PORT METRO vancouver

PROJECT PERMIT NUMBER 2014-096

DATE OF APPROVAL	**March 12th, 2015**
APPLICANT	**Pacific Coast Terminals Co. Ltd.**
ADDRESS OF APPLICANT	**2300 Columbia Street, Port Moody, BC V3H 5J9**
PROJECT LOCATION	**2300 Columbia Street, Port Moody, BC V3H 5J9**
PROJECT TITLE	**PCT Potash Handling System**

PROJECT DESCRIPTION

For the purposes of this Permit, the Project is understood to include the following "Works" on Vancouver Fraser Port Authority property:

Potash Storage Building, Dumper Building, Conveyor Network, and Shiploader

- Construction of a new, fully enclosed, steel-wood 160,000 MT potash storage building (264 m long x 83 m wide x 34 m high at the peak), with two new automated stacker/reclaimers and a two way belt system for commodity handling inside the building. Utilization of column pile reinforcement to densify the foundation soil;
- Installation of rip rap in the foreshore over approximately 2,330 m^2 of existing rip rap habitat and 285 m^2 of mud flat habitat, all to provide erosion protection and lateral and seismic support for the building;
- Construction of a new railcar bottom dumper building (50 m long x 11 m wide x 8 m high; 550 m^2 area), including below ground dumper vault (8.5 m deep), indexer, and two dedicated high efficiency baghouses for dust control;
- Construction of a new conveyor network from the railcar dumper to the proposed potash storage building. Dust will be controlled by new conveyor transfer point baghouses. Conveyors will either be covered or fully enclosed;
- Enclosure of existing shiploader conveyor from proposed building to Berth II;
- Modification to the existing Berth II quadrant shiploader with three new chutes, and chute support towers. Installation of two new baghouses for dust control on the shiploader (transfer conveyor and spout);
- Installation of two new substations (200 m^2 and 225 m^2 area; 4.5 m high) that provide additional electrical power from BC Hydro grid to potash handling system;

Railway Track Modifications and Additions (existing lease area)

- Construction of new Railway Track P (approximately 200 m) in the existing PCT lease area which will be aligned through the new Unloading Building; and,
- Realignment of rail tracks in the main yard extending west to Reed Point Marina.

Rail Extension Project, Shoreline Retaining Wall, and Construction over Salt Marsh

- Construction of new railway track Y (approximately 500 m) along Burrard Inlet foreshore from the PCT Terminal to Reed Point Marina;
- Construction of a new Barge Landing Island-peninsula (comprised of rip rap and aggregate fill) between Reed Point and PCT terminal to act as delivery and staging point for Rail Extension materials (structural fill, lock block wall, and rip rap);
- Delivery by barge of construction materials for the Rail Extension Project;
- Construction of a temporary access road over existing shoreline, salt marsh, and land area eastward from Reed Point Marina to the Barge Landing Island-peninsula to facilitate

COPY

transportation of construction equipment (including excavators, tracked machinery) from Reed Point Marina parking lot to rail extension areas;
- Road construction will require infill, which will cover approximately 820 m^2 of beach habitat and approximately 3,300 m^2 of existing rip rap habitat; and,
- Encapsulation of shoreline features (constructed as part of mitigation measures for West Coast Express project), including a concrete stress wall, rip rap scour protection (at wall base), and strip of shrub plantings (landward of top-of-wall).

Reed Island and Re-instatement of Salt Marsh
- Conversion of the Barge Landing Island-peninsula, upon completion of the Rail Extension Project, to a habitat island known as 'Reed Island', which will include fish and habitat offsets for the proposed overall project;
- Removal of the temporary access road from Reed Point Marina to the construction area for the proposed Track Y; and,
- Re-instatement, by PCT, of the existing salt marsh at Reed Point Marina;

Vegetation and Invasive Species
- Removal of vegetation along a strip of land (approximately 120 m^2 of backshore trees/shrubs habitat) between the proposed potash storage building and Burrard inlet;
- Removal of vegetation over an area of approximately 1,570 m^2 from a strip between Reed Point Marina to Reed Point, and approximately 470 m^2 east of Reed Point to the Terminal;
- Mechanical removal of invasive species in vegetated areas as indicated in the Vegetation Management Plan (Appendix 3.0 Vegetation Management Prescriptions); and,
- Planting of vegetation as indicated in the in the Vegetation Management Plan (Appendix 3.0 Vegetation Management Plan);

Utilities
- Extension or modification of six (6) existing drainage culverts under the Canadian Pacific Railway (CP) right of way (one belonging to the City of Port Moody, one to Greater Vancouver Sewerage and Drainage District (GVS&DD), and four of undetermined ownership).

GENERAL CONDITIONS OF APPROVAL:

1. This Permit is conditional on a valid tenure agreement with respect to the subject premises being in place. NO CONSTRUCTION MAY COMMENCE IN THE ABSENCE OF A VALID TENURE AGREEMENT.

2. This Permit is granted subject to the fulfillment of all other requirements of the Vancouver Fraser Port Authority (VFPA), doing business as Port Metro Vancouver, relating to the Project, and subject to all applicable laws and other necessary approvals being obtained. Prior to commencing construction the Applicant shall ensure that it has complied with all necessary legal requirements and that all necessary regulatory approvals have been obtained. Furthermore, the issuance of the VFPA Project Review Permit does not preclude compliance with the regulatory processes and requirements of any other applicable agencies;

3. This Permit in no way endorses or warrants the design, engineering, or construction of the construction works contemplated under this Permit and no person may rely upon this Permit for any purpose other than the fact that VFPA has permitted the contemplated construction works to commence, subsequent to the issuance of this Permit, in accordance with the terms and conditions of this Permit;

4. In consideration of the granting of this Permit by VFPA the Applicant agrees to indemnify and save harmless VFPA against any and all actions, claims, loss, damages or other expenses in any way arising or following from or caused by the granting of this Permit or

the construction of any works as contemplated by this Permit;

5. Development shall be generally in accordance with the application submitted by Pacific Coast Terminals Company Ltd on April 30, 2014, including the attached drawings titled, numbered and dated:

General Site Infrastructure and Shore Protection

- "General Site Infrastructure Potash Handling Facilities Site Plan", No. 07000-Cl-60-100-01, January 30 2015, Revision No. O;
- "General Site Infrastructure Railway Extension Site Plan", No. 07000-Cl-60-100-02, January 30 2015, Revision No. O;
- "General Site Infrastructure Potash Storage Building Layout", No. 07000-Cl-60-107-00, January 30 2015, Revision No. O;
- "General Site Infrastructure Storage Building – Shore Protection Plan", No. 07000-Cl-60-109-00, February 2 2015, Revision No. O;
- "General Site Infrastructure Storage Building – Shore Protection Sections", No. 07000-Cl-60-110-01, February 2 2015, Revision No. O;
- "General Site Infrastructure Conveyors Layout", No. 07000-Cl-60-112-00, January 30 2015, Revision No. O;
- "General Site Infrastructure Rail Extension and Shore Protection Plan and Profile", No. 07000-Cl-60-116-01, January 30 2015, Revision No. O;
- "General Site Infrastructure Rail Extension and Shore Protection Plan and Profile", No. 07000-Cl-60-116-02, January 30 2015, Revision No. O;
- "General Site Infrastructure Rail Extension and Shore Protection Plan and Profile", No. 07000-Cl-60-116-03, January 30 2015, Revision No. O;
- "General Site Infrastructure Rail Extension and Shore Protection Plan and Profile", No. 07000-Cl-60-116-04, January 30 2015, Revision No. O;
- "General Site Infrastructure Rail Extension and Shore Protection Sections", No. 07000-Cl-60-117-01, January 30 2015, Revision No. O;
- "General Site Infrastructure Rail Extension and Shore Protection Sections", No. 07000-Cl-60-117-02, January 30 2015, Revision No. O;
- "General Site Infrastructure Rail Extension and Shore Protection Sections", No. 07000-Cl-60-117-03, January 30 2015, Revision No. O;
- "General Site Infrastructure Rail Extension and Shore Protection Sections", No. 07000-Cl-60-117-04, January 30 2015, Revision No. O;
- "General Site Infrastructure Rail Extension and Shore Protection Sections", No. 07000-Cl-60-117-05, January 30 2015, Revision No. O;
- "General Site Infrastructure Rail Extension and Shore Protection Sections", No. 07000-Cl-60-117-06, January 30 2015, Revision No. O;
- "General Site Infrastructure Rail Extension and Shore Protection Sections", No. 07000-Cl-60-117-07, January 30 2015, Revision No. O;

Conveyors, Transfer Towers and Rail Car Unloading Building

- "Potash Handling System Steel Structure Enclosure Conveyor Gallery C-42 Elevations - Sections", No. 07000-ST-82-115-00, January 23 2015, Revision No. 0;
- "Storage Building Concrete Foundation Sections and Details", No. 07000-ST-85-105-02, December 12 2014, Revision No. C;
- "Potash Handling System Steel Structure Transfer Tower T-45 & E.C. Gal. C-52 Roof and Siding Panels - Elevations", No. 07000-ST-82-165-00, January 23 2015, Revision No. 0;
- "Potash Handling System Steel Structure Transfer Tower T-53 Roofing & Siding Panels", No. 07000-ST-82-166-00, January 23 2015, Revision No. 0;
- "Substation D General Layout Ground Floor Plan", No. 07000-AR-65-109-00, January 27 2015, Revision No. B;
- "Architectural Railcar Unloading Building Site Plan / Context Plan", No. 07000-AR-81-101-00, February 10, 2015, Revision No. C;
- "Architectural Railcar Unloading Building Floor Plan", No. 07000-AR-81-102-00, February 10, 2015, Revision No. D;

- "Architectural Railcar Unloading Building End Elevations", No. 07000-AR-81-104-02, February 10, 2015, Revision No. C;
- "Architectural Railcar Unloading Building Long Section", No. 07000-AR-81-105-02, February 10, 2015, Revision No. C;

Habitat Impacts, Rail and Electrical

- "Rail Line Habitat Impacts Plan A", No. 1671-03-01, July 7 2014, Revision No. 00;
- "Rail Line Habitat Impacts Plan B", No. 1671-03-02, July 7 2014, Revision No. 00;
- "Rail Line Habitat Impacts Plan C", No. 1671-03-03, July 7 2014, Revision No. 00;
- "Potash Shed Habitat Impacts Plan D", No. 1671-03-04, July 7 2014, Revision No. 00;
- "Backshore Vegetation Offsets Locations", No. 1671-03-05, December 2 2014, Revision No. 00;
- "Reed Point Offset Prescription", No. 1671-03-06, December 2 2014, Revision No. 00;
- "Potash Shed Offset Prescription", No. 1671-03-07, December 2 2014, Revision No. 00;
- "Schoolhouse Creek Offset Prescription", No. 1671-03-08, December 2 2014, Revision No. 00;
- "Glycol Tank Offset Prescription", No. 1671-03-09, December 2 2014, Revision No. 00;
- "Kyle Creek Offset Prescription", No. 1671-03-10, December 2 2014, Revision No. 00;
- "Railways Proposed and Existing Track Layout", No. 07000-Cl-50-101-00, February 24 2015, Revision No. A;
- "Pacific Coast Terminals Co Ltd 25kV & 12.5kV Distribution Single Line Diagram", No. 07000-EL-00-200-01, February 24 2015, Revision No. C;
- "Potash Storage Area Electrical Distribution Substation 'D' Single Line Diagram", No. 07000-EL-00-200-02, February 24 2015, Revision No. C;
- "Pacific Coast Terminals 600V Electrical Distribution Substation 'C' Single Line Diagram", No. 07000-EL-00-201-00, March 2015, Revision No. A2;

