

**FISHERIES AND OCEANS CANADA**  
**REAL PROPERTY, SAFETY, AND SECURITY**  
**PACIFIC REGION**

SOLICITATION: F1816-140002/A

**SEAL COVE CANADIAN COAST GUARD**

**PRINCE RUPERT, BC**

**ELECTRICAL UPGRADE FOR**

**MSPV MOORAGE**

**MARCH 2014**

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**PLEASE DIRECT ALL INQUIRIES TO THE  
PWGSC CONTRACTING OFFICER**

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**SPECIFICATIONS**

<b>Division 01</b>	<b>General Requirements</b>	<b>No. of Pages</b>
01 11 15	General Instructions	9
01 33 00	Submittal Procedures	5
01 35 29.06	Health & Safety Requirements	4
01 45 00	Quality Control	3
<b>Division 2</b>	<b>Existing Conditions</b>	
02 81 01	Hazardous Materials	4

**APPENDIX A**

**DRAWINGS**

**Bound Separately**

<b>Electrical Drawings</b>		3
E1, revision 2	Electrical Layout	
E2, revision 2	Electrical Details	
E3, revision 2	Electrical Specification	

**APPENDIX B**

Environmental Requirements	Standard Mitigation Organized by Project Activity	4
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**END OF SECTION**

## **1.1 SITE**

- .1 The site of the work is at the Canadian Coast Guard Base at Seal Cove, Prince Rupert, BC.

## **1.2 DESCRIPTION OF WORK**

- .1 The electrical installation for this project shall entail a 600V overhead service upgrade, a new service kiosk, a 600V feed down to the float, and a Mid Shore Patrol Vessel (MSPV) kiosk containing the shore-to-ship power connection
- .2 The Contractor shall provide all labour, materials, tools, equipment fabrication and technical expertise required to complete a fully functional, safe, and Code compliant installation.
- .3 Refer to the Electrical Drawings for full system details. The work will include the following:
  - .1 Service Upgrade
    1. Replace existing service pole and transformers complete with protection, lightning protection, pilaster, and all required supports and hardware.
    2. Replace existing service conductors with a parallel feed in existing conduits.
  - .2 Kiosk Replacement
    1. Remove and dispose of existing lean-to and electrical equipment
    2. Install new kiosk complete with main panel, connections to underground ducts, provisions for splicing existing and proposed feeds, heating, ventilation, and lighting.
    3. Supply 120V power to the kiosk from the adjacent electrical building.
  - .3 Shore to Ship Power
    1. Install new duct path and 600V feed to MSPV Kiosk.
    2. Install MSPV kiosk complete with protective enclosure, wire way, receptacle, and electrical control enclosure.
  - .4 Electrical Civil Works
    1. Saw cut existing concrete surface and excavate as required for kiosk base and electrical trench.
    2. Install concrete kiosk base and electrical duct bank.
    3. Backfill affected areas and compact as required.
    4. Repair concrete surface to match existing.

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### 1.3 DOCUMENTS REQUIRED

- .1 Maintain at job site, one copy each of following:
  - .1 Contract drawings.
  - .2 Specifications.
  - .3 Addenda.
  - .4 Change orders.
  - .5 Other modifications to Contract.
  - .6 Copy of approved work schedule.

### 1.4 WORK SCHEDULE

- .1 Provide a schedule of work within three (3) days of the Award of Contract, and observe the following requirements:
  - .1 The work must be completed by September 30, 2014.
  - .2 Whenever variation from the schedule in excess of three (3) working days occurs or is expected to occur, notify the Engineer of the change and provide an updated schedule.
  - .3 Hours of work will be restricted to 8:00 AM to 4:00 PM, Mondays to Fridays only

### 1.5 SITE CONDITIONS

- .1 It will be the responsibility of the Contractor to visit the site prior to Submission of Tenders and make themselves thoroughly acquainted with conditions at the site and to make whatever inquiries are necessary to familiarize themselves with all conditions likely to affect the work.

### 1.6 CONTRACTORS USE OF SITE

- .1 Use of site: limited to immediate area of the work and areas assigned by the Engineer for office storage, equipment, stock piles, sanitary facilities, etc.
- .2 As there will be **NO ACCESS** to any of the buildings, Contractor will provide sanitary facilities for the work force in accordance with governing regulations and ordinances
- .3 Vehicles entering and left in the designated work area must have Contractor's logo/name clearly marked on the vehicle
- .4 Arrange parking in areas directed by Department Representative. Maintain construction parking area clean and free of construction related debris. Make good damage resulting from Contractor use of parking areas, at no cost to the Contract.
- .5 Confine work and operations of employee to areas defined by the Contract Documents unless directed otherwise in writing by the Department Representative. Do not unreasonably encumber premise with products.

### 1.7 SETTING OUT OF WORK

- .1 The Engineer will provide survey control points and set such stakes as necessary to define general location, alignment and elevations of work. Give the Engineer reasonable notice of requirements for such control points and stakes.
- .2 The Contractor will set grades and lay out work in detail from control points and grades established by the Engineer and those additional points specified on the drawings.
- .3 The Contractor will assume full responsibility for and execute complete layout of work to locations, lines, and elevations indicated.
- .4 Provide devices needed to lay out and construct work.
- .5 Supply such devices as straight edges and templates required to facilitate Engineer's inspection of work.
- .6 Supply stakes and other survey markers required for laying out work.
- .7 Ensure that all stakes and marks placed on the work or its site by or under the authority of the Engineer are protected and are not removed, defaced, altered, or destroyed.
- .8 The Contractor is responsible for maintaining all survey control for the duration of the project.

## **1.8 MEASUREMENT FOR PAYMENT**

- .1 General:
  - .1 Payment for work will be made at the Prices Per Unit as tendered for the various classifications of the work appearing in the "Unit Price Table" of the Form of Tender.
  - .2 Any work called for in the specifications or shown on the plans, or which is necessary for the completion of the work called for in the specifications and is not specifically listed as a separate item in the "Unit Price Table", shall be deemed incidental to the general purpose of the Contract and no separate payment will be made on account of any such work, but the cost of any such incidental work shall be included in the Price Per Unit values as tendered for the various items appearing in the "Unit Price Table".
- .2 Mobilization and Demobilization – Pay Item No. 1:
  - .1 The unit of measure will be a single fixed item. “Mobilization and Demobilization” will include all work required to supply the material, plant, and labour (including temporary sanitary facilities) to the site of the work at the start of the project and to remove all materials, plant and labour from the site at the end of the project. The supply and maintenance of the temporary sanitary facilities for the work force will be included in this pay item. This item will also include all costs associated the General Conditions requirements, instructions of the Contract.

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- .3 Supply and Installation of Electrical Upgrade – Pay Item No.2:
    - .1 The unit of measure for the electrical upgrade will be a single fixed. This item will include the supply and installation of all items, including all miscellaneous hardware, required to complete the work outlined in “Clause 1.2 – Description of Work” of Section 011115 – General Instructions.

## **1.9 PROJECT MEETINGS**

- .1 The Engineer will arrange project meetings and assume responsibility for setting times and recording and distributing minutes.

## **1.10 ADDITIONAL DRAWINGS**

- .1 The Engineer may furnish additional drawings for clarification. These additional drawings have the same meaning and intent as if they were included with plans referred to in Contract Documents.

## **1.11 RECORD DRAWINGS**

- .1 As work progresses maintain accurate records to show all deviations from the Contract drawings. Note on as-built drawings as changes occur, and at completion supply one (1) set of all drawings and specifications with all deviations clearly marked.

## **1.12 CODES AND STANDARDS**

- .1 Perform work in accordance with latest edition of the National Building Code of Canada (NBCC) and any other code of provincial or local application provided that in any case of conflict or discrepancy, the more stringent requirements shall apply.
- .2 Meet or exceed requirements of:
  - .1 Contract Documents,
  - .2 Specified standards, codes and referenced documents.
- .3 All work is to be done in accordance with Workers’ Compensation Board regulations, Labour Canada regulations, and all applicable municipal statutes and authorities having jurisdiction. In the event of conflict between any provisions of these authorities, the most stringent provision will apply.
- .4 Prior to commencing work, all Contractor’s personnel will be required to complete the Fisheries and Oceans Canada site access orientation session
- .5 Ensure that all employees have received appropriate WHMIS training and that all necessary MSDS information is available on site

## **1.13 ENVIRONMENTAL PROTECTION**

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- .1 Comply with Federal, Provincial and Municipal laws, orders, and regulations concerning the protection of the environment and the control and abatement of soil, water, and air pollution.
  - .2 Do not dispose of waste or volatile materials such as oil, paint thinners, or mineral spirits into waterways, storm or sanitary sewers.
  - .3 Fires and burning of rubbish on site not permitted.
  - .4 The mitigation measures outlined in the Appendix B will form part of the specification. The Contractor will keep a copy of the report on site.

#### **1.14 PERMITS, CERTIFICATES, FEES, AND NOTIFICATIONS**

- .1 Obtain and pay for all permits
- .1 The Contractor shall give all notices, obtain and pay all fees and permits, and all other services required or requested by the authorities having local jurisdiction.
- .2 The Contractor shall be responsible for all damages and costs which result from the Contractor's failure to pay the fees and procure the permits referred to herein.

#### **1.15 SITE SECURITY**

- .1 The Contractor will assume responsibility for construction personnel, vessels and vehicles requiring access to the site.
- .2 The Contractor will assume responsibility in public safety and protection with regard to setting up warning signs and barricades during the construction period.

#### **1.16 EXISTING SERVICES**

- .1 Where unknown services are encountered, immediately advise Engineer and confirm in writing.
- .2 Where work involve breaking into or connecting to existing services, carry out work at all times directed by governing authorities, with minimum of disturbance to pedestrian and vehicular traffic.

#### **1.17 RELICS AND ANTIQUITIES**

- .1 Protect relics, antiquities, items of historical or scientific interest such as cornerstones and contents, commemorative plaques, inscribed tablets, and similar objects found during course of work.
- .2 Give immediate notice to Engineer and await Engineer's written instructions before proceeding with work in this area.

- .3 Relics, antiquities and items of historical or scientific interest remain her Majesty's property.

### **1.18 TEMPORARY FACILITIES**

- .1 Provide temporary facilities in order to execute work expeditiously.
- .2 Water is available for construction use at no cost. Department Representative will determine delivery points. Connect to existing power supply in accordance with Canadian Electrical Code. Provide all equipment and temporary hoses to bring water to work, at no additional cost to the Contract. Exercise conservation whenever using water supply. Do not leave water running unattended.
- .3 Electrical power is available for construction purposes at no cost. Department Representative will determine delivery points. Provide all equipment and temporary lines to bring power to work, at no additional cost to the Contract. Exercise conservation whenever using temporary electrical power supply.
- .4 Provide and maintain temporary fire protection equipment during performance of work required by governing codes, bylaws, and regulations. Conform to site plan where in effect.
- .5 Provide sanitary facilities for work force in accordance with governing regulations and ordinances. Locate where directed by Department Representative.
- .6 Remove any temporary services or facilities after completion of the work and make good any damage to conditions previously existing or to match new work as acceptable to the Engineer.

### **1.19 MATERIAL DISPOSAL**

- .1 All material designated to be removed will become the property of the Contractor and will be disposed of in an environmentally acceptable manner so that they neither become a menace to marine navigation nor a nuisance to the public on adjacent or any other property.
- .2 Unless otherwise specified, all existing material to be replaced or removed will be disposed of in accordance with .1 above.
- .3 Conduct cleanup and disposal operations to comply with local ordinances and anti-pollution laws.

