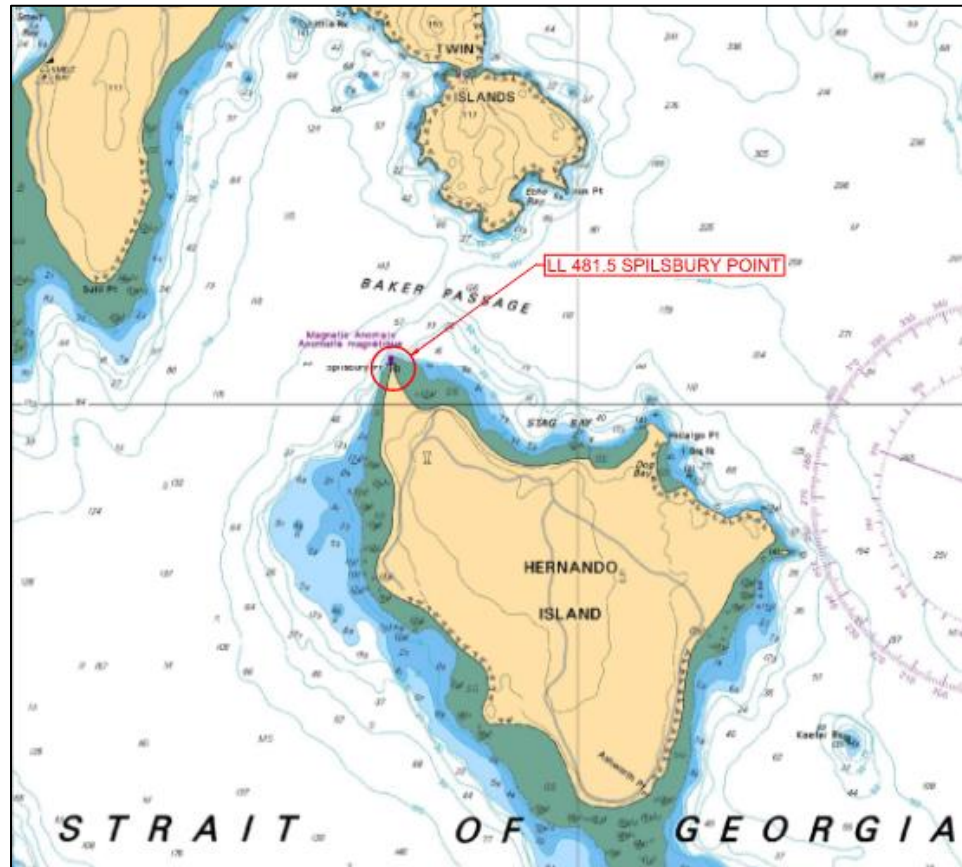
- .1 Work of this Contract comprises of the construction of one (1) multi-pile dolphin site, and demolition of one FRP tower with concrete base that includes, but not limited to:
 - .1 Construction of new site.
 - .1 The Contractor is to provide the pile construction services to completely build the one (1) structure identified above in accordance to the drawings provided.
 - .2 Once construction of the new site is complete, contractor to complete demolition of the existing site.
 - .1 Remove and dispose of existing FRP tower.
 - .2 Remove and dispose of existing Concrete Base (5'-0" x 5'-0" x 4'-6") to natural ground
 - .3 Approximate volume of 3.9 cubic yards.
 - .4 Pictures of the existing site have been included in Appendix A.
 - .5 The entire base is to be removed inclusive of all rebar and steel anchors.
 - .6 The existing concrete reinforcing and rock anchors of the existing base is unknown.
 - .7 Remove existing aluminum ledger and return to CCG personnel.

1.4 PROJECT LOCATION



.1 LL 481.5 Spilsbury Point is located as follows:

.1 **Latitude: 50° 00' 12.11" N, Longitude: 124° 56' 39.38" W**



1.5 SUBMITTALS

- .1 Refer to Section 01 33 00 – Submittal Procedures for additional information.
- .2 Submit to Departmental Representative submittals listed for review.
- .3 Submit the following:
 - .1 Proposed project schedule to Departmental Representative.
 - .2 Health and Safety Plan
 - .3 Waste Reduction Workplan
 - .4 Copy of current WorksafeBC clearance letter demonstrating contractor is active and is good standing.
 - .5 Copies of reports or directions issued by federal and provincial health and safety inspectors.
 - .6 Copies of any incident and accident reports.



- .7 Complete set of Material Safety Data Sheets (MSDS), and all other documentation required by Workplace Hazardous Materials Information System (WHMIS) requirements.
- .8 Copy of current construction safety manual including safe work procedures
- .9 All working paper documents including Owner supplied materials, completed questionnaires or audit forms, field notes, design notes, and photographs
- .10 Emergency Procedures.

