WEST BAY PORT FACILITY – ENVIRONMENTAL PROTECTION PLAN

May 2024

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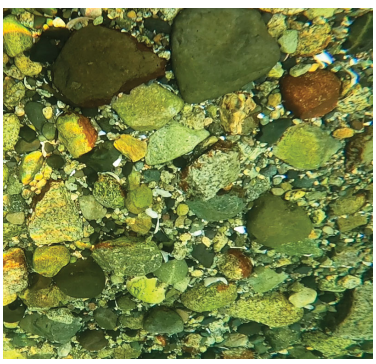
Prepared for:

Sunshine Coast Regional District

Sechelt, British Columbia



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WEST BAY PORT FACILITY – ENVIRONMENTAL PROTECTION PLAN

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BC	British Columbia
BMPs	Best Management Practices
CANUTEC	Canadian Transport Emergency Centre
CD	Chart Datum
DFO	Fisheries and Oceans Canada
EM	Environmental Monitor
EMA	*Environmental Management Act*
EMBC	Emergency Management BC
EMP	Environmental Monitoring Plan
EPP	Environmental Protection Plan
EZ	Exclusion Zone
FA	*Fisheries Act*
HADD	Harmful Alteration, Disruption and Destruction
MMO	Marine Mammal Observer
MMOP	Marine Mammal Observation Program
QEP	Qualified Environmental Professional
SCRD	Sunshine Coast Regional District
SEL_{cum}	Cumulative Sound Exposure Level
VFPA	Vancouver Fraser Port Authority
WCMRC	Western Canada Marine Response Corporation

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AMENDMENT RECORD

This report has been issued and amended as follows:

Issue	Description	Date	Prepared by	Reviewed by	Approved by
1	First version of West Bay Port Facility – Environmental Protection Plan	20240426	Rebecca Murphy Marine Biologist	Alasdair Lindop Project Manager	Stewart Wright Project Director
2	Second version of West Bay Port Facility – Environmental Protection Plan	20240510	 Rebecca Murphy Marine Biologist	Alasdair Lindop Project Manager	Stewart Wright Project Director

1.0 INTRODUCTION

Hatfield Consultants (Hatfield) has been retained by the Sunshine Coast Regional District (SCRD) for environmental management and regulatory support associated with the proposed upgrades of the West Bay Port Facility (the Facility) located on Gambier Island in Howe Sound, British Columbia (BC) (the Project; Figure 1).

This document guides environmental managemental practices during the Project's construction phase to avoid and/or mitigate adverse effects on environmental resources and the local community, and define monitoring requirements.

Figure 1 West Bay Port Facility.

Legend

Data Source:
Orthoimage, Sunshine Coast 2021 (15 cm)
11 May 2021, ESRI Online Service.

0 10 20 30 m

N

Scale: 1:1,200

Projection: NAD 1983 UTM Zone 10N

Hatfield

Engineering Services Ports Capital Upgrades

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2.0 PROJECT OVERVIEW

2.1 LOCATION

The Project is located at West Bay on Gambier Island, British Columbia. The geographical coordinates at the Project's approximate center are 49°27'37.49"N, 123°25'5.75"W. Figure 1 illustrates the Project location.

2.2 PROJECT DESCRIPTION

The Project will consist of repair and replacement of various components of the Port Facility, including the piles, bents, rails and bolts.

2.2.1 Project Components

The Facility includes a timber approach (the Approach: 2.4 m x 196.6 m) and a small wharfhead with timber decking extending in a southern direction from the shore (the Wharfhead: 5.1 m x 6.7 m). From the southeast side of the Wharfhead, there is a gangway (the Gangway: 1.2 m x 13.3 m) accessing a float (the Float: 6.4 m x 15.6 m) that is connected to submerged concrete anchor blocks (see Appendix A1 for further information). Engineering assessments have identified components in need of repair and/or replacement. The proposed components to be upgraded by the Project are listed in Appendix A1.

2.2.2 Construction Methods

Project works will include the following components;

- Mobilization of equipment and materials to the Project site;
- Replacement and repair of the Project components;
- Clean up of deleterious anthropogenic debris from under the Port and around the site; and
- Demobilization of equipment and materials from the Project site.

All in-water works will be undertaken by an experienced marine construction contractor using conventional marine construction equipment (i.e., barge-mounted crane). Work barges will be positioned adjacent to the work area (likely on the southern side of the Facility) and anchored in place using spuds. If required, a supporting materials scow may be secured to the work barge. Treated timber piles (305 mm diameter) will be installed by a marine contractor. The timber piles are being placed in an environment that is exposed to saltwater and has evidence of marine borers in the environment, therefore wood preservatives in category UC5A (Creosote, ACZA or CCA) as per 'CSA O80 Wood Preservation' will be used. Float repair work will be in-situ using marine-grade epoxy.

2.2.3 Project Schedule

Project works are planned to take place in summer (August/September) 2024 and will be completed within approximately three weeks. In-water components (pile replacement) will only occur during the Fisheries and Oceans Canada (DFO) Least Risk Window for Howe Sound (Area 28; August 16 – January 31).

3.0 CONTACTS AND RESPONSIBILITIES

3.1 KEY PROJECT PERSONNEL AND RESPONSIBILITIES

SCRD is responsible for verifying that the Project is constructed in compliance with environmental legislation and regulations, permitting requirements, Best Management practices (BMPs) and other Project environmental documents. SCRD will require that the Contractor, their employees, and subcontractors adhere to the EPP during Project construction. Contact details for Key Project Personnel are in Table 1.

Table 1 Key Project contacts.

Name	Responsibility	Contact Information
Project Team		
Kelly Koper [SCRD]	Project Manager	Kelly.Koper@scrd.ca
TBD [SCRD]	Operation Manager	TBD
TBD [Contractor]	Construction Manager	TBD
Ali Malekian [CIMA+]	Project Engineer	TBD
Alasdair Lindop [Hatfield]	Project Environmental Manager	604-262-6887 (alindop@hatfieldgroup.com)
TBD	Environmental Monitor	TBD
TBD	Marine Mammal Observer	TBD
Agencies		
Environment and Climate Change Canada	BC Office	604-664-9100
Spills to Water Having the Potential to cause Death of Fish or Harmful Alteration, Disruption or Destruction (HADD) of fish habitat	DFO	1-866-845-6776
Reportable Spills under the *Environmental Management Act* (EMA) and Spills to Water >100 L	Emergency Management BC (EMBC)	1-800-663-3456
Spills to Marine Environment	Canadian Coast Guard (Marine Pollution)	1-800-889-8852

3.1.1 Environmental Monitor Responsibilities

During Project works, the Environmental Monitor (EM) will conduct periodic inspections of construction activities to assess compliance with mitigation measures outlined in this EPP. The EM will be a Qualified Environmental Professional (QEP) or work under the direct supervision of a QEP. The EM must demonstrate a working knowledge of the site and be knowledgeable of the status of the Project work, and all environmental issues and conditions associated with the Project and the site works. Where required, the EM provides recommendations to the Construction Manager and Contractor's team about environmentally sound practices for activities like equipment operation or maintenance, hazardous material handling, or

work in sensitive habitats. It is the Contractor's responsibility to remain in close communication with the EM throughout the Project.

The responsibilities of the EM will include, but are not necessarily limited to the following:

- Monitor compliance with the EPP and applicable permit conditions;
- Meet with Contractors to review site conditions and constraints as well as mitigation measures outlined in the EPP and other applicable BMPs;
- Meet with the Construction team as and when required to discuss Project activities, design modifications, or modified mitigation measures to accommodate site conditions;
- Providing technical assistance on environmental matters to construction personnel;
- Providing recommendations for modifying and/or improving environmental mitigation measures, as necessary;
- Documenting construction activities, mitigation measures, and environmental incidents by field notes and photographs;
- Taking field environmental measurements and conducting analyses, as necessary;
- Maintain contact names and numbers of support personnel and specialized QEPs to be called in the event additional help is required for monitoring or spill response;
- Develop site restoration recommendations if needed;
- Complete and submit environmental monitoring reports to Westshore, as required; and
- Report unanticipated incidents with the potential for adverse effects to the environment.

Environmental monitoring will be conducted during Project activities that may result in potential adverse effects on fish and fish habitat and full-time during in-water water works. The EM is required to monitor for compliance with regulations and to ensure appropriate implementation of environmental best management practices. The frequency of site visits will be dependent on the sensitivity of work activities (e.g., in-water works). Additional visits will be conducted as required to meet permit or Contractor needs.

Qualified Marine Mammal Observers (MMO) will be required to visually monitor for marine mammals during in-water pile driving activities and record observations. The EM can conduct the MMO work as long as they have sufficient capacity to meet the requirements of this EPP, this will depend on whether there are other construction activities occurring during pile driving, and the underwater noise monitoring requirements. The EM will have the authority to halt work if imminent impacts to the environment are at risk of occurring. Appropriate mitigation measures will be carried out by the Contractor under the guidance of the EM.

3.1.2 Contractor Responsibilities

The Contractors and their sub-contractors will review this EPP and the applicable guidelines prior to each Project phase or new activity.

Typical responsibilities of the Contractor include the following:

- Review the Project EPP with their staff and sub-contractors prior to commencing works;
- Provide an environmental orientation to all Contractor staff and sub-contractors and provide a copy of this EPP for review prior to working on the Project. The environmental orientation will include the following:
    - An overview of the EPP;
    - Roles and responsibilities of personnel and relevant contact information;
    - Site-specific environmental issues, regulatory requirements, environmental protection and mitigation measures; and
    - Responsibilities, protocols, and relevant contact information in response to an accidental spill or other type of environmental emergency, including information specified by relevant standards, codes, or enactments.
- Integrate environmental information and relevant mitigation measures into Project work plans for the Contractor(s) scope of work;
- Comply with permit conditions, and any other relevant agency permit, or licence issued for the Project, as well as all other applicable federal, provincial, and municipal laws, statutes, by-laws, regulations, orders, and policies; and
- Correct deficiencies and any non-compliance issues upon direction from the EM, whether written or verbal. Corrections should be made as soon as reasonably possible, ideally within 24 hours of directions.

4.0 ENVIRONMENTAL AWARENESS AND TRAINING

4.1 ENVIRONMENTAL ORIENTATION

The pre-job orientation delivered to all construction personnel as a pre-requisite to on-site work shall include the following environmental components:

- An overview of the EPP;
- Roles and responsibilities of personnel and relevant contact information;
- Site-specific environmental issues, regulatory requirements, environmental protection and mitigation measures; and
- Responsibilities, protocols, and relevant contact information in response to an accidental spill or other type of environmental emergency, including information specified by relevant standards, codes, or enactments.

The EM will remain in contact with Contractor crews to review site environmental constraints and any additional measures that may require implementation, such as wildlife observations, in-water environmental mitigations, or ongoing opportunities for corrective and/or preventive actions.

5.0 ENVIRONMENTAL OBLIGATIONS

All Project construction-related works will be completed in compliance with applicable legislation, guidelines and conditions, as outlined in Sections 5.1 and 5.2.

5.1 RELEVANT ENVIRONMENTAL LEGISLATION

Table 2 describes relevant environmental legislation for the Project works.

Table 2 Relevant environmental legislation.

Legislation	Description	Applicability	Approval or Permit in Place/Forthcoming; or Requirements Met
Federal			
Fisheries Act (FA) (administered by DFO)	The FA is the main federal legislation protecting fish and fish habitat in Canada. Also, the FA prohibits the deposit of deleterious substances into water frequented by fish.	Work below the high-water mark (HWM) includes pile extraction and installation.	No Harmful Alteration, Disruption or Destruction of fish habitat (HADD) is expected. A DFO Request for Review (RFR) will be submitted because works will be proximal to fish and fish habitat.
Canada Shipping Act, National Spill Response Protocol (administered by Transport Canada)	The *Canada Shipping Act* is Transport Canada's regulatory framework surrounding marine pollution and its enforcement. In the case of a report of pollution in the water, including hydraulic oil or fuel spills, Canada operates under the National Spill Response Protocol, which specifies that the Canadian Coast Guard is responsible for spill response and recovery in the marine environment.	The Project has the potential for accidental hydrocarbon spills to Howe Sound.	A Spill Response Plan is provided in Section 0 of this EPP.
Migratory Birds Convention Act (MBCA) (administered by Environment and Climate Change Canada (ECCC))	This MBCA is the main federal legislation that protects migratory birds, eggs and nests.	Birds protected under the MBCA have been observed in the Project area.	No disturbance of nests or eggs of migratory birds is expected because of a lack of suitable habitat. Bird nesting surveys and measures to protect active nests are recommended for vegetation removal during the active nesting period (March 1 – August 30). Additionally, the Project is located adjacent to the English Bay, Burrard Inlet, Howe Sound Important Bird Area (BC020), this is not a regulation but important to consider.

Table 2 (Cont'd.)

Legislation	Description	Applicability	Approval or Permit in Place/Forthcoming; or Requirements Met
Provincial			
Spill Reporting Regulations of the *Environmental Management Act* (administered by the Ministry of Environment)	The regulation establishes procedures for reporting the unauthorized release of substances into the environment as well as outlining details of reportable amounts for certain substances for sites having Provincial jurisdiction.	Substances (e.g., hydrocarbons) that may be harmful to the environment will be used during the construction period of the Project.	A Spill Response Plan has been developed for the construction phase of the Project and is provided in Section 9.2 of this EPP. All spills over the limits specified in the regulation will be reported.
BC *Heritage Conservation Act* (administered by the Ministry of Forests, Lands and Natural Resource Operations)	The Act facilitates the protection and conservation of heritage property in BC.	Ground disturbance activities may result in the discovery of previously undiscovered archaeological resources.	An Archaeological Resources Management Plan is provided in Section 7.0 of this EPP. Due to the scope of works, the likelihood of encountering archaeological resources is considered low.
Municipal			
SCRD Noise Control Bylaw No. 597, 2008	The Noise Control Bylaw regulates or prohibits the making of certain noises in the Sunshine Coast and includes information on objectionable noises or sounds, exclusions, enforcement, penalties, and ticketing.	Construction equipment will be used during the construction of the Project.	Noise levels from construction will be conducted in accordance with the SCRD Noise Control Bylaw unless a Noise bylaw variance is obtained from the SCRD.

5.2 ENVIRONMENTAL GUIDANCE DOCUMENTS AND BEST MANAGEMENT PRACTICES

All works will comply with relevant BMPs. The following list of guidance documents and BMPs relevant to Project works have been used in the preparation of this EPP. Regulatory agency policies, guidelines and documents are subject to change from time to time, and this list will be updated as necessary.

- A Field Guide to Fuel Handling, Transportation and Storage (Ministry of Water, Land and Air Pollution 2002);
- Ambient Water Quality Guidelines for Turbidity and Suspended Benthic Sediment: Overview Report (B.C. Ministry of Environment and Climate Change Strategy 2021);
- British Columbia Approved Water Quality Guidelines Summary Report (British Columbia Ministry of Environment and Climate Change Strategy 2003);
- British Columbia Noise Control Best Practices Guideline (BC Energy Regulator 2023);
- Emergency Response Guidebook (Transport Canada 2020);
- Fisheries and Fish Habitat Protection Policy Statement (Government of Canada 2019);
- Measures to Protect Fish and Fish Habitat (Fisheries and Oceans Canada 2023);
- Projects Near Water: British Columbia Marine/Estuarine Timing Windows for the Protection of Fish and Fish Habitat (Fisheries and Oceans Canada 2014); and
- Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (National Oceanic and Atmospheric Administration 2018).

6.0 PROJECT MITIGATION MEASURES

The following section describes mitigation measures that will be implemented during construction.

6.1 AIR QUALITY

Air quality and dust management issues could potentially occur during equipment operations, transport of materials, and other Project construction activities. Potential exposure pathways are primarily air pollution from machinery and equipment. Impacts are expected to be low provided that appropriate mitigation measures are employed during the works.

The following mitigation measures shall be implemented to reduce dust and air emissions resulting from Project activities:

- Dust and odour emissions shall be controlled at the source where possible to contain and limit the release of particles to acceptable levels;
- All equipment, and stationary emission sources shall be well-maintained and used at optimal loads to minimize emissions. A preventative maintenance program shall be implemented for all diesel and gasoline-powered equipment (e.g., 500 hours or sooner if required by the manufacturer). Any parts showing excessive signs of wear or malfunction shall be promptly repaired or replaced prior to mobilizing to the Project site. Electric equipment shall be used where practical;
- All equipment shall be only used as necessary, turned off when not in use and fitted with standard emission control devices in compliance with federal, provincial, regional district, and municipal regulations and standards. Idle reduction initiatives shall be communicated and encouraged during site orientations and health and safety, PTP and progress meetings; and
- Reasonable efforts shall be made during construction to use nonroad diesel engines that meet U.S. Environmental Protection Agency Tier 2 Emissions Standards.

6.2 NOISE AND VIBRATION

Project works will produce noise, with limited practical means of noise control. Noise and vibration management issues could potentially occur during the following construction activities:

- Pile extraction and driving activities;
- Mobile equipment and machinery operations; and
- Other activities that may result in the generation of noise emissions.

The following mitigation measures shall be implemented to minimize noise emissions:

- All equipment shall be properly maintained to limit noise emissions to the extent practical and fitted with functioning exhaust and muffler systems. Machinery and equipment panels shall be well-fitted and remain in place to muffle noise. Bolts and fasteners shall be tight to avoid rattling;

- Where practical, noisy equipment shall be stationed as far away as possible from sensitive noise receivers or amplifiers (e.g., workers, offices), and located/oriented to take advantage of any inherent noise shielding available;
- Driving of piles shall be initiated using a vibratory or drop hammer.
- Procedures shall be put in place for receiving and responding to noise complaints. Records of any complaints shall be kept for a minimum of six months; and

6.3 MACHINERY AND EQUIPMENT

Project work is anticipated to be completed using marine-based equipment staged on floating barges.

The following mitigation measures shall be implemented to avoid or minimize impacts resulting from the operation and storage of equipment during construction:

- All equipment and machinery shall be maintained in good working order, free of leaks, excess oil and grease, invasive species, and noxious weeds;
- All equipment and machinery used on Site shall be inspected daily. Equipment maintenance shall be conducted at appropriate intervals to assess belts and hoses, fluid levels, and to identify mechanical defects or worn materials as applicable to each piece of machinery;
- Barge-based equipment shall be refuelled in alignment with mitigations provided in the Spill Response Plan included in Section 9.2. This shall include the use of drip trays and sorbent pads when fuelling to prevent drips and spills in the marine environment;
- Stationary equipment shall be operated on top of a drip tray, and drip trays shall have the capacity to contain any spills or leakage during set-up, operation and dismantling. Rainfall and hose connections/disconnections shall be taken into consideration when determining the required capacity of drip trays. The total capacity of drip trays shall be a minimum of 110% of the potential spill volume;
- All equipment and drip trays shall be inspected after heavy rainfall to check that containment has not been compromised;
- Spill containment kits shall be readily accessible, and beside each piece of equipment in the event of a release of a deleterious substance to the environment;
- In the event of a fuel, oil or spill of other hazardous materials as a result of an equipment malfunction or collision, the steps outlined in the Spill Response Plan (Section 9.2) shall be followed to secure the Project prior to containment and clean-up of the spill;
- All members of the Contractor's team shall be trained in the use of spill containment equipment/items; and
- Light spill shall be reduced by pointing lights downward and placing task lighting as close to the work area as possible.

6.4 VEGETATION AND WILDLIFE MANAGEMENT

Vegetation and wildlife management issues on the Project could potentially occur during machinery and equipment operations and other Project activities.

The following mitigation measures are recommended to avoid or mitigate potential negative impacts on wildlife and vegetation during Construction-related activities:

- Should a rare or sensitive species be identified at any time during the Project, the EM should be notified immediately for further direction;
- Pre-work Project orientation shall include details on how to report incidental wildlife observations. Such observations shall be used by the EM to address Project-specific mitigation needs;
- All Project personnel shall yield the right of way to wildlife encountered while driving and operating equipment;
- All food, food waste, fuels, oils and lubricants, and other attractants shall be stored in sealed containers that are inaccessible to wildlife, and removed from the Project daily;
- Food waste shall not be mixed with Construction waste; and
- If bird nests are encountered during works, the nest shall not be disturbed and the EM notified immediately.

6.5 FISH AND FISH HABITAT PROTECTION

The Project is within Howe Sound, which is the principal aquatic receptor. Project works could potentially impact water quality, and fish and fish habitat. The following mitigation measures shall be implemented to avoid adverse effects on fish and fish habitats:

- All in-water works shall be conducted during the local fisheries least-risk period of August 16th through January 31st inclusive;
- Barges or other vessels used during construction shall not be permitted to ground on the foreshore or seabed or otherwise disturb the foreshore or seabed (e.g., disturbance as a result of vessel propeller wash). Appropriate use of spuds to secure barges is acceptable;
- An experienced and qualified Marine Mammal Observer (MMO) will be present at all times during in-water pile driving activities and shall monitor marine mammal presence, as per requirements in Section 10.0;
- Pile driving activities are to be conducted during daylight hours in good visibility and weather conditions that permit visual observations;
- The DFO Fish and Fish Habitat Protection Program for the Pacific Region shall be advised at least ten (10) days in advance of the start of the in-water works (refer to contact details in Section 3.0);

- All debris and waste materials resulting from the Project shall be contained in the immediate working area and shall be removed as soon as possible. Any submerged debris and waste material shall be removed by means of a diver or other non-intrusive method;
- Any sediment attached to removed piles shall not be washed off the piles but removed from the Project with the piles;
- Preservative-treated piles shall be stored on sealed work barges following removal, with sorbent materials deployed as necessary to prevent the release of deleterious substances to the marine environment;
- Pile installation shall employ a procedure whereby piles are slowly lowered through the water column and placed on the seabed to allow motile invertebrates (i.e., crabs, fish) to relocate from the area, if present;
- Bubble curtains shall be deployed during all impact pile driving works, and shall be implemented during vibratory pile driving if hydroacoustic thresholds are exceeded or impacts to fish or marine mammals are observed;
- The direct or indirect release or deposit of sediment, sediment-laden water or other deleterious substances into the aquatic environment shall be prevented during the works; and
- Impacts to eelgrass beds shall be avoided by creating marked exclusion zones for spudding or grounding or defining Project boundaries that equipment is to remain within (Figure 2). Barge movements shall be conducted during suitable tides to avoid grounding or propeller scour.

Figure 2 Native eelgrass beds adjacent to the Project.

Source: BC Eelgrass Inventory.

6.6 CONCRETE WORKS AND GROUTING MANAGEMENT

Above-water repairs will be conducted on the deteriorated concrete on the float. Existing damaged concrete will be locally chipped and marine grade epoxy has been suggested by the engineers to repair the damage. However concrete works mitigation is still included in case the contractor chooses a different material such as concrete to repair the float. This process will be conducted in isolation of Howe Sound. The risk of accidental release of concrete into the marine environment is considered low.

The following mitigation measures shall be implemented to prevent and minimize the potential for adverse effects on the environment during concrete pouring. The EM shall be on-site to monitor concrete works conducted adjacent to the marine environment and confirm the below mitigations have been implemented:

- Where concrete infilling works are conducted, concrete shall be carefully placed to avoid spillage. Complete isolation of concrete forms is required for cast-in-place concrete works near the HWM;
- Proper housekeeping practices and appropriate isolation techniques shall be employed to minimize the potential for spills;
- Concrete shall be mixed in a spill basin near the repair location;
- Forms shall be built up to the top of the float to maintain the isolation of concrete from the marine environment;

- Appropriate spill cleanup materials shall be readily available and easily accessible. Contractors shall be aware of the materials required to clean up a concrete spill;
- Concrete washout shall occur in designated areas only, as determined in consultation with the EM;
- All works involving the use of concrete, cement, mortars, and other Portland cement or lime-containing Construction materials shall not deposit, directly or indirectly, sediments, debris, concrete, concrete fines, wash or contact water into the water outside of the forms of cast in place structures;
- Before pouring concrete, all concrete forms shall be thoroughly inspected to verify that formwork is fully secured and sealed to prevent the release of concrete or concrete-contaminated water into Howe Sound. Where necessary, following placement of concrete, it shall be covered with an appropriate material (e.g., plastic sheeting) as required to seal the concrete from the marine environment until the concrete is mostly cured;
- Raw or uncured waste concrete and grouts shall be disposed of in a manner that shall not affect Howe Sound. Excess uncured concrete and grout mixtures shall be stored in an impermeable container, isolated from Howe Sound and in an area protected from rain. Materials shall be disposed of off-site at an approved facility once the mixture has cured (approximately 72 hours); and
- Water quality monitoring may be conducted during concrete works. In the unforeseen event that pH elevations are noted, gaseous carbon dioxide (CO_2) may be dispersed into the area of elevated pH. The CO_2 shall be applied at depth with a weighted diffuser apparatus. CO_2 shall only be applied if needed and in consultation with the EM. While it provides an effective means of mitigating pH impacts from cementitious materials, its overuse could lead to adverse impacts on the blood chemistry of fish (hypercapnia).

6.7 TREATED WOOD

Wood used in the marine environment is treated with chemical preservatives to extend the life of wood and protect it from decay, insects, and other damaging factors. The following mitigation measures shall be implemented to prevent and minimize the potential for adverse effects on the environment during the placement of treated timber:

- New timber and timber used for repair work shall be treated with an Ammoniacal Copper Zinc Arsenate ACZA salt preservative treatment in accordance with CSA Standard O80 for saltwater exposure and shall be in accordance with “Best Management Practices for the Use of Treated Wood in Aquatic Environments.” Treated timber shall be handled with utmost care to avoid breaking the treated surface;
- Timber shall be procured with exact dimensions wherever possible to remove the need for field cutting of new timber;
- Any cuts, breaks or abrasions on the surfaces of treated timbers, as well as bolt holes shall be treated with two separate coats of salt preservative treatment; and

- Any field treatment will be done away from water when possible. If over-water treatment is necessary, containment shall be utilized (plastic sheeting, drip pans) to collect any surplus material.

If ACZA-treated wood is not sourced for the project and creosote-treated wood is used, the above mitigation measures will still apply.

6.8 FALSEWORK

Falsework consists of temporary structures used in construction to support a permanent structure until the construction is sufficiently advanced to support itself. During the construction of the Port, it is expected that temporary piles will be used to support the Approach when replacing the old piles. Installation of the temporary support structures should follow the same mitigation measures as the permanent structures (hydroacoustic monitoring for piling, no placement of barges near sensitive habitats, i.e., eelgrass beds).