### **1.20 NOTIFICATIONS**

- .1 The Contractor will also notify the local Fisheries Officer not less than five (5) days prior to commencement and completion of operations.



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- .2 Keep Vancouver Vessel Traffic Services, Canadian Coast Guard informed of operations in order that necessary notices to shipping will be issued. For notices to shipping, contact:

Canadian Coast Guard  
Regional Marine Information Centre, Pacific  
Suite 2380, P.O. Box 12107  
555 West Hastings Street  
Vancouver, B.C. V6B 4N6  
Tel: (604) 666 – 6011  
Fax: (604) 666 – 8453

### **1.21 REQUIREMENTS OF REGULATORY AGENCIES**

- .1 Ensure work meets all applicable environmental regulations and standards.
- .2 The Contractor shall comply with municipal, provincial, and national regulatory agency regulations relating to the project.
- .3 Claims for extra costs resulting from all regulatory agency requirements including those referenced in Clause 1.21.2 will not be entertained by the Department.
- .4 The Contractor shall mark floating equipment with lights in accordance with Notice to Mariners CCG regulations.
- .5 The Contractor will ensure that a fuel/oil spill emergency action plan is in place at all times.
- .6 The contractor shall comply with the “BC Marine and Pile Driving Contractors Association, Best Management Practices for Pile Driving and Related Operations”

### **1.22 MATERIAL AND EQUIPMENT**

- .1 The following requirements shall apply unless otherwise specified in the Contract Documents.
- .2 Material and Equipment:
- .1 Use new material unless otherwise specified.
- .2 Within seven (7) days of written request by the Engineer, submit the following information for any or all materials and products proposed for supply:
- .1 Name and address of supplier.
- .2 Use products of one supplier for material of same type or classification unless otherwise specified.
- .3 Construction Equipment and Plant:
- .1 On request, prove to the satisfaction of the Engineer that the construction equipment and plant are adequate to manufacture, transport, place, and finish work to quality and

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production rates specified. If inadequate, replace or provide additional equipment or plant as directed.

- .2 Maintain construction equipment and plant in good operating order.

### **1.23 CUTTING, FITTING, AND WORK FIT PATCHING**

- .1 Execution cutting (including excavation), fitting and patching required to make the work properly fit together.
- .2 Where new work connects with existing and where existing work is altered, cut, patch and make good to match existing work.

### **1.24 REQUIREMENTS OF REGULATORY AGENCIES**

- .1 Ensure work meets all applicable environmental regulations and standards.
- .2 The Contractor shall comply with municipal, provincial, and national regulatory agency regulations relating to the project.
- .3 Claims for extra costs resulting from all regulatory agency requirements including those referenced in Clauses 1.24.1 and 1.24.2 will not be entertained by the Department.
- .4 The Contractor will ensure that a fuel/oil spill emergency action plan, applicable to the size of plant and equipment being used to complete work, is in place at all times.

### **1.25 DELAYS**

- .1 Delays, other than those caused by changes requested by the Engineer, which occur will not affect the Tender Prices Per Unit. Claims for such delays will not be entertained by the Department.

### **1.26 OTHER CONTRACTS**

- .1 Other contracts may be in progress or be awarded while this contract is in progress.
- .2 Co-operate with other Contractors in carrying out their respective works and carry out instructions from department Representatives
- .3 Co-ordinate with that of other Contractors. If any part of work under this contract depends for its proper execution or result upon work of another Contractor, report promptly to Department Representative, in writing, any defects or conflicts which may interfere with the proper execution of this work

**END OF SECTION**

**Part 1            General**

**1.1                RELATED SECTIONS**

- .1            N/A

**1.2                ADMINISTRATIVE**

- .1            Submittals are required as listed in Part 2 and Part 3 below. Submit to Engineer for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2            Do not proceed with Work affected by submittal until review is complete.
- .3            Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4            Where items or information is not produced in SI Metric units converted values are acceptable.
- .5            Contract to carefully review all submittals prior to submission to Engineer. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .6            Notify Engineer, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7            Verify field measurements and affected adjacent Work are co-ordinated.
- .8            Contractor's responsibility for errors and omissions in submission is not relieved by Engineer's review of submittals.
- .9            Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Engineer's review.
- .10          Keep one reviewed copy of each submission on site.

**1.3                SHOP DRAWINGS AND PRODUCT DATA**

- .1            The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .2            Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.

- .3 Allow 14 days for Engineer's review of each submission.
- .4 Adjustments made on shop drawings by Engineer are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to DFO Departmental Representative prior to proceeding with Work.
- .5 Make changes in shop drawings as Engineer may require, consistent with Contract Documents. When resubmitting, notify Engineer in writing of revisions other than those requested.
- .6 Accompany submissions with transmittal letter, containing:
  - .1 Date.
  - .2 Project title and number.
  - .3 Contractor's name and address.
  - .4 Identification and quantity of each shop drawing, product data and sample.
  - .5 Other pertinent data.
- .7 Submissions include:
  - .1 Date and revision dates.
  - .2 Project title and number.
  - .3 Name and address of:
    - .1 Subcontractor.
    - .2 Supplier.
    - .3 Manufacturer.
  - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
  - .5 Details of appropriate portions of Work as applicable:
    - .1 Fabrication.
    - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
    - .3 Setting or erection details.
    - .4 Capacities.
    - .5 Performance characteristics.
    - .6 Standards.
    - .7 Operating weight.
    - .8 Wiring diagrams.
    - .9 Single line and schematic diagrams.
    - .10 Relationship to adjacent work.
- .8 After Engineer's review, distribute copies as required by the Contract.
- .9 Submit electronic copy of shop drawings for each requirement requested in specification Sections and as Engineer may reasonably request.

- .10 Submit electronic copy of product data sheets, brochures, or other information for requirements requested in specification Sections and as requested by Engineer where shop drawings will not be prepared due to standardized manufacture of product.
- .11 Submit electronic copies of test reports for requirements requested in specification Sections and as requested by Engineer.
  - .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
  - .2 Testing must have been within 3 years of date of contract award for project (for standard manufacture products), and must be current dated (for project-specific materials).
- .12 Submit electronic copies of certificates for requirements requested in specification Sections and as requested by Engineer.
  - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
  - .2 Certificates must be dated after award of project contract complete with project name.
- .13 Submit electronic copies of manufacturers' instructions for requirements requested in specification Sections and as requested by Engineer.
  - .1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.
- .14 Submit electronic copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Engineer.
  - .1 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .15 Submit electronic copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Engineer.
- .16 Delete information not applicable to project.
- .17 Supplement standard information to provide details applicable to project.
- .18 If upon review by Engineer, no errors or omissions are discovered or if only minor corrections are made, marked-up copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

#### **1.4 SAMPLES**

- .1 Submit for review samples as requested in respective specification Sections. Label samples with origin and intended use.

- .2 Deliver samples prepaid to DFO Departmental Representative's site office.
- .3 Notify DFO Departmental Representative in writing, at time of submission of deviations in samples from requirements of Contract Documents.
- .4 Where colour, pattern or texture is criterion, submit full range of samples.
- .5 Adjustments made on samples by DFO Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to DFO Departmental Representative prior to proceeding with Work.
- .6 Make changes in samples which DFO Departmental Representative may require, consistent with Contract Documents.
- .7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

## **1.5 PROGRESS PHOTOGRAPHS**

- .1 Submit progress photographs in accordance with Section 01 32 33 - Construction Photographs.

## **1.6 CERTIFICATES AND TRANSCRIPTS**

- .1 Immediately after award of Contract, submit Workers' Compensation Board status.
- .2 Copy of Contractors' Site Safety Program including all relevant WHMIS documentation.
- .3 Submit transcription of insurance immediately after award of Contract.

## **Part 2 Products**

### **2.1 SUBMITTALS**

- .1 Submit the following to the engineer in a timely manner, allowing a minimum of 14 days for review. In general the submittals noted in item 2.1.2 and 2.1.3 below are required, and the engineer must have responded with a formal review for any particular item, before those materials can be ordered.
- .2 Shop Drawings are required for the following:
  - .1 Refer to Drawing No: 1818-E3 for items requiring shop drawings
- .3 Other information (product data sheets, mill certs, manufacturers information etc.) are required for the following:
  - .1 Transformers.

**END OF SECTION**

**Part 1           General**

**1.1               REFERENCES**

- .1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .3 Province of British Columbia
  - .1 Workers Compensation Act, RSBC 1996 - Updated 2006.
  - .2 Occupational Health and Safety Regulation.
- .4 National Building Code of Canada (NBC)
  - .1 Part 8, Safety Measures at Construction and Demolition Sites.

**1.2               WORKERS COMPENSATION BOARD COVERAGE**

- .1 Comply fully with Workers' Compensation Act, regulations, and orders made pursuant thereto and any amendments up to the completion of work
- .2 Maintain Workers' Compensation Board coverage during term of Contract, until and including date that Certificate of Final Completion is issued.

**1.3               COMPLIANCE WITH REGULATIONS**

- .1 DFO may terminate Contract without liability to Canada where Contractor, in the opinion of DFO, refuses to comply with a requirement of Workers' Compensation Act or Occupational Health and Safety Regulations.
- .2 Contractor is responsible to ensure that all workers are qualified, competent and certified to perform work as required by Workers' Compensation Act or Occupational Health and Safety Regulations.

**1.4               SUBMITTALS**

- .1 Submit to Department Representative submittals listed for review.
- .2 Work effected by submittal will not proceed until review is completed.
- .3 Submit the following:
  - .1 Health and Safety Plan.
  - .2 Copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.
  - .3 Copies of incident and accident reports.
  - .4 Copies of Material Safety Data Sheets and all other documents required by Workplace Hazardous Materials Information System (WHMIS) requirements.
  - .5 Emergency procedures

- .4 Submission of Health and Safety Plan and any revised version to the Departmental Representative is for information and reference purpose only. It will not:
  - .1 Be construed to imply as approval by Department Representative
  - .2 Be interpreted as warranty of being complete, accurate, and compliant.
  - .3 Relieve the Contractor of his legal obligations for provision of health and safety for the project.
- .5 Medical Surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Departmental Representative.

#### **1.5 WORK PERMITS**

- .1 Obtain speciality permit(s) related to the project before start of work

#### **1.6 FILING OF NOTICE**

- .1 Complete and submit Notice of Project as required by Provincial authorities.
- .2 Provide copies of all notices to Department Representative.

#### **1.7 SAFETY ASSESSMENT**

- .1 Perform site specific safety hazard assessment related to project.

#### **1.8 MEETINGS**

- .1 Schedule and administer Health and Safety meeting with Departmental Representative prior to commencement of Work.

#### **1.9 GENERAL REQUIREMENTS**

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

#### **1.10 GENERAL CONDITIONS**

- .1 Provide safety barricades and lights at work site as required to provide safe working environment for workers
- .2 Ensure that non-authorized persons are not allowed in designated construction areas and work site.
  - .1 Provide appropriate means by use of barricades, fences, and warning signs.



### **1.11 REGULATORY REQUIREMENTS**

- .1 Comply with specified codes, acts, bylaws, standards, and regulations to ensure safe operations at site.
- .2 In the event of conflict between any provision of above authorities, the most stringent provision will apply.

### **1.12 RESPONSIBILITY**

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

### **1.13 UNFORSEEN HAZARDS**

- .1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations having jurisdiction and advise Departmental Representative verbally and in writing.