1.6 CCG RESPONSIBILITIES

.1 Materials

- .1 CCG will provide all materials and items noted on the Construction Drawings as supplied by CCG and will deliver the materials and items to the Contractor's work yard, or a mutually agreed upon alternate location.

.2 Site Location

- .1 The exact locations and orientations of the structures will be identified in the field by CCG and verbally communicated to the Contractor at the time of construction.

.3 Survey

- .1 The CCG will survey in the final coordinates of the built structures and will report any changes to the necessary authorities.
- .2 Attend a site meeting at the start of construction to review scope of work and provide any clarifications.

.4 Monitoring

- .1 The CCG may undertake various monitoring functions during the Work. This includes but is not limited to:
 - .1 First Nations observers: CCG may retain First Nations observers for the project. They may observe and report on construction activities. Direct involvement on construction activities is to be limited, except where there is a cultural or archeological concern that arises at a particular site.
 - .2 Environmental monitors: CCG, or its representatives, may monitor construction activities for conformance to the Environmental Reports and Bulletins provided.
 - .3 Construction monitors: CCG may monitor various stages of construction performance for conformance to the contract documents and for final acceptance of the Work.

.5 Notifications

- .1 CCG will provide notices to shipping and project update notifications to other governing bodies such as Transport Canada and Nav Canada.

.6 Permits and Fees

- .1 CCG will obtain permits from Transport Canada and Nav Canada required for the Work.



1.7 CONSTRAINTS

The Contractor should be familiar with the location of work site and identify project constraints as they relate to the Work. The constraints include, but are not limited to, the following:

.1 Environmental

- .1 The Environmental Protection Plan (EPP) addresses project specific activities and procedures to be implemented, to mitigate any potential negative impact on the environment. The Contractor is advised to review the EPP supplied in Appendix B for further requirements.

.2 Tides

- .1 Work must be coordinated with tidal windows at each location. The Contractor is advised to be familiar with the tides during the construction period.

.3 Shallow Waters

- .1 Shore access from water may be challenging due to shallow grade of seabed, plan accordingly for equipment access. The contractor is advised to be familiar with chart depths in the work area.

1.8 TRAVEL AND ACCOMMODATIONS

- .1 The Contractor is responsible for all travel and accommodation related expenses incurred for the Contractor's representatives as it relates to the Work.
- .2 Provide marine transport for one CCG member to and from the work site along with the contractors work crew.

PART 2 PRODUCTS

2.1 NOT USED

- .1 Not Used

PART 3 EXECUTION

3.1 WORK COMPLETION DEADLINES

- .1 All Work to be completed by March 31, 2022



3.2 COMMUNICATIONS

- .1 Daily Updates:
 - .1 The Contractor is to provide daily updates to the CCG Representative while site construction is in progress. The daily updates are to include:
 - .1 Work completed that day;
 - .2 Planned work activities the next day; and
 - .3 Details of crew on site.
- .2 Availability:
 - .1 The Contractor must be available at all times while working on site. Reliable communication services are to be employed and monitored by the Contractor to allow the CCG Representative to make contact at any time.

3.3 USE OF SITE

- .1 The Contractor is to ensure that the site is left in the same state or better than it was found at the start of Work: all waste or excess materials must be removed.

END OF SECTION



PART 1 GENERAL

1.1 ADMINISTRATIVE

- .1 Submit to Canadian Coast Guard (CCG) submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Do not proceed with Work affected by submittal until review is complete.
- .3 Present drawings, product data, samples, and mock-ups in SI Metric units.
- .4 Where items or information is not produced in SI Metric units converted values are acceptable.
- .5 Review submittals prior to submission to CCG. This review represents necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with requirements of Work and Contract Documents.
- .6 Notify CCG, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7 Contractor's responsibility for errors and omissions in submission is not relieved by CCG's review of submittals.
- .8 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by CCG's review, unless CCG gives written acceptance of specific deviations.
- .9 All submissions include:
 - .1 Date and revision dates.
 - .2 Project title and number.
 - .3 Name and address of:
 - .1 Subcontractor
 - .2 Supplier
 - .3 Manufacturer
- .10 Unless noted otherwise, submittals in electronic format are required.

1.2 SCHEDULE

- .1 Submit a Detailed Project Schedule for planning, monitoring and reporting of project progress and to allow orderly planning, organizing, and executing of Work.
 - .1 The Contractor must provide a schedule to CCG 21 days prior to scheduled project start.
 - .2 Allow five (5) working days, or as otherwise stipulated in the specifications, for CCG to review submission.