Waste Water Treatment

- "Interim Water Management Overall Site Plan", No. 07000-Cl-62-114-00, February 5 2015, Revision No. A;
- "Potash Wastewater Treatment Potash Warehouse Storm Sewer Plan and Profile", No. 07000-Cl-62-109-01, February 24 2015, Revision No. C;
- "Potash Wastewater Treatment Potash Warehouse Storm Sewer Profiles", No. 07000-Cl-62-109-02, February 24 2015, Revision No. C;
- "Potash Wastewater Treatment Plant Wastewater Storage Tank and Pumps Plan", No. 07000-ME-62-210-02, February 5 2015, Revision No. A;
- "Potash Wastewater Treatment Plant Site Plan Yard Piping Plan", No. 07000-ME-62-xxx-01, February 5 2015, Revision No. A;
- "Potash Wastewater Treatment Plant Caustic Storage Facility Plan and Sections", No. 07000-ME-62-220-00, February 5 2015, Revision No. A;

6. The Applicant shall adhere to the conditions listed on the attached VFPA Schedule of Environmental Conditions numbered 14-096;

7. The Applicant is responsible for locating all existing site services and utilities including any located underground and the Applicant shall ensure that these services and utilities are protected during construction and operation of the Project. The Applicant is responsible to employ best practices and meet applicable code requirements with respect to protection of existing site services and clearance between existing and proposed site services. The Applicant is responsible for repair or replacement of any damage to existing site services and utilities, to the satisfaction of VFPA, that result from construction and operation of the Project;

8. Details of any significant proposed changes to the Project or relating to the application must be submitted to VFPA for consideration of an amendment to this Permit;

9. Prior to commencement of construction, the Applicant shall submit signed and sealed drawings and professional letters of assurance, and shall obtain a VFPA Building Permit;

10. The Applicant shall submit, as part of the Building Permit review, a draft final report and alternative solutions report to VFPA, which will be forwarded to Port Moody Fire Rescue for comment;

11. The Applicant shall submit, as part of the Building Permit review, an updated comprehensive Fire Safety Plan (entire site) to VFPA, which will be forwarded to the City of Port Moody for information. The Fire Safety Plan shall be approved by VFPA prior to Building Occupancy being granted;

12. The Applicant shall submit, prior to Building Occupancy being granted or by June 30 2016 (whichever date is sooner), an updated Emergency Response Plan (ERP) to VFPA, which will be forwarded to the City of Port Moody for Information;

13. Prior to commencement of construction, the Applicant shall submit signed and sealed drawings for proposed works (specifically including the Barge Landing Area/Reed Island) approved for construction by a professional engineer licensed to practice in the Province of British Columbia;

14. The Applicant shall provide VFPA with a construction schedule prior to commencement of construction and shall provide VFPA with regular updates of the construction schedule throughout the duration of construction;

15. The Applicant shall notify VFPA upon commencement of construction of the approved works and upon completion of the Project;

16. No more than one (1) day after Project Permit issuance, and prior to commencement of works, a VFPA approved construction notice shall be posted on the PCT website. The VFPA approved construction notice shall also be inserted in the next circulation of the PCT community newsletter “Channels”, post permit-issuance. The second phase of construction shall be mentioned in the newsletter scheduled for community circulation in and around August, and the third phase of construction shall be mentioned in the newsletter scheduled for community circulation in and around December;

17. All noise levels resulting from construction activities shall not exceed maximum levels stated in the City of Port Moody Sound Level Bylaw No. 1399 without prior approval from VFPA;

18. Any construction activities proposed outside of the City of Port Moody Sound Level Bylaw No. 1399, shall require prior approval by VFPA, and shall require prior community notification, as determined by VFPA;

19. The Applicant shall provide VFPA with a schedule, specific to the construction of Barge Landing Area/Reed Island, prior to construction commencement, and shall provide VFPA with regular updates of the schedule throughout the duration of construction;

20. The Applicant shall provide VFPA with an activity schedule, specific to the delivery of construction materials by barge to Barge Landing Area/Reed Island, as well as provide VFPA with regular updates of the activity schedule throughout the duration of the Project Permit;

21. The Applicant shall provide VFPA with a schedule, specific to the conversion of the Barge Landing Area into a habitat island (Reed Island), prior to commencement of the works;

22. The Applicant shall ensure that construction equipment used in conjunction with this Project Permit is stored in such a manner that does not obstruct charted Aids to Navigation and does not block navigation;

23. The Applicant shall ensure that any operational incidents or near misses are to be reported as soon as possible to the VFPA Harbour Master via the **24/7 PMV Operations Center** (604-665-9086);

24. The Applicant shall comply with all *Canadian Coast Guard* regulations in conjunction with Aids to Navigation, which may be considered necessary during the course of this project;

25. The Applicant shall comply with all *Transport Canada* **Navigation Protection Program** issued conditions which may be considered necessary during the course of the project;

26. The Applicant shall be familiar with vessel movements in the areas affected by the work. The Applicant shall plan and execute the work in a manner that will not impede navigation or interfere with vessel operations;

27. The Applicant shall pay specific attention to, and follow, the procedural requirements described in VFPA's *Port Information Guide*;

28. The Applicant shall ensure that all piles, false works, silt curtains, construction material or debris, etc. are to be completely removed from the waterway upon completion of all associated works;

29. The Applicant shall ensure that any material or equipment used in construction are to be marked in accordance with the *International Regulations for Preventing Collisions at Sea*: Rule #27 (d) and (e) of the **Canada Shipping Act** when located on or in the waterway;

30. All vessels involved in this project must monitor *Canadian Coast Guard* **Vessel Traffic Services**, via the applicable VHF Channels, at all times, as well as participate when necessary;

31. To advise the marine community of the potential hazards associated with the activities approved under this Project Permit, a Notice to Shipping must be submitted to the *Canadian Coast Guard's* **Pacific Regional Marine Information Centre** at least forty-eight (48) hours prior to the commencement of activities. Submissions can be made via email: rmic-pacific@pac.dfo-mpo.gc.ca, phone (604-665-6011) or fax (604-666-8453);

32. The Applicant shall ensure that an appropriately qualified archaeological monitor be on site at all times during any development activity that may intrude into native soils;

33. In the event that suspected archaeological materials are encountered during project construction, the Applicant shall:
    - Immediately stop any work that might disturb the site,
    - Do not move or otherwise disturb artifacts or other remains present,
    - Stake or flag off effected location to prevent additional disturbances,
    - Immediately notify VFPA (Planning and Development department);

34. The Applicant shall ensure that lighting is angled away from residential areas;

35. The Applicant may place temporary construction trailers on site while this permit remains in effect, provided that the Applicant shall not connect such trailers to any underground utilities without the prior written consent of VFPA which may include, without limitation and at VFPA's discretion, a VFPA Building Permit;

36. The Applicant shall provide as-built drawings, in both AutoCAD and Adobe (PDF) format, within 60 days of completion of all works. In addition, the Applicant shall provide as-built drawings in UTM/NAD83 coordinate system of Barge Landing Area/Reed Island within 30 days of completion of Landing Area/Island construction;

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37. Should the Applicant require a new connection to the City's water line, no works shall create any cross-connections or backflows that could potentially introduce contaminants into the City's public drinking water system, and prior to commencement of any new water services which connect to the City system, the Applicant shall provide the City of Port Moody with certified compliance CSA B64.10/07/B64.10.1-07 (Selection and Installation of Backflow Preventers/Maintenance and Field Testing of Backflow Preventers);

38. The Applicant shall ensure that flow is not impeded and that structural integrity is maintained in the six (6) culverts located between Reed Point Marina and PCT terminal;

39. The Applicant shall provide, at VFPA's discretion, prior to the start of operations related to the project, or at a subsequent date, a Water Management Plan that identifies and addresses issues of concern, as identified by VFPA;

40. The Applicant shall provide, at VFA's discretion, prior to the start of operations related to the project, or at a subsequent date, a Stormwater Pollution Prevention Plan that includes performance targets, monitoring plans, addresses issues of concern, and incorporates continuous improvement, as identified by VFPA.

41. The granting of this permit shall not be construed as any indication of whether or not any other permit applications, that may or may not be related in scope or considered part of a larger project, submitted in conjunction with or separate from this application, will be approved or denied;

42. The approved works must commence by March 31, 2016 (the "Commencement Date") and be complete no later than March 31, 2017 (the "Completion Date"). For an extension to the Commencement Date, the Applicant must apply to VFPA in writing no later than 30 days following that date. For an extension to the Completion Date, the Applicant must apply in writing to VFPA no later than 30 days prior to that date. Failure to apply for an extension as required may, at the sole discretion of VFPA, result in termination of this approval.

VFPA reserves the right to rescind or revise these conditions at any time that new information warranting this action is made available to us.

Originals signed by Port Metro Vancouver
Approved March 12, 2015

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N 1200 N 1000 N 800 N 600 N 400 N 200

E 1400 E 1200 E 1000

BURRARD INLET

MILL & TIMBER PRODUCTS LTD.
PTM099-10007F-002
VFPA PLAN 2012-182

LEGEND:

NEW RAIL TRACK CENTER LINE

EXISTING TREES/SHRUBS

NOTES:

1) DISTANCES SHOWN ARE GROUND LEVEL MEASURED DISTANCES. PRIOR TO COMPUTATION OF U.T.M. COORDINATES MULTIPLY BY THE MEAN COMBINED FACTOR 0.99959575.

2) HORIZONTAL AND VERTICAL CONTROL

	PLANT COORDINATES		UTM COORDINATES	
BM #	NORTHING	EASTING	NORTHING	EASTING
BM # 1	1000	1000	5461400	510000
BM # 2	1670	100	5462070	509100

PCT DATUM ELEV 30.48m = GEODETIC DATUM ELEV 0.00m.

LEASE BOUNDARY (PORT MOODY CADASTRAL NOV 2, 2011)

APPROX. TOP OF BANK

SHORE PROTECTION

DOGHOUSES

POTASH STORAGE BUILDING
160,000 MT
264m X 83m

DOGHOUSE

BIRDHOUSE

DOGHOUSE

BC HYDRO SWITCH

LEASE BOUNDARY (PORT MOODY CADASTRAL NOV 2, 2011)

S19 PUMP STATION

TREELINE / SHRUB

POTASH WATER TREATMENT PLANT

RESERVED FOR POTENTIAL FUTURE SULPHUR EXPANSION

S18 PUMP STATION

CAUSTIC TANK

SUB-STATION D AND PLANT AIR

PERIMETER ROAD ACCESS (6m WIDE)

PACIFIC COAST TERMINALS

SUB-STATION A

LEASE BOUNDARY (PORT MOODY CADASTRAL NOV 2, 2011)

TREES / SHRUBS

PLANT COORD. BM#1, SEE NOTE 2

ABOVE GROUND CONVEYOR

EXISTING OVERHEAD CONVEYOR

PORTIONS OF TRACKS A,B,C NEED TO BE REPLACED TO PROVIDE TANGENT (STRAIGHT) TRACK SUITABLE FOR INSTALLING STANDARD TURNOUTS FOR CROSSOVERS

EMERGING POINT ENCLOSURE

UNDER GROUND CONVEYORS

UNDERGROUND TRANSFER POINT

RAILCAR UNLOADING BUILDING

NEW TRACK

RAILCAR UNLOADING AREA

EXISTING FENCE AND STORM DRAIN

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
J. P. PACAMARRA
36141
PORT MOODY