7.0 ARCHAEOLOGICAL RESOURCES MANAGEMENT

Ground disturbance activities will be limited to the removal and installation of piles during this Project and therefore, the discovery of previously undiscovered archaeological resources is not anticipated. In the event of such a discovery, the BC Archaeological Chance Find Procedure will be followed (Appendix A2).

8.0 WASTE MANAGEMENT

The following mitigation measures are recommended when dealing with wastes generated on the Project:

- Wastes shall be reused or recycled where practical and as appropriate;
- The Contractor shall adhere to all applicable legislation concerning the handling, transportation, and/or disposal of all materials related to this Project (waste or otherwise). These regulations may include (but not be limited to) the BC Hazardous Waste Regulations, Spill Reporting Regulations, Workers Compensation Board Regulations, TDG Regulations, etc.;
- Specific locations for waste collection and sorting shall be identified before the start of Construction and communicated to employees in the pre-work environmental orientation training session;
- Outdoor refuse containers shall remain sealed at all times except when filling or emptying. Any refuse containers that are damaged or leaking shall be repaired or replaced;
- Waste material shall be stored in a manner that is secure and protected from the elements;
- The use of supplied washroom facilities is mandatory for all Construction personnel; and
- To avoid waste material from re-entering Howe Sound any old structures or pilings shall be removed to a suitable upland disposal site away from the marine environment.

9.0 EMERGENCY RESPONSE

9.1 EMERGENCY COMMUNICATION

Clear and rapid communication is essential when dealing with emergencies. Contact information for response or reporting of accidents or environmental emergencies is provided in Table 3:

Table 3 Emergency contact numbers.

Nature of Incident/Emergency	Authority/ Company Name	Contact	Timeframe
Emergency Services	Emergency Services	911	Immediately
	RCMP	911/604-985-1311	Immediately
	Lions Gate Hospital	604-988-3131	As required
	Sechelt Hospital	604-885-2224	As required
	Ambulance	911	Immediately, as required
	Keats Island Fire Equipment Group	604-828-5309	As required
	Gibsons & District Volunteer Fire Department	604-885-6870	As required
	West Vancouver Fire & Rescue	604-925-7370	As required
All Incidents (Including Spills > 1 L)	Environmental Monitor	TBD	Immediately
All Reportable Incidents under any Environmental Law or Permit	Environmental Manager-Hatfield	604-262-6887	within 24 hours
	SCRD-Kelly Kooper	TBD	within 24 hours
Reportable Spills under EMA and Spills to Water >100 L	EMBC	1-800-663-3456	Immediately
Spills to Water Causing/Having Potential to Cause Serious Harm to Fish	Fisheries and Oceans Canada	1-866-845-6776	Within 24 hours
Spills to Marine Environment	Canadian Coast Guard (Marine Pollution)	1-800-889-8852	Immediately
Spills of Dangerous Goods in Transport	EMBC	1-800-663-3456	Immediately
	RCMP	911	Immediately
	Canadian Transport Emergency Centre (CANUTEC)	613-996-6666 or *666 on a cell phone	Immediately
	Employer/Person in Control of the Dangerous Goods	TBD	Immediately

9.2 SPILL RESPONSE PLAN

Hazardous and potentially hazardous fuels, chemicals and other materials shall be on the Project. The following are typical hazardous or dangerous substances expected on the Project:

- Fuel (e.g., gasoline, diesel, propane);
- Batteries;
- Hydraulic oils, grease and lubricants;
- Industrial cleaners; and
- Paint and other chemicals required for construction.

The following mitigation measures shall be implemented to avoid or reduce the potential for spills as a result of Project construction activities:

- The Contractor shall identify all potentially hazardous materials on the Project, including fuels, oils, lubricants and other harmful substances. Safety Data Sheets (SDS) shall be kept on Project and made available to all Construction personnel;
- Equipment operating above or around the water shall be operated using environmentally acceptable, or less harmful hydraulic fluids;
- Work shall be planned to reduce the potential for spills to land, to the marine environment or to the atmosphere, where practical;
- Project personnel shall be trained in environmental awareness, spill containment, response and reporting procedures, according to the practices outlined in this EPP;
- Appropriate spill contingency and response material shall be available on the Project and specified in the Contractors work plans based on the type and location of works. Spill kits shall be properly stocked and located at all sites where hazardous substances are stored or in use;
- The Contractor shall conduct all fuelling of equipment, including storage and handling of petroleum products (e.g., fuel, oil, lubricants), in an appropriate manner and in compliance with all applicable guidelines, legislation, and BMPs to avoid spills to the environment; and
- In the event that contaminated or sediment-laden water escapes from a containment area, spill containment measures shall be undertaken. The impact of the event shall be assessed, and remedial actions shall be implemented under the direction of the EM.

9.2.1 Spill Response Procedures

Spill prevention and response procedures shall vary based on the quantity, type and location of the substance and/or spill. Spills of flammable liquids, hydrocarbons and oils >100 L are reportable to EMBC. Reportable volumes to EMBC under the Environmental Management Act (EMA) for various substances are outlined in Appendix A3.

Spill response procedures shall include:

For Spills ≥ 5 L and Spills of Any Volume Reportable Under EMA

1. Make the Areas safe:
    - Verify personal, public, electrical and environmental safety;
    - Wear appropriate personal protective equipment (PPE);
    - Never rush in, always determine the product spilled before taking action;
    - Warn people in the immediate vicinity;
    - Be aware of wind direction; and
    - Verify no ignition source if the spill is a flammable material.
2. Call for assistance from co-workers / Supervisor / Safety Department.
3. Stopping the Flow (where possible and safe to do so):
    - Act quickly to reduce the risk of environmental impacts;
    - Close valves, shut off pumps, or plug holes and leaks;
    - Utilize all available resources to initially contain the spill (i.e., spill kits, excavators or any material, equipment or tool that can safely contribute to containment efforts); and
    - Stop the flow or the spill at its source.
4. Securing the Area:
    - Limit access to the spill area; and
    - Prevent unauthorized entry onto the Project by securing and marking the area to limit exposure to pedestrians, including workers, and vehicle traffic.
5. Containing the Spill:
    - Prevent spilled material from entering drainage structures;
    - Use spill-absorbent material to contain the spill, or if that is not possible and the spill volume exceeds the capacity of the spill kit, use native soil, sandbags, straw bales, etc.;
    - If necessary, use a dyke or any other method to prevent any discharge on Project;
    - A temporary sump may be employed to contain or direct spilled liquids if groundwater is not present;
    - Make every effort to minimize contamination; and
    - Take soil or water samples for laboratory testing.

6. Notifying/Reporting:

   - Notify the EM immediately (provide spill details);
   - If a reportable spill has occurred the EM or Environmental Manager or a designate shall call EMBC at 1-800-663-3456 (24 Hour);
   - Any incident involving the spillage of oil or petroleum lubricating products into the marine environment shall be reported immediately to the Canadian Coast Guard and EMBC. Any large incidents / Level 3 incidents shall also be reported to the 24-hour Spill Reporting Center of the Western Canada Marine Response Corporation (WCMRC). Reporting to WCMRC shall be the responsibility of the contractor's Project Manager, or designate, operating in consultation with the contractor's General Manager and/or H&S Manager;
   - When reporting a spill, the caller shall be prepared to provide the dispatcher with the following information as accurately as possible;
     - Location and time of the spill;
     - Type and quantity of the substance spilled;
     - Cause and effect of the spill;
     - Details of action taken or proposed;
     - Description of the spill location and surrounding area;
     - Names of agencies/responders on the scene; and
     - Names of other persons or other agencies advised or to be advised concerning the spill;
   - EM or Environmental Manager or a designate notify the contractor and SCRD immediately;
   - Provide necessary spill details to other external agencies as required;
   - Complete an Environmental Incident Report; and
   - For spills >100 L or reaching Howe Sound, contact back-up commercial spill clean-up companies and local fire response teams, as required.

7. Cleaning-Up:

   - The EM and the Contractor shall coordinate spill cleanup;
   - Additional assistance on clean-up procedures and residue sampling shall be available from the EM, as required;
   - Cleanup the affected area, including confirmatory testing on the cleaned area;
   - Remove the impact/debris and decontaminate any equipment or tools used in the cleanup;

- Dispose of waste materials at an approved disposal site in compliance with the BC EMA, HW Regulation and BC Waste Management Act;
- Dispose of all material used in clean-up (e.g., used sorbents, oil containment materials, etc.) in accordance with the above regulatory requirements; and
- Treat and dispose of contaminated material in compliance with the BC EMA, CSR and HW Regulation.

For Spills that are Non-Reportable under EMA

For spills of any volume, notify the EM. The EM shall monitor the Project cleanup of minor leaks and spills of oil, grease and hydraulic fluids that are greater than 5 L in size. Further guidance for cleanup may be provided by the Environmental Manager, as required. Remove contaminants by implementing the following measures:

- Remove the impact/debris and decontaminate any equipment or tools used in the cleanup;
- Cleanup the affected area, including confirmatory testing on the cleaned area; and
- Dispose of waste materials at an approved disposal site.

Spills to Water

In the unlikely event of spills that were to enter Howe Sound, the following mitigation measures are recommended:

- The EM, the Environmental Manager, the contractor Project Manager and SCRD (for spills of oil or petroleum lubricating products) shall be notified immediately;
- Aquatic booms shall be used to contain any fuels, oils or other surfactants at the source of the spill;
- The spill area shall be lined with absorbent padding to absorb contaminants from the water surface, as practical; and
- The monitoring outlined in Section 9.2 above shall be followed.

9.2.2 Spills and Incident Reporting

Spills are reportable to EMBC under the EMA Spill Reporting Regulation and/or the *TDG Act,* as outlined in Table 4. Spills of hazardous substances of any volume to a water body are also reportable to EMBC. A body of water includes both marine and fresh bodies of water. The requirement to report a spill of a harmful substance of any quantity also includes those that enter a ditch that is not self-contained and connects to a body of water.

Spills of any volume to fish-bearing waters must also be reported to DFO. The Contractor will report any reportable spill to relevant outside agencies. The Contractor will be prepared to provide the following information:

- Type and quantity of substance spilled;

- Location, type of environment and time of the spill;
- Details of the area surrounding the spill (possible sensitive habitats, shoreline, weather, tides, current direction, substrate type);
- Cause and effect of the spill;
- Details of actions taken to contain the spill;
- Details of possible anticipated actions; and
- Name of agencies notified, on the scene and times of arrival.

For any reportable spill, SCRD will be notified as soon as possible and at any rate within 24 hours. Contact numbers for spill reporting can be found in Table 1. For all spills of any volume to land or water, the EM must be notified immediately of the spill and any actions taken to contain the spill. The EM should be on site for spill cleanup where practicable.

A detailed environmental report will be filed with Provincial and/or Federal government and regulatory agencies as required by the BC Spill Reporting Regulation and Federal regulations, following the cleanup of an environmental incident that warrants contact with the government. Table 4 identifies hazardous substances and quantities reportable under EMBC:

Table 4 Hazardous substance and quantities[1] reportable to EMBC under the BC *Environmental Management Act* and/or the *TDG Act*.

	Substance Spilled	Specified Amount
2	Class 2.1, Flammable Gases, other than natural gas, as defined in section 2.14 (a) of the Federal Regulations	10 kg
5	Class 3, Flammable Liquids as defined in section 2.18 of the Federal Regulations	100 L
6	Class 4, Flammable Solids as defined in section 2.20 of the Federal Regulations	25 kg
7	Class 5.1, Oxidizing Substances as defined in section 2.24 (a) of the Federal Regulations	50 kg or 50 L
9	Class 6.1, Toxic Substances as defined in section 2.27 (a) of the Federal Regulations	5 kg or 5 L
12	Class 8, Corrosives as defined in section 2.40 of the Federal Regulations	5 kg or 5 L
13	Class 9, Miscellaneous Products, Substances or Organisms as defined in section 2.43 of the Federal Regulations	25 kg or 25 L
14	Waste containing dioxin as defined in section 1 of the Hazardous Waste Regulation	1 kg or 1 L, or less if the waste poses a danger to public safety or the environment
15	Leachable toxic waste as defined in section 1 of the Hazardous Waste Regulation	25 kg or 25 L

[1] Select substances included based on relevance to Project works.

Table 4 (Cont'd.)

	Substance Spilled	Specified Amount
16	Waste containing polycyclic aromatic hydrocarbons as defined in section 1 of the Hazardous Waste Regulation	5 kg or 5 L
17	Waste asbestos as defined in section 1 of the Hazardous Waste Regulation	50 kg
18	Waste oil as defined in section 1 of the Hazardous Waste Regulation	100 L
20	PCB Wastes as defined in section 1 of the Hazardous Waste Regulation	25 kg or 25 L
21	Waste containing tetrachloroethylene as defined in section 1 of the Hazardous Waste Regulation	50 kg or 50 L
23	Hazardous waste as defined in section 1 of the Hazardous Waste Regulation and not covered under items 1 – 22	25 kg or 25 L
24	A substance, not covered by items 1 to 23, that can cause pollution	200 kg or 200 L
25	Natural gas	10 kg, if there is a breakage in a pipeline or fitting operated above 100 psi that results in a sudden and uncontrolled release of natural gas

An Environmental Incident Report shall be generated for any of the following:

- Spills reportable to EMBC;
- Spills of any amount of water (surface or groundwater) or any spill with the potential to introduce a harmful substance to the aquatic environment;
- Spills on land greater than 5 L or with a surface area greater than 1 m^2 and/or deeper than 300 mm, or any release of a hazardous substance that could cause contamination of the Project or any lands or waters in the vicinity of the Project;
- Alteration or damage to archaeological resources; and
- External reporting requirements derived from a Project approval condition, especially if attached to a non-routine or unexpected event.

A list of emergency contacts is outlined in Table 3.

10.0 ENVIRONMENTAL MONITORING PLAN

The Environmental Monitoring Plan (EMP) defines environmental monitoring activities throughout Project construction.

Primary measures to verify the protection of Howe Sound shall be acoustic and turbidity monitoring during in-water works and visual inspection of the Project. Monitoring will confirm the adequacy of mitigation measures used during Project works and shall be conducted by a qualified EM, with experience in the monitoring of similar marine infrastructure projects. The EM may also act as the MMO for the Project and shall be suitably qualified for the role through previous experience monitoring hydroacoustic levels and conducting marine mammal monitoring on comparable marine projects.

10.1 ACOUSTIC MONITORING AND MARINE MAMMAL OBSERVATION PLAN

Marine construction activities will generate underwater noise with the potential to affect marine mammals and fish. Mitigation will be implemented to prevent auditory injuries or enduring behavioural changes (i.e., area avoidance), depending on the style of pile driving being conducted.

All pile driving taking place within the marine environment, including the intertidal zone, will require mitigation. Preference shall be placed on the use of vibratory pile driving techniques wherever feasible, and impact pile driving methods shall not be attempted until vibratory techniques are found unviable. If impact pile driving becomes necessary, mitigation shall include the deployment of a bubble curtain adjacent to the point of pile driving. The exact style of the bubble curtain will be contingent upon construction activities and localized site conditions (e.g., tides, and currents).

10.1.1 Monitoring of Underwater Noise

To monitor the effectiveness of sound attenuating mitigations, the EM shall utilize a calibrated hydrophone to monitor underwater noise *in-situ*. A marine mammal exclusion zone (EZ) will be established based on acoustic monitoring results.

During pile driving activities, the hydrophone will be placed 10 m from the point of pile driving to ensure a maximum peak SPL of 206 dB re 1 µPa. Exceeding this value will require a temporary cessation of pile driving works, and the use of further sound attenuating mitigations (e.g., bubble curtains).

Cumulative Sound Exposure Level (SEL_{cum}) shall be monitored. Fish are expected to exhibit avoidance behaviour, and therefore the period over which the Cumulative Sound Exposure Level is short. As a result, the Cumulative Sound Exposure Level (SEL_{cum}) of 203 dB (dB cSEL; re 1 µPa2 sec) should not result in a work stoppage, unless the Contractor's QEP determines that there are potential impacts on fish.

Hydrophone monitoring shall be conducted full-time during the first 3 piles of each size for vibratory piling, and full-time during impact piling activities. If during vibratory installation of the first three piles, no exceedances of Project sound criteria are observed, hydroacoustic monitoring may cease for this activity, however, full-time MMO shall continue. Acoustic monitoring shall be renewed if new pile driving methods are used, new pile sizes are used; or at the discretion of the EM.

In addition, hydrophone monitoring will be conducted at various distances from the pile to determine the distance from pile driving at which underwater noise falls below the root mean square SPL of 160 dB re 1 µPa (i.e., the point of sound attenuation). This will define the EZ for marine mammal monitoring.

10.1.2 Marine Mammal Observation

During pile driving works, the EM shall employ an MMO to mitigate potential harm to marine mammals. MMO requirements shall be contingent upon construction activities (e.g., impact vs. vibratory pile driving) and marine conditions (e.g., visibility considerations). Works requiring MMO shall occur only during hours when there is sufficient light for the EM to conduct marine mammal observations at the defined EZ. During pile driving, the EM shall record any sightings of marine mammals inside and outside the EZ. Observations made by the EM shall include taxa, numbers, and behaviour.

During pile driving, an EZ shall be established extending to a variable location corresponding to the point of sound attenuation as determined by hydrophone monitoring. EZs shall be monitored visually by the EM at all times during pile-driving activities. Any marine mammals observed within the EZ will trigger a temporary cessation of work.

The protocols listed below shall be followed:

1. The EM shall monitor the EZ for 30 minutes before the beginning of pile driving (or restarting after a 30-minute cessation of works). Pile driving will not be initiated unless marine mammals observed within the EZ are seen leaving, or none have been observed inside the EZ during the observation period;

2. If visibility is such that the EM is unable to effectively monitor marine mammals within the EZ (e.g., in darkness or heavy fog), the EM may delay the start of in-water works until visibility improves. Upon improvement of visibility, the EM shall monitor the EZ for marine mammals, as per point 1;

3. The beginning of pile driving (or restarting after a 30-minute cessation of works) shall include a slow start technique, gradually increasing hammer strikes in both intensity and frequency. This process is intended to allow any marine mammals in the vicinity time to vacate the area; and

4. Upon detection of underwater noise greater than the thresholds stated in Section 10.1.1, pile driving will temporarily halt, and additional mitigation measures will be considered in consultation with the EM.

The MMO shall be active during all pile driving works, and the EM will be properly equipped to observe the entirety of the EZ and conduct acoustic hydrophone monitoring. The EM shall maintain contact with the Contractor at all times, in order to communicate any necessary modifications to work procedures (e.g., temporary cessations of works, bubble curtain modifications, etc.). The exact location of the EZ will be centred on concurrent pile driving, and thus will shift with works.

10.2 WATER QUALITY MONITORING

Water quality monitoring shall be conducted by the EM and include a combination of visual observations and *in-situ* water quality measurements. Visual inspection of in-water works shall be conducted throughout the Project footprint to monitor for any increases in turbidity associated with Project works. *In-situ* water quality profiles shall be conducted using a water quality multimeter (e.g., YSI ProDSS) capable of measuring turbidity and pH. *In-situ* monitoring will be conducted at the discretion of the EM when visual turbidity plumes are observed. Measurements shall be collected at three depths in the water column; at near-surface, mid-column and near-bottom locations. Data shall be uploaded daily to Project records. The water quality multimeter shall be calibrated as per manufacturer's specifications, and all calibration data shall be included with Project records.

10.2.1 Frequency and Location of *In-situ* Measurements

In-situ water quality monitoring may be required during pile removal or other in-water works, if elevated turbidity is observed by the EM. During in-water works where turbidity suspension is observed, water quality measurements shall be taken hourly at a compliance point located 30 m downstream of the works, at an exact location determined by the EM. Samples shall be collected at locations and frequencies listed in Table 5.

Water quality performance criteria, as they apply to all in-water works, shall be primarily focused on turbidity and will be evaluated at an appropriately located compliance point. Samples shall be taken at 1-hour intervals during in-water works where turbidity suspension is observed. This frequency may be increased at the discretion of the EM (e.g., upon observation of a turbidity plume or after a major rainfall event).

Table 5 Sampling frequency and turbidity performance criteria for *in-situ* profiles.

Project Activity	Location of Compliance Point Sampling Station[1]	Sampling Frequency During Works	Performance Criteria	Notes
Work Resulting in Visual Turbidity	30 m downstream of works	Hourly	≤ 5 NTU above background if background ≤ 50 NTU **OR** ≤ 10% above background if background > 50 NTU	The exact location is to be determined by EM based on construction activity and field conditions

[1] 3 depths per station – near surface, mid-column, and near bottom

In-situ profiles will also be collected from a reference (background) station to identify background conditions, such that changes over background can be established for parameters such as turbidity, and to assess sources of potential influence at the ambient point. Two reference stations will be established approximately 500 m east and west of the Project. However, only the reference station located "up current" of the Project will be sampled during each sampling event. This will result in one reference area being sampled during each sampling event, dependent on local tides and currents.

In the event monitoring identifies a non-compliance event (i.e., results exceed water criteria at the compliance point), the EM shall take the following actions:

- Confirm the source and/or cause of the exceedance (i.e., visible observation of a turbidity plume and its source);
- Should the exceedance be the result of in-water works, the contractor shall be notified, and BMPs/mitigations adjusted;
- Increase the frequency of turbidity monitoring; and
- Should exceedances at the compliance point persist, in-water works shall be halted until work methods have been reviewed and additional mitigations applied in consultation with the EM.

10.3 ENVIRONMENTAL REPORTING

Following the completion of works, a summary environmental report shall be completed to document the results of environmental monitoring and will include:

- Name(s) of EM(s);
- Period covered by the report;
- Date report submitted;
- Report recipient(s);
- Contractor(s) undertaking work during the reporting period;
- Overall weather conditions during the reporting period;
- Description, photos and status of Project work activities;
- List of meetings and any other material communications (both those that occurred during the reporting period and any that are scheduled or anticipated in future reporting periods) and a summary of key issues discussed or expected to be discussed;
- A summary of environmental incidents that may have occurred during the reporting period;
- A description of outstanding environmental issues and/or non-compliance with environmental laws, permits or other environmental obligations and corrective actions taken or that will be taken and a schedule for such actions;
- Any issues or concerns raised by the EM and measures taken or that will be taken to address those issues or concerns;
- A summary of environmental monitoring data collected, and all results received during the reporting period, including acoustic and turbidity sampling; and
- An organized checklist or table of key mitigation requirements of the EPP – including those of, DFO, and Sunshine Coast Regional District – to verify implementation and effectiveness at the relevant stages of the project.

11.0 REFERENCES

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APPENDICES

Appendix A1

CIMA+ Project Plans

A. GENERAL:

1. STRUCTURAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL OTHER CONTRACT DRAWINGS AND DOCUMENTS. INFORM ENGINEER OF ANY CONFLICTS BEFORE COMMENCING WORK.
2. DIMENSIONS AND ELEVATIONS ARE BASED ON THE REFERENCE DRAWINGS PROVIDED BY THE CLIENT ARE NOT FIELD MEASURED OR VERIFIED BY ENGINEERS. THE DRAWINGS PROVIDED BY THE CLIENT WERE NOT RECORD DRAWINGS NOR AS-BUILT DRAWINGS.
3. DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED PRIOR TO CONSTRUCTION BY THE CONTRACTOR.
4. ENGINEER TO BE NOTIFIED 48 HOURS IN ADVANCE FOR FIELD REVIEW BEFORE COVERING UP.
5. THE DRAWINGS SHOW COMPLETED STRUCTURAL COMPONENTS OF THE DOCKS. TEMPORARY BRACING AND SHORING REQUIRED TO PERFORM THE WORK SAFELY IS THE RESPONSIBILITY OF THE CONTRACTOR.
6. ENVIRONMENTAL WORK PROCEDURES, TIMING AND SPECIAL PRECAUTIONS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS AND LIMITATIONS OF THE FEDERAL DEPARTMENT OF FISHERIES AND OCEANS, AND THE PROVINCIAL MINISTRY OF WATER, LAND AND AIR PROTECTION AND AS OUTLINED IN ENVIRONMENTAL CONSULTANT (HATFIELD) DOCUMENTATION.
7. ALL DIMENSIONS ARE IN MILLIMETERS AND ELEVATIONS IN METERS, UNLESS NOTED OTHERWISE.
8. HORIZONTAL DATUM U.T.M NAD 83.
9. VERTICAL DATUM (ELEVATIONS AND CONTOURS) TO CHART DATUM (C.D.).
10. TIDE ELEVATIONS AT THE SITE ARE BASED ON VALUES PUBLISHED BY THE CANADIAN HYDROGRAPHIC SERVICE (CHS) FOR GIBSONS - STATION 07820 AS FOLLOWS:

HIGHER HIGH WATER, LARGE TIDE (H.H.W.L.T.)	5.1 METRES
HIGHER HIGH WATER, MEAN TIDE (H.H.W.M.T.)	4.6 METRES
MEAN WATER LEVEL (M.W.L.)	3.2 METRES
LOWER LOW WATER, MEAN TIDE (L.L.W.M.T.)	1.3 METRES
LOWER LOW WATER, LARGE TIDE (L.L.W.L.T.)	0.1 METRES

11. SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR FABRICATION & CONSTRUCTION.

B. TIMBER:

1. ALL TIMBER SHALL BE PRESSURE TREATED NLGA NO. 1 COASTAL DOUGLAS FIR OR BETTER. LUMBER TO BE GRADED TO NLGA STANDARD GRADING RULES FOR CANADIAN LUMBER, 2003. TIMBERS SHALL BE PROPERLY AIR-DRIED AND SEASONED, CONTAINING NOT MORE THAN 20% MOISTURE.
2. ALL TIMBER WORK SHALL BE IN ACCORDANCE WITH CAN/CSA-086.1. LUMBER GRADDE SHALL CONFORM TO THE REQUIREMENTS OF THE NLGA STANDARD GRADING RULES.
3. ALL TIMBERS SHALL BE CUT TO THE REQUIRED LENGTH PRIOR TO TREATMENT. FIELD CUT TIMBERS WILL BE REJECTED AND REPLACED AT THE CONTRACTOR'S EXPENSE, EXCLUDING CROSS BRACE DRILLING AT THE TOP CONNECTIONS. IF NECESSARY AND REQUIRED, WITH THE APPROVAL OF THE CONSULTANT, FIELD CUTS WILL BE ACCEPTABLE.
4. ALL TIMBER, EXCEPT CURBRAILS AND HANDRAILS SHALL BE GIVEN ACZA TREATMENT IN ACCORDANCE WITH CSA O80, USE CATEGORY 4.1.
5. APPROACH CURBRAILS AND HANDRAILS SHALL BE GIVEN AN ACZA SALT PRESERVATIVE TREATMENT IN ACCORDANCE WITH CSA O80 FOR COATED EXTERIOR WOOD CONSTRUCTION, USE CATEGORY 3.2.
6. HANDLE ALL THE TREATED TIMBERS WITH CARE TO AVOID PUNCTURING THE TREATED SURFACE. TREAT ALL CUTS OR PUNCTURES WITH TWO COATS OF COPPER NAPHTHENATE TREATMENT CONTAINING A MINIMUM OF 2% COPPER AS METAL AND ONE COAT OF APPROVED TROWELED MASTIC AT LEAST 6mm THICK.