- .2 Submission format to include a Bar Chart (GANTT).
- .3 Project Milestones form targets for Project Schedule. Milestones include:
 - .1 Mobilization to site;
 - .2 Completion of three-pile dolphin construction;
 - .3 Completion of existing site demolition; and
 - .4 Final Completion of all Work.
- .4 Submission to include as a minimum:
 - .1 Contract award;
 - .2 Dates of submittals;
 - .3 Project Milestone completion dates; and
 - .4 Detailed description of the Work Plan including:

1.3 CERTIFICATIONS

- .1 Welding
 - .1 The Contractor must ensure that all welding performed by the Contractor is performed by a welder certified by the Canadian Welding Bureau (CWB) in the material specified and the method selected. The Contractor must provide CCG verification of the welder's certification and a description of the method to be used a minimum of 21 days prior to scheduled project start.
- .2 Vessel Operation
 - .1 All vessels must be registered with Transport Canada and the crew size and all operators and crew must be adequately trained in accordance with the Small Commercial Vessel Safety Guide – TP 14070 E (2010) published by Transport Canada.
- .3 Crane Operator
 - .1 If a crane is employed, the operator must be of Level A Certification in accordance with the BC Association for Crane Safety (BCACS) and qualified to perform the Work.

PART 2 PRODUCTS

2.1 NOT USED

- .1 Not Used

PART 3 EXECUTION

3.1 NOT USED

- .1 Not Used

END OF SECTION



PART 1 GENERAL

1.1 REFERENCE STANDARDS

- .1 Work under this section to comply with all listed references. In the case of conflict or discrepancy, the more stringent shall apply:
 - .1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations
 - .2 British Columbia Workers Compensation Act, Occupational Health and Safety Regulation B.C. Reg. 296/97.
 - .3 British Columbia Public Health Act, Industrial Camps Regulation B.C. Reg. 70/2012

1.2 ACTION AND INFORMATION SUBMITTALS

- .1 Submit a site-specific Health and Safety Plan in accordance with Section 01 33 00.
- .2 Submit Health and Safety plan as part of the Construction Plan. Submission to include:
 - .1 Results of site specific safety hazard assessment.
 - .2 Listing of all activities specific to the project and their Health and Safety risks or hazards.
 - .3 Detailed descriptions of how the activities are to be carried out as well as methods for mitigating hazards and risks.
 - .4 Listing of personnel responsible for Health and Safety measures, and Emergency procedures.
 - .5 Proof of training for all employees working at heights and proof of rescue training for at least one employee working on site.
 - .6 Proof of adequate first aid training on site and details of first aid kits.
 - .7 An effective rescue and response plan.
 - .8 A COVID-19 Safety Plan in accordance with Federal and Provincial Health Orders.
- .3 CCG will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within seven (7) calendar days.
- .4 CCG's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.

1.3 GENERAL REQUIREMENTS

- .1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.
- .2 CCG may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.



1.4 RESPONSIBILITY

- .1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
- .2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.5 UNFORSEEN HAZARDS

- .1 When unforeseen or peculiar safety-related factors, hazards, or conditions occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction and advise CCG verbally and in writing.

1.6 HEALTH AND SAFETY COORDINATOR

- .1 Employ and assign to Work, competent and authorized representative as Health and Safety Coordinator. Health and Safety Coordinator must:
 - .1 Have site-related working experience specific to activities of the Work.
 - .2 Have working knowledge of occupational safety and health regulations.
 - .3 Have applicable first-aid certification and meets the required regulations.
 - .4 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.
 - .5 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.
 - .6 Be on site during execution of Work.

1.7 CORRECTION OF NON-COMPLIANCE

- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by CCG.
- .2 CCG may stop Work if non-compliance of health and safety regulations is not corrected.

1.8 PRIORITY OF HEALTH AND SAFETY

- .1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

1.9 NOTIFICATION



- .1 CCG may notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal health and safety laws or regulations, permits, and other elements of Contractor's Health and Safety Plan.
- .2 Contractor: after receipt of such notice, inform CCG of proposed corrective action and take such action for approval by CCG.
- .3 CCG will issue stop order of work until satisfactory corrective action has been taken.
- .4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

PART 2 PRODUCTS

2.1 NOT USED

- .1 Not Used

PART 3 EXECUTION

3.1 NOT USED

- .1 Not Used

END OF SECTION



PART 1 GENERAL

1.1 REFERENCE STANDARDS

- .1 Canadian Environmental Protection Act (CEPA)
- .2 Canadian Impact Assessment Act 2019 (CIAA)
- .3 Transport Canada Navigation Protection Program (NPP)
- .4 Migratory Birds Convention Act (MBA)
- .5 Species at Risk Act (SARA)
- .6 Fisheries Act
- .7 Canada Shipping Act
- .8 BC Water Sustainability Act (WSA)
- .9 BC Wildlife Act

1.2 DEFINITIONS

- .1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humans; or degrade environment aesthetically, culturally and/or historically.
- .2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction.