CH2MHILL
JAN 30 2015
ISSUED FOR CONSTRUCTION

CH2MHILL
PROJECT # 494217

DRAWING NO	TITLE
REFERENCE DRAWINGS	

REV	DATE	DESCRIPTION	DRN	CHK	APP
D	30-JAN-2015	ISSUED FOR CONSTRUCTION (CH2MHILL PROJ # 494217)	EBA	JP	
C	14-NOV-2014	ISSUED FOR TENDER		JP	
B		ISSUED FOR REVIEW	MS	JP	
A2	05-SEP-2014	ISSUED FOR INTERDISCIPLINE AND S.I.T. REVIEW	MS	JP	
A1	27-JUN-2014	ISSUED FOR INFORMATION	NDT	JP	

REVISIONS

K+S Potash Canada

PCT

PROJECT NAME: POTASH HANDLING FACILITIES, PORT MOODY, BC

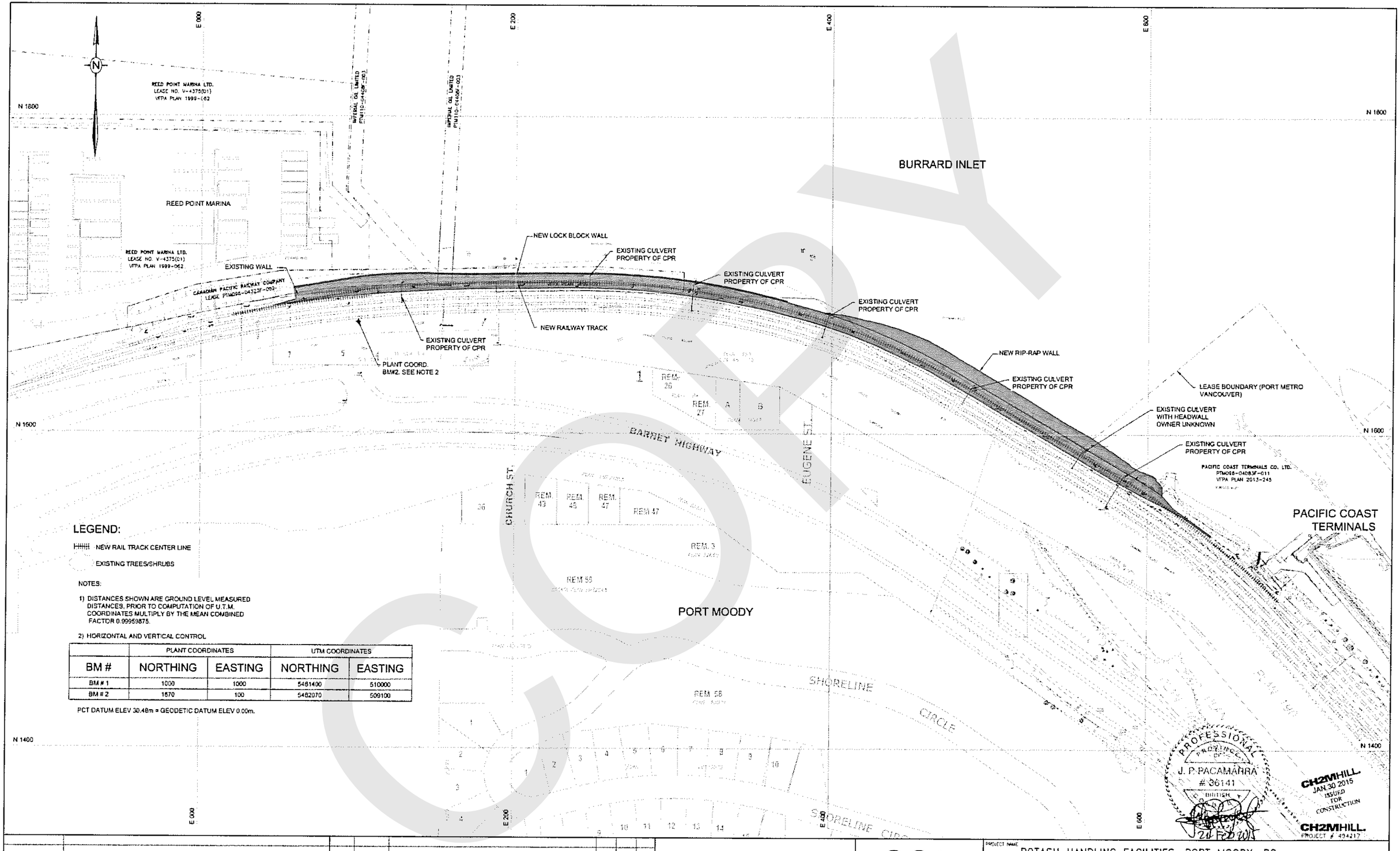
DRAWN: NT
DESIGNED: JP
CHECKED:
APPROVED:

GENERAL SITE INFRASTRUCTURE
POTASH HANDLING FACILITIES
SITE PLAN

CH2MHILL

PROJECT NO. 494217 | SCALE 1:1250
DRAWING NUMBER 07000-CI-60-100-01 | SHEET 1 OF 2 | DATE 30 JULY 2014 | REV 0

FILE NAME: C:\PW_WORKDIR\DEN001\JPACAMARR\D0141969\07000-CI-60-100-01.DWG PLOT DATE: 24 February 2015 PLOT STYLE: FULL_BW.CTB



LEGEND:

NEW RAIL TRACK CENTER LINE

EXISTING TREES/SHRUBS

NOTES:

1) DISTANCES SHOWN ARE GROUND LEVEL MEASURED DISTANCES, PRIOR TO COMPUTATION OF U.T.M. COORDINATES MULTIPLY BY THE MEAN COMBINED FACTOR 0.99959875.

2) HORIZONTAL AND VERTICAL CONTROL

	PLANT COORDINATES		UTM COORDINATES	
BM #	NORTHING	EASTING	NORTHING	EASTING
BM # 1	1000	1000	5481400	510000
BM # 2	1670	100	5482070	509100

PCT DATUM ELEV 30.48m = GEODETIC DATUM ELEV 0.00m.

J. P. PACAMARRA
36141
PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
24 FEB 2015

CH2MHILL
JAN 30 2015
ISSUED FOR CONSTRUCTION
CH2MHILL
PROJECT # 494217

REV	DATE	DESCRIPTION	DRN	CHK	APP
0	30-JAN-2015	ISSUED FOR CONSTRUCTION (CH2MHILL PROJ # 494217)	EBA	JP	
C	14-NOV-2014	ISSUED FOR TENDER		JP	
B		ISSUED FOR REVIEW			
A1	05-SEP-2014	ISSUED FOR INTERDISCIPLINE AND SIT REVIEW	TOT/UC	JP	

REVISIONS

DRAWING NO.	TITLE
-	-

REFERENCE DRAWINGS

K+S Potash Canada

PCT

PROJECT NAME: POTASH HANDLING FACILITIES, PORT MOODY, BC

DRAWN: NT
DESIGNED: JP
CHECKED:
APPROVED:

GENERAL SITE INFRASTRUCTURE
RAILWAY EXTENSION
SITE PLAN

CH2MHILL

DRAWING NUMBER: 07000-CI-60-100-02
SHEET: 2 OF 2
PROJECT NO: 498103
SCALE: 1:1000
DATE: 30 JULY 2014
REV: 0

FILE NAME: C:\PW_WORKDIR\DEN001\TATARYNN\D0141969\07000-CI-60-100-02.DWG PLOT DATE: 26 January 2015 PLOT STYLE: FULL_BW.CTB

COPY

BURRARD INLET

SHORELINE PROTECTION
SEE DWG 07000-CI-60-109

BAYLINE 1
SEE DWG
07000-ST-85-104-01

LEASE BOUNDARY (PORT MOODY CADASTRAL NOV 2, 2011)

BAYLINE 19
SEE DWG
07000-ST-85-104-02

GRAVEL ROAD

S19

C-54

C-45

C-43

C-53

C-44

C-52

C-51

WP1
N. 845.124
E. 1214.043

BAYLINE D
SEE DWG
07000-ST-85-101-01

℄ POTASH STORAGE
BUILDING

WP2
N. 641.414
E. 1380.073

41.50

41.50

20.00

69.00

PAVED ROAD
242.26

PLANT AIR

CANOLA PIPING TRENCH

SUB-STATION D SEE
DWG 07000-EL-80-101-18

S18 PUMP STATION

WORK POINTS	NORTHING	EASTING
WP1	845.124	641.414
WP2	1214.043	1380.073

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
J. P. PACAMARRA
36141
24 Feb 2015

CH2MHILL
JAN 30 2015
ISSUED FOR CONSTRUCTION

CH2MHILL
PROJECT # 494217

DRAWING NO	TITLE
07000-CI-60-109-00	POTASH STORAGE BUILDING SHORE PROTECTION
07000-CI-60-108-02	POTASH STORAGE BUILDING GRADING SECTIONS
07000-ST-85-104-01/02	CONCRETE FOUNDATION PLAN
07000-CI-60-100	SITE PLAN

REFERENCE DRAWINGS

REV	DATE	DESCRIPTION	DRN	CHK	APP
0	30-JAN-2015	ISSUED FOR CONSTRUCTION (CH2MHILL PROJ # 494217)	EBA	JP	
C	14 NOV 2014	ISSUED FOR TENDER		JP	
B	10-OCT-2014	ISSUED FOR REVIEW	ND	JP	
A1	05 SEP 2014	ISSUED FOR INTERDISCIPLINE AND S.I.T REVIEW	MS	JP	

REVISIONS

K+S Potash Canada

PCT

PROJECT NAME
POTASH HANDLING FACILITIES, PORT MOODY, BC

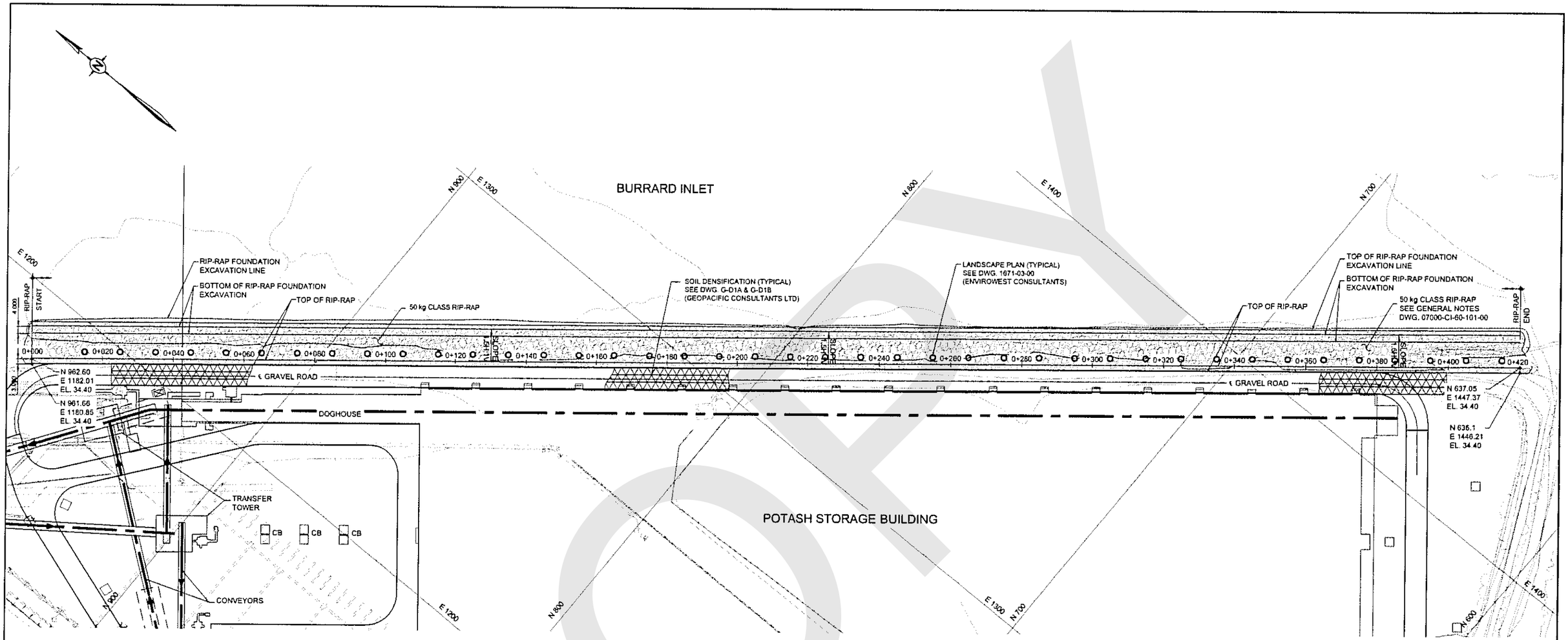
DRAWN: NT
DESIGNED: JP
CHECKED:
APPROVED:

GENERAL SITE INFRASTRUCTURE
POTASH STORAGE BUILDING
LAYOUT

CH2MHILL

DRAWING NUMBER: 07000-CI-60-107-00
SHEET: 1 OF 1
PROJECT NO: 494217
SCALE: 1:500
DATE: 30 APR 2014
REV: 0

FILE NAME: C:\PW_WORKD\RDEN001\PACAMARR\D0141969\07000-CI-60-107-00.DWG PLOT DATE: 24 February 2015 PLOT STYLE: FULL_BW.CTB



RIP-RAP PLAN
SCALE: 1:500

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
J. P PACAMARRA
36141
24 Feb 2015

CH2MHILL
FEB 02 2015
ISSUED FOR CONSTRUCTION

CH2MHILL
PROJECT # 494217

DRAWING NO	TITLE
1671-03-00	LANDSCAPE (ENVIROWEST CONSULTANTS)
G-D1A & G-D1B	IMPACT PIER DENSIFICATION PLAN (GEOPACIFIC CONSULTANTS)
07000-CI-60-101-00	GENERAL NOTES
07000-CL-60-110	STORAGE BUILDING - SHORE PROTECTION SECTIONS

REFERENCE DRAWINGS

REV	DATE	DESCRIPTION	DRN	CHK	APP
0	02-FEB-2015	ISSUED FOR CONSTRUCTION (CH2MHILL PROJ # 494217)	EBA	JP	
C	14 NOV 2014	ISSUED FOR TENDER		JP	
B	25 JUL 2014	ISSUED FOR CLIENT REVIEW	NDT	JP	
A1	27 JUN 2014	ISSUED FOR INTERDISCIPLINE AND S I T REVIEW	NDT	JP	

REVISIONS

K+S Potash Canada

PCT

PROJECT NAME: POTASH HANDLING FACILITIES, PORT MOODY, BC

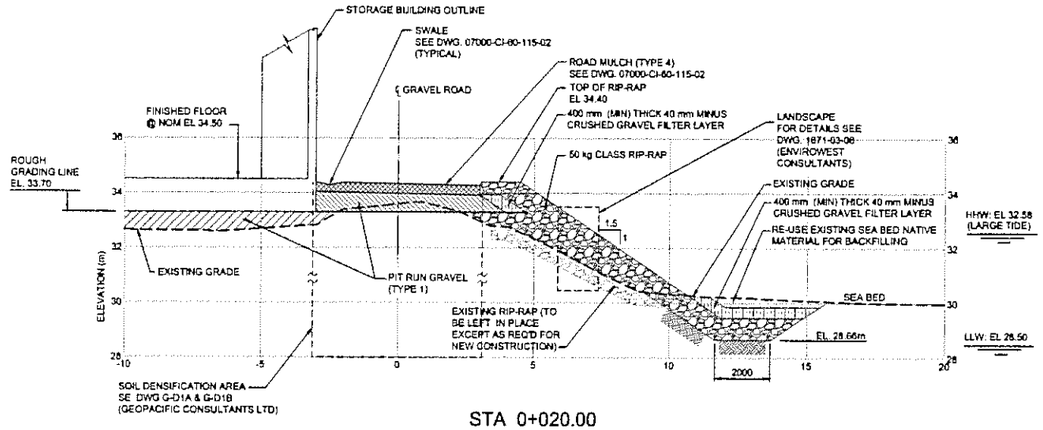
DRAWN: EBA
DESIGNED: JP
CHECKED:
APPROVED:

GENERAL SITE INFRASTRUCTURE
STORAGE BUILDING-SHORE PROTECTION
PLAN

CH2MHILL

DRAWING NUMBER: 07000-CI-60-109-00
SHEET: 1 OF 1
PROJECT NO: 494217
SCALE: AS SHOWN
DATE: 09 JUNE 2014
REV: 0

FILE NAME: C:\PW_WORKDIR\DEN001\JPACAMAR\D0141969\07000-CI-60-109-00.DWG PLOT DATE: 18 February 2015 PLOT STYLE: FULL_BW.CTB



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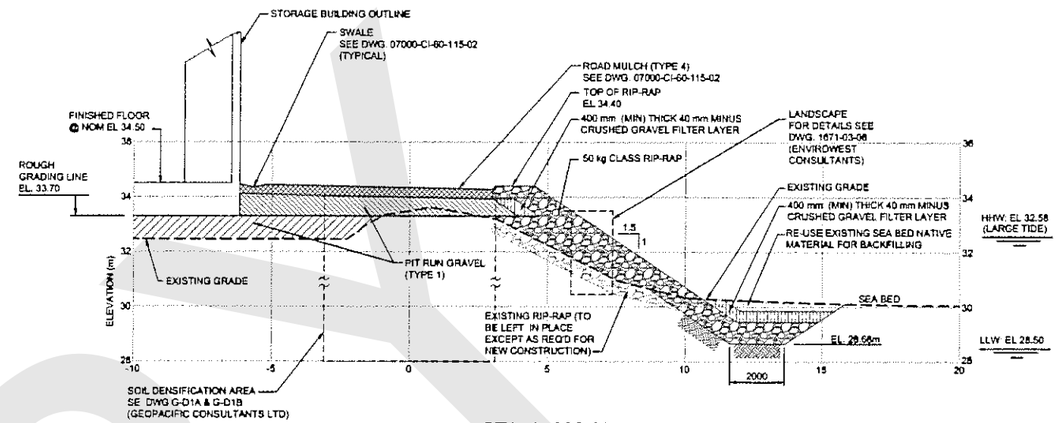
SCALE: 1:100



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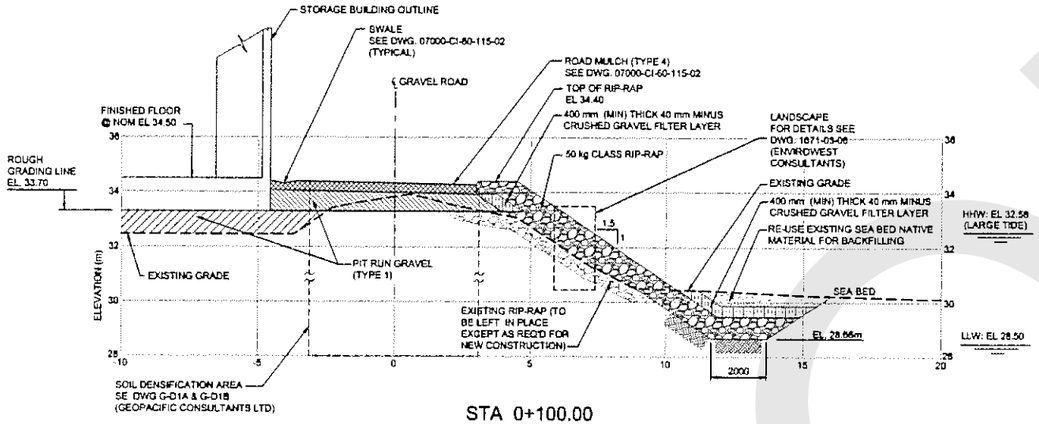

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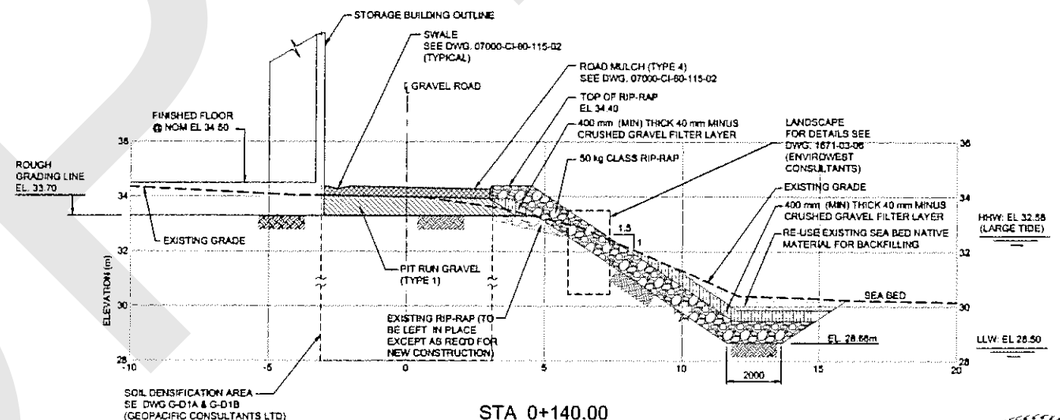

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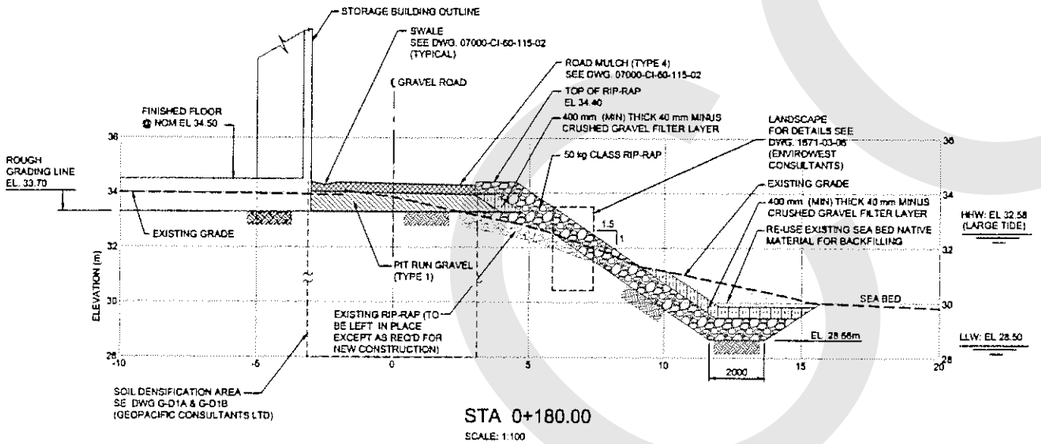