D. TIMBER PILES:

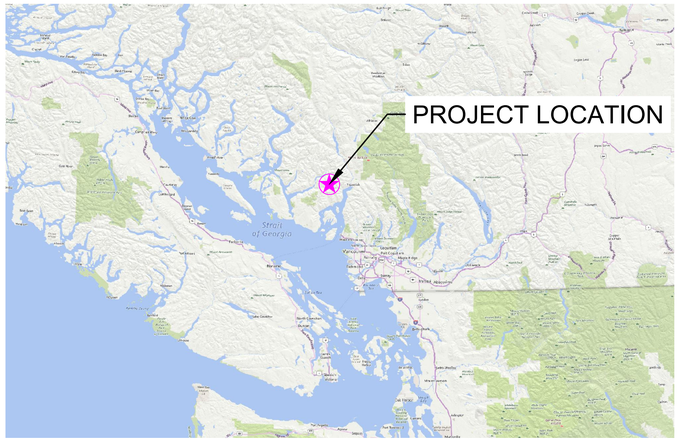
1. ALL TIMBER PILES SHALL CONFORM TO CAN/CSA-O56, BE UNUSED, CLEAN PEELED, UNIFORMLY TAPERED, ONE PIECE FROM TOP TO BOTTOM. CHECKS SHALL BE LIMITED TO 100mm IN LENGTH & 1.6mm IN WIDTH. NO KNOTS SHALL EXCEED 25mm IN DIAMETER. TIMBER PILES TO BE SUPPLIED SIZE 13 [33], UNLESS NOTED OTHERWISE.
2. PILES SHALL BE GIVEN TREATMENT IN ACCORDANCE WITH CSA O80 FOR SALT WATER MARINE EXPOSURE, USE CATEGORY 5A UNLESS NOTED OTHERWISE.
3. ALL TREATMENTS SHALL BE ACZA. CREOSOTE OR CCA TREATMENT IS ONLY ACCEPTABLE IF APPROVED BY CONSULTANT.
4. TREATMENT TO BE IN ACCORDANCE WITH THE MOST CURRENT VERSION OF CSA O80. INFORM ENGINEER IF THERE IS ANY DISCREPANCIES OR QUESTIONS.
   - 4.1. CATEGORY 3.2 EXPOSED TO WEATHER, NOT IN GROUND CONTACT, INCLUDING BULLRAILS AND RISERS.
     - 4.1.1. ACZA, 4.0kg/m^3 (SHALL USE ACZA TREATMENT FOR THIS PROJECT UNLESS NOT POSSIBLE)
     - 4.1.2. CCA, 4.0kg/m^3 (CONSULTANT APPROVAL REQUIRED TO USE THIS METHOD)
   - 4.2. CATEGORY UC 4.1 CONTACT WITH SPLASH ZONE. INCLUDING WHARF JOISTS, STRINGERS, FISH PLATES, PLYWOOD NOT COVERED UNDER UC5A, PILECAPS & BLOCKING.
     - 4.2.1. ACZA, 6.4kg/m^3 (SHALL USE ACZA TREATMENT FOR THIS PROJECT UNLESS NOT POSSIBLE)
     - 4.2.2. CCA, 6.4kg/m^3 (CONSULTANT APPROVAL REQUIRED TO USE THIS METHOD)
     - 4.2.3. CREOSOTE: (CONSULTANT APPROVAL REQUIRED TO USE THIS METHOD)
       - 4.2.3.1. 160kg/m^3 IF THICKNESS IS LESS THAN 115mm.
       - 4.2.3.2. 120kg/m^3 IF THICKNESS IS GREATER THAN OR EQUAL TO 115mm.
   - 4.3. CATEGORY UC5A, MARINE. INCLUDING WOOD PILES, PLYWOOD, CROSS BRACES AND WALES.
     - 4.3.1. ACZA, 30kg/m^3 OR (SHALL USE ACZA TREATMENT FOR THIS PROJECT UNLESS NOT POSSIBLE)
     - 4.3.2. CCA, 24kg/m^3 OR (CONSULTANT APPROVAL REQUIRED TO USE THIS METHOD)
     - 4.3.3. CREOSOTE 290kg/m^3 (CONSULTANT APPROVAL REQUIRED TO USE THIS METHOD)
       - 4.3.3.1. PENETRATION IN ACCORDANCE WITH THE MOST CURRENT VERSION OF CSA O80.
   - 4.4. AFTER CUTOFF, TREAT PILE TOPS TWO COATS OF COPPER NAPHTHENATE TREATMENT CONTAINING A MINIMUM OF 2% COPPER AS METAL AND ONE COAT OF APPROVED TROWELED MASTIC AT LEAST 6mm THICK.
   - 4.5. ALL PILES TO BE COVERED WITH A SHEET OF 22 GUAGE ANNEALED CORROSION RESISTANT ALUMINUM, CUT 300mm LARGER THAN THE PILE TOP DIAMETER. THE OVERHANGING EDGES SHALL BE CRIMPED, TURNED DOWN AND SECURED TO THE PILE WITH EIGHT ALUMINUM ROOFING NAILS. THE SHEET SHALL NOT BE CUT TO FACILITATE FITTING.
   - 4.6. ALL DRILLED BOLT HOLES COMPLETED AFTER TREATMENT MUST BE FIELD TREATED WITH TWO COATS OF COPPER NAPHTHENATE CONTAINING A MINIMUM OF 2% COPPER AND BOLTS/PLUGS MUST BE DIPPED IN COPPER NAPHTHENATE PRIOR TO INSTALLATION. THIS INCLUDES ANY BOLT HOLES WHICH ARE REUSED AS PART OF THE WORK.
   - 4.7. PLUG ALL UNUSED BOLT HOLES WITH TIGHT FITTING COPPER NAPHTHENATE TREATED BOLTS, AND NEOPRENE GASKET AND TIMBER WASHER EACH END.
   - 4.8. TIMBER HANDLING:
     - 4.8.1. ALL TREATED TIMBER MUST BE HANDLED AS TO NOT PUNCTURE THE TREATMENT LAYER.
   - 4.9. ALL SHIMS MUST BE COPPER NAPHTHENATE TREATED PLYWOOD AND MUST BE SECURED IN PLACE BY AT LEAST TWO (2) NAILS AT OPPOSITE CORNERS OF THE SHIM OR APPROVED EQUIVALENT, UNLESS NOTED OTHERWISE.
5. PROPOSED ALTERNATIVES TO THE SUPPLIED DESIGN TO BE APPROVED BY ENGINEER.
6. PILE DRIVING
   - 6.1. PILES ARE TO BE DRIVEN TIP DOWN UNTIL A DRIVING ENERGY OF 25 - 30 kJ IS ACHIEVED OR TO REFUSAL (5 BLOWS / 25mm).
   - 6.2. BAND HEADS OF PILES WITH STEEL OR WIRE MESH TO PREVENT SPLITTING DURING DRIVING.
   - 6.3. DRIVE TO THE FOLLOWING TOLERANCES
     - 6.3.1. LOCATION OF PILES: 25mm ±
     - 6.3.2. VERTICAL TOLERANCE: 2% OR 1:50.
7. PILE REPLACEMENT
   - 7.1. EXISTING PILES TO BE REPLACED SHALL BE FULLY EXTRACTED.
   - 7.2. REPLACEMENT PILES TO ACHIEVE A MINIMUM PENETRATION EQUAL TO THAT OF THE REMOVED PILE AND TO SATISFY THE PILE DRIVING CRITERIA NOTED ABOVE.
8. UPON COMPLETION, TREAT ALL CUTS OR BREAKS IN NEW TIMBERS WITH TWO COATS OF COPPER NAPHTHENATE TREATMENT CONTAINING A MINIMUM OF 2% COPPER AS METAL AND ONE COAT OF APPROVED TROWELED MASTIC AT LEAST 6mm THICK. CHECK THAT ALL BOLTS & NUTS HAVE BEEN TIGHTENED PROPERLY.
9. USE TIMBER WASHER UNDER BOLT HEADS AND NUTS AGAINST TIMBERS.

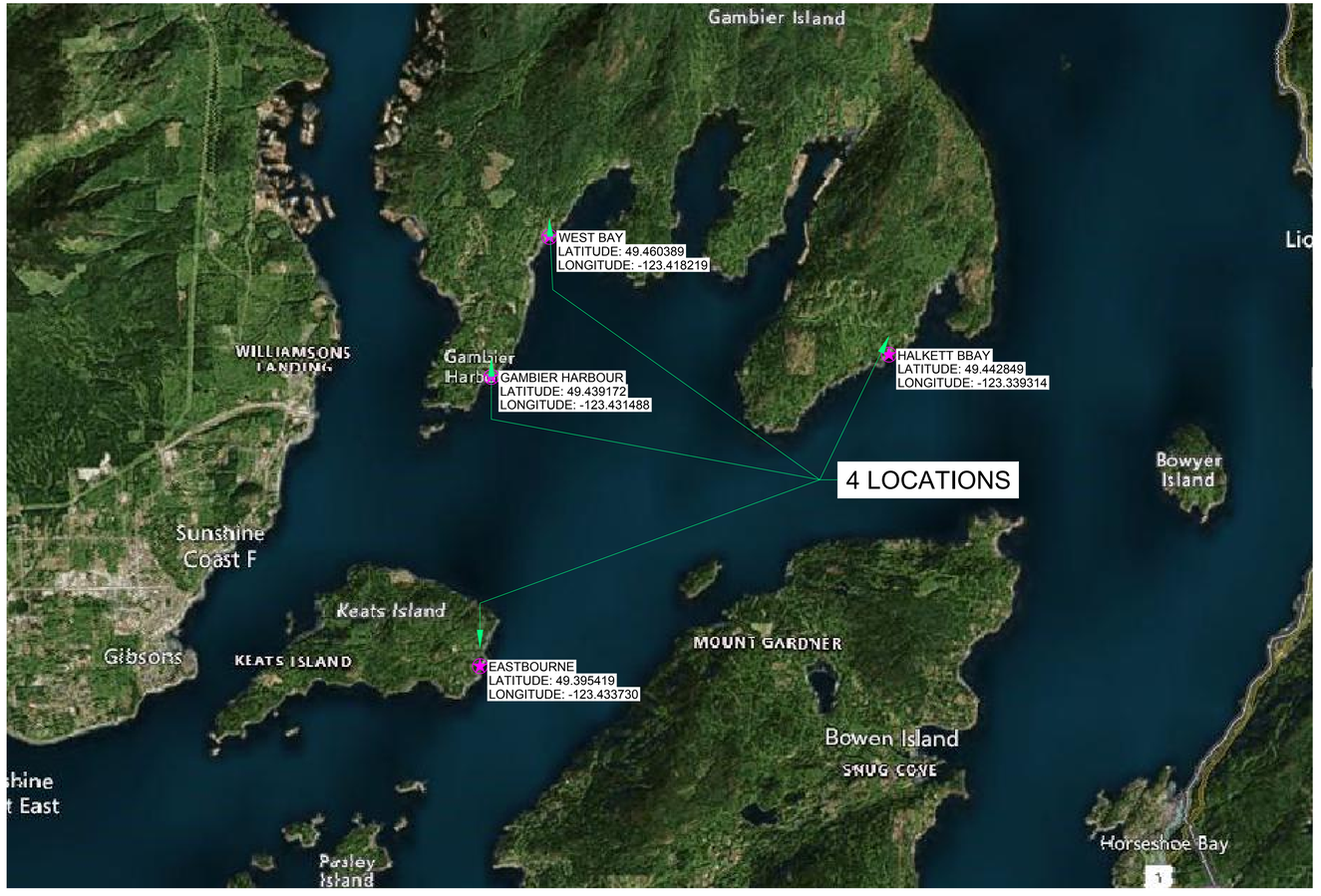
E. DEMOLITION AND CLEANUP

1. CONTRACTOR IS RESPONSIBLE TO DISPOSE OF ALL THE UNSALVAGABLE MATERIAL FROM THE SITE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AS WELL AS ALL LOCAL, PROVINCIAL AND FEDERAL REGULATIONS.
2. CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND DISPOSAL OF THE USED TIMBER PILES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AS WELL AS ALL LOCAL, PROVINCIAL AND FEDERAL REGULATIONS.
3. THE CONTRACTOR MUST TAKE ALL NECESSARY PRECAUTIONS TO CONFINE THE DEMOLITION WITHIN THE DESIGNATED LIMITS. ANY DAMAGE TO THE EXISTING STRUCTURE SHALL BE THE LIABILITY OF THE CONTRACTOR.
4. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING, REPLACING, OR RECONSTRUCTING ANY PART OF THE PROPERTY OR STRUCTURE THAT IS NOT EXPLICITLY MARKED FOR DEMOLITION AND INCURS DAMAGE DURING THE WORK EXECUTION.
5. REMOVE ALL DEBRIS AND SURPLUS MATERIAL FROM SITE ONCE THE WORK IS COMPLETED. WORK AREA SHALL BE IN CLEAN AND NEAT CONDITION TO THE SATISFACTION OF CONSULTANT AND REGIONAL DISTRICT.

DRAWING LIST

DWG NUMBER	SHEET TITLE	REV.
C41-0199A-SPC-S-0001	GENERAL NOTES	A
C41-0199A-SPC-S-0002	CIVIL SPECIFICATIONS	A
C41-0199A-KYP-S-1000	GAMBIER HARBOUR KEY PLAN	A
C41-0199A-LYT-S-1001	GAMBIER HARBOUR PLAN AND PROFILE	A
C41-0199A-SCD-S-1002	GAMBIER HARBOUR SECTIONS	A
C41-0199A-SCD-S-1003	GAMBIER HARBOUR REPAIR SECTIONS	A
C41-0199A-KYP-S-2000	EASTBOURNE KEY PLAN	A
C41-0199A-LYT-S-2001	EASTBOURNE PLAN AND PROFILE	A
C41-0199A-SCD-S-2002	EASTBOURNE SECTIONS	A
C41-0199A-SCD-S-2003	EASTBOURNE REPAIR SECTIONS	A
C41-0199A-KYP-S-3000	WEST BAY KEY PLAN	A
C41-0199A-LYT-S-3001	WEST BAY PLAN AND PROFILE	A
C41-0199A-SCT-S-3002	WEST BAY SECTIONS	A
C41-0199A-SCD-S-3003	WEST BAY SECTIONS	A
C41-0199A-SCD-S-3004	WEST BAY REPAIR SECTIONS	A
C41-0199A-KYP-S-4000	HALKETT BAY KEY PLAN	A
C41-0199A-LYT-S-4001	HALKETT BAY PLAN AND PROFILE	A
C41-0199A-SCD-S-4002	HALKETT BAY SECTIONS	A
C41-0199A-SCD-S-4003	HALKETT BAY REPAIR SECTIONS	A





DRAFT

No.	Date	Description	By
A	2024/03/21	FOR INFORMATION ONLY	AM

STAMPS:

DESIGNED BY | APPROVED BY

ENGINEER:

CIMA+
700 West Georgia St, Suite 900 Phone: (604) 696-7449
Vancouver BC V7K 1K8 www.cima.ca

CLIENT:

SUNSHINE COAST REGIONAL DISTRICT

PROJECT NAME:

SUNSHINE COAST PORTS
CAPITAL UPGRADE PROJECT

SHEET TITLE:

GENERAL NOTES

DISCIPLINE:

STRUCTURAL

DRAFTER: ZS	SCALE: AS NOTED
DESIGNER: AM	DATE: 2024/03/21
APPROVER: -	APPROVER: AK
PROJECT No: C41-0199A	DRAWING No: C41-0199A-SPC-S-0001
SHEET No: 1 of 1	

A. METAL FABRICATIONS:

1. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR ALL THE STEEL AND ALUMINUM WORK, UNLESS NOTED OTHERWISE, FOR ENGINEER'S REVIEW AND APPROVAL. SHOP DRAWINGS SHALL CONTAIN ALL DETAILS AND MATERIAL SPECIFICATIONS.
2. CONTRACTOR TO SUBMIT THE FABRICATOR'S CANADIAN WELDING BUREAU CERTIFICATES WITH SHOP DRAWINGS.
3. WELDED CONNECTIONS
   - 3.1. STEEL WELDING SHALL BE IN ACCORDANCE WITH WITH THE MOST CURRENT VERSION OF CSA W59.
   - 3.2. ALUMINUM WELDING SHALL BE IN ACCORDANCE WITH CSA W59.2.
   - 3.3. WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS IN ACCORDANCE WITH CSA W47.1, CSA W47.2 AND CSA W55.3. FABRICATORS SHALL BE “FULLY APPROVED” UNDER UNDER CSA W55.3.
   - 3.4. WELDING MUST FOLLOW CERTIFIED WELD PROCEDURE.
   - 3.5. FABRICATOR TO SUBMIT PROOF OF CERTIFICATION PRIOR TO START OF WORK.
   - 3.6. ALL WELDS TO BE CONTINUOUS SEAL WELDS.
4. BOLTED CONNECTIONS:
   - 4.1. BOLTS SHALL BE IN ACCORDANCE WITH ASTM F3125/F3125M, UNLESS OTHERWISE SPECIFIED.
   - 4.2. ALL HARDWARE FOR BOLTED CONNECTIONS SUCH AS BOLTS, NUTS, WASHERS, ETC. TO BE HOT DIP GALVANIZED.
   - 4.3. BOLTS AND NUTS SHALL BE TIGHTENED BY THE TURN-OF-NUT METHOD IN ACCORDANCE WITH CAN/CSA S16.
5. ALL HARDWARE REFERS TO ALL THE REQUIRED FASTENERS AND STEEL COMPONENTS OF THE CONNECTIONS REQUIRED AS PER TYPICAL DETAILS SUCH AS BOLTS, NUTS, WASHERS, TIMBER WASHERS, ETC.
6. DESIGN FABRICATIONS TO THE MOST CURRENT VERSION OF CSA-S16.
7. GRIND SMOOTH ALL BURRS, WELDS AND SHARP EDGES TO A MINIMUM 2MM RADIUS
8. EXCEPT PARTS OF MEMBERS TO BE EMBEDDED IN CONCRETE, GALVANIZED OR UNLESS NOTED OTHERWISE ON THE DRAWINGS, ALL STEEL WORK SHALL BE SHOP PRIMED. PRIMING SHALL BE IN ACCORDANCE WITH CISC/CPMA -1-73A “QUICK DRYING PRIMER” WHEN NO TOP COAT IS REQUIRED AND IN ACCORDANCE WITH CISC/CPMA-2-75 WHEN A TOP COAT IS SPECIFIED. IF A TOP COAT IS SPECIFIED THE PRIMER SHALL BE SELECTED ENSURING COMPATIBILITY WITH THE SPECIFIED SYSTEM. ITEMS SPECIFIED TO BE GALVANIZED SHALL BE HOT DIPPED GALVANIZED TO THE MOST CURRENT VERSION OF ASTM 1-123, MINIMUM ZINC COATING OF 600g/m^2 FIELD TOUCH UP ALL ABRASIONS, SCRATCHES, WELDS OR BOLTS.
9. DISSIMILAR TYPES OF STEELS AND ALUMINUM SHALL BE ISOLATED FROM EACH OTHER. ALL FASTENERS SHALL BE COMPATIBLE WITH MATERIAL THAT ARE IN CONTACT.
10. DELIVER, STORE, HANDLE WITH SUFFICIENT CARE AND PROTECT MATERIALS FROM DAMAGE. DAMAGED MATERIALS SHALL NOT BE INSTALLED AND SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
11. TEMPORARY BRACING DURING CONSTRUCTION SHALL BE PROVIDED, INSTALLED AND MAINTAINED BY THE CONTRACTOR AND IS THE RESPONSIBILITY OF THE CONTRACTOR. THE BRACING SHALL BE REMOVED ONLY AFTER THE WORK IS COMPLETE.
12. COATING OF ALL STEEL WORK SHALL BE COMPLETED OFF-SITE. PAINT AND COAT TOUCH-UP IS ACCEPTABLE IF REQUIRED. IF FIELD PAINT AND COAT IS REQUIRED, MEASURES SHALL BE TAKEN TO PREVENT ANY SPILLAGE. WORK PLAN SHALL BE SUBMITTED TO THE ENGINEER AND ENVIRONMENTAL CONSULTANT FOR REVIEW AND APPROVAL BEFORE WORK COMMENCE.
13. STRUCTURAL STEEL SHALL CONFORM TO CSA-G40.20/G40.21 AS PER THE FOLLOWING GRADES UNLESS OTHERWISE SPECIFIED:
   - 13.1. ROLLED W-SHAPES..... 350W
   - 13.2. W, L AND C SHAPES..... 350W
   - 13.3. PLATES..... 350W
   - 13.4. HSS SECTIONS..... 350W CLASS C
   - 13.5. PIPES..... ASTM A53 (FY = 240 MPA)
   - 13.6. BOLTS..... F3125 GRADE A325 TYPE 1
   - 13.7. NUTS..... ASTM A563 GR DH
   - 13.8. WASHERS..... ASTM F436
   - 13.9. ANCHOR RODS..... ASTM F1554 GR.55
14. CORROSION PROTECTION:
   - 14.1. ALL STRUCTURAL AND MISCELLANEOUS STEEL INSTALLATION MUST CONSIDER CORROSION PROTECTION AND CORROSION CONTAMINATION.
   - 14.2. DAMAGED GALVANIZED PARTS SHALL RECEIVE A COAT OF ZINC-RICH PAINT.
   - 14.3. WHEN USED HOT-DIP GALVANIZED STEEL, IT MUST BE IN COMPLIANCE WITH CAN/CSA G164, UNLESS NOTED OTHERWISE.
   - 14.4. A MINIMUM OF 3 mm FILLET SHALL BE USED FOR SEALING PURPOSE UNLESS NOTED OTHERWISE.
   - 14.5. PROVIDE 10 mm VENTILATION HOLES IN ACCORDANCE WITH THE GUIDELINES SET BY AMERICAN GALVANIZERS ASSOCIATION TO ALL HOLLOW ELEMENTS THAT ARE TO BE HOT DIPPED GALVANIZED TO AVOID BLOW-OUT DURING GALVANIZING.

B. ENVIRONMENTAL CONSTRUCTION REQUIREMENTS:

1. ENVIRONMENTAL WORK PROCEDURES, TIMING AND SPECIAL PRECAUTIONS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS PROVIDED BY ENVIRONMENTAL CONSULTANT.

C. ABBREVIATIONS:

ABBREVIATIONS	
CL.	CLEAR
C	CENTRELINE
CP.	COMPLETE PENETRATION
C/W	COMPLETE WITH
DWG.	DRAWING
EL.	ELEVATION
H.D.G.	HOT DIP GALVANIZED
I.D.	INSIDE DIAMETER
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
MAX.	MAXIMUM
MIN.	MINIMUM
N.T.S.	NOT TO SCALE
OPP.	OPPOSITE
PL	PLATE
R	RADIUS
SIM.	SIMILAR
S.S. OR SS	STAINLESS STEEL
THK	THICK OR THICKNESS
T.O.	TOP OF
U/S	TYPICAL
U/S	UNDERSIDE
U.N.O.	UNLESS NOTED OTHERWISE
WP	WORK POINT

D. FOUNDATIONS:

1. EXCAVATION:
   - 1.1. THE EXCAVATION ELEVATIONS GIVEN ON THE DRAWINGS ARE ANTICIPATED LEVELS. FINAL LEVELS WILL BE FINALIZED BY THE GEOTECHNICAL ENGINEER BASED ON ACTUAL SITE CONDITIONS.
   - 1.2. LOOSE OR SOFT MATERIAL SHALL BE REMOVED AND REPLACED BY COMPETENT SUBGRADE SOILS AS SPECIFIED BY GEOTECHNICAL ENGINEER.
   - 1.3. FOUNDATION AND EXCAVATED SLOPES ARE TO BE INSPECTED AND ACCEPTED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACING ANY TYPES OF CONCRETE OR FILL MATERIALS.
   - 1.4. WHEN WATER SEEPAGE IS ENCOUNTERED IN EXCAVATION, THIS MAY REQUIRE REDUCED EXCAVATION SLOPES THAN WHAT IS SHOWN ON THE EXCAVATION DRAWINGS AND WILL REQUIRE DEWATERING. CONTRACTOR IS RESPONSIBLE TO ALLOW FOR SUCH DEWATERING SYSTEM. GEOTECHNICAL ENGINEER TO BE CONSULTED
2. LEAN MIX MUD SLAB
   - 2.1. LEAN MIX CONCRETE MUD SLAB MAY BE REQUIRED IN THE BOTTOM OF FOUNDATION EXCAVATIONS.
   - 2.2. MINIMUM THICKNESS OF BLINDING CONCRETE SHALL BE 50mm WITH A MAXIMUM NOMINAL THICKNESS OF 150mm. THE BLINDING CONCRETE SHALL NOT BE THICKER THAN 400mm AT DEEP INFILL AREAS SUCH AS ROCK EXCAVATION OVER BREAK.
   - 2.3. WHEN THICKNESS IS EXCEEDING 150 mm, CONVENTIONAL CONCRETE SHALL BE USED.
   - 2.4. LEAN MIX MINIMUM COMPRESSIVE STRENGTH MUST BE 25 MPa AT 28 DAYS.
3. PRIOR TO PLACING MUDSLAB, LOOSE OR SOFT MATERIAL SHALL BE REMOVED AND REPLACED BY COMPACT SUB GRADE SOILS AS SPECIFIED.
4. ALL EXCAVATIONS AND FOUNDATION MATERIAL ARE TO BE INSPECTED AND APPROVED BY THE ENGINEER PRIOR TO PLACING.