### **1.14 HEALTH AND SAFETY CO-ORDINATOR**

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

### **1.15 HAZARDOUS PRODUCTS**

- .1 Comply with the requirements of Workplace hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials and regarding labelling and provision of Material Safety Data Sheets (MSDS) acceptable to Departmental Representative and in accordance with Canada Labour Code.

### **1.16 POSTING OF DOCUMENTS**

- .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations having jurisdiction, and in consultation with Departmental Representative.

**1.17 CORRECTION OF NON-COMPLIANCE**

- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.
- .2 Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 Departmental Representative may stop Work if non-compliance of health and safety regulations is not corrected. The Contractor will be responsible for costs arising from such "stop work order".

**1.18 CONFINED SPACES**

- .1 Carry out work in confined spaces in compliance with Provincial regulations.

**1.19 OVERLOADING**

- .1 Ensure no part of the work is subject to a load which will endanger its safety or will cause permanent deformation

**1.20 SCAFFOLDING**

- .1 Design, construct, and maintain scaffolding in a rigid, secure, and safe manner, in accordance with CSA Z797 and BC Occupational Health and Safety Regulations.

**1.21 FIRE SAFETY REQUIREMENTS**

- .1 Store oily/paint soaked rags, waste products, and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis
- .2 Handle, store, use and dispose of inflammable and combustible materials in accordance with the National Fire Code of Canada.

**1.22 FIRE PROTECTION**

- .1 Do not use fire hydrants, standpipes, and hose systems for purposes other than firefighting
- .2 Be responsible/liable for cost incurred from fire department, building owner, and tenants, resulting from false alarms

**1.23 WORK STOPPAGE**

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

**END OF SECTION**

**Part 1            General**

**1.1                RELATED SECTIONS**

N/A

**1.2                REFERENCES**

- .1 Canadian Environmental Protection Act, 1999 (CEPA 1999).
  - .1 Export and Import of Hazardous Waste Regulations (SOR/2002-300).
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .3 National Fire Code of Canada [2005].
- .4 Transportation of Dangerous Goods Act (TDG Act) [1999], (c. 34).
- .5 Transportation of Dangerous Goods Regulations (T-19.01-SOR/2003-400).

**1.3                DEFINITIONS**

- .1 Dangerous Goods: product, substance, or organism that is specifically listed or meets hazard criteria established in Transportation of Dangerous Goods Regulations.
- .2 Hazardous Material: product, substance, or organism that is used for its original purpose; and that is either dangerous goods or a material that may cause adverse impact to environment or adversely affect health of persons, animals, or plant life when released into the environment.
- .3 Hazardous Waste: any hazardous material that is no longer used for its original purpose and that is intended for recycling, treatment or disposal.
- .4 Workplace Hazardous Materials Information System (WHMIS): Canada-wide system designed to give employers and workers information about hazardous materials used in workplace. Under WHMIS, information on hazardous materials is provided on container labels, material safety data sheets (MSDS), and worker education programs. WHMIS is put into effect by combination of federal and provincial laws.

**1.4                SUBMITTALS**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.
    - .1 Submit to Departmental Representative current Material Safety Data Sheet (MSDS) for each hazardous material required prior to bringing hazardous material on site.
    - .2 Submit hazardous materials management plan to Departmental Representative that identifies hazardous materials, their use, their

location, personal protective equipment requirements, and disposal arrangements.

## **1.5 DELIVERY, STORAGE, AND HANDLING**

- .1 Co-ordinate storage of hazardous materials with Departmental Representative and abide by internal requirements for labelling and storage of materials and wastes.
- .2 Store and handle hazardous materials and wastes in accordance with applicable federal and provincial laws, regulations, codes, and guidelines.
- .3 Store and handle flammable and combustible materials in accordance with current National Fire Code of Canada requirements.
- .4 Keep no more than 45 litres of flammable and combustible liquids such as gasoline, kerosene and naphtha for ready use.
  - .1 Store flammable and combustible liquids in approved safety cans bearing the Underwriters' Laboratory of Canada or Factory Mutual seal of approval.
  - .2 Storage of quantities of flammable and combustible liquids exceeding 45 litres for work purposes requires the written approval of the Departmental Representative.
- .5 Transfer of flammable and combustible liquids is prohibited within buildings.
- .6 Do not transfer of flammable and combustible liquids in vicinity of open flames or heat-producing devices.
- .7 Do not use flammable liquids having flash point below 38 degrees C, such as naphtha or gasoline as solvents or cleaning agents.
- .8 Store flammable and combustible waste liquids for disposal in approved containers located in safe, ventilated area. Keep quantities to minimum.
- .9 Observe smoking regulations, smoking is prohibited in areas where hazardous materials are stored, used, or handled.
- .10 Storage requirements for quantities of hazardous materials and wastes in excess of 5 kg for solids, and 5 litres for liquids:
  - .1 Store hazardous materials and wastes in closed and sealed containers.
  - .2 Label containers of hazardous materials and wastes in accordance with WHMIS.
  - .3 Store hazardous materials and wastes in containers compatible with that material or waste.
  - .4 Segregate incompatible materials and wastes.
  - .5 Ensure that different hazardous materials or hazardous wastes are not mixed.
  - .6 Store hazardous materials and wastes in secure storage area with controlled access.
  - .7 Maintain clear egress from storage area.
  - .8 Store hazardous materials and wastes in location that will prevent them from spilling into environment.
  - .9 Have appropriate emergency spill response equipment available near storage area, including personal protective equipment.

- .10 Maintain inventory of hazardous materials and wastes, including product name, quantity, and date when storage began.
- .11 Ensure personnel have been trained in accordance with Workplace Hazardous Materials Information System (WHMIS) requirements.
- .12 Report spills or accidents immediately to Departmental Representative. Submit a written spill report to Departmental Representative within 24 hours of incident.

## **1.6 TRANSPORTATION**

- .1 Transport hazardous materials and wastes in accordance with federal Transportation of Dangerous Goods Act, Transportation of Dangerous Goods Regulations, and applicable provincial regulations.
- .2 If exporting hazardous waste to another country, ensure compliance with federal Export and Import of Hazardous Waste Regulations.
- .3 If hazardous waste is generated on site:
  - .1 Co-ordinate transportation and disposal with Departmental Representative.
  - .2 Ensure compliance with applicable federal, provincial and municipal laws and regulations for generators of hazardous waste.
  - .3 Use licensed carrier authorized by provincial authorities to accept subject material.
  - .4 Prior to shipping material obtain written notice from intended hazardous waste treatment or disposal facility that it will accept material and that it is licensed to accept this material.
  - .5 Label container(s) with legible, visible safety marks as prescribed by federal and provincial regulations.
  - .6 Ensure that trained personnel handle, offer for transport, or transport dangerous goods.
  - .7 Provide photocopy of shipping documents and waste manifests to Departmental Representative.
  - .8 Track receipt of completed manifest from consignee after shipping dangerous goods. Provide a photocopy of completed manifest to Departmental Representative.
  - .9 Report discharge, emission, or escape of hazardous materials immediately to Departmental Representative and appropriate provincial authority. Take reasonable measures to control release.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Only bring on site quantity of hazardous materials required to perform work.
- .2 Maintain MSDS in proximity to where materials are being used. Communicate this location to personnel who may have contact with hazardous materials.