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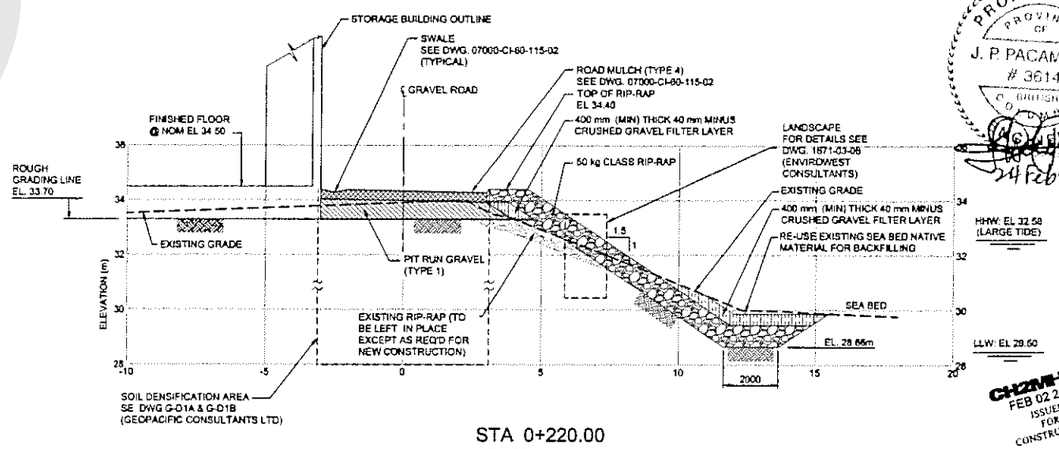
SCALE: 1:100



STA 0+220.00

SCALE: 1:100

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
J. P. PACAMARRA
36141
24 Feb 2015

CH2MHILL
FEB 02 2015
ISSUED FOR CONSTRUCTION

CH2MHILL
PROJECT # 494217

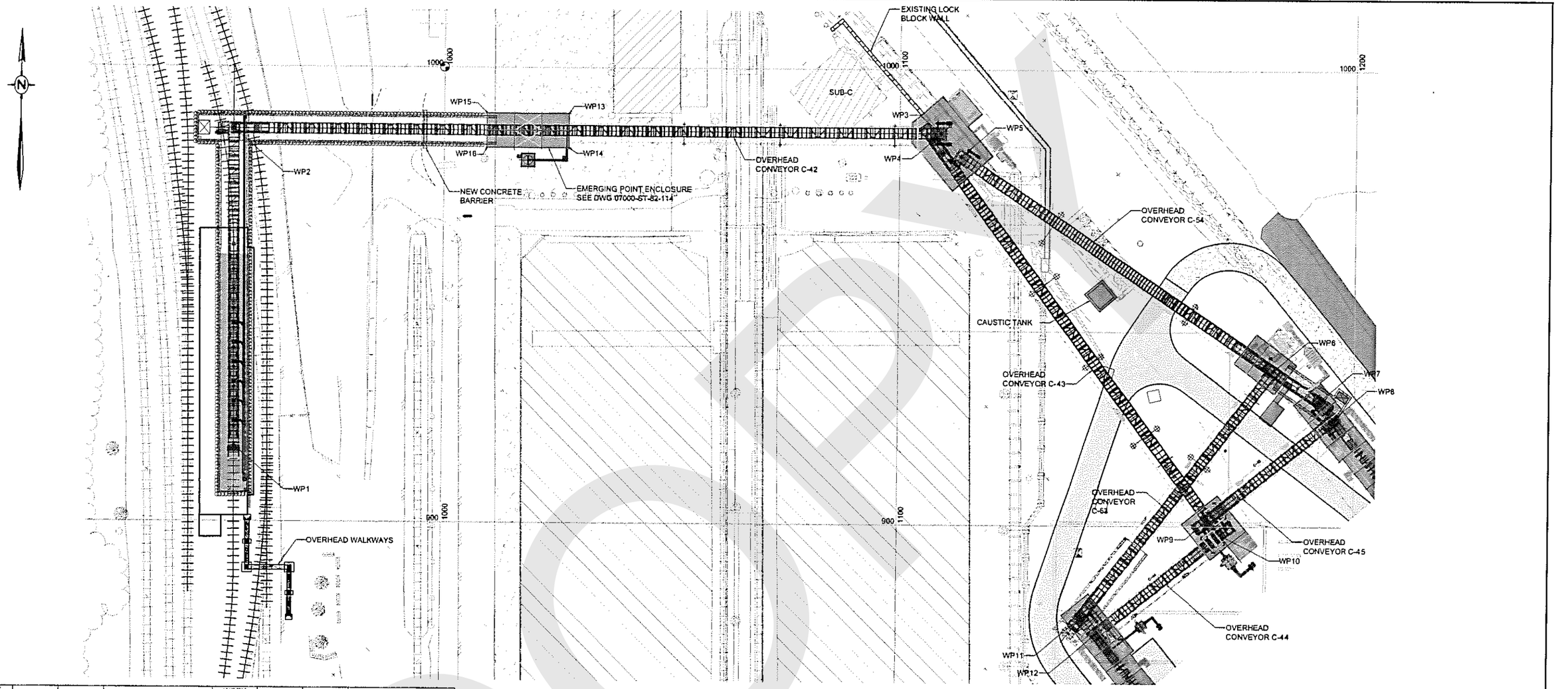
1671-03-00	LANDSCAPE (ENVIROWEST CONSULTANTS)	0	02-FEB-2015	ISSUED FOR CONSTRUCTION (CH2MHILL PROJ # 494217)	EBA	JP	
G-D1	IMPACT FIBER DENSIFICATION PLAN (GEOPACIFIC CONSULTANTS)	C	14 NOV 2014	ISSUED FOR TENDER		JP	
07000-CI-60-101-00	GENERAL NOTES	B	25 JUL 2014	ISSUED FOR CLIENT REVIEW	NDT	JP	
07000-CI-60-109-00	STORAGE BUILDING + SHORE PROTECTION PLAN	A1	27 JUN 2014	ISSUED FOR INTERDISCIPLINE AND S I T REVIEW	NDT	JP	
DRAWING NO	TITLE	REV	DATE	DESCRIPTION	DRN	CHK	APP
REFERENCE DRAWINGS		REVISIONS					

K+S Potash Canada

PROJECT NAME: POTASH HANDLING FACILITIES, PORT MOODY, BC

DRAWN: EBA	GENERAL SITE INFRASTRUCTURE STORAGE BUILDING–SHORE PROTECTION SECTIONS	CH2MHILL	
DESIGNED: JP		PROJECT NO: 494217	SCALE: 1:100
CHECKED			
APPROVED	DRAWING NUMBER: 07000-CI-60-110-01 SHEET: 1 OF 2	DATE: 08 MAY 2014	REV: 0

FILE NAME: C:\PW_WORKDIR\DEN001\PACAMARJ\D0141969\07000-CI-60-110-01.DWG PLOT DATE: 31 January 2015 PLOT STYLE: FULL_BW.CTB



WORK POINT	NORTHING	EASTING	DESCRIPTION	WORK POINT	NORTHING	EASTING	DESCRIPTION
WP1	916.608	953.797	C-41 DISCHARGE POINT	WP13	989.890	1027.479	CORNER COLUMN
WP2	988.306	953.262	C-41 LOADING POINT	WP14	982.390	1027.462	CORNER COLUMN
WP3	985.958	1108.959	C-42 DISCHARGE POINT	WP15	989.930	1009.479	CORNER COLUMN
WP4	984.554	1107.331	C-43 LOADING POINT	WP16	982.430	1009.462	CORNER COLUMN
WP5	934.2130	1182.162	C-53 DISCHARGE POINT				
WP6	960.888	1113.529	C-54 DISCHARGE POINT				
WP7	927.465	1192.084	C-52 DISCHARGE POINT				
WP8	923.589	1152.243	C-52 LOADING POINT				
WP9	901.478	1168.111	C-45 LOADING POINT				
WP10	898.144	1170.829	C-44 LOADING POINT				
WP11	879.908	1140.540	C-51 DISCHARGE POINT				
WP12	876.032	1143.699	C-51 LOADING POINT				

DRAWING NO	TITLE
07000-CI-60-113	CONVEYORS GRADING AND SECTIONS
07000-ME-82-128	TRANSFER TOWER T-43 PLANS
07000-ME-82-124	TRANSFER TOWER T-42 PLANS
07000-ME-82-120	CONVEYOR C-41 PLAN AND ELEVATION
07000-ME-82-152	CONVEYOR C-54 PLAN AND ELEVATION
07000-ME-82-149	CONVEYOR C-53 PLAN AND ELEVATION
07000-ME-82-147	C-52 TO C-54 UNDERGROUND TRANFER PLANS
07000-ME-82-132	TRANSFER TOWER T-44 PLANS

REFERENCE DRAWINGS

REV	DATE	DESCRIPTION	DRN	CHK	APP
0	30-JAN-2015	ISSUED FOR CONSTRUCTION (CH2MHILL PROJ # 494217)	EBA	JP	
C	14-NOV-2014	ISSUED FOR TENDER		JP	
B	17-OCT-2014	ISSUED FOR REVIEW			
A1	25-SEP-2014	ISSUED FOR INTERDISCIPLINE AND S.I.T REVIEW	MS	JP	

REVISIONS

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — J. P. PACAMARRA # 36141 — 24 Feb 2015

CH2MHILL JAN 30 2015 ISSUED FOR CONSTRUCTION

CH2MHILL PROJECT # 494217

K+S Potash Canada

pct

PROJECT NAME: POTASH HANDLING FACILITIES, PORT MOODY, BC

DRAWN: NT | DESIGNED: JP | CHECKED | APPROVED

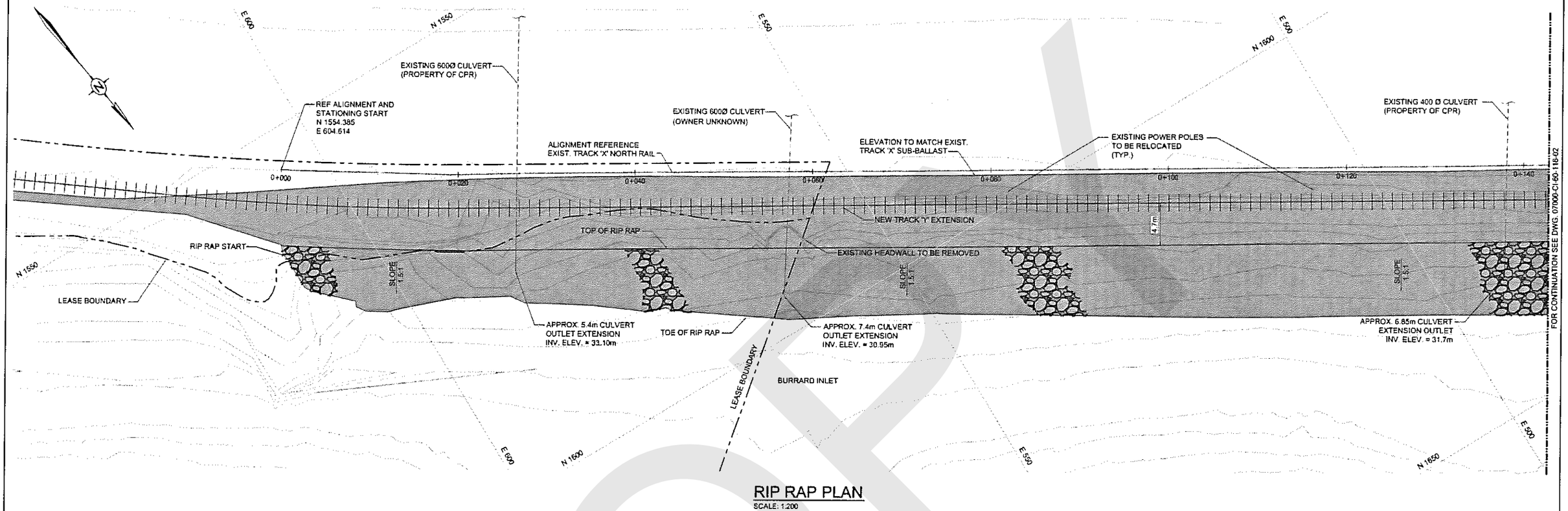
GENERAL SITE INFRASTRUCTURE CONVEYORS LAYOUT