E. REINFORCING STEEL:

1. REINFORCING STEEL SHALL BE NEW STEEL BARS CONFORMING TO CAN/CSA G30.18. (MINIMUM YIELD STRENGTH 400MPa) GRADE 400R.
2. ALL BARS FOR CONCRETE REINFORCEMEN TSHALL BE DEFORMED BARS .PLAIN BARS NO BIGGER THAN 10mm IN DIAMETER MAY BE USED FOR STIRRUPS AND TIES..
3. MINIMUM CONCRETE COVER FOR REINFORCEMEN T ACCORDING TO CSA A23.1. MINIMUM COVER FOR MAIN REINFORCEMEN TOF IN-SITU CONCRETE SHALL BE AS FOLLOWING: (ACCORDING TO EXPOSURE CLASS C-1)
   - 3.1. CONCRETE CAST DIRECTLY AGAINST SOIL OR ROCK 75 mm
   - 3.2. CONCRETE CAST DIRECTLY EXPOSED TO WATER 75 mm
   - 3.3. TOP OF FOOTINGS AND BASE SLABS 60 mm
   - 3.4. WALLS, SLABS, BEAMS, ROOFS: OUTSIDE EXPOSURE 60 mm
4. WELDED WIRE FABRIC CONFORMING TO CSA G30.15-M:
   - 4.1. NON WELDABLE STEEL (400R): FY = 400 MPa
   - 4.2. WELDABLE STEEL (400W): FY = 400 MPa
   - 4.3. WELDED WIRE FABRIC: GALVANIZED, FY = 280 MPaasdasdasd
5. REINFORCING STEEL SHALL BE CLEAN AND FREE OF ANY MATERIAL SUCH AS MUD AND OIL WHICH WOULD REDUCE BONDING WITH THE CONCRETE.
6. REINFORCEMENT DIMENSION AND PLACEMENT TOLERANCES SHALL BE AS FOLLOWS
   - 6.1. COVER: ±12mm (BUT THE CONCRETE COVER, UNDER NO CIRCUMSTANCES, SHALL BE REDUCED BY MORE THAN 1/3 OF SPECIFIED COVER).
   - 6.2. WHERE THE THICKNESS OF WALL, THE SMALLEST DIMENSION OF A COLUMN OR DEPTH OF A FLEXURAL MEMBER (L) IS:
     - 6.2.1. IF L ≤ 200mm: ±8mm
     - 6.2.2. IF 200mm≤ L ≤ 600mm: ±12mm
     - 6.2.3. 4.6.2.3. IF L ≥ 600mm: ±20mm
   - 6.3. EMBEDMENT AND LAP LENGTHS: -0mm, NO UPPER LIMIT
   - 6.4. STANDARD HOOK DIMENSIONS: -0mm, NO UPPER LIMIT
   - 6.5. 4.6.5. LOCATION OF INSERTS, OPENINGS & EMBEDS: ±5 mm
   - 6.6. 4.6.6. LATERAL BAR SPACING: ±30 mm
   - 6.7. 4.6.7. BAR LENGTH: ±25 mm
   - 6.8. 4.6.8. OVERALL THE BAR AND STIRRUP DIMENSIONS: ±5 mm
   - 6.9. 4.6.5. LONGITUDINAL LOCATION OF BENDS AND ENDS OF BARS: ±50mm
   - 6.10. LONGITUDINAL LOCATION OF BENDS AND ENDS OF BARS AT DISCONTINUOUS ENDS: ±20mm
7. ALL STEEL REINFORCEMENT SHALL BE BENT COLD .THE MINIMUM BAR DIAMETER SHALL NOT BE LESS THAN THE VALUES PROVIDED IN CSA A23.1 - TABLE 16. BENDS AND HOOKS SHALL BE PROPORTIONED ACCORDING TO CLAUSE 12.2 OF CSA A23.3, UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
8. WELDING OF OR TO STEEL REINFORCEMENTS ARE NOT PERMITTED UNLESS EXPLICITLY SHOWN ON THE APPROVED DRAWINGS BY THE ENGINEER.
9. DIAGONAL BARS SHALL BE ADDED AROUND SLAB AND WALL OPENINGS.
10. REINFORCEMENT OF SLABS SHALL BE OVERLAPPED WITH BARS OF PERIMETER WALLS.
11. REINFORCING STEEL MAY BE MOVED OR BENT AS NECESSARY FOR THE FOLLOWING: CLEAR PIPES, WATERSTOP, RECESSES, EMBEDDED METALWORK AND CONDUITS. THE ABOVE IS NOT ACCEPTED IN HEAVY REINFORCED AREAS. IN SUCH CASES, RELOCATION OF EMBEDDED MATERIALS MUST BE CONSIDERED. ALL SUCH RELOCATIONS OR BENDS SHALL BE SUBJECT TO APPROVAL BY ENGINEER.
12. THE PORTIONS OF ANCHOR BOLTS NOT PROTECTED BY EMBEDMENT IN CONCRETE SHALL BE PROTECTED AGAINST CORROSION USING A PROTECTIVE COATING.
13. TOLERANCE FOR PLACING ANCHOR BOLTS: 3mm CENTER TO CENTER OF ANY TWO BOLTS WITHIN AN ANCHOR BOLT GROUP. AND 6mm CENTER TO CENTER OF ADJACENT ANCHOR BOLTS GROUPS.

F. FORMWORK AND FINISHES

1. CSA A23.1, CAN/CSA S269.1 AND ACI 347 MUST BE FOLLOWED FOR ALL FORMWORK AND FALSEWORK.
2. THE DESIGN OF ALL FORMWORK AND FALSEWORK REQUIRED DURING THE COURSE OF THE WORK IS THE SOLE RESPONSIBILIT YOF THE CONTRACTOR D. ESIGN SHALL BE CONDUCTED BY A PROFESSIONAL ENGINEER.
3. EXPLANATION OF TYPE OF FINISHED SURFACES:
   - 3.1. F1 - BURIED, MINIMUM REFINEMENT.
   - 3.2. F2 - EXPOSED, SMOOTH AND FREE OF OFFSETS.
   - 3.3. F3 - EXPOSED TO VIEW, ATTRACTIVE APPEARANCE PARAMOUNT.
   - 3.4. F4 - EXPOSED TO FLOWING WATER, SEVERE TOLERANCE FOR ALIGNMENT AND SMOOTHNESS.
   - 3.5. UNFORMED FINISHES:
   - 3.6. U1 - SURFACE COVERED BY CONCRETE OR FILL, SCREED FINISH
   - 3.7. U2 - EXPOSED SURFACE, FLOATING FINISH
   - 3.8. U3 - SEVERE TOLERANCE SURFACE, TROWELLED FINISH
   - 3.9. U4 - NON-SLIP SURFACE, BROOM FINISH
4. EXAMPLE OF SPECIFIED CONCRETE FINISH FOR PARTICULAR APPLICATION:
   - 4.1. SURFACES EXPOSED TO VIEW (EXTERIOF2R,) U 2
   - 4.2. SURFACES EXPOSED TO VIEW (INTERIOFR3), U3
   - 4.3. SURFACES AGAINST BACKFIFLL1, U1
   - 4.4. SURFACES EXPOSED TO WATER OR WATER PASSFA4G, EU3
5. ALL EXPOSED CONCRETE CORNERS AND EDGES SHALL HAVE A 25mm CHAMFER TO PREVENT CONCRETE CHIPPING.

G. CONCRETE

1. ALL CONCRETE MATERIAL STORAGE ,PRODUCTION ,TESTING ,PLACEMEN TAND CURING SHALL MEET THE REQUIREMENTS OF CSA A23.1 AND CSA A23.2 . AGGREGATES SHALL BE TESTED FOR ALKALI REACTIVITY AS PER CSA A23.1 AND CSA 23.2, AND APPROVED BY THE ENGINEER.
2. MATERIALS:
   - 2.1. CEMENT - IN ACCORDANCE WITH CSA A5 TYPE GU.
   - 2.2. AGGREGATES - IN ACCORDANCE WITH CSA A23.1
   - 2.3. ADMIXTURES - IN ACCORDANCE WITH CSA A23.1
   - 2.4. AIR - ENTRAINING ADMIXTURES WITH ASTM C260
   - 2.5. CHEMICAL ADMIXTURES TO ASTM C494 AND ASTM C1017
   - 2.6. CALCIUM CHLORIDE ADMIXTURES ARE NOT PERMITTED.
3. CONCRETE MIX DESIGN SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE: EXPOSURE CLASS C-1.
   - 3.1. MINIMUM 28 DAY COMPRESSIVE STRENGTH - 35MPa
   - 3.2. CEMENTATION MATERIAL: TYPE GU WITH 15% TO 40% FLY ASH, CONFORMING TO CSA A-3001
   - 3.3. MAXIMUM WATER/CEMENT RATIO BY WEIGHT.
   - 3.4. MIX WATER TO BE POTABLE
   - 3.5. AGGREGATE: 20 mm MAX. NOMINAL SIZE FOR REINFORCED CONCRETE
   - 3.6. AIR CONTENT: 4% TO 7% (GENERAL) 5% TO 8% (CONCRETE EXPOSED TO FROST
   - 3.7. ADMIXTURES: CONFORMING TO CSA A23.1 AND IN COMPLIANCE WITH ASTM C260, ASTM C494, AND ASTM C1017. CALCIUM CHLORIDE NOT PERMITTED
4. CONCRETE MIXING AND PLACEMENT AND CURING:
   - 4.1. NO ADDITIONAL WATER SHALL BE ADDED TO THE CONCRETE AFTER BATCHING AND MIXING.
   - 4.2. CONCRETE TEMPERATURE AT THE TIME OF PLACING SHALL BE AS PER TABLE 14 OF CSA A23.1/A23.2.

PERMISSIBLE CONCRETE TEMPERATURES AT PLACING		
	TEMPERATURES, °C	
THICKNESS OF SECTION, m	MINIMUM	MAXIMUM
< 0.3	10	32
0.3-1	10	30
1-2	5	25
> 2	5	20

   - 4.3. ALL CONCRETE CONTACT SURFACES SHALL BE FREE OF DEBRIS, CONTAMINANTS AND STANDING WATER. BEDROCK AND CONSTRUCTION JOINT SURFACES SHALL BE CLEANED AND PREPARED IN ACCORDANCE WITH THE SPECIFICATIONS.
   - 4.4. CONSTRUCTION JOINTS SHALL BE PROVIDED ONLY AS SHOWN ON THE DRAWINGS, OR AS PRE-APPROVED BY THE ENGINEER.
   - 4.5. ALL CONCRETE SURFACES SHALL BE KEPT CONTINUOUSLY MOIST WHILE CURING FOR AT LEAST ATTAINING 70% OF THE SPECIFIED STRENGTH.
   - 4.6. FOR STANDARD STRENGTH TESTS, 100mm X 200mm CYLINDERS TO BE USED BASED ON CSA A23.1.
5. FORMWORK REMOVAL
   - 5.1. FORMWORK TO REMAIN IN PLACE UNTIL ALL OF THE FOLLOWING CONDITIONS ARE SATISFIED:
     - 5.1.1. CONCRETE HAS REACHED AT LEAST 40% OF THE REQUIRED 28 DAY COMPRESSIVE STRENGTH.
     - 5.1.2. A MINIMUM PERIOD OF 48 HOURS HAS PASSED.
     - 5.1.3. CONCRETE HAS ATTAINED SUFFICIENT STRENGTH TO SUPPORT ITS OWN WEIGHT ADEQUATELY, TOGETHER WITH THE CONSTRUCTION LOADS LIKELY TO BE IMPOSED.
6. TOLERANCE FOR FORMED SECTIONS:
   - 6.1. FOR CROSS-SECTIONS OF GIRDERS, BEAMS, AND COLUMNS AND FOR THE THICKNESS OF WALLS AND SUSPENDED SLABS (L):
     - 6.1.1. IF L ≤ 0.3m: ±8mm
     - 6.1.2. IF 0.3m ≤ L ≤ 1m: ±12mm
     - 6.1.3. IF L≥ 1m: ±20mm
   - 6.2. FOR SLAB ON GRADE: THE THICKNESS OF A SLAB ON GRADE SHALL BE ACCEPTABLE IF THE AVERAGE THICKNESS IS NOT MORE THAN 10mm LESS THAN THE SPECIFIED THICKNESS AND NO INDIVIDUAL MEASUREMENT IS MORE THAN 20mm LESS THAN THE SPECIFIED THICKNESS.
7. GROUTS:
   - 7.1. EPOXY GROUT: AS INDICATED ON THE DRAWINGS, FOR TYPICAL APPLICATION USE HILTI HIT HY150 (DRY CONDITIONS) OR HILTI RE500 (WET CONDITIONS).
   - 7.2. NON-SHRINK GROUT: CEMENTITIOUS PRE-MIXED GROUT, 50 MPa SPECIFIED 28-DAY COMPRESSIVE STRENGTH. PLACE AND CURE ALL GROUT WITHIN TEMPERATURE RANGE RECOMMENDED BY THE MANUFACTURER.
8. WATERSTOPS SHALL CONFORM TO CGSB 41-GP-35M, PROVIDED AS FOLLOWS:
   - 8.1. WSA - GREENSTREAK PVC WATERSTOP, ARCTIC GRADE, PROFILE STYLE #696 (229 MM WIDE), OR APPROVED EQUAL
   - 8.2. WSB - GREENSTREAK PVC WATERSTOP, ARCTIC GRADE, PROFILE STYLE #726 (305 MM WIDE), OR APPROVED EQUAL
   - 8.3. WSC - GREENSTREAK HYDROTITE HYDROPHILIC WATERSTOP, PROFILE #CJ-0 725, OR APPROVED EQUAL, ADHERE WITH GREENSTREAK LEAKMASTER SEALANT
   - 8.4. PREFABRICATED INTERSECTIONS SHALL BE PROVIDED AT ALL INTERSECTIONS, CONNECT BY FIELD FUSED BUTT JOINTS, AS PER MANUFACTURER'S INSTRUCTIONS.
   - 8.5. WHERE EMBEDMENT INTERFERE WITH WATERSTOPS, THE WATERSTOP SHALL BE ROUTED AROUND THE WATERSIDE AT A MINIMUM DISTANCE FROM THE EMBEDMENT EQUAL TO 1/2 THE OVERALL WIDTH.
   - 8.6. ALL WATERSTOPS SHOULD BE SUPPORTED AND PROTECTED FROM DAMAGE AND MOVEMENT DURING CONSTRUCTION.
6. CONCRETE INSPECTION AND TESTING:

   ALL THE CONCRETE TESTING AND INSPECTION SHOULD BE IN ACCORDANCE WITH CSA A23.1/A23.2 "CONCRETE MATERIALS AND METHODS OF CONCRETE CONCRETE CONSTRUCTION/METHODS OF TEST AND STANDARD PRACTICES FOR CONCRETE.

DRAFT

No.	Date	Description	By
A	2024/03/21	FOR INFORMATION ONLY	AM

STAMPS:

DESIGNED BY APPROVED BY

ENGINEER:
CIMA+
700 West Georgia St, Suite 900 Phone: (604) 696-7449
Vancouver BC V7K 1K8 www.cima.ca

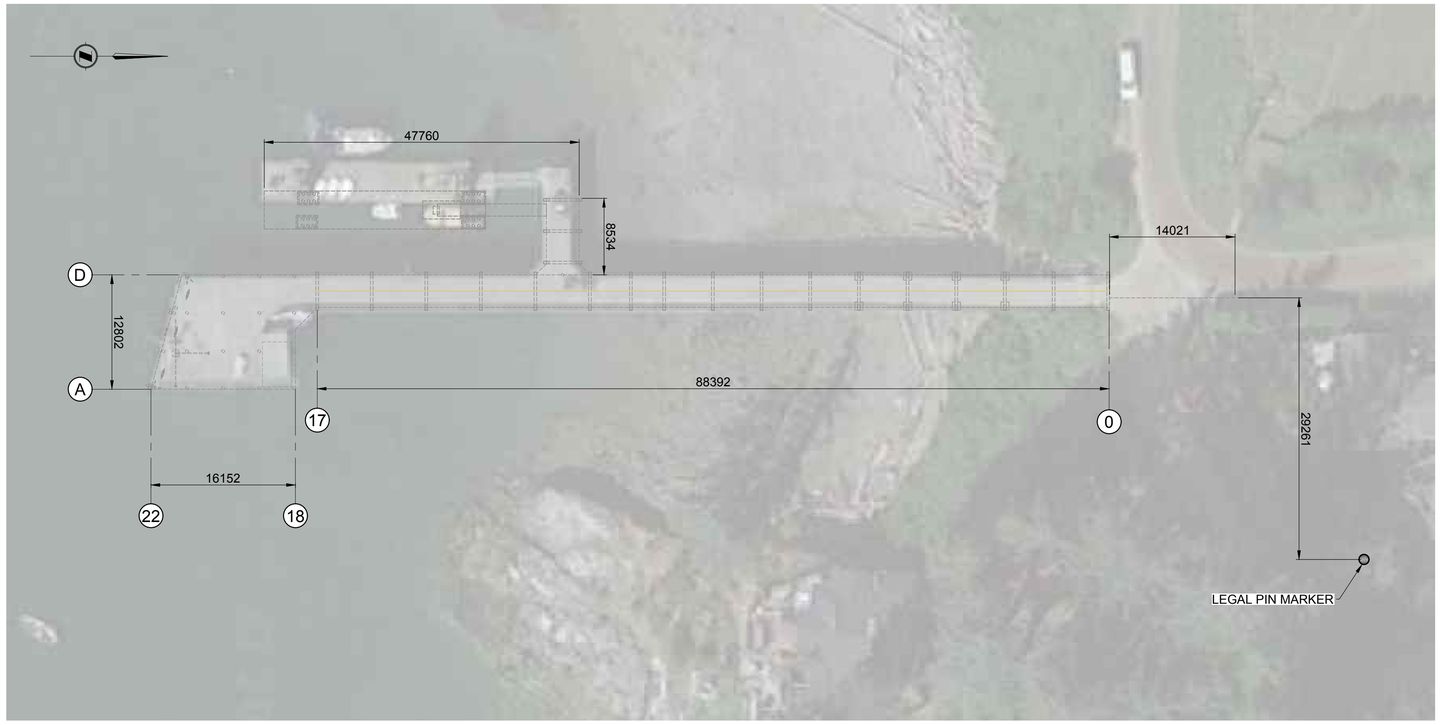
CLIENT:
SUNSHINE COAST REGIONAL DISTRICT

PROJECT NAME:
SUNSHINE COAST PORTS CAPITAL UPGRADE PROJECT

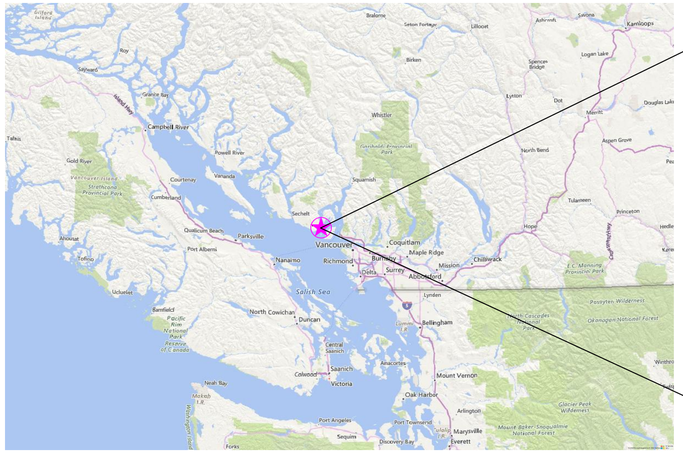
SHEET TITLE:
CIVIL SPECIFICATIONS

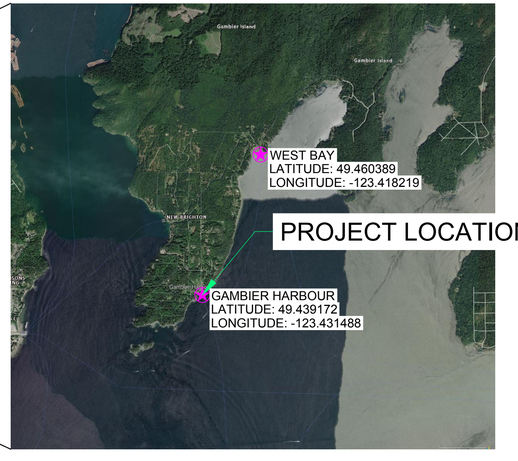
DISCIPLINE:
STRUCTURAL

DRAFTER: ZS	SCALE: AS NOTED
DESIGNER: AM	DATE: 2024/03/21
APPROVER:	APPROVER: AK
PROJECT No: C41-0199A	DRAWING No: C41-0199A-SPC-S-0002
SHEET No: 1 of 1	



KEY PLAN: GAMBIER HARBOUR
1:100





DRAFT

1:100 ANSI D (22"X34") | 2 1 0 2 4 6 8 10 m | 1:200 ANSI B (11"X17")

No.	Date	Description	By
A	2024/03/21	FOR INFORMATION ONLY	AM

STAMPS:

DESIGNED BY | APPROVED BY

ENGINEER:

CIMA+
700 West Georgia St, Suite 900
Vancouver BC V7K 1K8
Phone: (604) 696-7449
www.cima.ca

CLIENT:

SUNSHINE COAST REGIONAL DISTRICT

PROJECT NAME:

SUNSHINE COAST PORTS
CAPITAL UPGRADE PROJECT

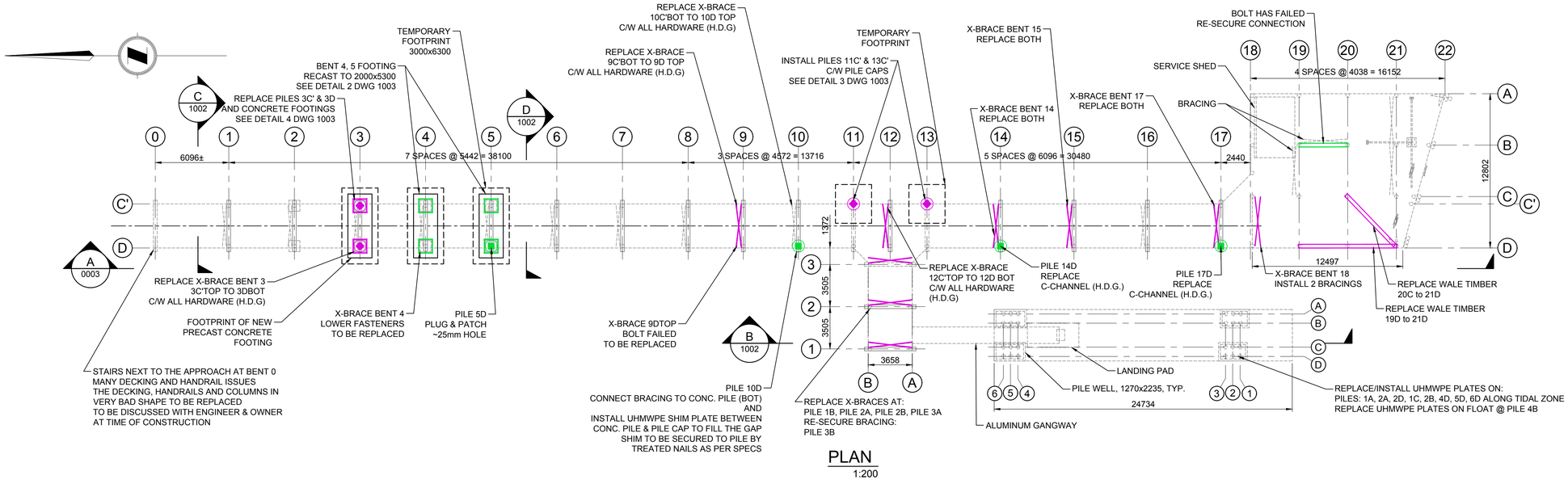
SHEET TITLE:

GAMBIER HARBOUR
KEY PLAN

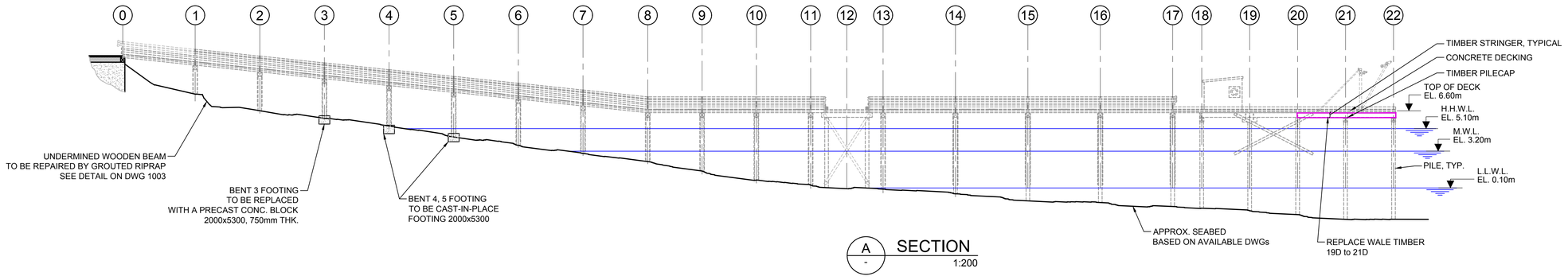
DISCIPLINE:

STRUCTURAL

DRAFTER: ZS	SCALE: AS NOTED
DESIGNER: AM	DATE: 2024/03/21
APPROVER: -	APPROVER: AK
PROJECT No: C41-0199A	DRAWING No: C41-0199A-KYP-S-1000
SHEET No: 1 of 1	



PLAN
1:200



A
-
SECTION
1:200

NOTES:

1. FOR GENERAL NOTES, SEE DWG C41-0199A-SPC-S-0001 AND C41-0199A-SPC-S-0002.
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8. THE DRAWINGS SHOW COMPLETED STRUCTURAL COMPONENTS OF THE DOCKS. TEMPORARY BRACING AND SHORING REQUIRED TO PERFORM THE WORK SAFELY IS THE RESPONSIBILITY OF THE CONTRACTOR.
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13. CONCRETE FOOTING SHALL BE INSTALLED ON COMPETENT GROUND. GEOTECHNICAL ENGINEER TO REVIEW AND APPROVE THE SUBGRADE PRIOR TO CONSTRUCTION.
14. GEOTECHNICAL ENGINEER TO REVIEW SEABED CONDITION AND APPROVE PILE DRIVING CONCEPT AND METHODOLOGY PRIOR TO CONSTRUCTION.