**Part 3 Execution**

**3.1 DISPOSAL**

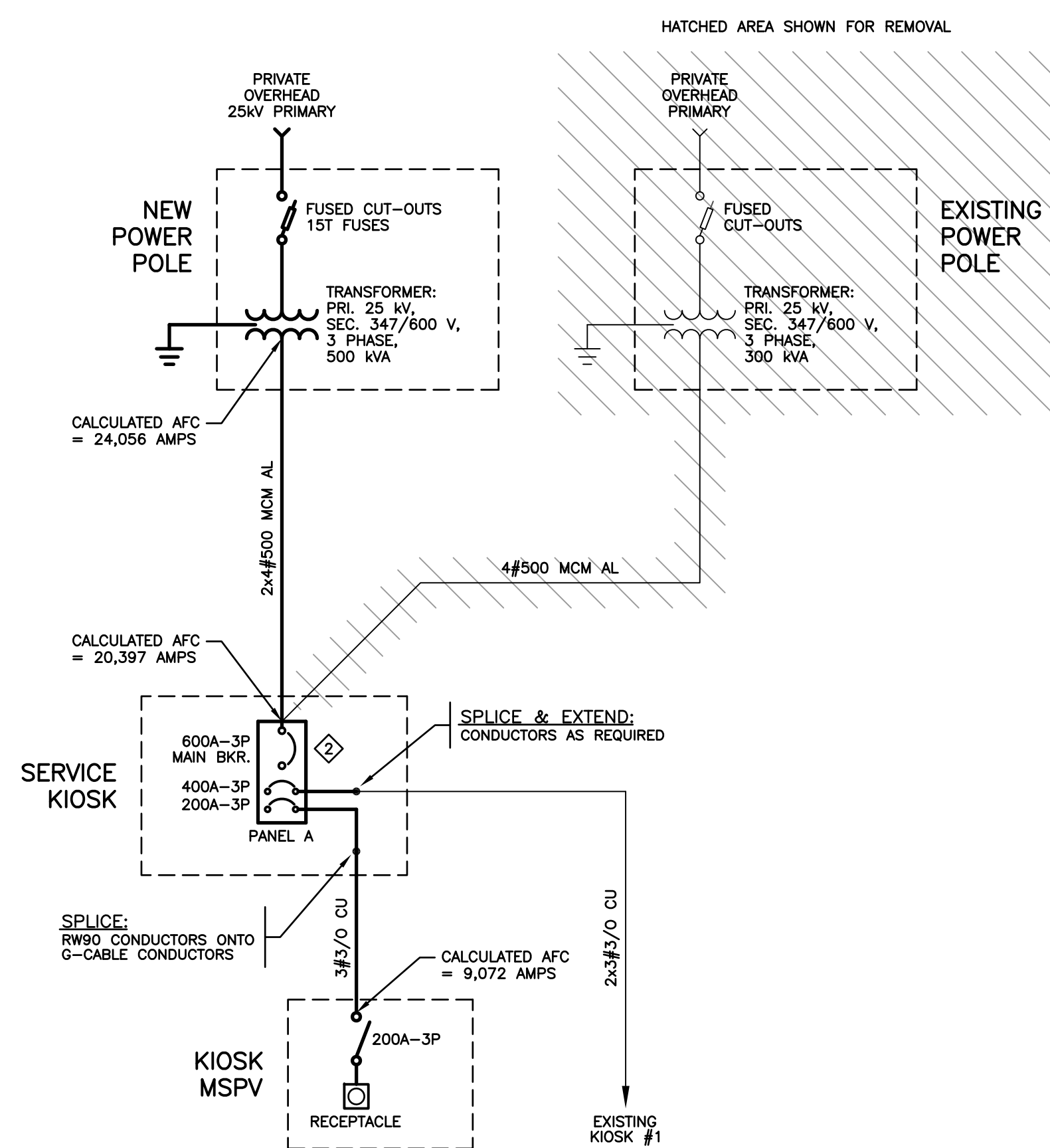
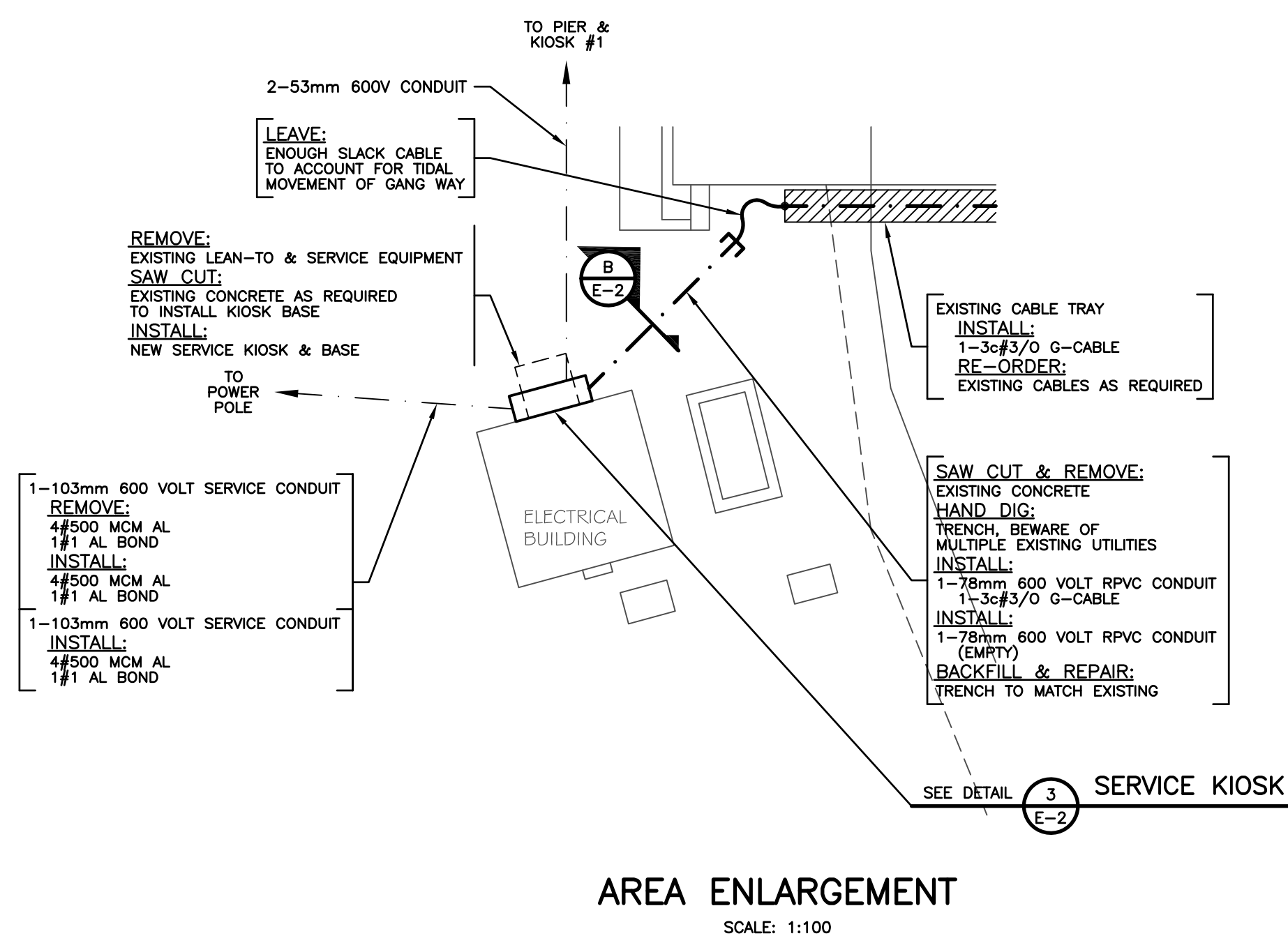
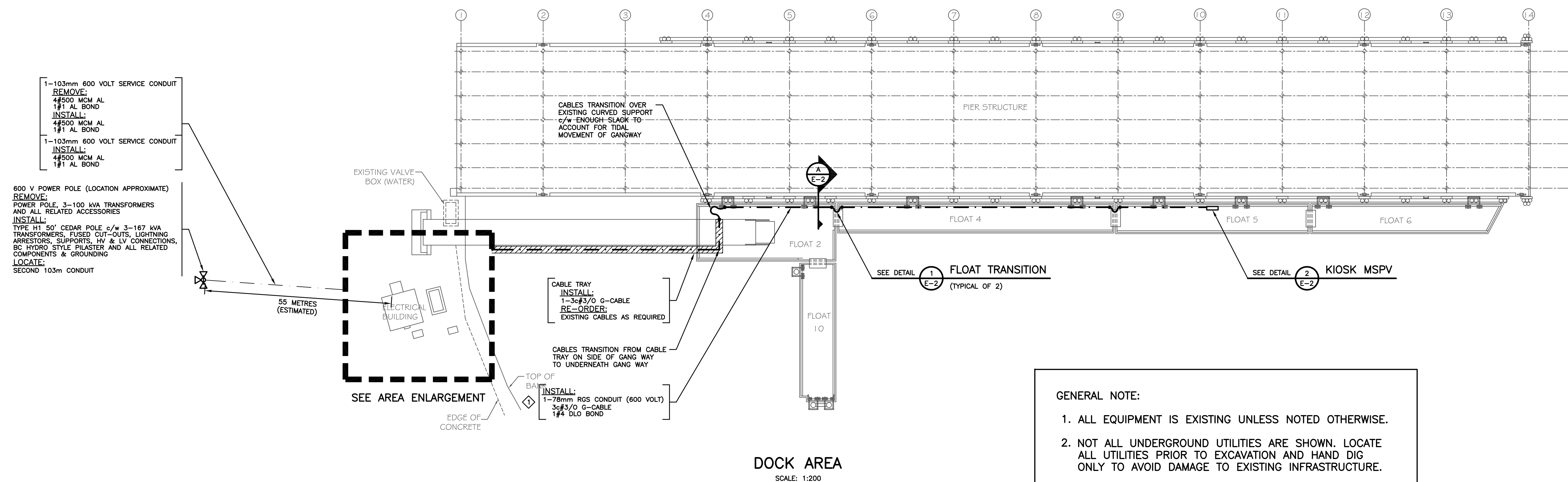
- .1 Dispose of hazardous waste materials in accordance with applicable federal and provincial acts, regulations, and guidelines.
- .2 Recycle hazardous wastes for which there is approved, cost effective recycling process available.
- .3 Send hazardous wastes to authorized hazardous waste disposal or treatment facilities.
- .4 Burning, diluting, or mixing hazardous wastes for purpose of disposal is prohibited.
- .5 Disposal of hazardous materials in waterways, storm or sanitary sewers, or in municipal solid waste landfills is prohibited.
- .6 Dispose of hazardous wastes in timely fashion in accordance with applicable provincial regulations.
- .7 Minimize generation of hazardous waste to maximum extent practicable. Take necessary precautions to avoid mixing clean and contaminated wastes.
- .8 Identify and evaluate recycling and reclamation options as alternatives to land disposal, such as:
  - .1 Hazardous wastes recycled in manner constituting disposal.
  - .2 Hazardous waste burned for energy recovery.
  - .3 Lead-acid battery recycling.
  - .4 Hazardous wastes with economically recoverable precious metals.

**END OF SECTION**

**APPENDIX A**  
**DRAWINGS**

**KEY NOTES:**

- ◇ INSTALL BUSHINGS AND ADAPTORS FOR CONDUIT TRANSITIONS AS REQUIRED.
- ◇ BREAKER SHALL INCLUDE GROUND FAULT PROTECTION.



NO.	DATE	COMMENT
2	MAR 18 2014	ISSUED FOR TENDER
1	MAR 06 2014	ISSUED FOR REVIEW

**REVISION**

**RB ENGINEERING LTD**  
ELECTRICAL CONSULTING ENGINEERS  
#4 4488 WELLINGTON ROAD TEL: 250-756-4444  
NANAIMO, BC, V9T 2H3 FAX: 250-756-4228