1.3 ACTION AND INFORMATION SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 – Submittal Procedures.
- .2 The Contractor must provide to CCG an Environmental Emergency Response Plan (EERP) that addresses the procedures to be implemented to mitigate any potential negative impact on the environment (i.e. spill) a minimum of 21 days prior to scheduled project start. The Contractor must designate an environmental lead and ensure that workers are adequately trained to carry out the EERP.

1.4 SPILLS OR RELEASE OF DELETERIOUS SUBSTANCES

- .1 Develop and implement a plan which details spill response measures to be employed. The plan will include a list of spill response equipment that will be present on the site and will assign implementation and monitoring roles. On-site personnel will review the plan, understand their roles and responsibilities, and will be properly trained and equipped to conduct spill response activities.
- .1 Identify high-risk locations where spills are probable and maintain spill kits, capable of handling the largest potential spill through the duration of the project, at these locations.



Consider the location of the generator and the associated fuel tank to be a high-risk location. Include an inventory of required contents at the top of the kit. Locate PPE at the top of the spill kit to enable easy access for the spill responder(s). Keep spill kits closed with a safety seal affixed to indicate if the kit has been used or tampered with.

- .2 Respond immediately to all spills in accordance with plan and applicable spill regulation(s).
- .2 Immediately report all spills, regardless of severity to CCG representative.
- .3 Submit a written report within 24 hours of the spill.

1.5 NOTIFICATION

- .1 CCG may notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Contractor's Environmental Protection plan. Contractor shall comply with provincial laws, municipal bylaws and the Laws and Regulations at the Site, and all other locations used for this Contract, unless otherwise directed by the Departmental Representative.
- .2 Contractor: after receipt of such notice, inform CCG of proposed corrective action and take such action for approval by CCG.
- .3 CCG will issue stop order of work until satisfactory corrective action has been taken.
- .4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

1.6 COMPLIANCE

- .1 Contractor must comply with applicable law and regulation.
- .2 Contractor must comply with the requirements of the Owner's on-Site Environmental Monitor.
- .3 Both the Contractor and CCG shall develop a written Environmental Protection Plan (EPP) and CCG shall develop a site specific EPP
- .4 All work to be completed as per both the CCG and Contractor EPP and environmental mitigation measures prepared for the project.
- .5 All work completed to in compliance with the Environmental Protection Measures provided in Appendix B.
- .6 Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas, from stockpiles, staging areas, and other work areas, in order to prevent erosion and sedimentation.
- .7 Construction and excavation wastes, overburden, soil, or other substances deleterious to aquatic life, shall be handled or disposed of in a manner to prevent their entry into any watercourses and/or storm drains.



- .8 Contractor shall regularly monitor, maintain and repair the various components of the sediment control plan, as necessary, to ensure they are working effectively. These components shall be maintained until the work areas are completely stabilized and there is no longer a risk of sediment release to aquatic habitat and/or storm drains.
- .9 Contractor shall regularly monitor the quality of water discharges from the work Site, and shall maintain records of the results. When water discharge exceed prescribed levels, Contractor shall immediately put in place a plan to comply with the required levels, or suspend operations until the discharge can meet the prescribed levels.

1.7 REMOVAL AND DISPOSAL

- .1 Remove surplus materials and temporary facilities from the Work Site.
- .2 Dispose of non-contaminated waste materials, litter, debris, and rubbish off site.
- .3 Do not burn or bury rubbish and waste materials at the Work Site.
- .4 Do not dispose of volatile or hazardous wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
- .5 Do not discharge wastes into streams, watercourses, or stormwater systems.
- .6 Dispose of following materials at appropriate permitted Disposal Facility, Hazardous Waste Management Facility, or Wastewater Treatment and Disposal Facility identified by the Contractor and in accordance with the content of these Specifications:
 - .1 Debris including excess construction material.
 - .2 Non-contaminated litter and rubbish.
 - .3 Disposable PPE worn during final cleaning.
- .7 The Contractor is to provide to CCG waste disposal certificates from an approved facility for the disposal of any hazardous or controlled wastes.
- .8 Minimize generation of Hazardous Waste to maximum extent practicable. Take necessary precautions to avoid mixing clean and contaminated wastes.