DIMENSIONS (PROVIDED BY OTHERS, NOT VERIFIED BY ENGINEER):

1. WHARF FRAMING:
   - 1.1. TIMBERGUARD - 191x241
   - 1.2. RISERS - 38x241x610
   - 1.3. MIDRAIL - 38x140
   - 1.4. POSTS - 140x140
   - 1.5. CHOCKS - 140x292
2. GANGWAY:
   - 2.1. ALUMINUM 1220x13250
3. FLOAT A (STEEL) FRAMING:
   - 3.1. STRINGER - 102x102 TIMBER
   - 3.2. PILEWELL GUARD - 102x152 TIMBER
   - 3.3. BULLRAILS - 3"Ø STEEL PIPE, EPOXY COATED
   - 3.4. DECKING - 38x292x4064 LG. TIMBER

DRAFT

1:200 4 2 0 4 8 12 16 20 m 1:400
ANSI D (22"X34") ANSI B (11"X17")

LEGENDS:

- PILE - REPLACE
- PILE - REPAIR
- X-BRACE - REPLACE (ONE OR BOTH)
- X-BRACE - REPAIR (ONE OR BOTH)
- WALE TIMBER / PILE CAP REPLACE
- WALE TIMBER / PILE CAP REPAIR
- CONCRETE FOOTING - REPLACE
- CONCRETE FOOTING - REPAIR

No.	Date	Description	By
A	2024/03/21	FOR INFORMATION ONLY	AM

STAMPS:

DESIGNED BY | APPROVED BY

ENGINEER:

CIMA+
700 West Georgia St, Suite 900 Phone: (604) 696-7449
Vancouver BC V7K 1K8 www.cima.ca

CLIENT:

SUNSHINE COAST REGIONAL DISTRICT

PROJECT NAME:

SUNSHINE COAST PORTS
CAPITAL UPGRADE PROJECT

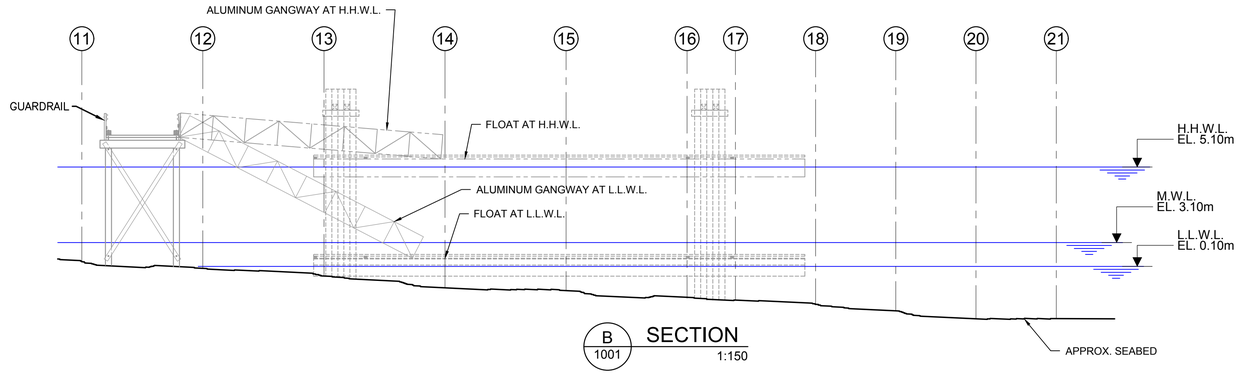
SHEET TITLE:

GAMBIER HARBOUR
PLAN AND PROFILE

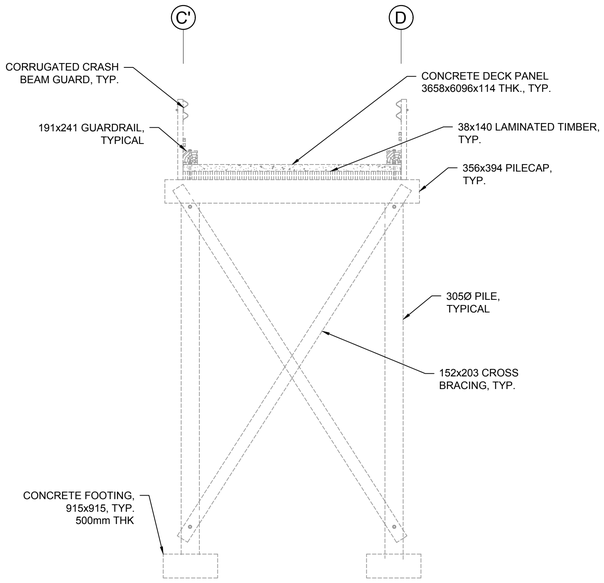
DISCIPLINE:

STRUCTURAL

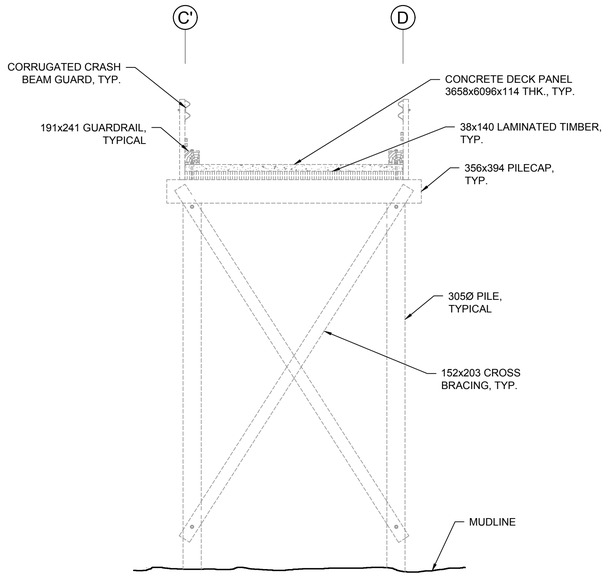
DRAFTER: ZS	SCALE: AS NOTED
DESIGNER: AM	DATE: 2024/03/21
APPROVER: -	APPROVER: AK
PROJECT No: C41-0199A	DRAWING No: C41-0199A-LYT-S-1001
SHEET No: 1 of 1	



B 1001 SECTION 1:150

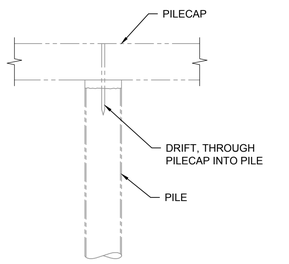


C 1001 SECTION 1:50

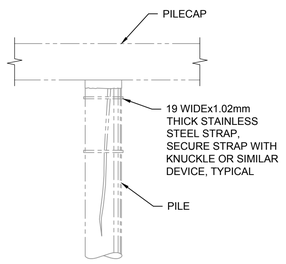


D 1001 SECTION 1:50

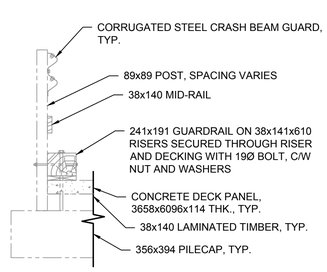
TYPICAL SECTION - REPARS & REPLACEMENTS AS REQUIRED - SEE DWG C41-0199A-LYT-S-1001



PILE TO PILECAP CONNECTION 1:25



PILE STRAPPING DETAIL 1:25



HANDRAIL AND GUARDRAIL DETAILS 1:25

TYPICAL DETAIL - REPARS & REPLACEMENTS AS REQUIRED - SEE DWG C41-0199A-LYT-S-1001

NOTES:

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DRAFT

1:50 1 0.5 0 1 2 3 4 5 m 1:100
ANSI D (22"X34") ANSI B (11"X17")

1:25 0.5 0.25 0 0.5 1.0 1.5 2.0 2.5 m 1:50
ANSI D (22"X34") ANSI B (11"X17")

No.	Date	Description	By
A	2024/03/21	FOR INFORMATION ONLY	AM

STAMPS:

DESIGNED BY APPROVED BY

ENGINEER:

700 West Georgia St, Suite 900 Phone: (604) 696-7449
Vancouver BC V7K 1K8 www.cima.ca

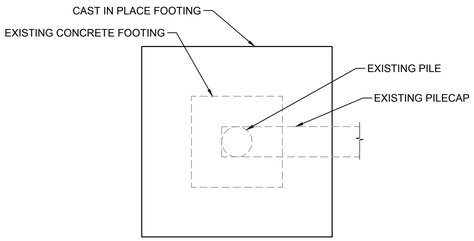
CLIENT: SUNSHINE COAST REGIONAL DISTRICT

PROJECT NAME:
SUNSHINE COAST PORTS CAPITAL UPGRADE PROJECT

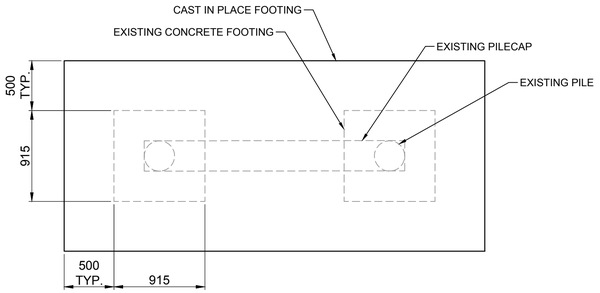
SHEET TITLE:
GAMBIER HARBOUR SECTIONS

DISCIPLINE: STRUCTURAL

DRAFTER: ZS	SCALE: AS NOTED
DESIGNER: AM	DATE: 2024/03/21
APPROVER: -	APPROVER: AK
PROJECT No: C41-0199A	DRAWING No: C41-0199A-SCD-S-1002
SHEET No: 1 of 1	

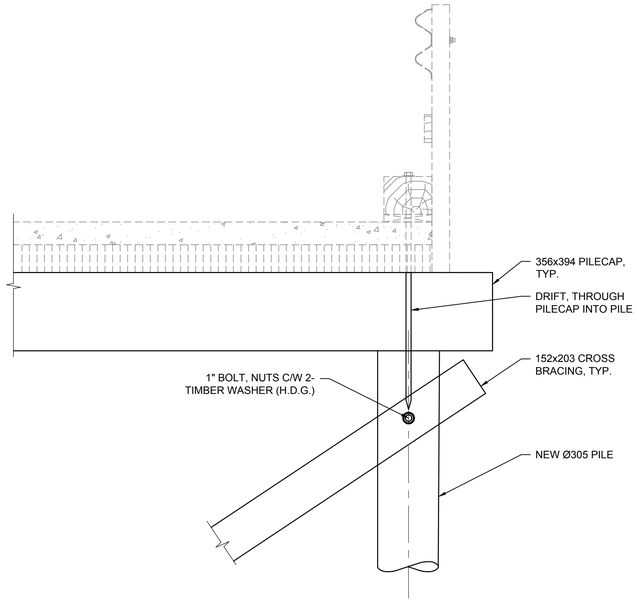


1/1001 DETAIL
SINGLE PILE REPLACEMENT FOOTING
1:30



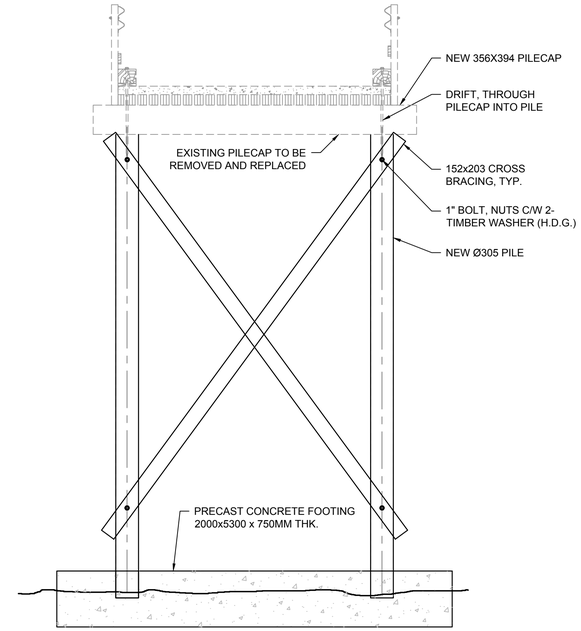
2/1001 DETAIL
DOUBLE PILE REPLACEMENT FOOTING
1:30

CAST IN PLACE CONCRETE FOOTING PLAN

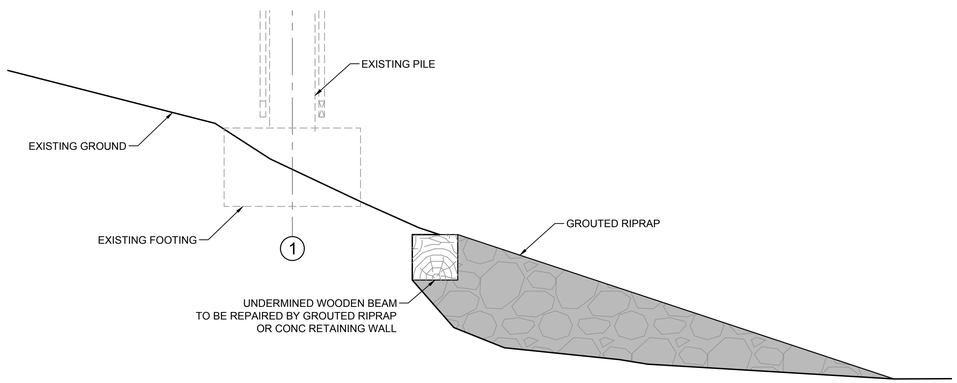


3/1001 DETAIL
1:15

TYPICAL DETAIL - SINGLE PILE INSTALLATION



4/1001 DETAIL - TYPICAL DOUBLE PILE REPLACEMENT
WITH PRECASST CONCRETE FOOTING
1:40



GROUTED RIPRAP AT GRID 1 PILES
N.T.S.

PHOTO OF GRID 1 PILES

NOTES:

1. FOR GENERAL NOTES, SEE DWG C41-0199A-SPC-S-0001 AND C41-0199A-SPC-S-0002.
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DRAFT

1:15 ANSI D (22"X34") | 1:30 ANSI B (11"X17")
250 0 500 1000 1500 mm
1:20 ANSI D (22"X34") | 1:40 ANSI B (11"X17")
0.4 0.2 0 0.4 0.8 1.2 1.6 2.0 m

No.	Date	Description	By
A	2024/03/21	FOR INFORMATION ONLY	AM

STAMPS:

DESIGNED BY | APPROVED BY

ENGINEER:
CIMA+
700 West Georgia St, Suite 900
Vancouver BC V7K 1K8
Phone: (604) 696-7449
www.cima.ca

CLIENT:
SUNSHINE COAST REGIONAL DISTRICT

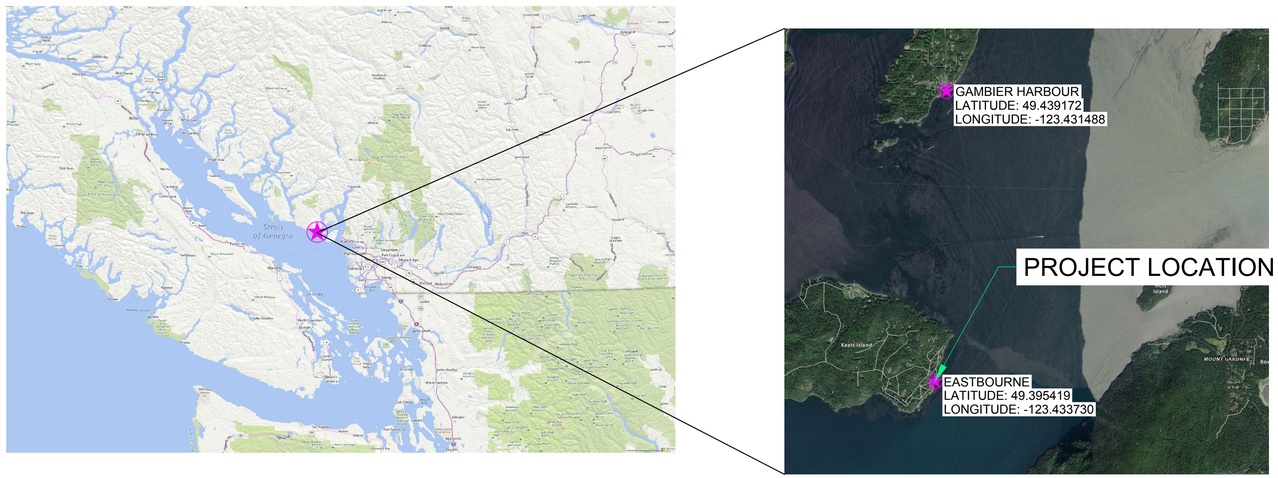
PROJECT NAME:
SUNSHINE COAST PORTS
CAPITAL UPGRADE PROJECT

SHEET TITLE:
GAMBIER HARBOUR
REPAIR SECTIONS

DISCIPLINE:
STRUCTURAL

DRAFTER: ZS	SCALE: AS NOTED
DESIGNER: AM	DATE: 2024/03/21
APPROVER: -	APPROVER: AK
PROJECT No: C41-0199A	DRAWING No: C41-0199A-SCD-S-1003
SHEET No: 1 of 1	

KEY PLAN: EASTBOURNE
1:200



DRAFT

1:200 4 2 0 4 8 12 16 20 m 1:400
ANSI D (22"X34") ANSI B (11"X17")

No.	Date	Description	By
A	2024/03/21	FOR INFORMATION ONLY	AM

STAMPS:

DESIGNED BY APPROVED BY

ENGINEER:

CIMA+
700 West Georgia St, Suite 900 Phone: (604) 696-7449
Vancouver BC V7K 1K8 www.cima.ca

CLIENT:

SUNSHINE COAST REGIONAL DISTRICT

PROJECT NAME:

SUNSHINE COAST PORTS
CAPITAL UPGRADE PROJECT

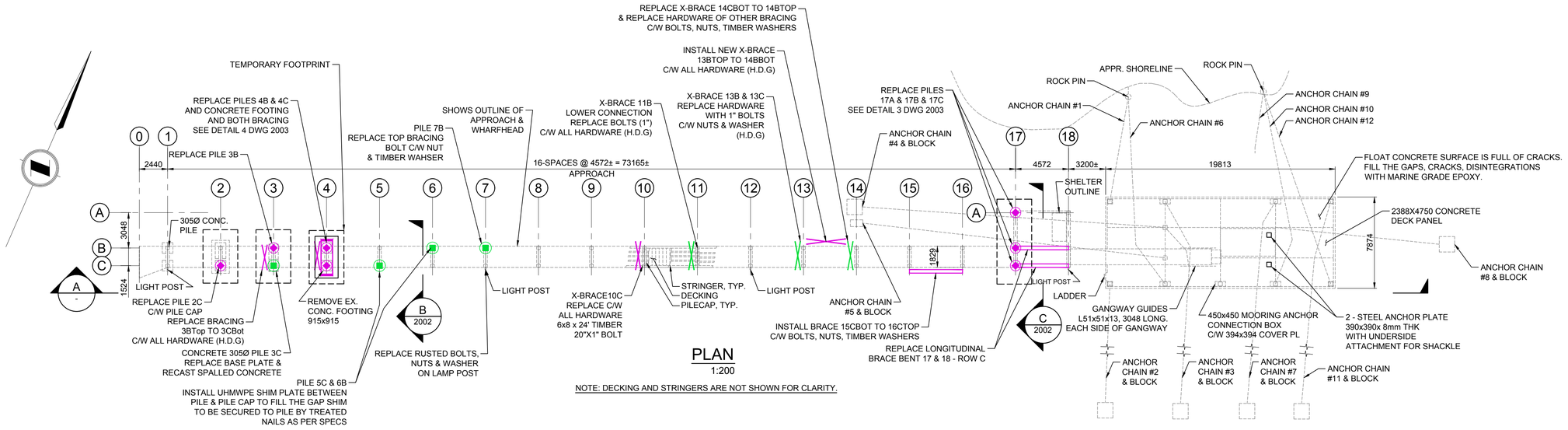
SHEET TITLE:

EASTBOURNE
KEY PLAN

DISCIPLINE:

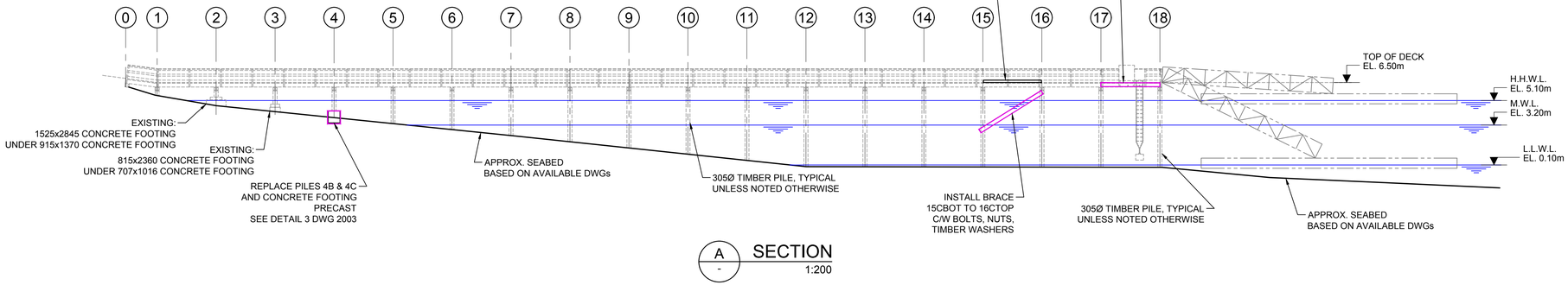
STRUCTURAL

DRAFTER: ZS	SCALE: AS NOTED
DESIGNER: AM	DATE: 2024/03/21
APPROVER: -	APPROVER: AK
PROJECT No: C41-0199A	DRAWING No: C41-0199A-KYP-S-2000
SHEET No: 1 of 1	



PLAN
1:200

NOTE: DECKING AND STRINGERS ARE NOT SHOWN FOR CLARITY.



SECTION
1:200

NOTES:

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DIMENSIONS (PROVIDED BY OTHERS, NOT VERIFIED BY ENGINEER):

1. WHARF FRAMING:
   - 1.1. TIMBERGUARD - 140x140
   - 1.2. RISERS - 38x152
   - 1.3. MIDRAIL - 38x140
   - 1.4. POSTS - 89x89
2. GANGWAY:
   - 2.1. ALUMINUM 1220x12192
3. FLOAT:
   - 3.1. DIMENSION - 19812x7874
   - 3.2. CONCRETE PANELS - 4750x2388

DRAFT

1:200 ANSI D (22"X34") — 4 2 0 4 8 12 16 20 m — 1:400 ANSI B (11"X17")

LEGENDS:

- PILE - REPLACE
- PILE - REPAIR
- X-BRACE - REPLACE (ONE OR BOTH)
- X-BRACE - REPAIR (ONE OR BOTH)
- WALE TIMBER / PILE CAP REPLACE
- WALE TIMBER / PILE CAP REPAIR
- CONCRETE FOOTING - REPLACE
- CONCRETE FOOTING - REPAIR

No.	Date	Description	By
A	2024/03/21	FOR INFORMATION ONLY	AM

STAMPS:

DESIGNED BY — APPROVED BY

ENGINEER:
CIMA+
700 West Georgia St, Suite 900
Vancouver BC V7K 1K8
Phone: (604) 696-7449
www.cima.ca

CLIENT: SUNSHINE COAST REGIONAL DISTRICT

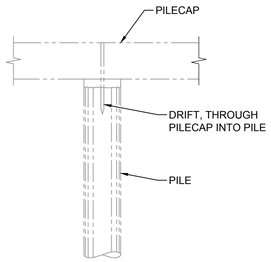
PROJECT NAME:
SUNSHINE COAST PORTS
CAPITAL UPGRADE PROJECT

SHEET TITLE:
EASTBOURNE
PLAN AND PROFILE

DISCIPLINE: STRUCTURAL

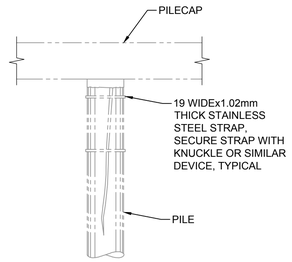
DRAFTER: ZS	SCALE: AS NOTED
DESIGNER: AM	DATE: 2024/03/21
APPROVER: -	APPROVER: AK
PROJECT No: C41-0199A	DRAWING No: C41-0199A-LYT-S-2001
SHEET No: 1 of 1	

TITLEBLOCK 22x34 VERT ENG 3.0
PRINT DATE: 2024/03/21 / PAPER SIZE: ANSI full bleed D (34.00 x 22.00 Inches)
PATH: C:\Users\Zhe.Su\Cima+\C41 Projects 2023 - C41-0199A - Sunshine Coast – Ports Capital Project\300_DESIGN\310_Dwg\04 - Structural\2000 - Eastbourne\DWG\C41-0199A-LYT-S-2001.dwg / LAYOUT: PLAN PRO



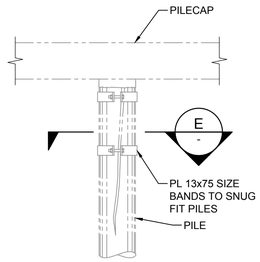
NOTE: STRINGERS, DECKING AND BRACING NOT SHOWN.

PILE TO PILECAP CONNESTION
1:25



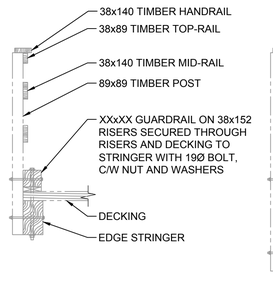
NOTE: STRINGERS, DECKING AND BRACING NOT SHOWN.

PILE STRAPPING DETAIL
1:25

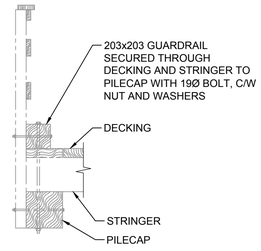


NOTE: STRINGERS, DECKING AND BRACING NOT SHOWN.

PILE BANDING DETAIL
1:25



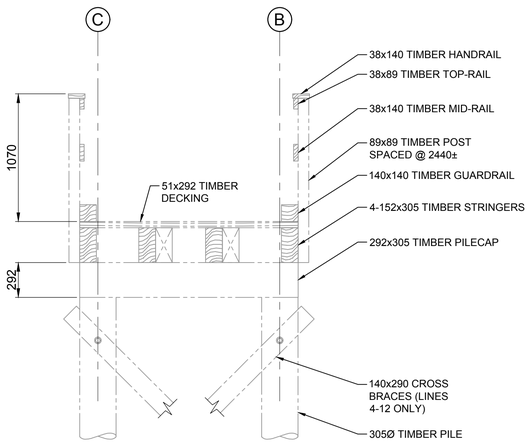
SECTION - HANDRAIL PARALLEL TO STRINGER



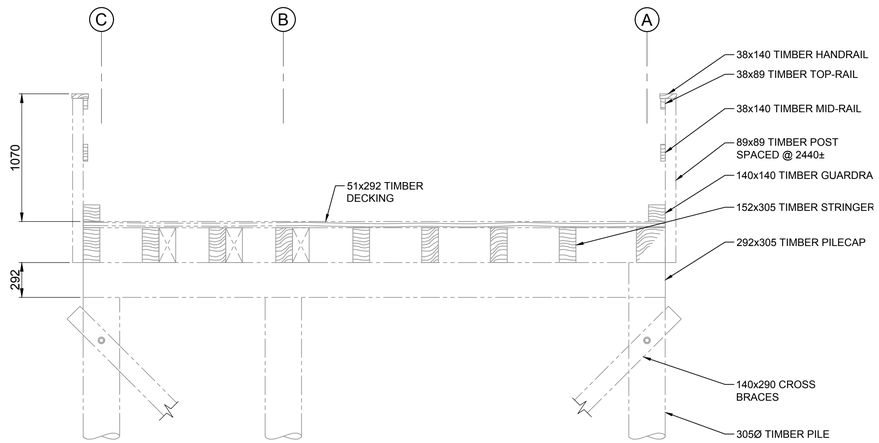
SECTION - HANDRAIL PARALLEL TO PILE CAP

NOTE: SIMILAR TO SECTION - HANDRAIL PARALLEL TO STRINGER, UNLESS NOTED OTHERWISE.