CH2MHILL

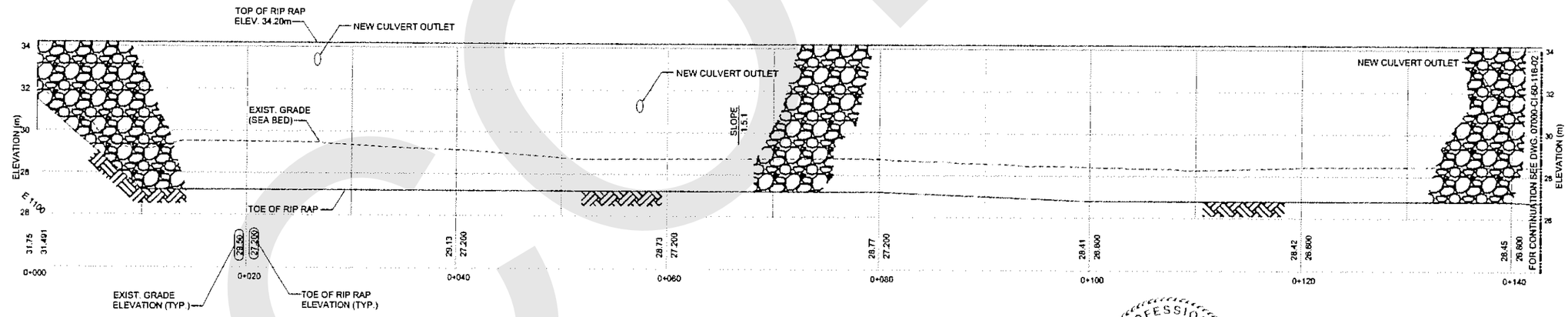
PROJECT NO. 494217 | SCALE 1:400

DRAWING NUMBER 07000-CI-60-112-00 | SHEET 1 OF 1 | DATE 21 JUL 2014 | REV 0

FILE NAME: C:\PW_WORKDIR\DEN001\JPACAMAR\D6141969\07000-CI-60-112-00.DWG PLOT DATE: 24 February 2015 PLOT STYLE: FULL_BW.CTB



RIP RAP PLAN
SCALE: 1:200



RIP RAP PROFILE
SCALE: HORIZ 1:200, VERT 1:100

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — J. P. PACAMARRA # 36141 — 30 Feb 2015

NOTES:
1. POLES WITH CAMERAS FOR SULPHUR UNLOADING SHALL REMAIN IN WORKING CONDITION THROUGHOUT THE PROJECT.
2. TELUS DUCK BANK MAY BE PRESENT WITHIN WORKING LIMIT. TAKE ALL NECESSARY PRECAUTION DURING EXCAVATION FOR PROTECTION. WHEN FOUND, IMMEDIATELY INFORM THE ENGINEER WHO WILL COMMUNICATE WITH THE OWNER FOR ADVICE.

CH2MHILL JAN 30 2015 ISSUED FOR CONSTRUCTION

CH2MHILL PROJECT # 498103

DRAWING NO.	TITLE
07000-CI-60-101	GENERAL NOTES
07000-CI-60-117	RAIL EXTENSION AND SHORE PROTECTION SECTIONS
07000-CI-60-102	TYPICAL SECTIONS AND DETAILS

REFERENCE DRAWINGS

REV	DATE	DESCRIPTION	DRN	CHK	APP
0	30-JAN-2015	ISSUED FOR CONSTRUCTION PROJ # 498103	EBA	JP	
C	14 NOV 2014	ISSUED FOR TENDER		JP	
B	08 SEP 2014	ISSUED FOR REVIEW	MS	JP	
A1	19 JULY 2014	ISSUED FOR INTERDISCIPLINE AND S.I.T. REVIEW	NDT/JP	JP	

REVISIONS

K+S Potash Canada

PCT

PROJECT NAME: POTASH HANDLING FACILITIES, PORT MOODY, BC

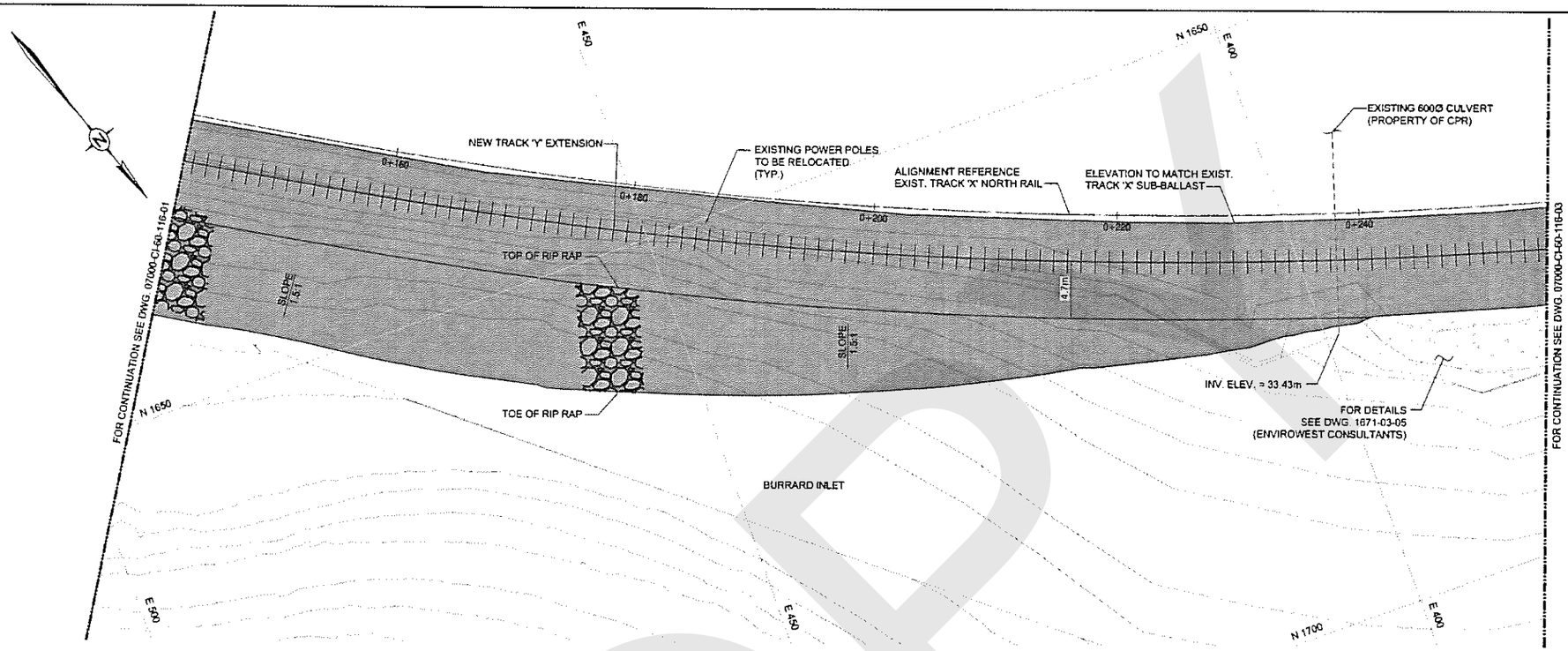
DRAWN: NT
DESIGNED: JP
CHECKED:
APPROVED:

GENERAL SITE INFRASTRUCTURE
RAIL EXTENSION AND SHORE PROTECTION
PLAN AND PROFILE

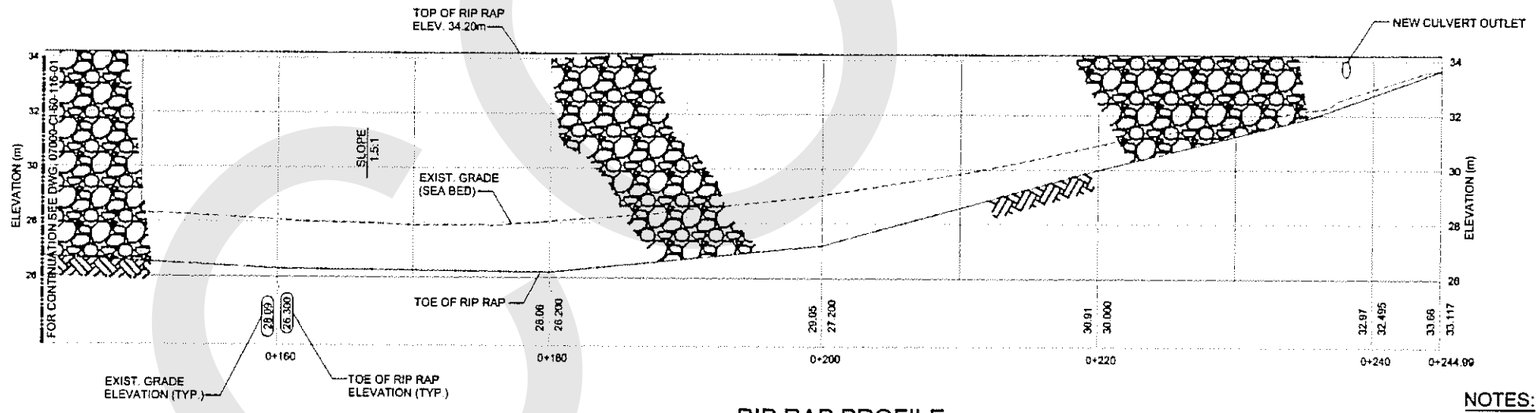
CH2MHILL

DRAWING NUMBER: 07000-CI-60-116-01 | SHEET: 1 OF 4 | PROJECT NO.: 498103 | SCALE: AS SHOWN | DATE: 10 JUN 2014 | REV: 0

FILE NAME: C:\PW_WORKDIR\DEN001\TATARYNND0141968\07000-CI-60-116_1-4.DWG PLOT DATE: 29 January 2015 PLOT STYLE: FULL_BW.CTB



RIP RAP PLAN
SCALE: 1:200



RIP RAP PROFILE
SCALE: HORIZ 1:200, VERT 1:100

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
J. P. PACAMARRA
36141
24 Feb 2015

CH2MHILL
JAN 30 2015
ISSUED FOR CONSTRUCTION

NOTES:
1. POLES WITH CAMERAS FOR SULPHUR UNLOADING SHALL REMAIN IN WORKING CONDITION THROUGHOUT THE PROJECT.
2. TELUS DUCK BANK MAY BE PRESENT WITHIN WORKING LIMIT. TAKE ALL NECESSARY PRECAUTION DURING EXCAVATION FOR PROTECTION. WHEN FOUND, IMMEDIATELY INFORM THE ENGINEER WHO WILL COMMUNICATE WITH THE OWNER FOR ADVICE.