1.8 RECORD KEEPING

- .1 Maintain bills of ladings and waste manifests for minimum of 365 days (one year) from date of shipment or longer period required by the Laws and Regulations. These documents should also be provided to the Departmental Representative.

1.9 AQUATIC WATER QUALITY MONITORING – IN OR AROUND WATER WORK

- .1 An Environmental Monitor (EM), on behalf of the Departmental Representative, will perform water quality monitoring, consistent with requirements of the Specifications and general procedures described within the EPPs, and will report to the Departmental Representative.



- .2 The Contractor shall familiarize itself with both the CCG and Contractor EPPs, and with other CCG monitoring plans and activities, as they pertain to this Contract.
- .3 In no event does the Departmental Representative's monitoring activities alleviate the Contractor's responsibility to monitor its own operations to verify that the Contractor is meeting water quality requirements.
- .4 Comply with Project Permits and approvals and the requirements of the EPPs when conducting the work. Water quality requirements for the project are provided in the BC Water Sustainability Act and are also included in the CCG Site Specific EPP.
- .5 The Contractor shall provide safe access to the EM to conduct water quality monitoring at the specified distances from the work activity.
- .6 Water quality shall be controlled and monitored by the Contractor in accordance with the following performance criteria:
 - .1 Potential releases of Deleterious Substances (i.e., suspended sediments, cementitious materials, waters not meeting the Water Quality Performance Criteria)
- .7 Any exceedance of the water quality requirements as described in the BC Water Sustainability Act or as described in the EPPs, may result in a requirement to stop work or modify work activities at the discretion of the Departmental Representative.

1.10 PROTECTION OF FISH AND WILDLIFE

- .1 All work shall comply with the work window timing requirements described in the EPPs.
- .2 The Contractor shall visually inspect the Silt Curtain during removal to avoid interference or disturbance to fish spawn. The Contractor shall immediately notify the Departmental Representative of any observed fish spawn.
- .3 Water flows or habitat outside the Site that are critical to fish or wildlife shall not be altered or disturbed.
- .4 The Contractor shall immediately cease in-water operations if fish kill or distressed fish are observed, and immediately notify the Departmental Representative.
- .5 The Contractor shall immediately cease in-water operations if abalone are observed within the Silt Curtain or affixed to the Silt Curtain and immediately notify the Departmental Representative.
- .6 The Contractor shall immediately other in-water operations if a marine mammal is observed within the Silt Curtain and immediately notify the Departmental Representative.



1.11 SPECIES AT RISK AND MARINE WILDLIFE

- .1 Refer to the CCG site specific EPP for information on Species at Risk (SAR) that have a potential to occur within or adjacent to the Site.
- .2 Marine mammal monitoring will be implemented by the EM during construction activities, with a process in place to temporarily stop works if marine mammals are observed, as per the EPPs.
 - .1 If any marine mammal enters the marine mammal safety perimeter during in-water activities, the Contractor shall immediately notify the Departmental Representative. The marine mammal safety perimeter is defined as 500 metres (m) from active operations for cetaceans and 25 m from active operations for pinnipeds. The Departmental Representative will assess active operations and determine if work delay or shut-down is necessary until the marine mammal(s) vacate the marine mammal safety perimeter.
 - .2 Marine mammal species that have the potential to occur in the Site area include, but are not limited to, stellar sea lion, grey whale, harbour porpoise, harbour seal, killer whale, river otters, and other cetaceans and pinnipeds. Additional information for these mammals is provided in the CCG site specific EPP. Under no circumstances will any Contractor personnel or the EM attempt to capture or molest any marine mammal.
 - .3 If a marine mammal becomes trapped within the Silt Curtain, the Contractor shall immediately cease work and notify the Departmental Representative. Work shall not resume until the marine mammal has been visually confirmed outside of the Silt Curtain and the Silt Curtain has been inspected for deficiencies (and repairs necessary for performance of the Silt Curtain are made).
 - .4 Marine mammals must not be permitted to enter the Silt Curtain. Should a marine mammal enter the Silt Curtain, the Contractor (at its own expense) shall cease all in-water activities until instructed to resume by the Departmental Representative.
- .3 Should a SAR be encountered, measures are to be implemented to avoid destruction, injury, or interference with the species, its residence, and/or its habitat (e.g., through siting, timing, or design changes). If the foregoing cannot be avoided, the Contractor shall cease work and contact the Departmental Representative for advice regarding mitigation measures.