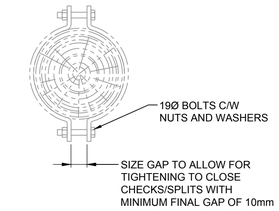
HANDRAIL / GUARDRAIL DETAILS
1:25



B / 2001 SECTION - APPROACH
1:25



C / 2001 SECTION - WHARFHEAD
1:25



E / - SECTION
1:10

TYPICAL SECTION - REPARS & REPLACEMENTS AS REQUIRED - SEE DWG C41-0199A-LYT-S-2001

NOTES:

1. FOR GENERAL NOTES, SEE DWG C41-0199A-SPC-S-0001 AND C41-0199A-SPC-S-0002.
2. DIMENSIONS AND ELEVATIONS ARE BASED ON THE REFERENCE DRAWINGS PROVIDED BY THE CLIENT ARE NOT FIELD MEASURED OR VERIFIED BY ENGINEERS. THE DRAWINGS PROVIDED TO ENGINEERS WERE NOT SEALED OR STAMPED BY A PROFESSIONAL ENGINEER.
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14. GEOTECHNICAL ENGINEER TO REVIEW SEABED CONDITION AND APPROVE PILE DRIVING CONCEPT AND METHODOLOGY PRIOR TO CONSTRUCTION.

DRAFT

1:10 0.2 0.1 0 0.2 0.4 0.6 0.8 1 m 1:20
ANSI D (22"X34") ANSI B (11"X17")

1:25 0.5 0.25 0 0.5 1.0 1.5 2.0 2.5 m 1:50
ANSI D (22"X34") ANSI B (11"X17")

No.	Date	Description	By
A	2024/03/21	FOR INFORMATION ONLY	AM

STAMPS:

DESIGNED BY APPROVED BY

ENGINEER:

CIMA+
700 West Georgia St, Suite 900 Phone: (604) 696-7449
Vancouver BC V7K 1K8 www.cima.ca

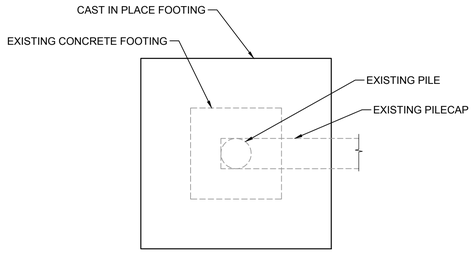
CLIENT: SUNSHINE COAST REGIONAL DISTRICT

PROJECT NAME:
SUNSHINE COAST PORTS CAPITAL UPGRADE PROJECT

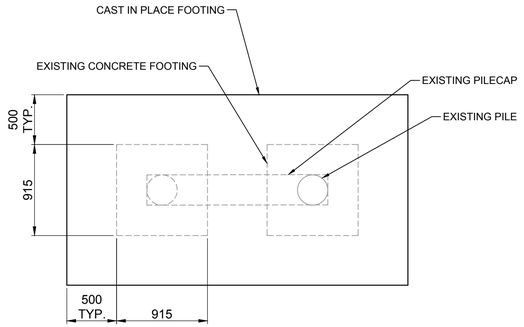
SHEET TITLE:
EASTBOURNE SECTIONS

DISCIPLINE: STRUCTURAL

DRAFTER: ZS	SCALE: AS NOTED
DESIGNER: AM	DATE: 2024/03/21
APPROVER: -	APPROVER: AK
PROJECT No: C41-0199A	DRAWING No: C41-0199A-SCD-S-2002
SHEET No: 1 of 1	

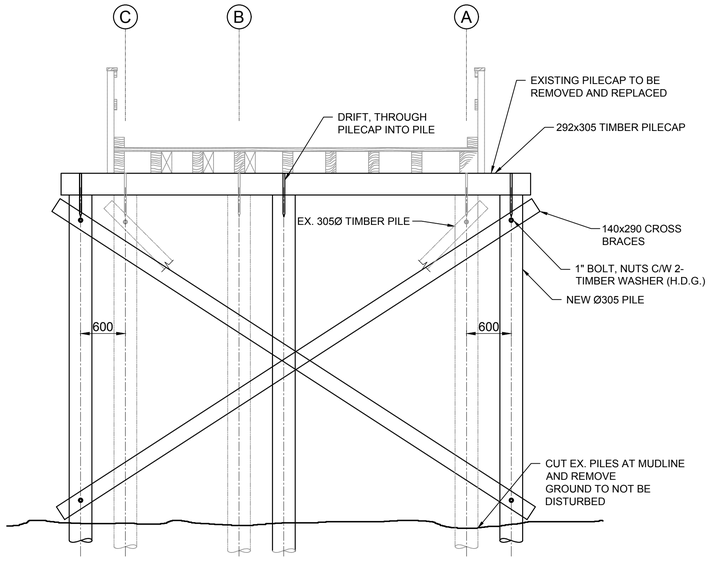


1 / 2001 DETAIL
SINGLE PILE FOOTING
1:30

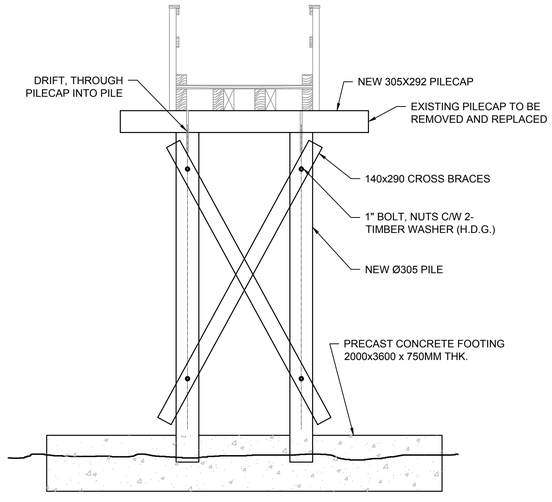


2 / 2001 DETAIL
DOUBLE PILE FOOTING
1:30

CAST IN PLACE CONCRETE FOOTING PLAN



3 / 2001 DETAIL - TYPICAL TRIPLE PILE REPLACEMENT
1:40



4 / 2001 DETAIL - TYPICAL DOUBLE PILE REPLACEMENT
WITH PRECASST CONCRETE FOOTING
1:40

NOTES:

1. FOR GENERAL NOTES, SEE DWG C41-0199A-SPC-S-0001 AND C41-0199A-SPC-S-0002.
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DRAFT

1:15 250 0 500 1000 1500 mm 1:30
ANSI D (22"X34") ANSI B (11"X17")

No.	Date	Description	By
A	2024/03/21	FOR INFORMATION ONLY	AM

STAMPS:

DESIGNED BY APPROVED BY

ENGINEER:

700 West Georgia St, Suite 900 Phone: (604) 696-7449
Vancouver BC V7K 1K8 www.cima.ca

CLIENT:

PROJECT NAME:

SUNSHINE COAST PORTS
CAPITAL UPGRADE PROJECT

SHEET TITLE:

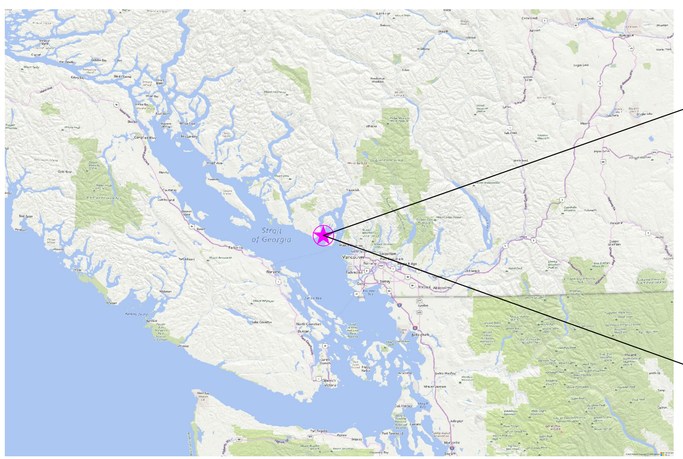
EASTBOURNE
REPAIR SECTIONS

DISCIPLINE:

STRUCTURAL

DRAFTER: ZS	SCALE: AS NOTED
DESIGNER: AM	DATE: 2024/03/21
APPROVER:	APPROVER: AK
PROJECT No: C41-0199A	DRAWING No: C41-0199A-SCD-S-2003
SHEET No: 1 of 1	

KEY PLAN: WEST BAY
1:400



PROJECT LOCATION

DRAFT

1:400 ANSI D (22"X34") | 5 0 10 20 30 40 m | 1:800 ANSI B (11"X17")

No.	Date	Description	By
A	2024/03/21	FOR INFORMATION ONLY	AM

STAMPS:

DESIGNED BY | APPROVED BY

ENGINEER:
CIMA+
700 West Georgia St, Suite 900
Vancouver BC V7K 1K8
Phone: (604) 696-7449
www.cima.ca

CLIENT:
SUNSHINE COAST REGIONAL DISTRICT

PROJECT NAME:
SUNSHINE COAST PORTS
CAPITAL UPGRADE PROJECT

SHEET TITLE:
WEST BAY
KEY PLAN

DISCIPLINE:
STRUCTURAL

DRAFTER: ZS	SCALE: AS NOTED
DESIGNER: AM	DATE: 2024/03/21
APPROVER: -	APPROVER: AK
PROJECT No: C41-0199A	DRAWING No: C41-0199A-KYP-S-3000
SHEET No: 1 of 1	

PRINT DATE: 2024/03/21 / PAPER SIZE: ANSI full bleed D (34.00 x 22.00 inches)
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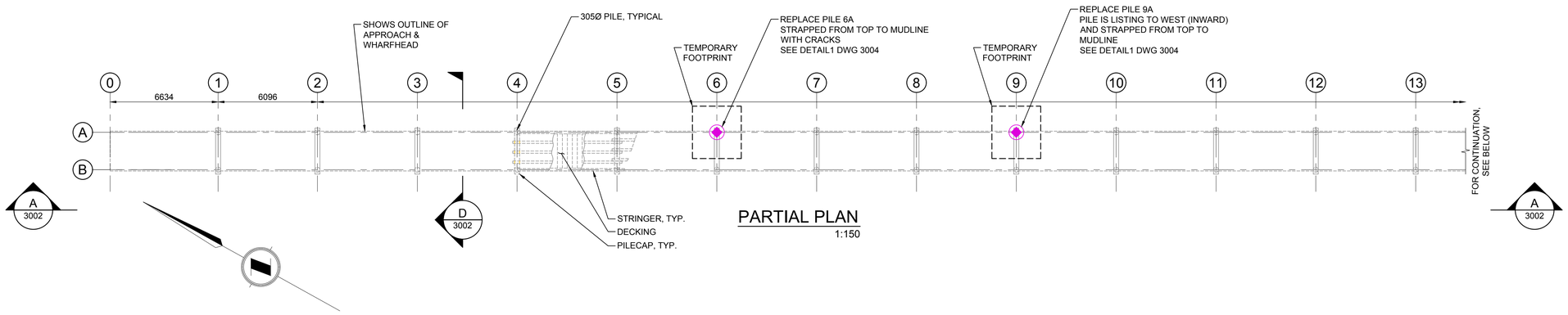
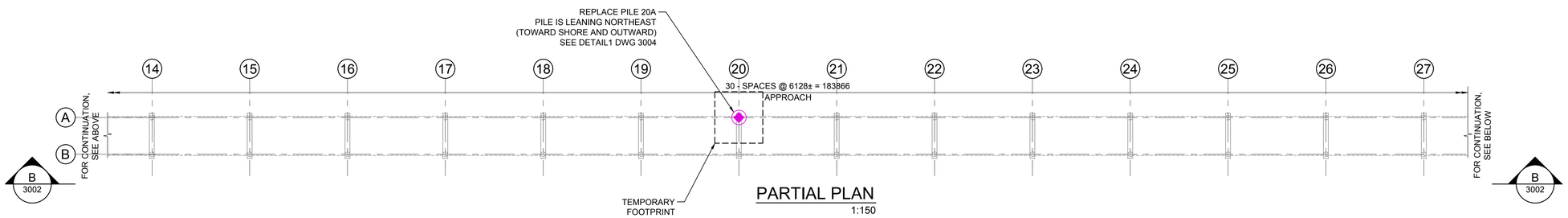
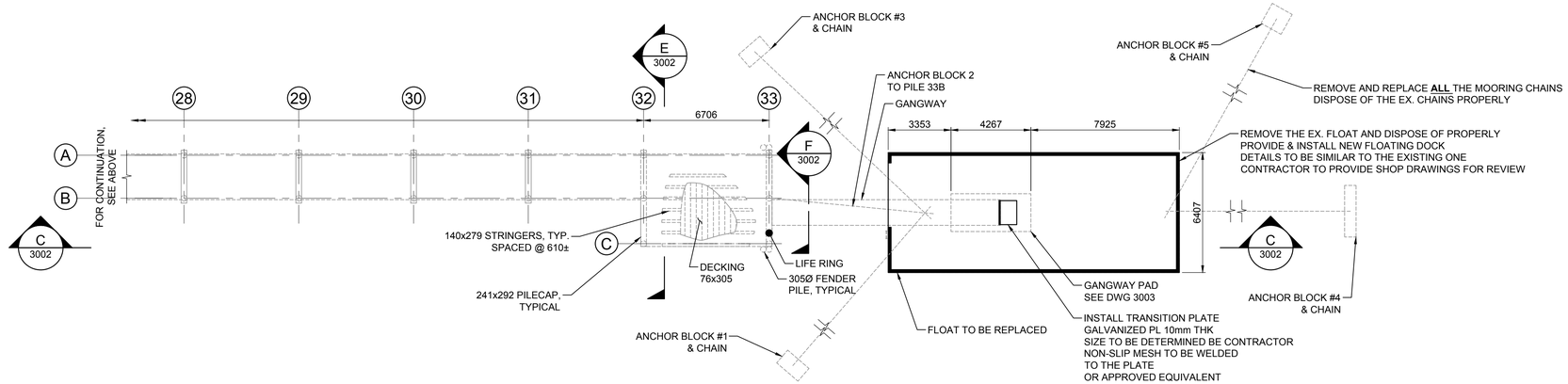


PARTIAL PLAN
1:150



PARTIAL PLAN
1:150



PARTIAL PLAN
1:150

NOTE: DECKING AND STRINGERS ARE NOT SHOWN FOR CLARITY.

NOTES:

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14. GEOTECHNICAL ENGINEER TO REVIEW SEABED CONDITION AND APPROVE PILE DRIVING CONCEPT AND METHODOLOGY PRIOR TO CONSTRUCTION.

DIMENSIONS (PROVIDED BY OTHERS, NOT VERIFIED BY ENGINEER):

1. APPROACH & WHARF:
   - 1.1. DECKING - 76x305
   - 1.2. PILE CAPE - 241x292
   - 1.3. TIMBERGUARD - 140x140
   - 1.4. RISERS - 38x140
   - 1.5. MIDRAIL - 38x140
   - 1.6. POSTS - 89x89
2. GANGWAY:
   - 2.1. ALUMINUM 1220x13250
3. FLOAT:
   - 3.1. DIMENSION - 15546x6407
   - 3.2. ALL AROUND RUBBOARDS - 75x305
   - 3.3. DECKING - 37x305
   - 3.4. BULLRAILS - 89x270
   - 3.5. RISERS - 82x270x460

LEGENDS:

- PILE - REPLACE
- PILE - REPAIR
- X-BRACE - REPLACE (ONE OR BOTH)
- X-BRACE - REPAIR (ONE OR BOTH)
- WALE TIMBER / PILE CAP REPLACE
- WALE TIMBER / PILE CAP REPAIR
- CONCRETE FOOTING - REPLACE
- CONCRETE FOOTING - REPAIR

No.	Date	Description	By
A	2024/03/21	FOR INFORMATION ONLY	AM

STAMPS:

DESIGNED BY APPROVED BY

ENGINEER:
CIMA+
700 West Georgia St, Suite 900 Phone: (604) 696-7449
Vancouver BC V7K 1K8 www.cima.ca

CLIENT: SUNSHINE COAST REGIONAL DISTRICT

PROJECT NAME:
SUNSHINE COAST PORTS
CAPITAL UPGRADE PROJECT

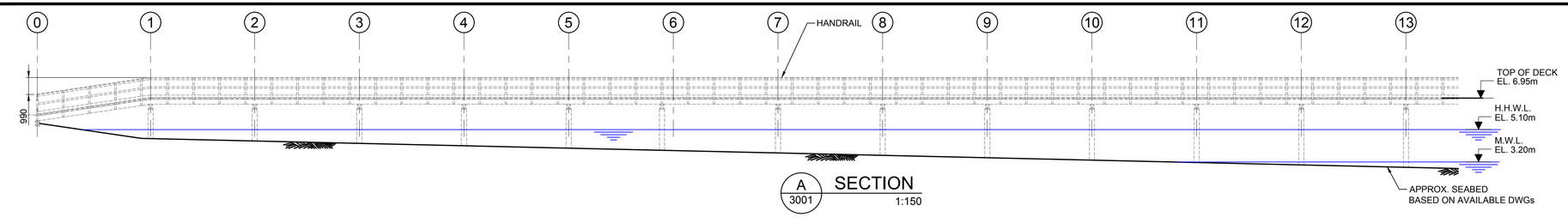
SHEET TITLE:
WEST BAY
PLAN AND
PROFILE

DISCIPLINE: STRUCTURAL

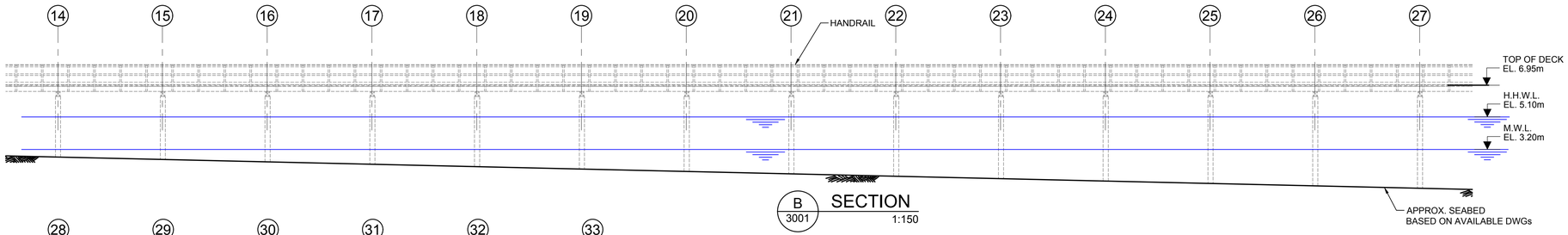
DRAFTER: ZS	SCALE: AS NOTED
DESIGNER: AM	DATE: 2024/03/21
APPROVER:	APPROVER: AK
PROJECT No: C41-0199A	DRAWING No: C41-0199A-LYT-S-3001
SHEET No: 1 of 1	

DRAFT

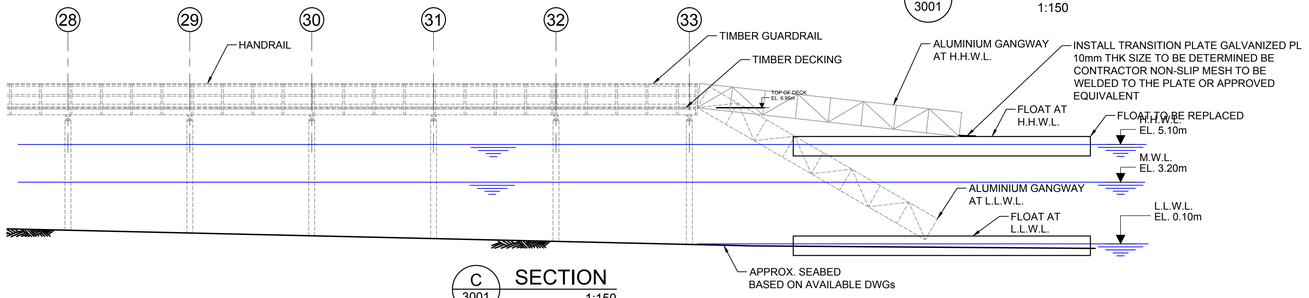
1:150 2.5 0 5 10 15 m 1:300
ANSI D (22"X34") ANSI B (11"X17")



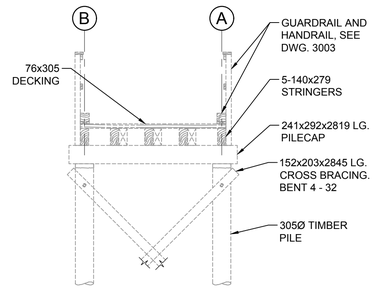
A 3001 SECTION 1:150



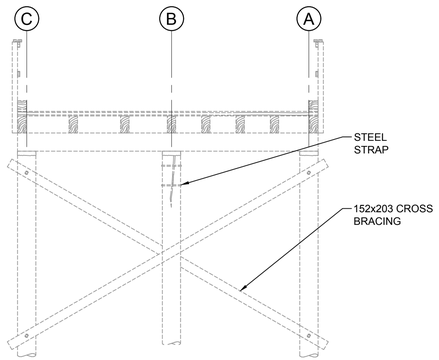
B 3001 SECTION 1:150



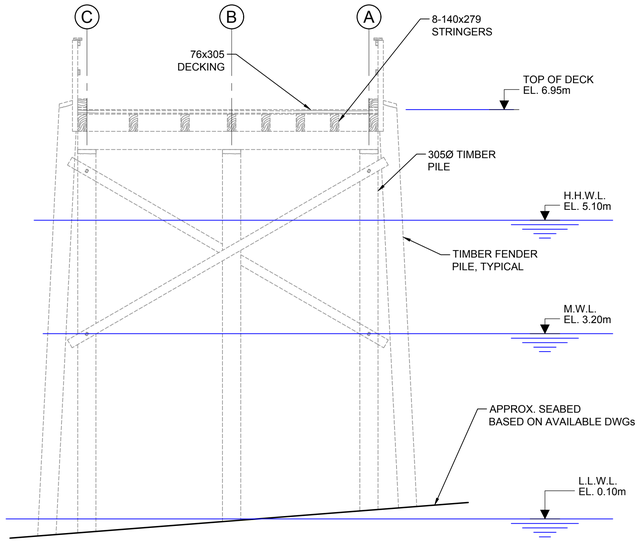
C 3001 SECTION 1:150



D 3001 SECTION 1:50



E 3001 SECTION 1:50



F 3001 SECTION 1:50

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- WALE TIMBER / PILE CAP REPAIR
- CONCRETE FOOTING - REPLACE
- CONCRETE FOOTING - REPAIR

No.	Date	Description	By
A	2024/03/21	FOR INFORMATION ONLY	AM

DRAFT

1:50 ANSI D (22"X34") — 1 0.5 0 1 2 3 4 5 m — 1:100 ANSI B (11"X17")

1:150 ANSI D (22"X34") — 2.5 0 5 10 15 m — 1:300 ANSI B (11"X17")

STAMPS:

DESIGNED BY | APPROVED BY

ENGINEER:

CIMA+
700 West Georgia St, Suite 900
Vancouver BC V7K 1K8
Phone: (604) 696-7449
www.cima.ca

CLIENT: SUNSHINE COAST REGIONAL DISTRICT

PROJECT NAME: SUNSHINE COAST PORTS CAPITAL UPGRADE PROJECT

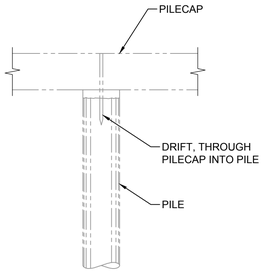
SHEET TITLE: WEST BAY SECTIONS

DISCIPLINE: STRUCTURAL

DRAFTER: ZS	SCALE: AS NOTED
DESIGNER: AM	DATE: 2024/03/21
APPROVER: -	APPROVER: AK
PROJECT No: C41-0199A	DRAWING No: C41-0199A-SCT-S-3002
SHEET No: 1 of 1	

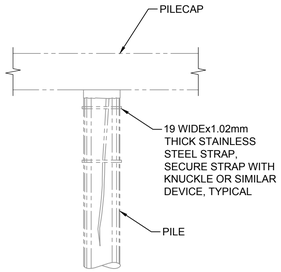
TITLEBLOCK 22x34 VERT ENG 3.0

PRINT DATE: 2024/03/21 / PAPER SIZE: ANSI full bleed D (34.00 x 22.00 Inches)
PATH: C:\Users\Zhe.Su\Cima+\C41 Projects 2023 - C41-0199A - Sunshine Coast – Ports Capital Project\300_DES\IGN\10_Dwg\04 - Structural\3000 - West Bay\DWG\C41-0199A-SCT-S-3002.dwg / LAYOUT: SCT



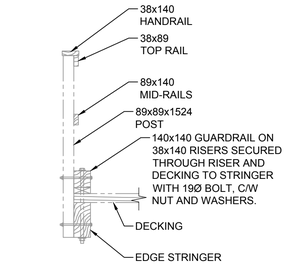
NOTE: STRINGERS, DECKING AND BRACING NOT SHOWN.

PILE TO PILECAP CONNESTION
1:25

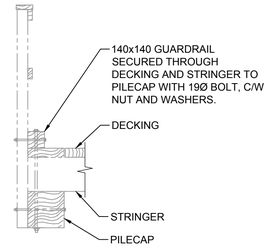


NOTE: STRINGERS, DECKING AND BRACING NOT SHOWN.