CH2MHILL.
PROJECT # 498103

REFERENCE DRAWINGS		REVISIONS					
DRAWING NO.	TITLE	REV	DATE	DESCRIPTION	DRN	CHK	APP
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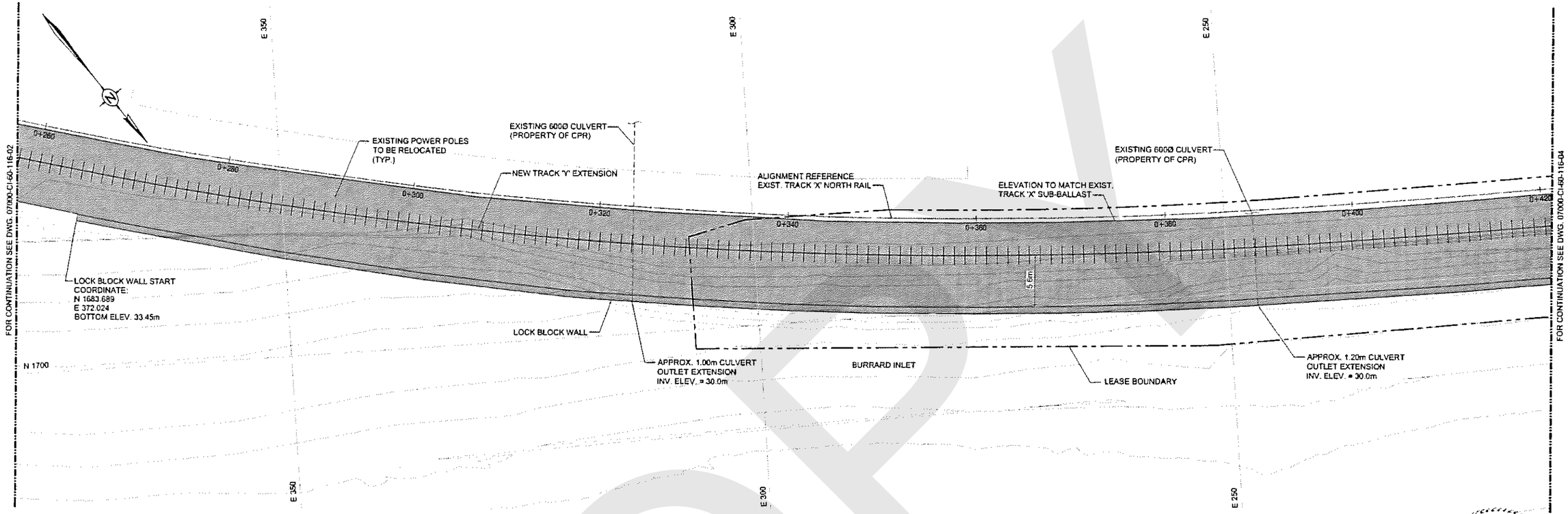
07000-CI-60-101	GENERAL NOTES	C	14 NOV 2014	ISSUED FOR TENDER		JP	
07000-CI-60-117	RAIL EXTENSION AND SHORE PROTECTION SECTIONS	B	08 SEP 2014	ISSUED FOR REVIEW	MS	JP	
07000-CI-60-102	TYPICAL SECTIONS AND DETAILS	A1	19 JULY 2014	ISSUED FOR INTERDISCIPLINE AND SIT REVIEW	KDT/GP	JP	

K+S Potash Canada

PCT

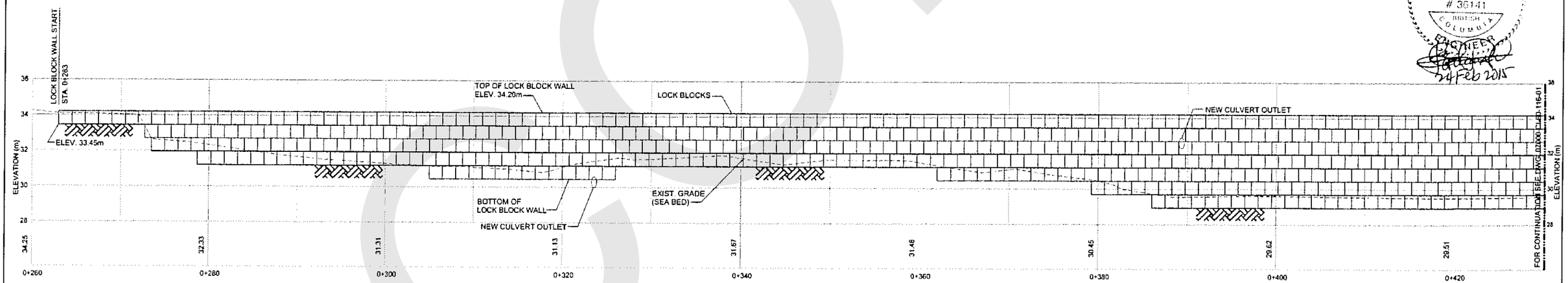
PROJECT NAME	POTASH HANDLING FACILITIES, PORT MOODY, BC
DRAWN	NT
DESIGNED	JP
CHECKED	
APPROVED	
	GENERAL SITE INFRASTRUCTURE RAIL EXTENSION AND SHORE PROTECTION PLAN AND PROFILE
DRAWING NUMBER	07000-CI-60-116-02
SHEET	2 OF 4
DATE	10 JUN 2014
CH2MHILL	
PROJECT NO.	498103
SCALE	AS SHOWN
REV	0

FILE NAME: C:\PW_WORKDIR\DEN001\TATARYNND\D0141069\07000-CI-60-116_1-4.DWG PLOT DATE: 28 January 2015 PLOT STYLE: FULL_BW.CTB



LOCK BLOCK WALL PLAN

SCALE: 1:200



LOCK BLOCK WALL PROFILE

SCALE: HORIZ 1:200, VERT 1:100

NOTES:

1. POLES WITH CAMERAS FOR SULPHUR UNLOADING SHALL REMAIN IN WORKING CONDITION THROUGHOUT THE PROJECT.
2. TELUS DUCK BANK MAY BE PRESENT WITHIN WORKING LIMIT. TAKE ALL NECESSARY PRECAUTION DURING EXCAVATION FOR PROTECTION. WHEN FOUND, IMMEDIATELY INFORM THE ENGINEER WHO WILL COMMUNICATE WITH THE OWNER FOR ADVICE.

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — J. P PACAMARRA # 36141 — 24 Feb 2015

CH2MHILL JAN 30 2015 ISSUED FOR CONSTRUCTION

CH2MHILL PROJECT # 498103

DRAWING NO.	TITLE
07000-CI-60-101	GENERAL NOTES
07000-CI-60-117	RAIL EXTENSION AND SHORE PROTECTION SECTIONS
07000-CI-60-102	TYPICAL SECTIONS AND DETAILS

REFERENCE DRAWINGS

REV	DATE	DESCRIPTION	DRN	CHK	APP
0	30-JAN-2015	ISSUED FOR CONSTRUCTION (CH2MHILL PROJ # 498103)	EBA	JP	
C	14 NOV 2014	ISSUED FOR TENDER		JP	
B	26 SEP 2014	ISSUED FOR REVIEW	MS	JP	
A1	19 JULY 2014	ISSUED FOR INTERDISCIPLINE AND S.I.T. REVIEW	NDT/JP	JP	

REVISIONS

K+S Potash Canada

PCT

PROJECT NAME: POTASH HANDLING FACILITIES, PORT MOODY, BC

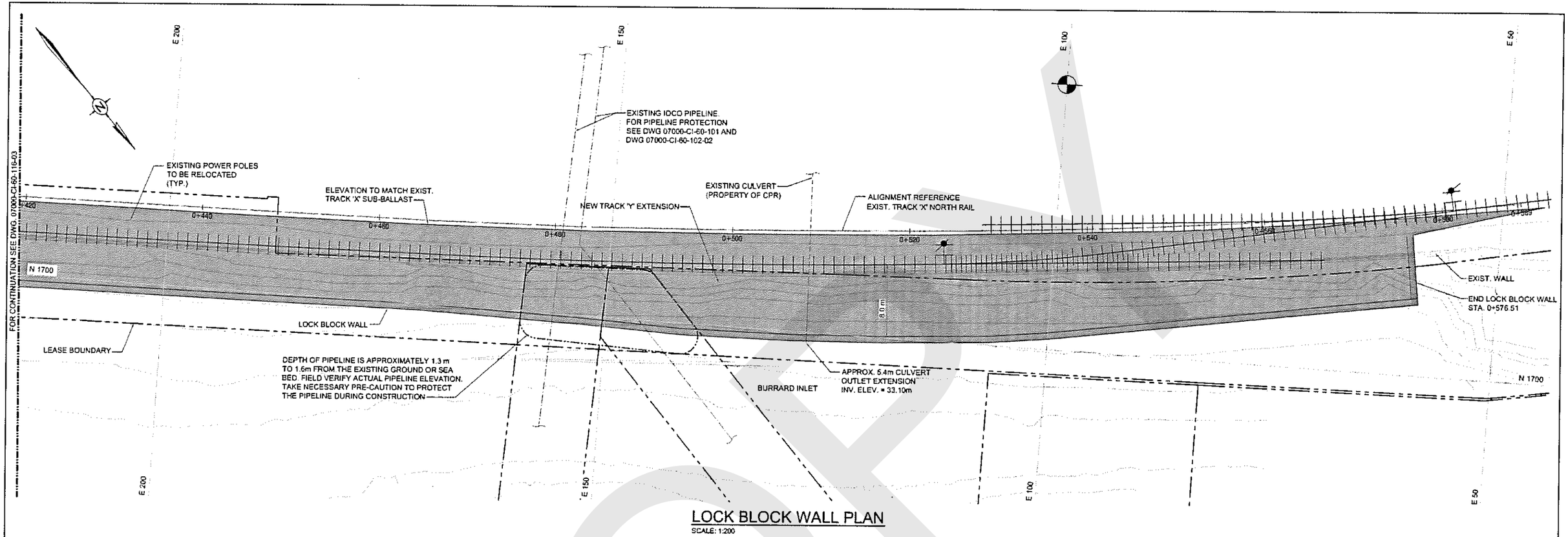
DRAWN: NT
DESIGNED: JP
CHECKED:
APPROVED:

GENERAL SITE INFRASTRUCTURE
RAIL EXTENSION AND SHORE PROTECTION
PLAN AND PROFILE

CH2MHILL

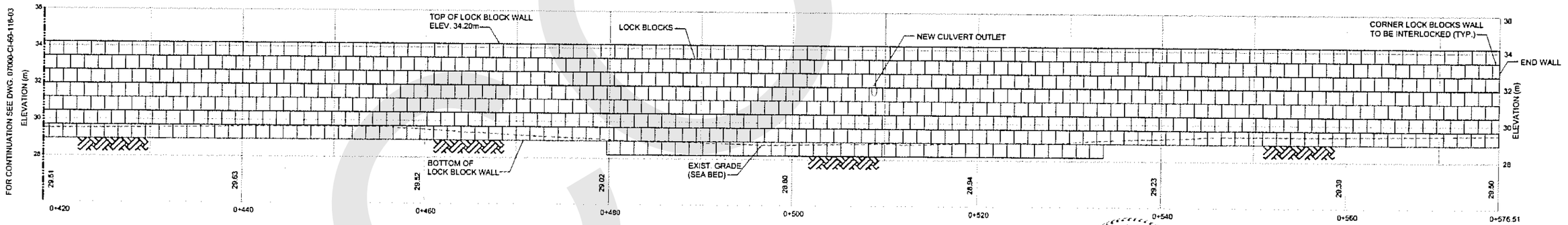
DRAWING NUMBER: 07000-CI-60-116-03 | SHEET: 3 OF 4 | DATE: 10 JUN 2014 | PROJECT NO.: 498103 | SCALE: AS SHOWN | REV: 0

FILE NAME: C:\PW_WORKDIR\DEN001\TATARYNN\D0141969\07000-CI-60-116_1-4.DWG PLOT DATE: 26 January 2015 PLOT STYLE: FULL_BW.CTB



LOCK BLOCK WALL PLAN

SCALE: 1:200



LOCK BLOCK WALL PROFILE

SCALE: HORIZ 1:200, VERT 1:100

NOTES:

1. POLES WITH CAMERAS FOR SULPHUR UNLOADING SHALL REMAIN IN WORKING CONDITION THROUGHOUT THE PROJECT.
2. TELUS DUCK BANK MAY BE PRESENT WITHIN WORKING LIMIT. TAKE ALL NECESSARY PRECAUTION DURING EXCAVATION FOR PROTECTION. WHEN FOUND, IMMEDIATELY INFORM THE ENGINEER WHO WILL COMMUNICATE WITH THE OWNER FOR ADVICE.