CLIENT



PROJECT  
**SEAL COVE MARINE WORKS PRINCE RUPERT, B.C.**

TITLE  
**ELECTRICAL LAYOUT**

SCALE AS SHOWN DATE JANUARY, 2014

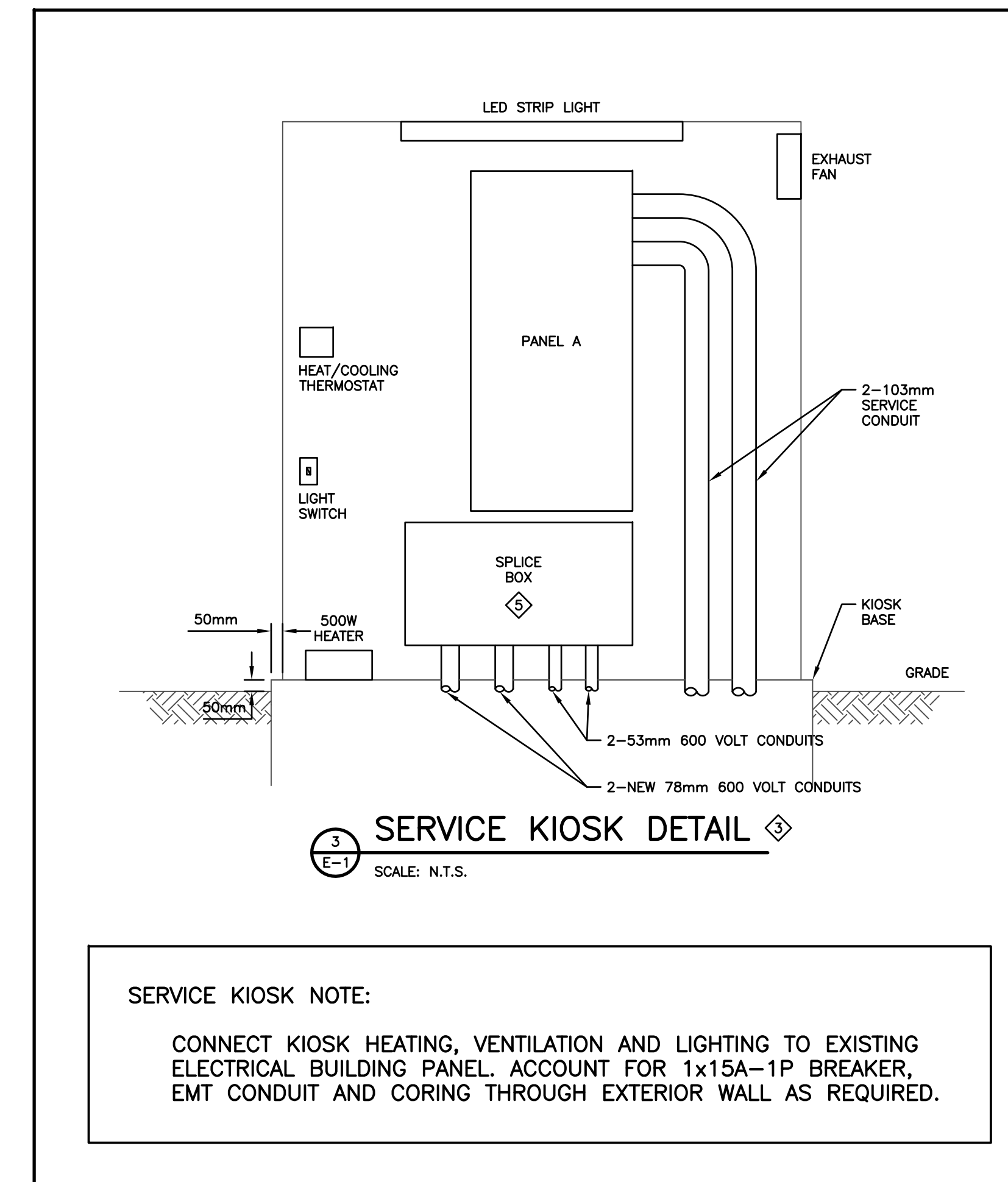
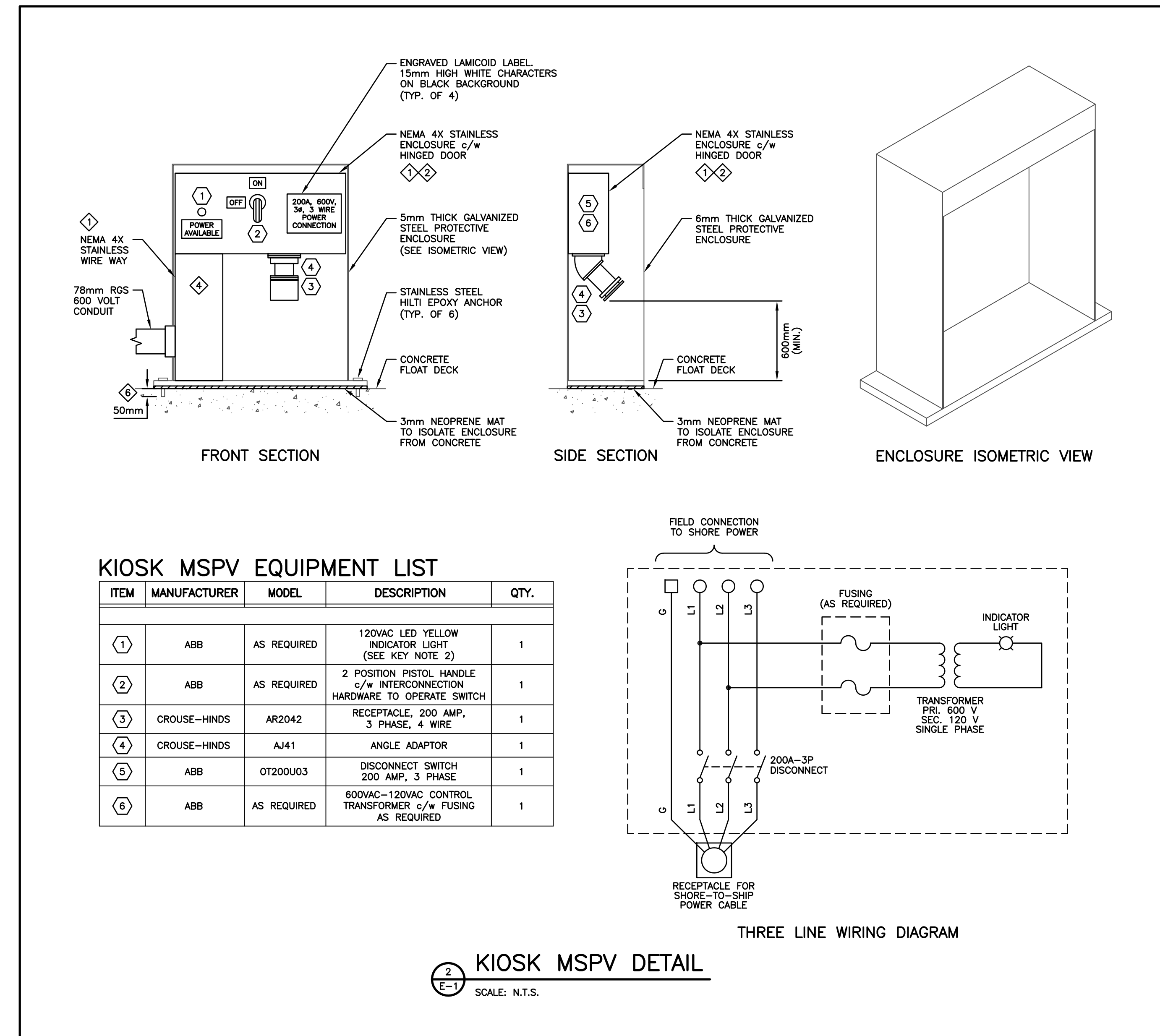
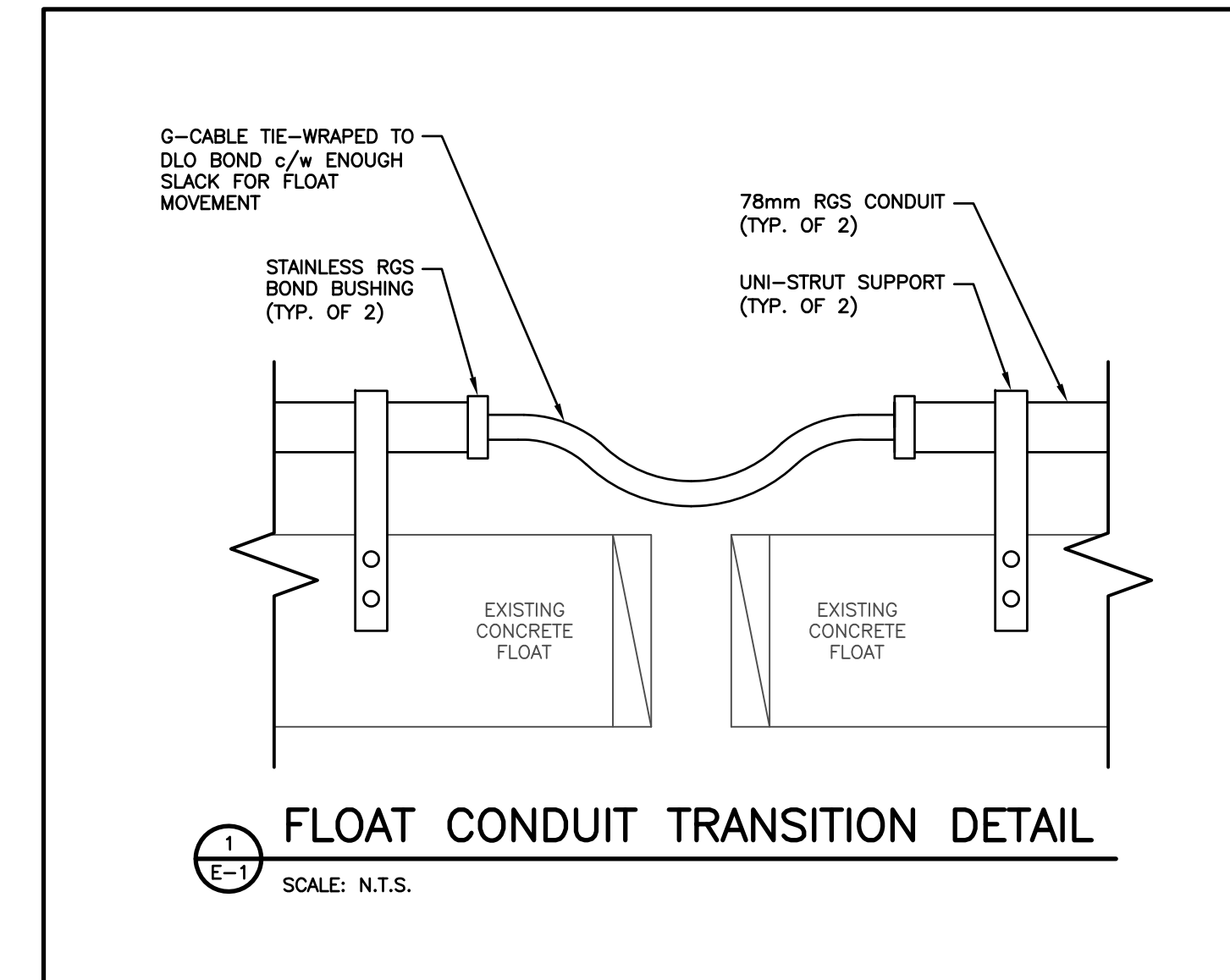
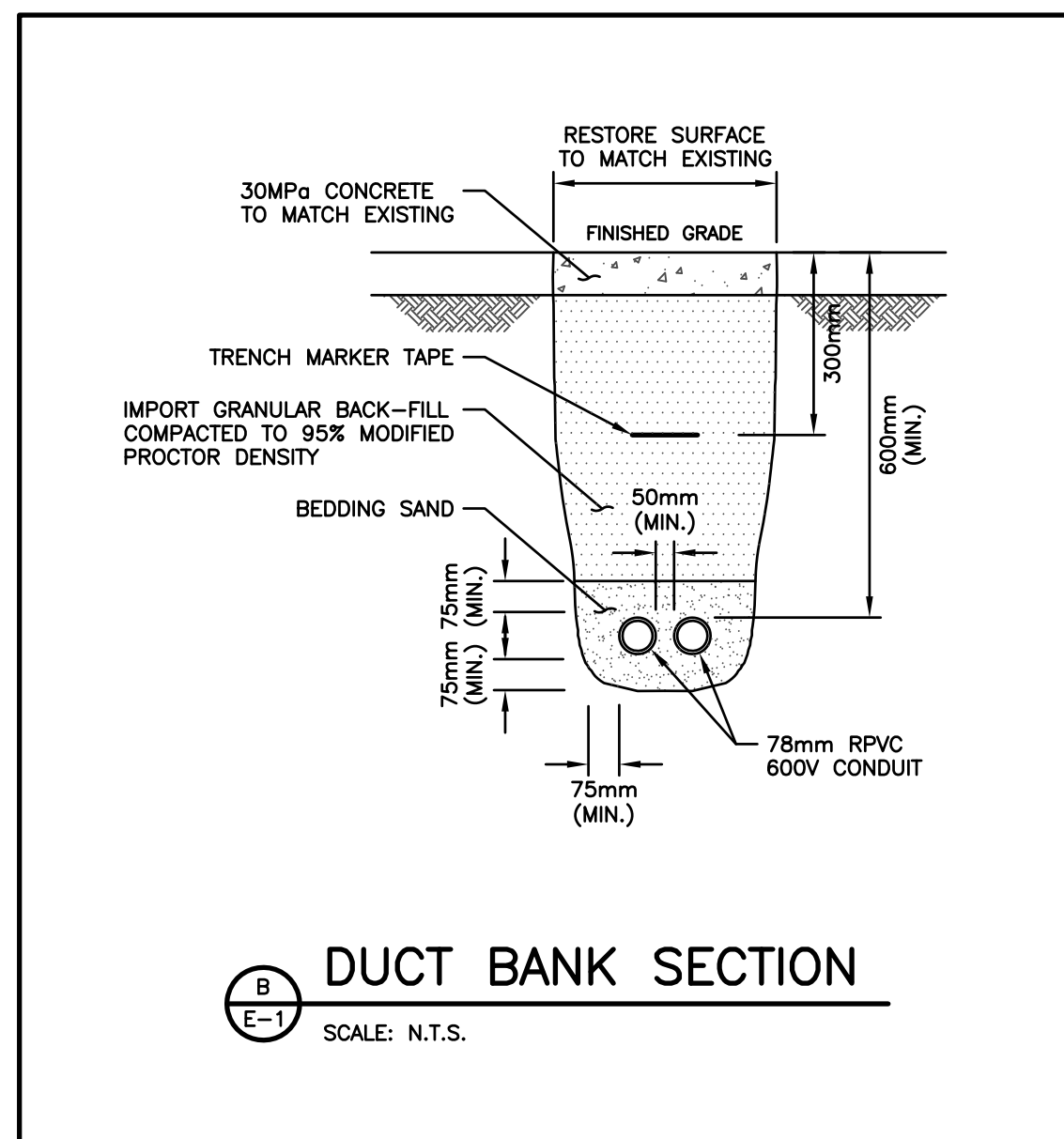
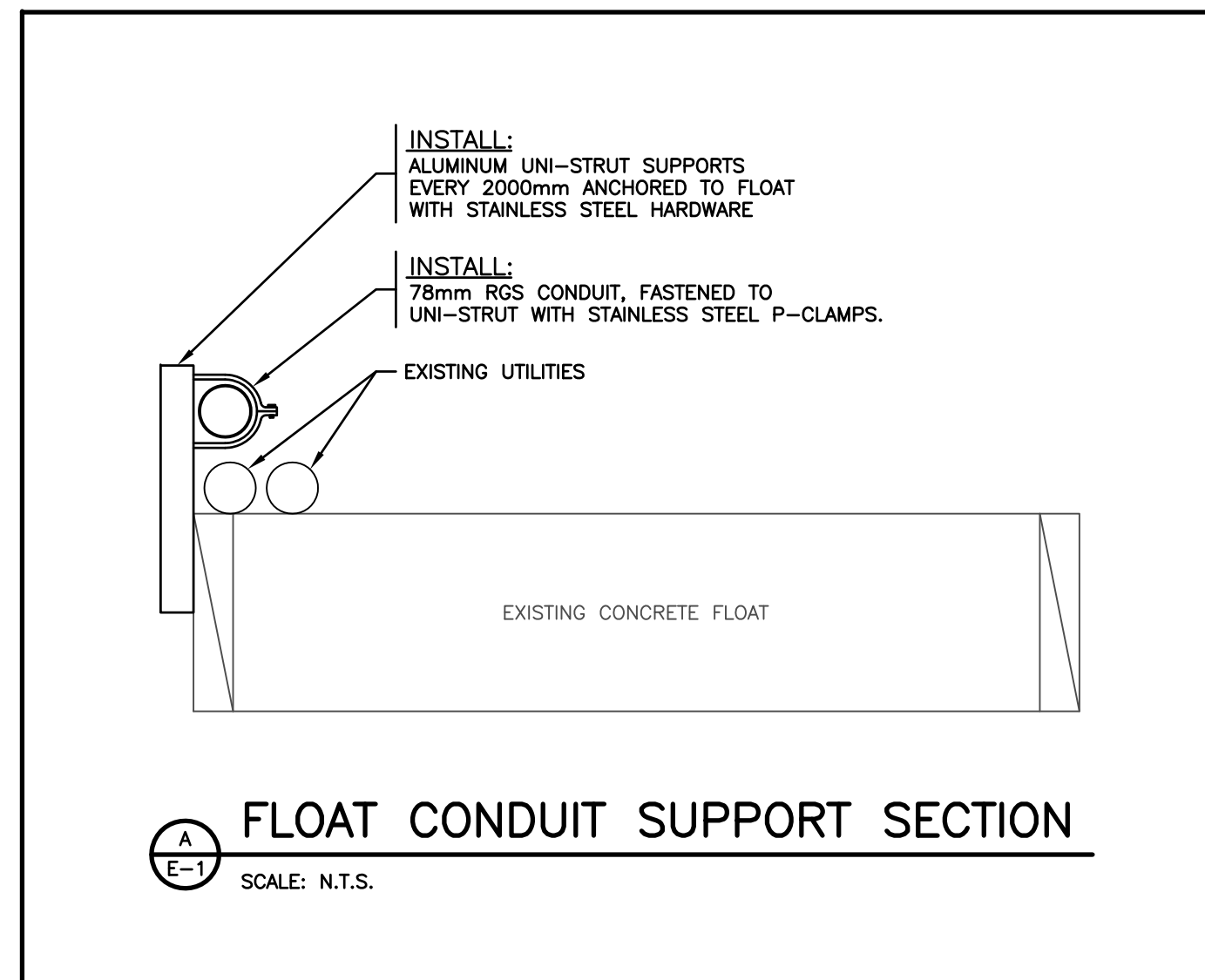
DRAWN AT SEAL  
DESIGNED DM  
CHECKED LB