PILE STRAPPING DETAIL
1:25



SECTION - HANDRAIL PARALLEL TO STRINGER

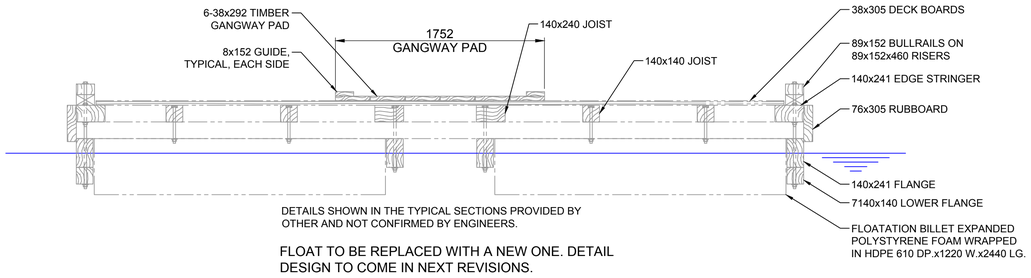


SECTION - HANDRAIL PARALLEL TO PILE CAP

NOTE: SIMILAR TO SECTION - HANDRAIL PARALLEL TO STRINGER, UNLESS NOTED OTHERWISE.

HANDRAIL / GUARDRAIL DETAILS
1:25

TYPICAL SECTION - REPARS & REPLACEMENTS AS REQUIRED - SEE DWG C41-0199A-LYT-S-3001



DETAILS SHOWN IN THE TYPICAL SECTIONS PROVIDED BY OTHER AND NOT CONFIRMED BY ENGINEERS.

FLOAT TO BE REPLACED WITH A NEW ONE. DETAIL DESIGN TO COME IN NEXT REVISIONS.

TYPICAL SECTION THROUGH FLOAT
1:25

NOTES:

1. FOR GENERAL NOTES, SEE DWG C41-0199A-SPC-S-0001 AND C41-0199A-SPC-S-0002.
2. DIMENSIONS AND ELEVATIONS ARE BASED ON THE REFERENCE DRAWINGS PROVIDED BY THE CLIENT ARE NOT FIELD MEASURED OR VERIFIED BY ENGINEERS. THE DRAWINGS PROVIDED TO ENGINEERS WERE NOT SEALED OR STAMPED BY A PROFESSIONAL ENGINEER.
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4. GEOTECHNICAL INFORMATION OR REPORT IS NOT AVAILABLE.
5. DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED PRIOR TO REMEDIATION/CONSTRUCTION.
6. THE SEABED SHOWN IN THE DRAWINGS ARE NOT VERIFIED BY ENGINEERS ARE PROVIDED BY THE CLIENT BASED ON PREVIOUS CAD DRAWINGS.
7. ENGINEER TO BE NOTIFIED 48 HOURS IN ADVANCE FOR FIELD REVIEW OF STRUCTURAL CONNECTIONS BEFORE COVERING UP.
8. THE DRAWINGS SHOW COMPLETED STRUCTURAL COMPONENTS OF THE DOCKS. TEMPORARY BRACING AND SHORING REQUIRED TO PERFORM THE WORK SAFELY IS THE RESPONSIBILITY OF THE CONTRACTOR.
9. ALL DIMENSIONS ARE IN MILLIMETERS AND ELEVATIONS IN METERS, UNLESS NOTED OTHERWISE.
10. HORIZONTAL DATUM U.T.M NAD 83.
11. VERTICAL DATUM (ELEVATIONS AND CONTOURS) TO CHART DATUM (C.D.).
12. SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR FABRICATION AND INSTALLATION.
13. CONCRETE FOOTING SHALL BE INSTALLED ON COMPETENT GROUND. GEOTECHNICAL ENGINEER TO REVIEW AND APPROVE THE SUBGRADE PRIOR TO CONSTRUCTION.
14. GEOTECHNICAL ENGINEER TO REVIEW SEABED CONDITION AND APPROVE PILE DRIVING CONCEPT AND METHODOLOGY PRIOR TO CONSTRUCTION.

DRAFT

1:25 0.5 0.25 **0** 0.5 1.0 1.5 2.0 2.5 m 1:50
ANSI D (22"X34") ANSI B (11"X17")

No.	Date	Description	By
A	2024/03/21	FOR INFORMATION ONLY	AM

STAMPS:

DESIGNED BY APPROVED BY

ENGINEER:
CIMA+
700 West Georgia St, Suite 900
Vancouver BC V7K 1K8
Phone: (604) 696-7449
www.cima.ca

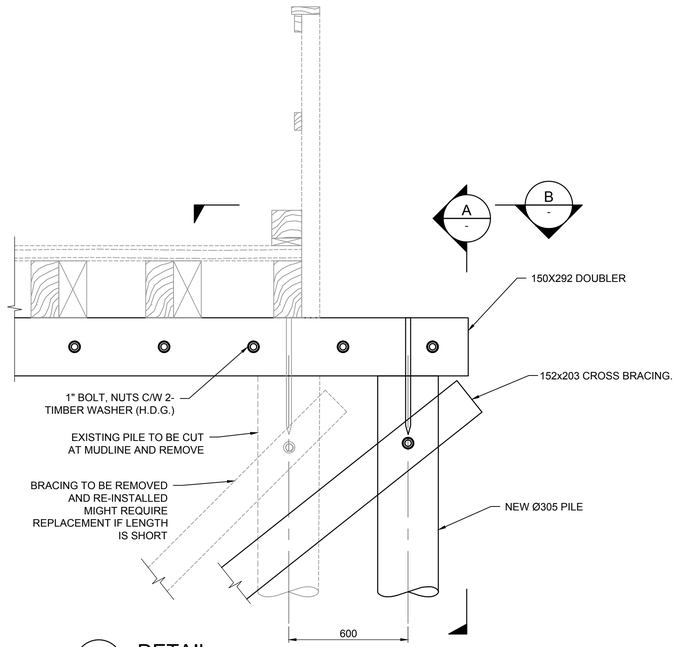
CLIENT: SUNSHINE COAST REGIONAL DISTRICT

PROJECT NAME:
SUNSHINE COAST PORTS CAPITAL UPGRADE PROJECT

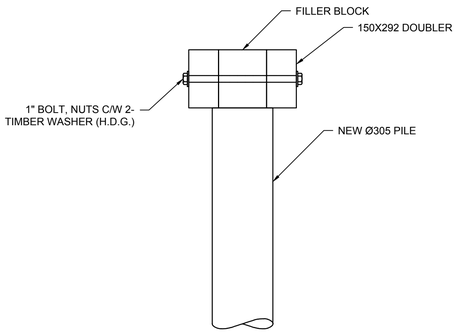
SHEET TITLE:
WEST BAY SECTIONS

DISCIPLINE: STRUCTURAL

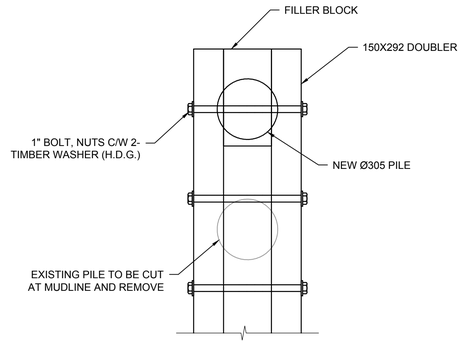
DRAFTER: ZS	SCALE: AS NOTED
DESIGNER: AM	DATE: 2024/03/21
APPROVER: -	APPROVER: AK
PROJECT No: C41-0199A	DRAWING No: C41-0199A-SCD-S-3003
SHEET No: 1 of 1	



1 / 3001 DETAIL 1:15



A / - SECTION 1:15



B / - SECTION 1:15

TYPICAL DETAIL - SINGLE PILE REPLACEMENT

NOTES:

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14. GEOTECHNICAL ENGINEER TO REVIEW SEABED CONDITION AND APPROVE PILE DRIVING CONCEPT AND METHODOLOGY PRIOR TO CONSTRUCTION.

DRAFT

1:15 ANSI D (22"X34") — 250 0 500 1000 1500 mm — 1:30 ANSI B (11"X17")

LEGENDS:

- PILE - REPLACE
- PILE - REPAIR
- X-BRACE - REPLACE (ONE OR BOTH)
- X-BRACE - REPAIR (ONE OR BOTH)
- WALE TIMBER / PILE CAP REPLACE
- WALE TIMBER / PILE CAP REPAIR
- CONCRETE FOOTING - REPLACE
- CONCRETE FOOTING - REPAIR

No.	Date	Description	By
A	2024/03/21	FOR INFORMATION ONLY	AM

STAMPS:

DESIGNED BY | APPROVED BY

ENGINEER:
CIMA+
700 West Georgia St, Suite 900
Vancouver BC V7K 1K8
Phone: (604) 696-7449
www.cima.ca

CLIENT: SUNSHINE COAST REGIONAL DISTRICT

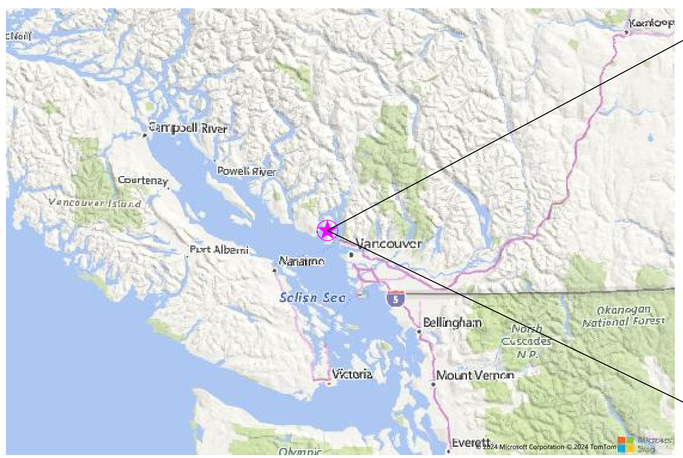
PROJECT NAME:
SUNSHINE COAST PORTS
CAPITAL UPGRADE PROJECT

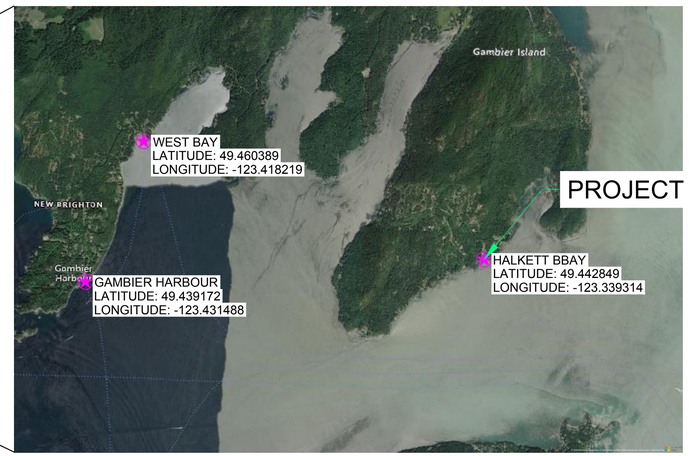
SHEET TITLE:
WEST BAY
REPAIR
SECTIONS

DISCIPLINE: STRUCTURAL

DRAFTER: ZS	SCALE: AS NOTED
DESIGNER: AM	DATE: 2024/03/21
APPROVER: -	APPROVER: AK
PROJECT No: C41-0199A	DRAWING No: C41-0199A-SCD-S-3004
SHEET No: 1 of 1	

KEY PLAN: HALKETT BAY
1:150





DRAFT

1:150 ANSI D (22"X34") | 2.5 0 5 10 15 m | 1:300 ANSI B (11"X17")

No.	Date	Description	By
A	2024/03/21	FOR INFORMATION ONLY	AM

STAMPS:

DESIGNED BY | APPROVED BY

ENGINEER:
CIMA+
700 West Georgia St, Suite 900
Vancouver BC V7K 1K8
Phone: (604) 696-7449
www.cima.ca

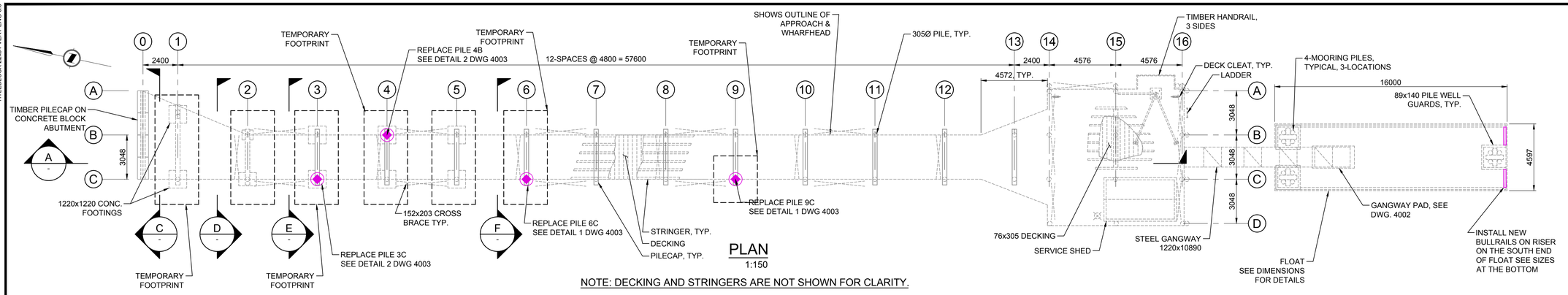
CLIENT: SUNSHINE COAST REGIONAL DISTRICT

PROJECT NAME:
SUNSHINE COAST PORTS
CAPITAL UPGRADE PROJECT

SHEET TITLE:
HALKETT BAY
KEY PLAN

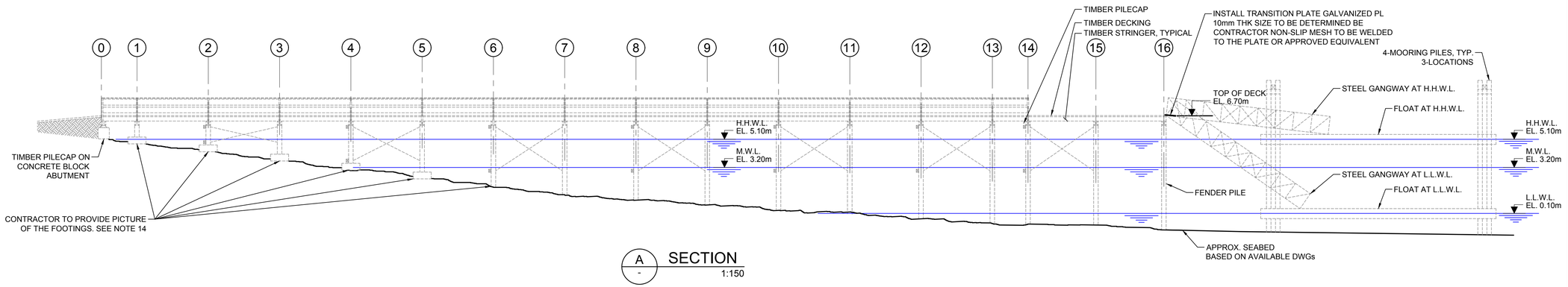
DISCIPLINE:
STRUCTURAL

DRAFTER: ZS	SCALE: AS NOTED
DESIGNER: AM	DATE: 2024/03/21
APPROVER: -	APPROVER: AK
PROJECT No: C41-0199A	DRAWING No: C41-0199A-KYP-S-4000
SHEET No: 1 of 1	

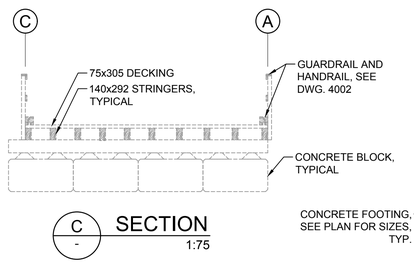


A - PLAN 1:150

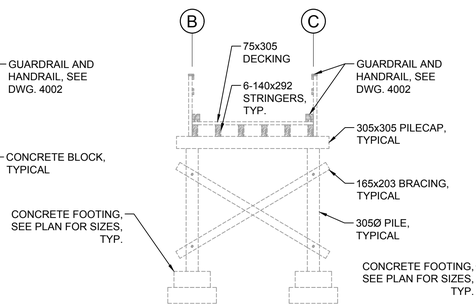
NOTE: DECKING AND STRINGERS ARE NOT SHOWN FOR CLARITY.



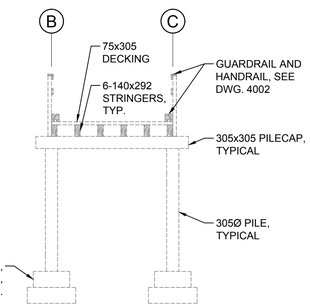
A - SECTION 1:150



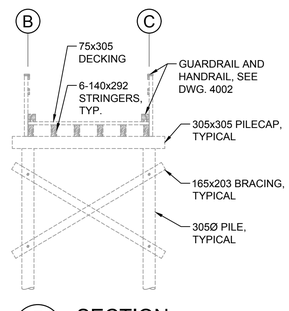
C - SECTION 1:75



D - SECTION 1:75



E - SECTION 1:75



F - SECTION 1:75

NOTES:

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14. CONTRACTOR TO PROVIDE PICTURES OF THE CONCRETE FOOTINGS (IF ANY) OF THE PILES 1B, 1C, 2B, 2C, 3B, 3C, 4B, 4C, 5B, 5C, 6B, 6C, AND 9C TO THE CONSULTANT FOR POSSIBLE REPAIR/REPLACEMENT.
15. GEOTECHNICAL ENGINEER TO REVIEW SEABED CONDITION AND APPROVE PILE DRIVING CONCEPT AND METHODOLOGY PRIOR TO CONSTRUCTION.

DIMENSIONS (PROVIDED BY OTHERS, NOT VERIFIED BY ENGINEER):

1. APPROACH & WHARF:
   - 1.1. DECKING - 76x305
   - 1.2. PILE CAPE - 305x305
   - 1.3. TIMBERGUARD - 191x140
   - 1.4. RISERS - 51x191x203
   - 1.5. MIDRAIL - 89x140
   - 1.6. POSTS - 89x89
2. GANGWAY:
   - 2.1. STEEL 1220x10890
3. FLOAT:
   - 3.1. DIMENSION - 16000x4597
   - 3.2. ALL AROUND RUBBOARDS - 75x305
   - 3.3. DECKING - 51x305
   - 3.4. BULLRAILS - 89x140
   - 3.5. RISERS - 89x140x305

DRAFT

1:75 ANSI D (22"X34") — 1250 0 2500 5000 7500 mm — 1:150 ANSI B (11"X17")

1:150 ANSI D (22"X34") — 2.5 0 5 10 15 m — 1:300 ANSI B (11"X17")

LEGENDS:

- PILE - REPLACE
- PILE - REPAIR
- X-BRACE - REPLACE (ONE OR BOTH)
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No.	Date	Description	By
A	2024/03/21	FOR INFORMATION ONLY	AM

STAMPS:

DESIGNED BY — APPROVED BY

ENGINEER:
CIMA+
700 West Georgia St, Suite 900 Phone: (604) 696-7449
Vancouver BC V7K 1K8 www.cima.ca

CLIENT: SUNSHINE COAST REGIONAL DISTRICT

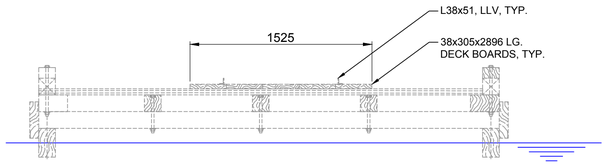
PROJECT NAME:
SUNSHINE COAST PORTS CAPITAL UPGRADE PROJECT

SHEET TITLE:
HALKETT BAY PLAN AND PROFILE

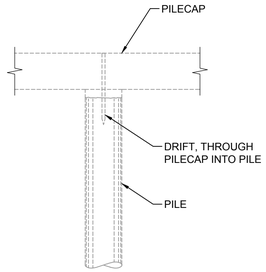
DISCIPLINE: STRUCTURAL

DRAFTER: ZS	SCALE: AS NOTED
DESIGNER: AM	DATE: 2024/03/21
APPROVER: -	APPROVER: AK
PROJECT No: C41-0199A	DRAWING No: C41-0199A-LYT-S-4001
SHEET No: 1 of 1	

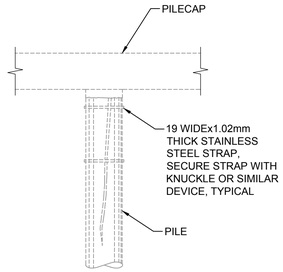
TITLEBLOCK 22x34 VERT ENG 3.0
PRINT DATE: 2024/03/21 / PAPER SIZE: ANSI full bleed D (34.00 x 22.00 Inches)
PATH: C:\Users\ZhaSu\Cima+\C41 Projects 2023 - C41-0199A - Sunshine Coast – Ports Capital Project\300_DESIGN\310_Dwg\04 - Structural\4000 - Halkett Bay\DWG\C41-0199A-LYT-S-4001.dwg / LAYOUT: PLAN PRO



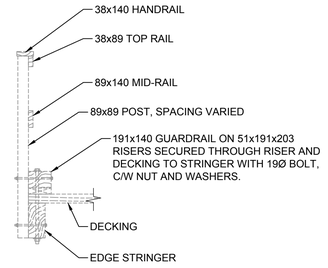
SECTION THROUGH GANGWAY LANDING PAD
1:25



PILE TO PILECAP CONNECTION
1:25

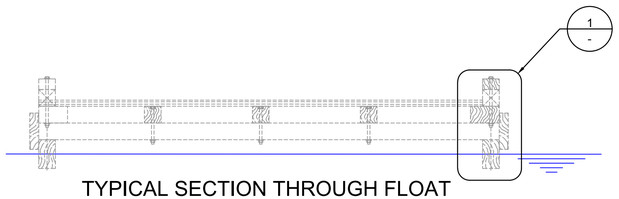


PILE STRAPPING DETAIL
1:25



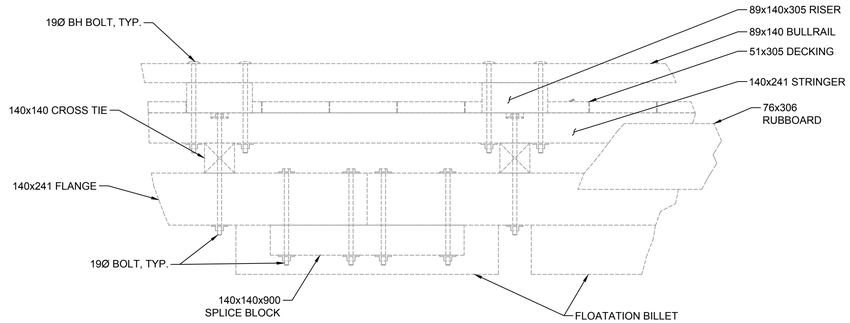
HANDRAIL AND GUARDRAIL DETAILS
1:25

TYPICAL DETAIL - REPARS & REPLACEMENTS AS REQUIRED - SEE DWG C41-0199A-LYT-S-4001



TYPICAL SECTION THROUGH FLOAT
1:25

FLOAT DETAILS BELOW WATERLINE AND DECK NOT CONFIRMED. OUTSIDE OF PROJECT SCOPE. ITEMS BELOW WATERLINE SUCH AS STRINGERS, FLANGES, ETC. ARE SHOWN MERELY FOR CONVENIENCE.



1 / - DETAIL
N.T.S.

NOTES:

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11. VERTICAL DATUM (ELEVATIONS AND CONTOURS) TO CHART DATUM (C.D.).
12. SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR FABRICATION AND INSTALLATION.
13. CONCRETE FOOTING SHALL BE INSTALLED ON COMPETENT GROUND. GEOTECHNICAL ENGINEER TO REVIEW AND APPROVE THE SUBGRADE PRIOR TO CONSTRUCTION.
14. GEOTECHNICAL ENGINEER TO REVIEW SEABED CONDITION AND APPROVE PILE DRIVING CONCEPT AND METHODOLOGY PRIOR TO CONSTRUCTION.