1.12 MIGRATORY BIRDS / WILDLIFE HABITAT

- .1 Verify that all works are in compliance with the Migratory Birds Convention Act and Canada Wildlife Act. If the Contractor, in the course of its work, identifies nesting birds within the Site, notify the Departmental Representative immediately.



- .2 Restrict vehicle movements to construction areas and access roads and avoid harassment of animals.

PART 2 PRODUCTS

2.1 NOT USED

- .1 Not Used

PART 3 EXECUTION

3.1 CLEANING

- .1 Progress Cleaning: Leave Work area clean at end of each day.
- .2 Do not bury or burn rubbish and waste materials on site.
- .3 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment.
- .4 Waste Management: separate waste materials for recycling or reuse from materials for disposal.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

END OF SECTION



PART 1 GENERAL

1.1 RELATED SECTIONS

- .1 02 40 16 – Structure Demolition
- .2 31 62 16 – Steel Piles

1.2 REVIEW OF WORK

- .1 Allow Canadian Coast Guard (CCG) access to Work. If part of Work is in preparation at locations other than Project Location, allow access to such Work whenever it is in progress.
- .2 All Work by the Contractor will be reviewed by CCG for conformance to the Contract Documents and by a DFO Environmental Monitor for conformance to the Environmental Protection Plan. A CCG representative will be on the pile driving barge during all pile driving activities and at completion of Work.
- .3 Upon completion of the Work, all sites will be reviewed by the CCG engineering department for conformance with project specifications, IFC Construction documents, and other documents forming part of the Contract.

1.3 REJECTED WORK

- .1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by CCG as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.

PART 2 PRODUCTS

2.1 NOT USED

- .1 Not Used

PART 3 EXECUTION

3.1 NOT USED

- .1 Not Used

END OF SECTION



PART 1 GENERAL

1.1 RELATED SECTIONS

- .1 Section 01 33 00 – Health and Safety
- .2 Section 01 35 43 – Environmental Procedures

1.2 SCOPE OF WORK

- .1 Where existing works are to be removed, they shall be removed and salvaged or disposed of to the satisfaction of the Departmental Representative.
- .2 Work in this section includes the supply of all labour, material, equipment, tools, plant and services required incidental to the completion to the full extent of the drawings and specifications for the execution of all demolition, salvage, and protection work specified herein.
- .3 The following structures require demolition:
 - .1 Removal and disposal of the existing fiber-reinforced plastic (FRP) tower; and,
 - .2 Removal and disposal of the concrete base, inclusive of all rebar and steel anchors.
- .4 Demolition and disposal shall be carried out in strict accordance with provincial, local, and municipal regulations and Part 8 of the National Building Code and with the Canadian Construction Safety Code.
- .5 Demolition shall be carried out in accordance with the construction schedule as approved by the Departmental Representative.
- .6 Refer to the drawings for material descriptions and quantities.

1.3 CONSTRAINTS

- .1 Shore access from water may be challenging due to shallow grade of seabed.

1.4 ACTION AND INFORMATION SUBMITTALS

- .1 Submit in accordance with Section 01 33 00- Submittal Procedures.
- .2 Prior to beginning of Work on site submit detailed Waste Reduction Workplan and indicate:
 - .1 Descriptions of and anticipated quantities in percentages of materials to be recycled and landfilled.
 - .2 Schedule of selective demolition.
 - .3 Names and addresses of authorized waste receiving organizations/facilities to be utilized for recycling and landfilling of hazardous and non-hazardous materials.
- .3 Submit copies of certified weigh bills/receipts from authorized disposal sites and reuse and recycling facilities for material removed from site.



- .1 Written authorization from CCG Representative is required to deviate from receiving organizations/facilities listed in the Waste Reduction Workplan.

1.5 SITE CONDITIONS

- .1 Environmental protection:
 - .1 Ensure Work is done in accordance with Section 01 35 43- Environmental Procedures.
 - .2 Ensure Work does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution.
 - .3 Fires and burning of waste or materials is not permitted on site.
 - .4 Do not bury rubbish waste materials.
 - .5 Do not dispose of waste or volatile materials including but not limited to: mineral spirits, oil, petroleum based lubricants, or toxic cleaning solutions into watercourses, storm or sanitary sewers.
- .1 Ensure proper disposal procedures are maintained throughout project.
- .6 Do not pump water containing suspended materials into watercourses, storm or sanitary sewers, or onto adjacent properties.
- .7 Control disposal or runoff of water containing suspended materials or other harmful substances as directed by Departmental Representative
- .8 Protect trees, plants and foliage on site and adjacent properties where indicated.
- .9 Cover or wet down dry materials and waste to prevent blowing dust and debris.