PROJECT NO. 14-1818

DRAWING NO.

**E-1**





**KEY NOTES:**

- ① ENCLOSURE SHALL BE CSA CERTIFIED AS A COMPLETE ASSEMBLY FOR ELECTRICAL USE. SIZE AS REQUIRED TO SUIT EQUIPMENT.
- ② INCLUDE ALL WIRING AND DEVICES AS PER THREE LINE DRAWING.
- ③ CONTRACTOR TO FIELD MEASURE EXISTING INCOMING AND OUTGOING CONDUIT LOCATIONS TO FINALISE KIOSK LAYOUT. CONTRACTOR TO SPLICE EXISTING CABLES AS REQUIRED.
- ④ BOND ENTIRE RGS CONDUIT SYSTEM BY SPLICING TO G-CABLE BOND CONDUCTOR AT THIS POINT.
- ⑤ SPLICE AND EXTEND FEEDERS TO NEW PANEL WITH RW90 CONDUCTORS.
- ⑥ ANCHOR HOLE SHALL NOT PENETRATE FURTHER THAN 50mm INTO DECK SURFACE.

NO.	DATE	COMMENT
2	MAR 18 2014	ISSUED FOR TENDER
1	MAR 06 2014	ISSUED FOR REVIEW

REVISION

**RB ENGINEERING LTD**  
ELECTRICAL CONSULTING ENGINEERS  
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CLIENT

Fisheries and Oceans Canada

PROJECT

**SEAL COVE MARINE WORKS PRINCE RUPERT, B.C.**

TITLE

**ELECTRICAL DETAILS**

SCALE AS SHOWN DATE JANUARY, 2014

DRAWN AT	SEAL
DESIGNED DM	
CHECKED LB	

PROJECT NO. 14-1818

DRAWING NO.

**E-2**

VOLTS	347/600 V	PANEL LOCATION MOUNTING	A SERVICE KIOSK SURFACE	MAIN BREAKER MIN. BUS AMPACITY	600 A 600 A							
PHASE	3ø											
DESCRIPTION	WATTAGE			CIRC	C	CIRC	BKR	WATTAGE			DESCRIPTION	
	#A	#B	#C					#A	#B	#C		
KIOSK #1	111040			100	1		2	100	55520			KIOSK MSPV
		111040			3		4			55520		
			111040	3P	5		6	3P			55520	
					7		8					
					9		10					
					11		12					
					13		14					
					15		16					
					17		18					
					19		20					
					21		22					
					23		24					
					25		26					
					27		28					
					29		30					
					31		32					
					33		34					
					35		36					
TOTAL A	166,560 VA											
TOTAL B	166,560 VA											
TOTAL C	166,560 VA											
TOTAL LOAD	499,680 VA	481 AMPS										

## SPECIFICATIONS

### REFERENCE STANDARDS

- MATERIAL SHALL CARRY CSA APPROVAL AND CONFORM WITH EEMAC STANDARDS.
- EQUIPMENT WIRING AND WIRING DEVICES SHALL MEET THE REQUIREMENTS OF THE CURRENT EDITION OF THE CANADIAN ELECTRICAL CODE 22.1, PART 1.
- ALL CIVIL WORK TO CONFORM TO MMCD PLATINUM.
- ALL OVERHEAD SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH CSA C22.3 No. 1-10 OVERHEAD SYSTEMS.

### GENERAL REQUIREMENTS

- THE ELECTRICAL CONTRACTOR SHALL SUPPLY ALL LABOUR, MATERIALS, TOOLS, EQUIPMENT, TRANSPORTATION REQUIRED FOR THE COMPLETE INSTALLATION, WIRING AND TESTING OF THE SYSTEM SHOWN ON THE DRAWINGS AND DESCRIBED HEREIN & IS RESPONSIBLE TO REVIEW ARCHITECTURAL, MECHANICAL, STRUCTURAL DRAWINGS FOR DISCREPANCIES AND REPORT TO THE ENGINEER.
- THE ELECTRICAL DRAWINGS INDICATE THE GENERAL LOCATION AND ROUTE. CONDUIT AND/OR WIRING SHALL BE INSTALLED TO PROVIDE A COMPLETE OPERATING SYSTEM AND SHALL BE INSTALLED PHYSICALLY TO CONSERVE HEADROOM, FURRING SPACES ETC.
- THE WORK TO BE DONE IS DESCRIBED IN THE DRAWINGS.
- THE DRAWINGS AND SPECIFICATIONS COMPLEMENT EACH OTHER AND WHAT IS CALLED FOR BY ONE IS BINDING AS IF CALLED FOR BY BOTH. IF THERE IS ANY DOUBT AS TO THE MEANING OR TRUE INTENT DUE TO A DISCREPANCY BETWEEN THE DRAWINGS AND SPECIFICATIONS, OBTAIN RULING FROM ENGINEER PRIOR TO TENDER CLOSING. FAILING THIS, ALLOW FOR THE MOST EXPENSIVE ALTERNATIVE.
- ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW ALL CONDUIT, WIRE, CABLE, ETC., THE ELECTRICAL CONTRACTOR IS TO PROVIDE CONDUIT, WIRE, CABLE, ETC. FOR A COMPLETE OPERATING JOB TO MEET IN ALL RESPECTS THE INTENT OF THE DRAWINGS AND SPECIFICATIONS. ELECTRICAL DRAWINGS DO NOT SHOW ALL ARCHITECTURAL, STRUCTURAL AND MECHANICAL DETAILS.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE AS TO WHICH TRADE PROVIDES SPECIFIC LABOUR AND MATERIALS. EXTRAS WILL NOT BE CONSIDERED BASED ON DIFFERENCES IN INTERPRETATION AS TO WHICH TRADE IS TO PROVIDE CERTAIN ITEMS.

### SHOP DRAWINGS

- PRIOR TO ORDERING OF ANY EQUIPMENT, THIS CONTRACTOR SHALL SUBMIT DIGITAL COPIES OF SHOP DRAWINGS AND DETAIL DRAWINGS FOR REVIEW BY THE ENGINEER. THE ENGINEER SHALL THEN RETURN COPIES OF THE REVIEWED SHOP DRAWINGS TO THE CONTRACTOR. SHOP DRAWINGS SHALL BE SUBMITTED ON ALL MAJOR EQUIPMENT.
- ALL SHOP DRAWINGS SUBMITTED TO THE ENGINEER MUST BEAR THE CONTRACTOR'S APPROVALS.
- ALL SHOP DRAWINGS SHALL BEAR THE NAME OF THE MANUFACTURER AND/OR MANUFACTURER'S REPRESENTATIVE.
- SUBMIT SHOP DRAWINGS FOR AT LEAST THE FOLLOWING ITEMS:
  - ALL DISTRIBUTION PANEL BOARDS, DISCONNECT SWITCHES, CIRCUIT BREAKERS, INSTRUMENT TRANSFORMERS AND RELAYS, ETC.
  - SERVICE KIOSK FABRICATION AND LAYOUT DRAWINGS.
  - KIOSK MSPV FABRICATION AND LAYOUT DRAWINGS.

### MAINTENANCE AND OPERATION MANUAL

- CONTRACTOR TO SUBMIT ONE COPY OF MAINTENANCE AND OPERATION MANUALS IN THREE RING BINDER TO ENGINEER FOR APPROVAL AT TIME OF SUBSTANTIAL COMPLETION.
- MANUALS TO INCLUDE THE FOLLOWING:
  - PROJECT CONTACT INFORMATION
  - APPROVED SHOP DRAWINGS
  - WARRANTIES AND GUARANTEES
  - TEST RESULTS
  - AS BUILT DRAWINGS
- ON APPROVAL CONTRACTOR TO PROVIDE THREE COPIES OF THE MAINTENANCE AND OPERATION MANUALS IN THREE RING BINDERS c/w CD OF ALL DOCUMENTS IN PDF FORMAT.