DRAFT

1:25 0.5 0.25 0 0.5 1.0 1.5 2.0 2.5 m 1:50
ANSI D (22"X34") ANSI B (11"X17")

No.	Date	Description	By
A	2024/03/21	FOR INFORMATION ONLY	AM

STAMPS:

DESIGNED BY APPROVED BY

ENGINEER:

700 West Georgia St, Suite 900 Phone: (604) 696-7449
Vancouver BC V7K 1K8 www.cima.ca

CLIENT:

SUNSHINE COAST REGIONAL DISTRICT

PROJECT NAME:

SUNSHINE COAST PORTS
CAPITAL UPGRADE PROJECT

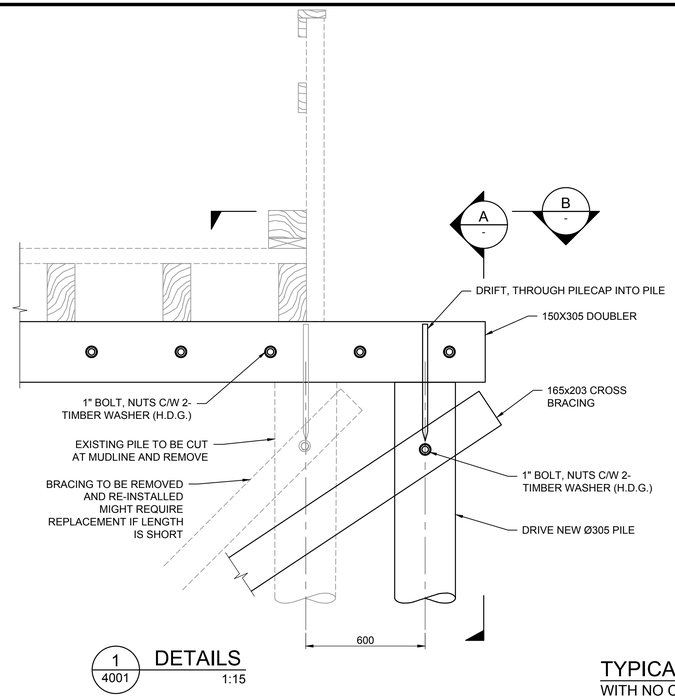
SHEET TITLE:

HALKETT BAY
SECTIONS

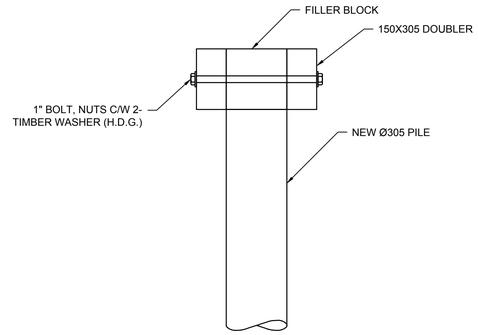
DISCIPLINE:

STRUCTURAL

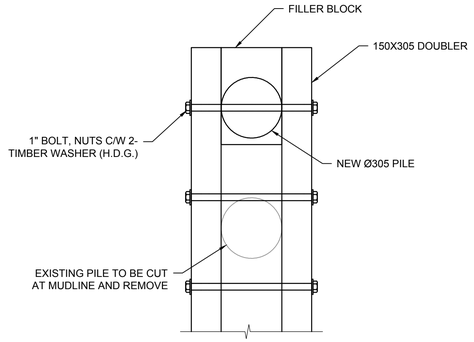
DRAFTER: ZS	SCALE: AS NOTED
DESIGNER: AM	DATE: 2024/03/21
APPROVER: -	APPROVER: AK
PROJECT No: C41-0199A	DRAWING No: C41-0199A-SCD-S-4002
SHEET No: 1 of 1	



1 / 4001 DETAILS
1:15

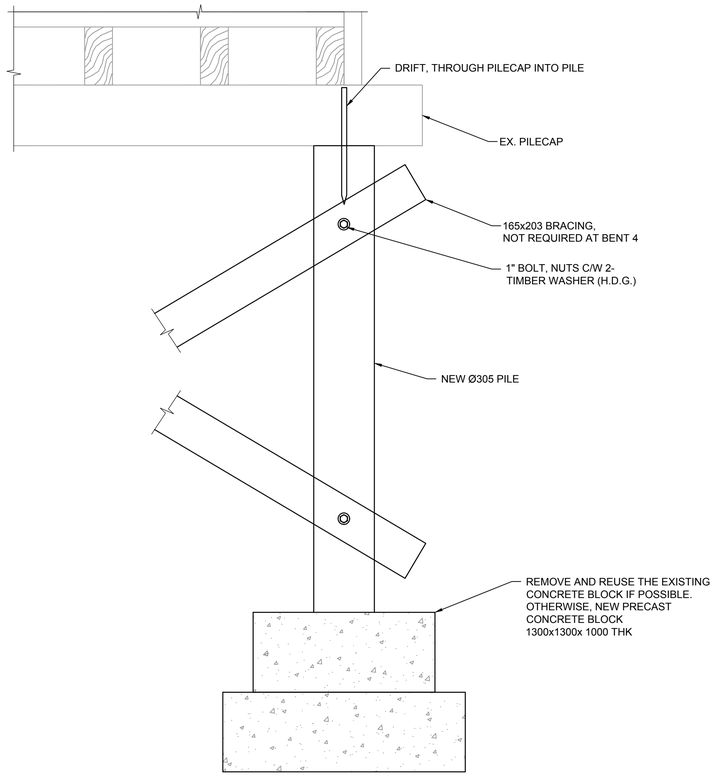


A / - SECTION
1:15



B / - SECTION
1:15

TYPICAL DETAIL - SINGLE PILE REPLACEMENT
WITH NO CONCRETE FOOTING



2 / 4001 DETAILS
WITH CONCRETE FOOTING

NOTES:

1. FOR GENERAL NOTES, SEE DWG C41-0199A-SPC-S-0001 AND C41-0199A-SPC-S-0002.
2. DIMENSIONS AND ELEVATIONS ARE BASED ON THE REFERENCE DRAWINGS PROVIDED BY THE CLIENT ARE NOT FIELD MEASURED OR VERIFIED BY ENGINEERS. THE DRAWINGS PROVIDED TO ENGINEERS WERE NOT SEALED OR STAMPED BY A PROFESSIONAL ENGINEER.
3. THE UPGRADE FOR THE FACILITY IS BASED ON LIKE-TO-LIKE REPLACEMENT AND NOT A COMPREHENSIVE DESIGN. ALL COMPONENTS IDENTIFIED HEREIN ARE TO BE REPLACED WITH THE SAME SIZE/SPECIFICATIONS UNLESS NOTED OTHERWISE. LOAD ASSESSMENT OF THE FACILITY, COMPONENT SIZING, AND DETAIL DESIGN ARE NOT PART OF THE SCOPE OF THIS PROJECT.
4. GEOTECHNICAL INFORMATION OR REPORT IS NOT AVAILABLE.
5. DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED PRIOR TO REMEDIATION/CONSTRUCTION.
6. THE SEABED SHOWN IN THE DRAWINGS ARE NOT VERIFIED BY ENGINEERS ARE PROVIDED BY THE CLIENT BASED ON PREVIOUS CAD DRAWINGS.
7. ENGINEER TO BE NOTIFIED 48 HOURS IN ADVANCE FOR FIELD REVIEW OF STRUCTURAL CONNECTIONS BEFORE COVERING UP.
8. THE DRAWINGS SHOW COMPLETED STRUCTURAL COMPONENTS OF THE DOCKS. TEMPORARY BRACING AND SHORING REQUIRED TO PERFORM THE WORK SAFELY IS THE RESPONSIBILITY OF THE CONTRACTOR.
9. ALL DIMENSIONS ARE IN MILLIMETERS AND ELEVATIONS IN METERS, UNLESS NOTED OTHERWISE.
10. HORIZONTAL DATUM U.T.M NAD 83.
11. VERTICAL DATUM (ELEVATIONS AND CONTOURS) TO CHART DATUM (C.D.).
12. SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR FABRICATION AND INSTALLATION.
13. CONCRETE FOOTING SHALL BE INSTALLED ON COMPETENT GROUND. GEOTECHNICAL ENGINEER TO REVIEW AND APPROVE THE SUBGRADE PRIOR TO CONSTRUCTION.
14. GEOTECHNICAL ENGINEER TO REVIEW SEABED CONDITION AND APPROVE PILE DRIVING CONCEPT AND METHODOLOGY PRIOR TO CONSTRUCTION.

DRAFT

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ANSI D (22"X34") ANSI B (11"X17")

LEGENDS:

- PILE - REPLACE
- PILE - REPAIR
- X-BRACE - REPLACE (ONE OR BOTH)
- X-BRACE - REPAIR (ONE OR BOTH)
- WALE TIMBER / PILE CAP REPLACE
- WALE TIMBER / PILE CAP REPAIR
- CONCRETE FOOTING - REPLACE
- CONCRETE FOOTING - REPAIR

No.	Date	Description	By
A	2024/03/21	FOR INFORMATION ONLY	AM

STAMPS:

DESIGNED BY APPROVED BY

ENGINEER:

700 West Georgia St, Suite 900 Phone: (604) 696-7449
Vancouver BC V7K 1K8 www.cima.ca

CLIENT: SUNSHINE COAST REGIONAL DISTRICT

PROJECT NAME:
SUNSHINE COAST PORTS
CAPITAL UPGRADE PROJECT

SHEET TITLE:
HALKETT BAY
REPAIR SECTIONS

DISCIPLINE: STRUCTURAL

DRAFTER: ZS	SCALE: AS NOTED
DESIGNER: AM	DATE: 2024/03/21
APPROVER:	APPROVER: AK
PROJECT No: C41-0199A	DRAWING No: C41-0199A-SCD-S-4003
SHEET No: 1 of 1	

Appendix A2

BC Archaeological Chance Find Procedure

BRITISH COLUMBIA
The Best Place on Earth

ARCHAEOLOGICAL CHANCE FIND PROCEDURE

Summary

The purpose of this document is to address the possibility of archaeological deposits becoming exposed during ground altering activities within the project area and to provide protocols to follow in the case of a chance archaeological find to ensure that archaeological sites are documented and protected as required.

Archaeological sites are protected by The *Heritage Conservation Act* (HCA), whether on Provincial Crown or private land. They are non-renewable, very susceptible to disturbance and are finite in number. Archaeological sites are an important resource that is protected for their historical, cultural, scientific and educational value to the general public, local communities and First Nations. Impacts to archaeological sites must be avoided or managed by development proponents. The objectives of this 'Archaeological Chance Find Procedure' are to promote preservation of archaeological data while minimizing disruption of construction scheduling It is recommended that due to the moderate to high archaeological potential of some areas within the project area, all on site personnel and contractors be informed of the Archaeological Chance Find Procedure and have access to a copy while on site.

Potential Impacts to Archaeological Sites

Developments that involve excavation, movement, or disturbance of soils have the potential to impact archaeological materials, if present. Activities such as road construction, land clearing, and excavation are all examples of activities that may adversely affect archaeological deposits.

Relevant Legislation

The *Heritage Conservation Act* (HCA) automatically protects all archaeological sites, whether on Provincial Crown or private land, that predate AD 1846. Burial sites and rock art sites are protected regardless of age.

A permit is required for any subsurface investigation of an archaeological site or investigation with the intent to locate a site. The provincial government agency responsible for administering the HCA, issuing permits, and maintaining a database of recorded archaeological sites is the Archaeology Branch (Ministry of Tourism, Sport and the Arts). Disturbance and/or removal of artifacts from an archaeological site may result in penalties.

Remedies and Penalties

The *Heritage Conservation Act* provides for heritage inspection or investigation orders, temporary protection orders, civil remedies and penalties to limit contraventions. These powers provide:

- the Province with the ability to inspect a site or halt work to prevent site alteration, and the Courts with the ability to issue an injunction to restrain contravention of the Act, or where there has been a breach of the Act, impose penalties of not more than:
- a fine of $50,000 and 2 years imprisonment for an individual
- a fine of not more than $1,000,000 for a corporation
- a fine of $50,000 or 2 years imprisonment for an employee, officer, director or agent of the corporation.

Archaeological Chance Find Procedure

If you believe that you may have encountered any archaeological materials, stop work in the area and follow the procedure below:

- All construction activity in the vicinity of the remains is to cease immediately.
- The find location will be recorded, and all remains will be left in place.
- The project archaeologist and Archaeology Branch will be contacted.
- Potential significance of the remains will be assessed and mitigative options will be identified.
- If the significance of the remains is judged to be sufficient to warrant further action and they cannot be avoided, then the project archaeologist in consultation with the Archaeology Branch and representatives of local First Nation communities will determine the appropriate course of action.
- In the case of human remains, if the remains are assessed to be archaeological, then the Archaeology Branch and local First Nations will be consulted to determine how to handle them. Options could include avoidance or respectful removal and reburial. The RCMP and/or coroner will also be notified of find.
- If human remains are encountered and they are not archaeological, then the RCMP will be contacted immediately.

Archaeology Branch Contacts

Ray Kenny, Manager Phone: 250-952-4306
Al Mackie, Heritage Resource Specialist Phone: 250-952-4063

Preparation of an Archaeological Chance Find Procedure (CFP)
Mining & Minerals Division – South Central Region

Background:

The *Heritage Conservation Act* (HCA) protects designated archaeological sites as well as any archaeological sites originating prior to 1846. The HCA carries significant penalties and is enforced by the RCMP. From the perspective of consultation with First Nations, archaeological sites are important indicators of Aboriginal rights and title and the identification and protection of these sites are part of the Crown's due diligence.

Section 10(1) of the *Mines Act* requires mining proponents to prepare a plan for the protection of cultural heritage resources.

Preparation and Implementation of an Archaeological Chance Find Procedure:

An Archaeological Chance Fine Procedure (CFP) is a tool for the protection of unidentified cultural heritage resources. The primary purpose of a CFP is to raise awareness of all personnel working on site regarding the potential for discovery of cultural heritage resources and establish a protocol for the protection of these resources.

Proper implementation of a CFP on mineral properties has led to discovery of cultural heritage resources that were not identified in archaeological overview and/or impact assessments. As such, it is considered to be a valuable tool when property implemented.

A sample CFP is attached. Mining proponents can modify this document for use on their mineral property or develop their own unique procedure.

For the CFP to be effective, the mine manager must ensure that all personnel on the mine/exploration site understand the CFP and the importance of following it if cultural heritage resources are encountered Additionally, training on cultural heritage resources that might potentially be found on site should be provided. The following Yukon Government publication is a useful guide that could be utilized as part of cultural heritage training:

Mineral Exploration Best Managament Practices for Heritage Resources
http://www.tc.gov.yk.ca/pdf/Mineral_Exploration_BMP_for_Heritage_Resources.pdf

- **A copy of the CFP must be provided to the regional permitting inspector, preferably as part of the Notice of Work and Reclamation application package.**

Archaeological Chance Find Procedure - Sample Document

{Insert Mineral property Name
and Permittee or on-site Operator name}

There are more than 32,000 archaeological sites currently recorded in British Columbia with many more being added to the provincial inventory every year. For this reason, it is very likely that you will encounter an archaeological site during your lifetime either knowingly or unknowingly. This protocol has been established to increase awareness of this important resource and to assist in planning future developments.

The remnants of British Columbia's earliest cultures are represented in today's landscape by a wide variety of site types, most of which are related to art, habitations, resource gathering and production, tool making, and traditional ceremonial or ritual activities. Some sites that may be immediately visible to a non-archaeologist include:

- Rock art, including pictographs and petroglyphs.
- Tree art and Culturally Modified Trees (CMT'S) such as bark stripping and planks.
- Surface features such as depressions created by former habitations, earthen fortifications, rock cairns, fish traps, clam gardens, burned rock and middens.
- Artifacts that have become visible on the land surface owing to erosion or recent land altering activity. These may be produced in a variety of materials such as stone, bone, antler, wood, or shell.
- Buried cultural remains that may be sighted in a cut-bank, excavation, eroded shoreline, or other exposed deposit.

If you discover what you suspect may be a possible archaeological site:

- Stop all work in the area to avoid damaging the site.
- **Do not disturb any archaeological remains that you may encounter.**
- Report your discovery to your supervisor or if they are unavailable, the *{Permittee or on-site Operator name }* who will provide further instructions *{contact #}*.
- If you are unable to contact the *{Permittee or on-site Operator name}* representative, please contact the Archaeology Branch by telephone at (250) 953-3334

If you discover what you suspect may be a possible human remains:

- Stop all work in the area to avoid damaging the site.
- **Do not disturb any possible human remains that you may encounter.**
- Report your discovery to your supervisor or if they are unavailable, the *{Permittee or on-site Operator name }* who will provide further instructions.
- If you are unable to contact the *{Permittee or on-site Operator name}* representative, and the suspected human remains appear to be current, contact the RCMP at *(local RCMP phone #}*.
- If you are unable to contact the *{Permittee or on-site Operator name}* representative, please contact the Archaeology Branch by telephone at (250) 953-3334

The following steps will generally be followed

- The Coroner's Office and local policing authority are notified and the Coroner's Office determines whether the matter is of contemporary forensic concern.
- If the remains are not of forensic concern, the branch will attempt to facilitate disposition of the remains.
- If a cultural affiliation for the remains can be determined, the branch will contact an organization representing that cultural group. If the remains are of aboriginal ancestry, the branch will attempt to contact the relevant First Nation(s).
- Generally, if remains are still buried and are under no immediate threat of further disturbance, they will not be excavated or removed. If the remains have been partially or completely removed, the branch will facilitate disposition.
- The branch may arrange for a qualified anthropologist or archaeologist to provide an assessment of the remains.

Appendix A3

Spill Reporting Regulation

BRITISH COLUMBIA

Environmental Management Act

SPILL REPORTING REGULATION

B.C. Reg. 187/2017

Deposited October 13, 2017 and effective October 30, 2017
Last amended December 5, 2017 by B.C. Reg. 221/2017

Consolidated Regulations of British Columbia

This is an unofficial consolidation.

Consolidation current to January 11, 2018

B.C. Reg. 187/2017 (M329/2017), deposited October 13, 2017 and effective October 30, 2017, is made under the *Environmental Management Act*, S.B.C. 2003, c. 53, ss. 92.1 and 139.

This is an unofficial consolidation provided for convenience only. This is not a copy prepared for the purposes of the *Evidence Act*.

This consolidation includes any amendments deposited and in force as of the currency date at the bottom of each page. See the end of this regulation for any amendments deposited but not in force as of the currency date. Any amendments deposited after the currency date are listed in the B.C. Regulations Bulletins. All amendments to this regulation are listed in the *Index of B.C. Regulations*. Regulations Bulletins and the Index are available online at www.bclaws.ca.

See the User Guide for more information about the *Consolidated Regulations of British Columbia*. The User Guide and the *Consolidated Regulations of British Columbia* are available online at www.bclaws.ca.

Prepared by:
Office of Legislative Counsel
Ministry of Attorney General
Victoria, B.C.

Environmental Management Act

SPILL REPORTING REGULATION

B.C. Reg. 187/2017

Contents

Environmental Management Act

SPILL REPORTING REGULATION

B.C. Reg. 187/2017

Definitions

1 In this regulation:

"Act" means the *Environmental Management Act*;

"body of water" includes

(a) a stream, as defined in the *Water Sustainability Act*,

(b) an aquifer, as defined in the *Water Sustainability Act*,

(c) fish habitat, as defined in the Water Sustainability Regulation, B.C. Reg. 36/2016, and

(d) any of the following that could drain or empty directly into a body of water:

(i) a naturally formed pool of water other than one referred to in paragraph (a), (b) or (c);

(ii) a ditch;

"contact information", in relation to a person, means the address, telephone number and, if any, email address of the person;

"emergency response completion date", in relation to a spill, has the meaning given in section 8 *[emergency response completion date]*;

"listed quantity", in relation to a listed substance, means the quantity listed in Column 2 of the Schedule opposite the listed substance or, if more than one quantity is listed, the highest of those quantities;

"listed substance" means a substance listed in Column 1 of the Schedule;

"Provincial Emergency Program" has the same meaning as in the *Emergency Program Act*.

Reportable spills

2 This regulation applies for the purposes of section 91.2 (1) (a) *[responsible persons – spill response]* of the Act in relation to a spill of a listed substance, other than natural gas, if

(a) the spill enters, or is likely to enter, a body of water, or

(b) the quantity of the substance spilled is, or is likely to be, equal to or greater than the listed quantity for the listed substance.

Reportable spills of natural gas

3 This regulation applies for the purposes of section 91.2 (1) (a) *[responsible persons – spill response]* of the Act in relation to a spill of natural gas if

(a) the spill is caused by a break in a pipeline or fitting operated above 100 psi that results in a sudden and uncontrolled release of natural gas, and

(b) the quantity of natural gas spilled is, or is likely to be, equal to or greater than the listed quantity for natural gas.

Initial report

4 (1) If a spill occurs or is at imminent risk of occurring, a responsible person must ensure that the actual or potential spill is immediately reported to the Provincial Emergency Program by calling 1-800-663-3456.

(2) A report under this section must include, to the extent practicable, the following information:

(a) the contact information for

(i) the individual making the report,

(ii) the responsible person in relation to the spill, and

(iii) the owner of the substance spilled;

(b) the date and time of the spill;

(c) the location of the spill site;

(d) a description of the spill site and the surrounding area;

(e) a description of the source of the spill;

(f) the type and quantity of the substance spilled;

(g) a description of the circumstances, cause and adverse effects of the spill;

(h) details of action taken or proposed to comply with section 91.2 (2) *[responsible persons – spill response]* of the Act;

(i) the names of the government, federal government, local government and first nation government agencies at the spill site;

(j) the names of other persons or government, federal government, local government or first nation government agencies advised about the spill.

Updates to minister

5 (1) A responsible person for a spill that occurs on or after October 30, 2018 must, until the emergency response completion date, submit written reports on the spill to the minister in accordance with subsection (2).

(2) A report under subsection (1) must be made

(a) as soon as practicable on request of the minister,

(b) at least once every 30 days after the date the spill began, and

(c) at any time the responsible person has reason to believe that information previously reported by the responsible person under section 4 or this section was or has become inaccurate or incomplete.

(3) A report under this section must be made in the manner and form specified by the minister and must include, to the extent practicable, the information set out in section 6 (2).

End-of-spill report

6 (1) The responsible person for a spill that occurs on or after October 30, 2018 must submit a written report on the spill to the minister within 30 days after the emergency response completion date for that spill.

(2) A report under this section must be made in the manner and form specified by the minister and must include the following information:

(a) the contact information of

(i) the responsible person, and

(ii) the owner of the substance spilled;

(b) the date, time and duration of the spill;

(c) the location of the spill site, which must be specified by

(i) its address, if any, and

(ii) its latitude and longitude;

(d) a description of the spill site and sites affected by the spill;

(e) a description of the source of the spill;

(f) the type and quantity of the substance spilled;

(g) a description of the circumstances, cause and adverse effects of the spill, including, without limitation, a description of the following:

(i) the activity during which the spill occurred (e.g., transportation, transfer of cargo, fuelling, cleaning, maintenance);

(ii) the incident leading to the spill (e.g., tank rupture, overfill, collision, rollover, derailment, fire, explosion);

(iii) the underlying cause of the spill (e.g., human error, external conditions, organizational or management failure);

(iv) the adverse effects of the spill to human health, which must specify

(A) the number of injuries,

(B) the number of fatalities, and

(C) the number of evacuees;

(v) the adverse effects of the spill to the environment and infrastructure at the spill site and the area surrounding the spill, which description must specify

(A) the size of the area adversely affected by the spill,

(B) the biological and other resources adversely affected by the spill, including, without limitation,

(I) bodies of water,

(II) flora and fauna, and

(III) animal, fish and plant habitat;

(h) details of action taken to comply with section 91.2 *[responsible persons – spill response]* of the Act;

(i) how and where waste from the spill was disposed of;

(j) a copy of data from and reports of sampling, testing, monitoring and assessing carried out during spill response actions;

(k) a map of the spill site and the area surrounding the spill and photographs of the spill;

(l) the names of agencies on the scene;

(m) the names of other persons or agencies advised about the spill.

Lessons-learned report

7 (1) A director may order a responsible person in relation to a spill of a listed substance to submit a written report on the spill to the director.

(2) An order under subsection (1) must be made in writing and within 6 months after the emergency response completion date for the spill.

(3) A responsible person to whom an order under subsection (1) is directed must submit the report to the director in the manner and form specified by the director and must include

(a) a description of the effectiveness of the spill response actions,

(b) a description of actions taken to prevent future spills and improve response to future spills,

(c) if the responsible person is a regulated person,

(i) a description of any changes that the person intends to make to the person's spill contingency plan to improve response to future spills,

(ii) if the spill occurred in a geographic response area, a description of any changes that the person considers should be made to the related geographic response plan to improve response to future spills, and

(iii) if spill response actions were carried out by a PRO, a description of any changes that the person considers should be made to the PRO's area response plan to improve response to future spills, and

(d) responses to any specific questions the director asks in the order.

Emergency response completion date

8 For the purposes of this regulation, the emergency response completion date for a spill is the date on which all of the following criteria are met:

(a) the incident command post is disestablished;

(b) the source of the spill is under control and is neither spilling nor at imminent risk of spilling;

(c) emergency actions to stabilize, contain and remove the spill have been taken;

(d) the waste removed from the spill site has been

(i) received at a facility for disposal, or

(ii) received for transportation to a facility for disposal;

(e) if applicable, all notices respecting evacuation from the spill site have expired or been rescinded;

(f) all equipment, personnel and other resources used in emergency spill response actions have been removed from the spill site, other than equipment, personnel or other resources required for

(i) sampling, testing, monitoring or assessing at the spill site, or

(ii) recovery or restoration of the spill site.

Application to oil and gas permit holders

9 The following sections do not apply to a person who holds a permit to carry out an oil or gas activity to which the Emergency Management Regulation, B.C. Reg. 204/2013, applies:

(a) section 5 *[updates to minister]*;

(b) section 6 *[end-of-spill report]*;

(c) section 7 *[lessons-learned report]*.

SCHEDULE

[am. B.C. Reg. 221/2017.]

Definitions

1 In this Schedule, **"Federal Regulations"** means the Transportation of Dangerous Goods Regulations made under the *Transportation of Dangerous Goods Act, 1992* (Canada).

Item	Column 1 **Substances**	Column 2 **Quantity**
1	Class 1, Explosives as defined in section 2.9 of the Federal Regulations	50 kg, or less if the substance poses a danger to public safety
2	Class 2.1, Flammable Gases, other than natural gas, as defined in section 2.14 (a) of the Federal Regulations	10 kg
3	Class 2.2 Non-flammable and Non-toxic Gases as defined in section 2.14 (b) of the Federal Regulations	10 kg
4	Class 2.3, Toxic Gases as defined in section 2.14 (c) of the Federal Regulations	5 kg
5	Class 3, Flammable Liquids as defined in section 2.18 of the Federal Regulations	100 L

Item	Column 1 **Substances**	Column 2 **Quantity**
6	Class 4, Flammable Solids as defined in section 2.20 of the Federal Regulations	25 kg
7	Class 5.1, Oxidizing Substances as defined in section 2.24 (a) of the Federal Regulations	50 kg or 50 L
8	Class 5.2, Organic Peroxides as defined in section 2.24 (b) of the Federal Regulations	1 kg or 1 L
9	Class 6.1, Toxic Substances as defined in section 2.27 (a) of the Federal Regulations	5 kg or 5 L
10	Class 6.2, Infectious Substances as defined in section 2.27 (b) of the Federal Regulations	1 kg or 1 L, or less if the waste poses a danger to public safety or the environment
11	Class 7, Radioactive Materials as defined in section 2.37 of the Federal Regulations	Any quantity that could pose a danger to public safety and an emission level greater than the emission level established in section 20 of the Packaging and Transport of Nuclear Substances Regulations, 2015 (Canada)
12	Class 8, Corrosives as defined in section 2.40 of the Federal Regulations	5 kg or 5 L
13	Class 9, Miscellaneous Products, Substances or Organisms as defined in section 2.43 of the Federal Regulations	25 kg or 25 L
14	waste containing dioxin as defined in section 1 of the Hazardous Waste Regulation	1 kg or 1 L, or less if the waste poses a danger to public safety or the environment
15	leachable toxic waste as defined in section 1 of the Hazardous Waste Regulation	25 kg or 25 L
16	waste containing polycyclic aromatic hydrocarbon as defined in section 1 of the Hazardous Waste Regulation	5 kg or 5 L
17	waste asbestos as defined in section 1 of the Hazardous Waste Regulation	50 kg
18	waste oil as defined in section 1 of the Hazardous Waste Regulation	100 L
19	waste that contains a pest control product as defined in section 1 of the Hazardous Waste Regulation	5 kg or 5 L
20	PCB wastes as defined in section 1 of the Hazardous Waste Regulation	25 kg or 25 L

Item	Column 1 **Substances**	Column 2 **Quantity**
21	waste containing tetrachloroethylene as defined in section 1 of the Hazardous Waste Regulation	50 kg or 50 L
22	biomedical waste as defined in section 1 of the Hazardous Waste Regulation	1 kg or 1 L, or less if the waste poses a danger to public safety or the environment
23	a hazardous waste as defined in section 1 of the Hazardous Waste Regulation and not covered under items 1 to 22	25 kg or 25 L
24	a substance, not covered by items 1 to 23, that can cause pollution	200 kg or 200 L
25	natural gas	10 kg