1.6 EXISTING CONDITIONS

- .1 Erosion of soils around the concrete base of the FRP tower has caused a significant lean to the entire structure. While working in the area, assume unstable ground conditions will be encountered.
- .2 The interior of the FRP tower is assumed to contain non-friable asbestos material. Wear appropriate PPE and do not enter the FRP tower.
- .3 If material resembling spray or trowel applied asbestos or other substance be encountered in course of demolition, stop work, take preventative measures, and notify Departmental Representative immediately. Proceed only after receipt of written instructions have been received from Departmental Representative.
- .4 Structures to be demolished are based on their condition at time of examination prior to tendering.
 - .1 Salvage items as identified on the drawings provided or as identified by the Departmental Representative. Salvaged items will be delivered to CCG as determined by Departmental Representative.



PART 2 PRODUCTS

2.1 NOT USED

PART 3 EXECUTION

3.1 PREPERATION

- .1 Protection of in-place conditions:
 - .1 Work in accordance with Section 01 35 43 – Environmental Procedures
 - .2 Prevent movement, settlement or damage of adjacent properties, adjacent grades, trees, and landscaping
 - .1 Provide bracing, shoring as required.
 - .2 Repair damage caused by demolition as directed by Departmental Representative.
- .2 Surface Preparation:

Remove items designated as salvage in the provided drawings prior to demolition activities.

3.2 DEMOLITION

- .1 FRP Tower and Asbestos Handling Protocol
 - .1 Do not enter the FRP Tower
 - .2 Remove materials from the exterior of the FRP tower designated as salvage on the provided drawings or identified by Departmental Representative.
 - .3 Identify safe and secure lifting point on the tower and attach required slings.
 - .4 Remove hardware connecting FRP tower to concrete base.
 - .5 Lift FRP tower onto barge and wrap in 0.15mm polyethylene and tape secure.
- .2 Demolish concrete base to natural ground.
 - .1 Approximate volume of 3.9 cubic yards.
 - .2 The entire base is to be removed inclusive of all rebar and steel anchors.
 - .3 The existing concrete reinforcing and rock anchors of the existing base is unknown.
 - .4 Remove existing aluminum ledger and return to CCG personnel.
- .3 If a facility is identified in the Waste Reduction Workplan that will accept crushed material as aggregate, crush concrete to a size suitable for recycling.
- .4 At end of each day's work, leave Work in safe and stable condition.



3.3 CLEANING

- .1 Waste Management: separate waste materials for reuse/recycling as per the developed Waste Reduction Workplan.
- .2 Dispose of materials not designated for alternate disposal in accordance with applicable regulations.
 - .1 Disposal facilities must be those approved of and listed in Waste Reduction Workplan.
 - .2 Written authorization from Departmental Representative is required to deviate from disposal facilities listed in Waste Reduction Workplan.
- .3 The Site and surrounding area must be restored to “asfound “ or better condition.

END OF SECTION



PART 1 GENERAL

1.1 REFERENCE STANDARDS

- .1 American Petroleum Institute (API)
 - .1 API SPEC 5L, Specification for Line Pipe, Includes Errata 1, 43rd Edition.
- .2 American Society for Testing and Materials International (ASTM)
 - .1 ASTM A252, Standard Specification for Welded and Seamless Steel Pipe Piles.
- .3 Canadian Standards Association (CSA International)
 - .1 CSA-Z245.1, Steel Pipe.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00.
- .2 Submit Pile Driving Records. Submission to include:
 - .1 Pile number and location;
 - .2 Date and time driven;
 - .3 Length of pile driven;
 - .4 Type of pile driving hammer;
 - .5 Cut off elevation;
 - .6 Penetration;
 - .7 Tip Elevation; and
 - .8 Final set and hammer energy.

PART 2 PRODUCTS

2.1 MATERIALS

- .1 Steel pipe piles and pipe columns shall have minimum yield strength of 310 MPa meeting the requirements of the latest edition of at least one of the following specifications:
 - .1 ASTM A252 Grade 3;
 - .2 API 5L Grade X46; or
 - .3 CSA Z245.1-M with the following provisions:
 - .1 Chemical analysis of material shall show the copper content.
 - .2 All welds shall be full strength and shall satisfy the requirements of either ASTM A53 or CSA Z245.1-M.
 - .3 Flattening tests for ductility shall be conducted in accordance with the procedure and frequency stipulated in CSA Standard Z245.1-M or ASTM Standard A53.
 - .4 Unless longitudinal welds are certified as conforming to the requirements of ASTM A252, CSA Z245.1-M or API 5L to the satisfaction of the Departmental Representative,



welds shall be 100 percent inspected by ultrasonic or electromagnetic inspection according to the requirements of ASTM A53. This inspection shall be conducted at the Contractor's expense.