### PERMITS, CERTIFICATES, AND FEES

- ON COMPLETION OF THE WORK, SUBMIT CERTIFICATE OF ACCEPTANCE FROM INSPECTION AUTHORITY TO THE ENGINEER.
- PRIOR TO COMMENCEMENT OF WORK, SUBMIT THE NECESSARY DRAWINGS TO THE ELECTRICAL INSPECTION DEPARTMENT AND THE ELECTRICAL SUPPLY AUTHORITY.
- PAY ALL ASSOCIATED FEES, AND OBTAIN DOCUMENTS POSTING AS REQUIRED.

### ALTERNATIVES

- ALL MATERIALS OR EQUIPMENT AS CALLED FOR ON THE DRAWINGS AND IN THE SPECIFICATIONS BY TRADE NAMES OR BY CATALOGUE REFERENCE NUMBERS, ARE THE MATERIALS ON WHICH THIS TENDER IS TO BE BASED. ALL EQUIPMENT MUST BE INSTALLED AS SHOWN ON THE DRAWINGS OR IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. THE REQUEST FOR APPROVAL SHALL BE ACCOMPANIED BY COMPLETE SPECIFICATIONS OF PROPOSED SUBSTITUTION, SHOWING DIMENSIONS, RATINGS, PHOTOMETRIC DATA, ETC. IT SHALL BE THIS SUB-CONTRACTOR'S RESPONSIBILITY TO MAKE AND ALLOW FOR ANY CHANGES AND CHARGES WHICH WILL OCCUR IF HE WISHES TO SUBMIT ALTERNATIVE EQUIPMENT. NO SUBSTITUTION BY THIS CONTRACTOR WILL BE PERMITTED AFTER CLOSING OF THE TENDERS.
- THE ENGINEER RESERVES THE RIGHT TO ACCEPT OR REJECT ANY ALTERNATIVES PROPOSED.

### GUARANTEE

- AFTER THE WORK IS COMPLETED BUT BEFORE FINAL PAYMENT, FURNISH TO THE OWNER A WRITTEN GUARANTEE THAT FOR ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION, ANY DEFECTS IN MATERIALS OR WORKMANSHIP WILL BE CORRECTED AT NO COST TO THE OWNER, EXCEPT WHERE, IN THE OPINION OF THE ENGINEER, SUCH DEFECTS ARE DUE TO MIS-USE OR NEGLIGENCE BY THE OWNER.

### MINOR FIELD CHANGES

- THE LOCATION, ARRANGEMENT AND CONNECTION OF EQUIPMENT AND MATERIAL AS SHOWN ON THE DRAWINGS REPRESENTS A CLOSE APPROXIMATION OF THE INTENT AND REQUIREMENTS OF THE CONTRACT. THE RIGHT IS RESERVED BY THE ENGINEERS TO MAKE REASONABLE CHANGES REQUIRED TO ACCOMMODATE CONDITIONS ARISING DURING THE PROGRESS OF THE WORK. SUCH CHANGES SHALL BE DONE AT NO EXTRA COST TO THE OWNER, UNLESS THE LOCATION, ARRANGEMENT OR CONNECTION IS MORE THAN TEN FEET FROM THAT SHOWN AND THE ITEM IN QUESTION HAS BEEN INSTALLED. CONFIRM FINAL LOCATION PRIOR TO INSTALLATION.

### CONDUIT

- INSTALL CONDUIT CONCEALED IN ALL AREAS EXCLUDING MECHANICAL AND ELECTRICAL ROOMS, OR WHERE SPECIFICALLY NOTED AS BEING EXPOSED. RUN PARALLEL OR PERPENDICULAR TO BUILDING LINES.
- INSTALL AND ATTACH SURFACE MOUNTED CONDUIT WITH TWO HOLE GALVANIZED STEEL STRAPS. GROUP CONDUITS WHEREVER POSSIBLE ON CHANNELS.
- DUCTS USED BELOW GRADE AND NOT UNDER A FLOOR SLAB SHALL BE RIGID P.V.C. CONDUIT INSTALLATION SHALL CONFORM TO THE CURRENT EDITION OF THE CANADIAN ELECTRICAL CODE. WHERE A CONDUIT CROSSES A FOUNDATION WALL OR EXPANSION JOINT, SLEEVING AND APPROPRIATE FITTINGS SHALL BE PROVIDED.
- FACTORY ELBOWS FOR 90 DEGREE BENDS FOR 2" OR LARGER CONDUITS.
- DO NOT INSTALL CONDUIT LARGER THAN (1") IN POURED CONCRETE SLABS.
- WHERE 1-1/4" CONDUIT OR LARGER IS SHOWN "UNDER FLOOR", RUN UNDER SLAB ABOVE VAPOR BARRIER OR IN CEILING SPACE BELOW.
- WHERE CONDUIT IS INSTALLED IN OR PASSES THROUGH SPECIAL AREAS SUCH AS WATERPROOF OR ISOLATION SLABS, THE INSTALLATION SHALL BE TO THE SATISFACTION AND SPECIFICATIONS OF THE SLAB SUPPLIER OR GUARANTOR.
- A SEPARATE BONDING CONDUCTOR SHALL BE INSTALLED IN ALL CONDUITS.
- FISH CORD SHALL BE INSTALLED IN ALL EMPTY CONDUIT SYSTEMS. FISH CORD TO BE POLYPROPYLENE.

### WIRE AND CABLE

- GENERAL WIRE: 98% CONDUCTIVITY COPPER, 90°C RATED 600V INSULATION, RW90 X-LINK FOR DAMP LOCATIONS UNLESS OTHERWISE NOTED. COPPER CONDUCTORS SHALL BE STRANDED WHEN LARGER THAN #8 AWG OR AS NOTED.
- G-CABLE SHALL BE CUL OR CSA LISTED WITH 75° C (OR HIGHER) 2000V INSULATION. CABLE SHALL HAVE OPERATING RANGE FROM -40° C TO +90° C AND BE SUN-LIGHT AND OIL RESISTANT. CABLE TO INCLUDE BONDING CONDUCTOR IN ADDITION TO STATED CONDUCTOR COUNT.
- BRANCH CIRCUIT WIRING: THE MINIMUM SIZE OF CONDUCTORS TO BE NO. 12 AWG CU.
- LOW VOLTAGE SIGNAL WIRING SHALL BE SEPARATED FROM POWER WIRING AND RUN IN SEPARATE RACEWAYS. THIS INCLUDES PANEL WIREWAYS.
- AC90 CABLE ALLOWED IN STEEL FRAME CONSTRUCTION AND LUMINAIRE DROPS. NO SURFACE AC90 CABLE ALLOWED.
- SURFACE WIRING ALLOWED IN MECH/ELEC ROOMS ONLY.
- COLOUR CODE TO CSA C22.1 CURRENT EDITION.
- ALUMINUM CONDUCTORS CAN NOT BE USED.

### SWITCHES

- SWITCHES: QUIET, SLOW MAKE, SLOW BREAK DESIGN, TOGGLE HANDLE, WITH TOTALLY ENCLOSED CASE RATED AT 15A, 120 VAC.
- COLOUR: PROVIDE WHITE SWITCHES IN ALL FINISHED AREAS. ONE MANUFACTURER THROUGHOUT PROJECT.

### PLATES

- GALVANIZED STEEL.
- WEATHERPROOF AS NOTED.

### DISCONNECT SWITCHES

- SWITCHES: HEAVY DUTY RATED.
- PROVIDE FUSES FOR ALL DISCONNECTS AS SHOWN.

### NAME TAGS

- PROVIDE LAMICOID NAME TAG INDICATING AMPACITY, VOLTAGE AND PHASE OR INDICATED SYSTEM.
- LAMICOID TO BE 1/8" THICK PLASTIC ENGRAVING SHEET, BLACK FACE, WHITE CORE.
- LETTERS TO BE 1/4" HIGH UNLESS SPECIFIED OTHERWISE.
- ALLOW FOR AVERAGE OF 25 LETTERS PER NAMEPLATE.
- PROVIDE LAMICOID NAME TAG FOR BREAKERS METERS, DISCONNECTS, MOTOR PROTECTION SWITCHES, PANEL BOARDS ETC. NAME TAGS SHALL BE MECHANICALLY FASTENED.

### PANEL BOARDS

- PANEL BOARDS: 3 PHASE, SOLID NEUTRAL DESIGN WITH SEQUENCE STYLE BUSSING AND FULL CAPACITY NEUTRAL OF CAPACITY INDICATED.
- PROVIDE A TYPED WRITTEN DIRECTORY FOR EACH PANEL BOARD.
- BRANCH CIRCUIT BREAKERS TO BE BOLT-ON, NA RATED AT STATED AMPS SYM FAULT CURRENT AT THE OPERATING VOLTAGE, UNLESS NOTED OTHERWISE. THERMAL AND MAGNETIC TRIP. TWO AND THREE POLE BREAKERS TO HAVE A COMMON SIMULTANEOUS TRIP.
- PANELS SHALL BE FPE, S.Q.D., EATON OR SIEMENS.

### SERVICE KIOSK

- KIOSK SHALL BE DESIGNED AND BUILT TO MOTI ELECTRICAL SIGNING AND MATERIAL SPECIFICATION SECTION 402 REQUIREMENTS INCLUDING INSULATION, HEATING AND VENTILATION REQUIREMENTS.
- KIOSK DIMENSIONS ON DRAWINGS ARE APPROXIMATE ONLY. CONTRACTOR TO DETERMINE FINAL KIOSK DIMENSIONS TO LAYOUT ALL OF PROPOSED EQUIPMENT.
- KIOSK SHALL BE A DOUBLE DOOR UNIT.
- KIOSK SHALL HAVE A SWITCH TO CONTROL KIOSK LIGHTING.
- KIOSK DOOR TO INCLUDE LAMICOID LABEL WITH 15mm HIGH WHITE CHARACTERS ON RED BACKGROUND THAT READS "KIOSK FED FROM SEPARATE 120V & 600V SERVICES. DE-ENERGIZE BOTH SERVICES TO RENDER SAFE."
- KIOSK LIGHT SHALL BE LITHONIA ZL2-L242600-LP-840 LED STRIP LIGHT OR APPROVED ALTERNATE.
- KIOSK SHALL BE BUILT WITH MARINE GRADE ALUMINUM AND BE POWDER COATED GREY.
- ALL KIOSK POWER AND COMMUNICATIONS WIRING SHALL BE CONTAINED IN EMT CONDUIT.
- INSTALL KIOSK IN ACCORDANCE WITH MOTI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
- KIOSK BASE SHALL BE 600mm THICK 30 MPa CONCRETE THAT EXTENDS 50mm BEYOND PERIMETER OF KIOSK. BASE SHALL BE 50mm PROUD OF SURROUNDING GRADE. PROVIDE 25mm CHAMFER ON EXPOSED EDGES. POSITION CONDUIT AND PIPE ENTRY IN BASE TO SUIT EQUIPMENT WITHIN KIOSK.
- ALL INTERNAL CONTROL WIRING, DEVICE INSTALLATION, AND CONDUIT WORK SHALL BE COMPLETED PRIOR TO SHIPPING TO SITE.
- KIOSK MANUFACTURERS SHALL BE VALID MANUFACTURING, WEST COAST ELECTRIC OR APPROVED ALTERNATE.

### SUPPORTS AND HARDWARE

- ALL FASTENING HARDWARE SHALL BE MARINE GRADE 316 STAINLESS STEEL.
- ALL ITEMS IDENTIFIED AS STAINLESS SHALL BE MARINE GRADE 316 STAINLESS STEEL.
- ALL ITEMS IDENTIFIED AS ALUMINUM SHALL BE MARINE GRADE 6061 ALUMINUM ALLOY.
- ALL ITEMS IDENTIFIED AS GALVANIZED SHALL BE HOT DIPPED GALVANIZED. ANY FIELD CUTS OR SCRATCHES SHALL BE TREATED WITH 2 COATS OF GALVACON.

### AS BUILT DRAWINGS

- PROVIDE A CLEAN SET OF DRAWINGS AT THE JOB SITE, FOR AS BUILT MODIFICATIONS ONLY.
- MARK ALL MODIFICATIONS IN RED, IN A NEAT, LEGIBLE MANNER.
- SUBMIT AS BUILTS TO ENGINEER FOR APPROVAL.

### EQUIPMENT REMOVALS

- REMOVE CONDUIT AND WIRE FOR ASSOCIATED ELECTRICAL EQUIPMENT. POWER WIRING TO BE REMOVED BACK TO NEAREST JUNCTION BOX OR BREAKER. COMM. WIRING TO BE REMOVED BACK TO TERMINATION POINT. LIMIT THE FOREGOING SO AS NOT TO DEMOLISH WALL OR CEILINGS THAT WOULD OTHERWISE REMAIN.
- DISPOSE OF REMOVED ITEMS OFF SITE IN ACCORDANCE WITH APPLICABLE RECYCLING AND DISPOSAL GUIDELINES.
- REPAIR AFFECTED AREAS TO MATCH SURROUNDING FINISHES.

### PROJECT CLOSE OUT PROCEDURES

- PROVIDE 7 DAY NOTICE TO THE ENGINEER FOR FINAL FIELD REVIEW FOR ELECTRICAL DISCIPLINE. ELECTRICAL CONTRACTOR TO ENSURE ALL LIFE SAFETY DEVICES ARE INSTALLED AND OPERATIONAL. ELECTRICAL CONTRACTOR TO ENSURE ALL ELECTRICAL WORKS NOT INSTALLED ARE MADE SAFE.
- THE FOLLOWING DOCUMENTS TO BE FORWARDED TO THE ENGINEER PRIOR TO FINAL FIELD REVIEW:
  - MAINTENANCE MANUALS
  - FIELD SAFETY REPRESENTATIVE (FSR) DECLARATION

## KEY NOTES:

- MAIN BREAKER TO INCLUDE GROUND FAULT PROTECTION.

2	MAR 18 2014	ISSUED FOR TENDER
1	MAR 06 2014	ISSUED FOR REVIEW
NO.	DATE	COMMENT
REVISION		



### CLIENT



### PROJECT

SEAL COVE  
MARINE WORKS  
PRINCE RUPERT, B.C.

### TITLE

ELECTRICAL  
SPECIFICATIONS

SCALE	DATE
N.T.S.	JANUARY, 2014
DRAWN	SEAL
DESIGNED	AT
DM	
CHECKED	LB
LB	

### PROJECT NO.

14-1818

### DRAWING NO.

E-3

**APPENDIX B**  
**ENVIRONMENTAL**  
**REQUIREMENTS**

## Standard Mitigation Organized by Project Activity

PROJECT ACTIVITY	MITIGATION
<p><b>GENERAL</b> (to be incorporated into all activities below)</p>	<ol style="list-style-type: none"> <li>1. Ensure all personnel involved with activities are adequately trained and utilize appropriate personal protective equipment.</li> <li>2. Storage of fuels and petroleum products will comply with safe operating procedures, including containment facilities in case of a spill.</li> <li>3. Waste or any miscellaneous unused materials will be recovered for either disposal in a designated facility or placed in storage. Under no circumstances will materials be deliberately thrown into the marine or terrestrial environment.</li> <li>4. Onsite crews will have emergency spill equipment available.</li> <li>5. All activities should be completed in such a way as to minimize stress and disturbance to resident flora and fauna.</li> <li>6. Operations should only operate where entirely necessary to complete the works to reduce effects to nearby soils, vegetation, and resident species. Respect should be given to the natural environment to minimize the footprint of the project.</li> <li>7. Aesthetic effects created by activities will be short-term and localized. Sites should be kept in a tidy manner during activities and left in a good condition at the end of the project.</li> <li>8. Archaeological sites in remote locations are not likely to have been previously identified. Care should be taken to observe archaeological deposits while work is being completed. Work must be stopped if evidence shows a potential archaeological artifact or deposit.</li> </ol>
<p><b>MACHINERY OPERATION</b></p>	<ol style="list-style-type: none"> <li>1. All equipment will be maintained in proper running order to prevent leaking or spilling of potentially hazardous or toxic products. This includes hydraulic fluid, diesel, gasoline and other petroleum products.</li> <li>2. Vehicles should not be operated below the line of Highest High Water in the intertidal zone.</li> <li>3. Operations should only operate where entirely necessary to complete the works to reduce effects to nearby soils, vegetation, and resident species. Respect should be given to the natural environment to minimise the footprint of the project.</li> <li>4. Machinery must be operated efficiently, to ensure that noise and air quality issues are short-term and local.</li> </ol>
<p><b>POWER-WASHING</b></p>	<ol style="list-style-type: none"> <li>1. Activities should be completed in such a way as to minimise the amount of fines and organic debris that may enter nearby aquatic environments.</li> </ol>
<p><b>EXCAVATION/ROCK DRILLING</b></p>	<ol style="list-style-type: none"> <li>1. Rock drilling and excavation activities must be conducted conservatively so that physical changes to rock remain small and localized.</li> <li>2. Dust and fines entering the water must be avoided.</li> <li>3. Archeological sites in remote locations are not likely to have been previously identified. Care should be taken to observe archaeological deposits while work is being completed. Work must be stopped if</li> </ol>

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EXCAVATION/ROCK DRILLING continued	<p>evidence shows a potential archaeological artifact or deposit.</p> <ol style="list-style-type: none"> <li>4. Loose material at excavation sites should be managed to avoid excessive migration of silt and debris to nearby waters, especially during heavy rainfall events.</li> <li>5. All excavation below Highest High Water should be completed by hand, as no vehicles should be operated in the intertidal zone.</li> <li>6. Any blasting will follow the Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters.</li> </ol>
PILE INSTALLATION	<ol style="list-style-type: none"> <li>1. All equipment will be maintained in proper running order to prevent leaking or spilling of potentially hazardous or toxic products. This includes hydraulic fluid, diesel, gasoline and other petroleum products.</li> <li>2. Contractors where possible will position their water borne equipment in a manner that will minimize damage to identified fish habitat (e.g. eel grass). Where possible, alternative methods will be employed (e.g. use of anchors instead of spuds).</li> <li>3. Proper notice should be given to transportation authorities to warn of potential disruptions to navigability during works.</li> <li>4. Whenever Contractors are working in areas where spawning is present, appropriate monitoring by a qualified person will be undertaken and activities ceased if spawn disruption is apparent.</li> <li>5. Where possible, new timber piles will comply with the BMP for the use of treated wood in aquatic environments as developed by the Canadian Institute of Treated Wood and the Western Wood Preservers Institute.</li> <li>6. Where the BMP pilings are not available, creosote piling will stand for a minimum of 45 days prior to installation. These requirements are for new pilings only and will not restrict the use of re-used timber pilings. Reused pilings will not be subject to any additional treatments.</li> <li>7. If pile installation activities are causing fish kill, work must cease immediately and contractors will be responsible for introducing effective means of reducing the level of shock waves or introduce measures that will protect fish from entering the potentially harmful shock wave area. For example, appropriate mitigating measures would include the deployment a bubble curtain over the full length of the wetted pile that would defuse the shock waves to an acceptable level.</li> <li>8. If, after preventive measures are introduced, visual monitoring reveals unacceptable conditions (fish kill), then work will stop immediately and the system reviewed and corrected.</li> <li>9. Any instances of fish kill must be reported to the appropriate agencies (DFO).</li> <li>10. When cleaning out pipe piles (i.e. air lifting), if the material that is to be removed inside the pipe is non-toxic, then it shall be redistributed in a manner that will minimize damage to the surrounding aquatic fish habitat.</li> </ol>

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CONCRETE WORKS	<ol style="list-style-type: none"> <li>1. When pouring concrete all spills of fresh concrete must be prevented. If concrete is discharged from the transit mixer directly to the form work or placed by wheelbarrow, proper sealed chutes must be constructed to avoid spillage. If the concrete is being placed with a concrete pump, all hose and pipe connections must be sealed and locked properly to ensure the lines will not leak or uncouple. Crews will ensure that concrete forms are not filled to overflowing.</li> <li>2. All concrete forms will be constructed and sealed in a manner which will prevent fresh concrete or cement laden water from leaking into the surrounding water.</li> <li>3. All tools, pumps, pipes, hoses and trucks used for finishing, placing or transporting fresh concrete must be washed off in such a way as to prevent the wash off water from entering the marine environment. The wash water will be contained and disposed of upland in an environmentally acceptable manner.</li> </ol>
SITE ACCESS	<ol style="list-style-type: none"> <li>1. Site access practices must be undertaken with regard to resident flora and fauna, especially during times of the year when they are most sensitive.</li> </ol>
AID MAINTENANCE	<ol style="list-style-type: none"> <li>1. Equipment maintenance activities must be completed in a manner that prevents the deposit of foreign materials to the environment.</li> <li>2. Power washing activities must follow mitigation provided under “POWER-WASHING”</li> <li>3. An approach of “contain and recover” should be adopted. Drop sheets or other means should be used to prevent paint chips and other debris from entering the surrounding environment. Refuse should be disposed of properly.</li> <li>4. Painting activities should be completed in such a way as to minimise the amount of fumes that may enter the environment. The amount of paint used should be minimized and unused containers must be covered.</li> </ol>
PILE REMOVAL	<ol style="list-style-type: none"> <li>1. Contractors will position their water borne equipment in a manner that will minimize damage to identified fish habitat (e.g. eel grass). Where possible, alternative methods will be employed (e.g. use of anchors instead of spuds).</li> <li>2. When demolition is required on timber pile structures, the contractor will remove the piling by mechanical means and avoid breaking the piling at the mud line or below. All demolition operations should be monitored in order to control and contain the construction debris.</li> </ol>
CONCRETE BASE REMOVAL	<ol style="list-style-type: none"> <li>1. Contractors where possible will position their water borne equipment in a manner that will minimize damage to identified fish habitat (e.g. eel grass). Where possible, alternative methods will be employed (e.g. use of anchors instead of spuds).</li> <li>2. All debris deposited throughout the life of the aid should be removed from the site.</li> </ol>
CONCRETE BASE ABANDONMENT	<ol style="list-style-type: none"> <li>1. Care should be taken to remove all components of the Fixed Aid that are not incorporated into the concrete base.</li> </ol>

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CONCRETE BASE ABANDONMENT continued	<ol style="list-style-type: none"><li>2. All debris deposited throughout the life of the aid should be removed from the site.</li><li>3. Areas near the base should be protected from excessive disturbance.</li><li>4. Concrete base abandonment will be conducted only in remote sites, where aesthetic effects are not a concern.</li></ol>