- .5 The Contractor shall bear the expense of repairing and re-inspecting all rejected welds.
- .6 Allowable tolerance on dimensions shall meet the requirements of CSA Z245.1-M.
- .2 The minimum length of a pile section used in the fabrication of piles and columns shall be 3.0 m.
- .3 Welded pipe splices shall have full strength welds.
- .4 The Contractor shall provide necessary certification from a certifier acceptable to the Departmental Representative to demonstrate that the material meets the above standards.

PART 3 EXECUTION

3.1 HANDLING PILES

- .1 Piling shall be handled and stored so as to avoid over stressing or injury, and any piles bent or damaged, or in any way made defective in the opinion of the Departmental Representative, shall be made good to his satisfaction or replaced.

3.2 FABRICATION

- .1 Welding practice and qualifications of fabricators and erectors of welded construction shall conform to the requirements of CSA Standards W47, W48, and W59, latest editions.
- .2 Piles and columns shall be spliced to the required lengths in a workshop or similar suitable place that will ensure good quality splices.
- .3 Lengths to be joined shall be manipulated in jigs so that only down-hand welding is employed.
- .4 The splice shall be complete joint penetration welds and shall develop the full strength of the pile section. Splices shall be made in a manner that will ensure good alignment of the spliced parts. The number of splices shall be held to a minimum.
- .5 The longitudinal welds of pipe pile lengths to be joined shall be staggered 90 degrees.
- .6 The end profile of a pile section to be butt welded shall not have a deviation of more than 1.0 - 1.6 mm from a plane perpendicular to the axis of the pile.
- .7 Maximum deviation of the line of the pile at the splices shall be 3 mm when measured with a 3.0 m straight edge.
- .8 All pile and column splices shall be 100 percent inspected and tested. This inspection shall be conducted at the Contractor's expense.
- .9 Inspections of pipe splices shall be by non-destructive ultrasonic tests in accordance with the requirements of AWS D1.1; dynamic. The test results shall be made available to the



Departmental Representative. If the inspection of a weld should indicate poor alignment of the pile sections, insufficient penetration of the weld, lack of fusion, slag inclusions, porosity or any such defects, the Contractor shall take the necessary corrective measures to provide a full strength weld to the satisfaction of the Departmental Representative. The cost of correcting defective welds and re-testing shall be borne by the Contractor.

3.3 INSTALLATION

- .1 Piles shall be installed in accordance with Best Management Practice for Pile Driving and Related Operations – BC Marine and Pile Driving Contractors Association – November; 2003.
- .2 All piles may be installed with a vibratory hammer, a standard air, diesel, hydraulic or drop hammer to the pile tip elevation shown on the drawings.
- .3 All pile driving equipment shall be in good mechanical condition and shall be capable of delivering the manufacturer's rated energy output and shall be operated in accordance with the manufacturer's instructions.
- .4 Pile driver leads shall be constructed in a manner which affords freedom of movement of the hammer and they shall be held in position by guys, stiff braces or by attaching to cranes or derricks so as to ensure proper support for the pile during driving. Hammer blows at all times shall be in direct line with the axis of the pile.
- .5 Steel piles shall be driven without excessive deformation of the head of the pile. The head of the pile shall be cut square and a driving cap shall be provided to hold the axis of the pile in line with the axis of the hammer.
- .6 The driving cap shall fit continuously over the top of the pile and shall project about 150 mm down over/into the pile and shall be such that the pile is held properly in line with the leads. A cushion of hardwood, fibre, plywood or other suitable material shall be placed between the driving cap and the hammer. The cushion shall be replaced if so directed by the Departmental Representative.

3.4 STEEL PILE CUTTING SHOES

- .1 The requirements for using pile cutting shoes to be determined by the Contractor.

3.5 CUT OFFS

- .1 After driving, piles shall be cut off at the elevations shown on the plans. In driving, sufficient length above cut off shall be allowed so that no part of the head of the pile damaged or deformed during driving remains in the work.
- .2 Piles shall be cut in a flat plane. A suitable guide shall be used to aid in cutting piles so that the cut off plane is within specified butt weld splice tolerances. If a satisfactory hand-held cut cannot be obtained, the Contractor shall cut the pile with an automatic cutter.



3.6 TEMPORARY RESTRAINT OF DRIVEN PILES

- .1 The Contractor shall furnish sufficient labour and materials to adequately secure the piles of any given group against motion relative to others in the group.
- .2 Temporary restraints once erected and approved shall be maintained in good order until completion of the structure.

END OF SECTION