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — J. P. PACAMARRA # 36141 — PROFESSIONAL ENGINEER — 28 Jan 2015

CH2MHILL JAN 30 2015 ISSUED FOR CONSTRUCTION

CH2MHILL PROJECT # 498103

REFERENCE DRAWINGS		REVISIONS					
DRAWING NO.	TITLE	REV	DATE	DESCRIPTION	DRN	CHK	APP
07000-CI-60-101	GENERAL NOTES	0	30-JAN-2015	ISSUED FOR CONSTRUCTION (CH2MHILL PROJ # 498103)	EBA	JP	
07000-CI-60-117	RAIL EXTENSION AND SHORE PROTECTION SECTIONS	C	14 NOV 2014	ISSUED FOR TENDER		JP	
07000-CI-60-102	TYPICAL SECTIONS AND DETAILS	B	08 SEP 2014	ISSUED FOR REVIEW	MS	JP	
		A1	19 JULY 2014	ISSUED FOR INTERDISCIPLINE AND S.I.T. REVIEW	NDT/JP	JP	

K+S Potash Canada

pct

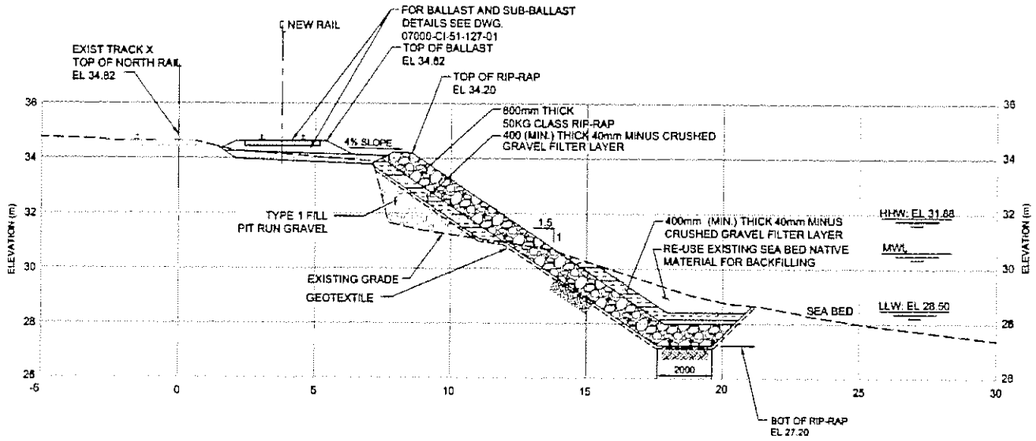
POTASH HANDLING FACILITIES, PORT MOODY, BC

GENERAL SITE INFRASTRUCTURE
RAIL EXTENSION AND SHORE PROTECTION
PLAN AND PROFILE

CH2MHILL

DRAWN	DESIGNED	CHECKED	APPROVED	DRAWING NUMBER	SHEET	PROJECT NO.	SCALE	DATE	REV
NT	JP			07000-CI-60-116-04	4 OF 4	498103	AS SHOWN	10 JUN 2014	0

FILE NAME: C:\PW_WORKDIR\DEN001\TATARYNND0141960\07000-CI-60-116_1-4.DWG PLOT DATE: 28 January 2015 PLOT STYLE: FULL_BW.CTB



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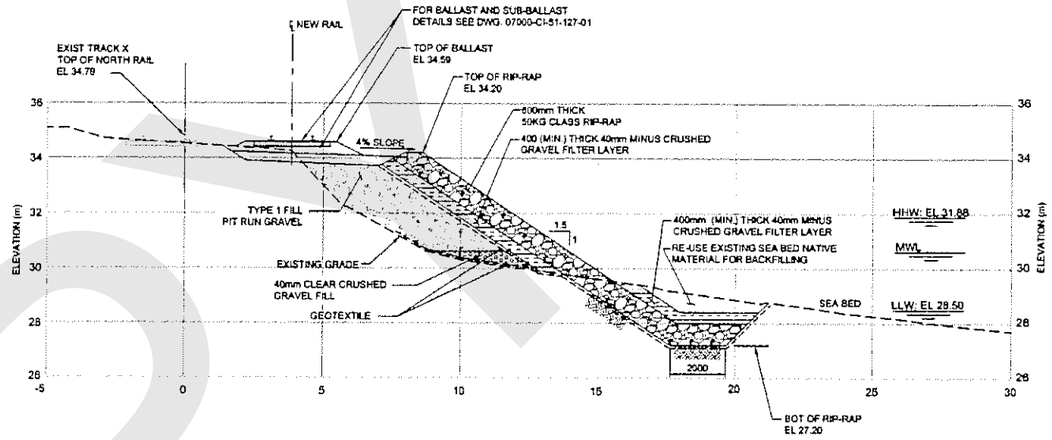
SCALE: 1:100



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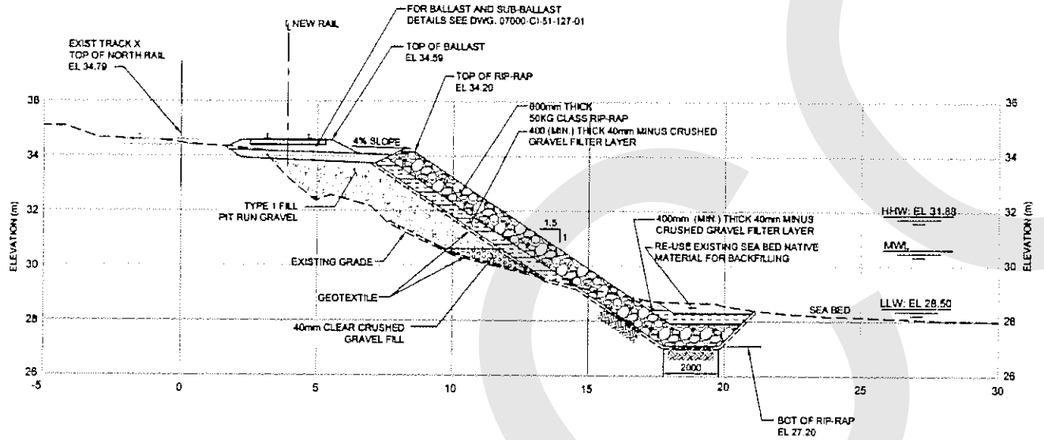

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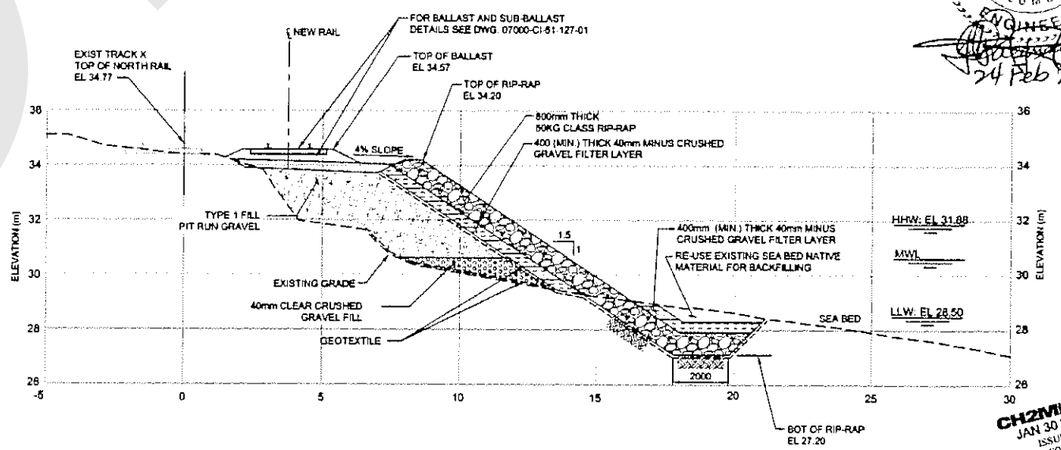


STA 0+080.00
SCALE: 1:100

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
J. P. PACAMARRA
36141
24 Feb 2015

CH2MHILL
JAN 30 2015
ISSUED FOR CONSTRUCTION

DRAWING NO	TITLE
07000-CI-60-101	GENERAL NOTES
07000-CI-60-116	RAIL EXTENSION AND SHORE PROTECTION PLAN AND PROFILES

REFERENCE DRAWINGS

REV	DATE	DESCRIPTION	DRN	CHK	APP
0	30-JAN-2015	ISSUED FOR CONSTRUCTION (CH2MHILL PROJ # 494217)	EBA	JP	
C	14 NOV 2014	ISSUED FOR TENDER		JP	
B	08 SEP 2014	ISSUED FOR REVIEW	MS	JP	
A1	19 JULY 2014	ISSUED FOR INTERDISCIPLINE AND S.I.T. REVIEW	NDT	JP	

REVISIONS

K+S Potash Canada

CH2MHILL PROJECT # 498103

PROJECT NAME: POTASH HANDLING FACILITIES, PORT MOODY, BC

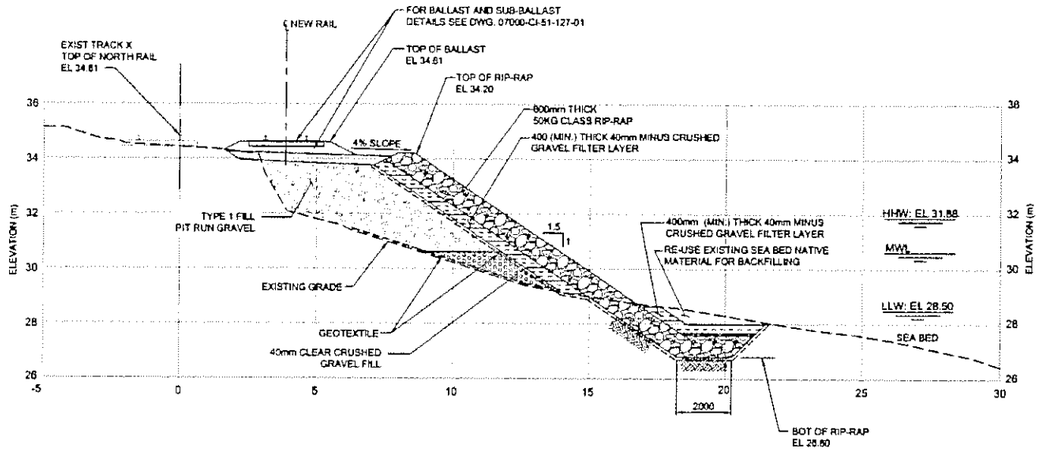
DRAWN: NDT
DESIGNED: JP
CHECKED:
APPROVED:

GENERAL SITE INFRASTRUCTURE
RAIL EXTENSION AND SHORE PROTECTION
SECTIONS

CH2MHILL

DRAWING NUMBER: 07000-CI-60-117-01
SHEET: 1 OF 7
PROJECT NO: 498103
SCALE: 1:100
DATE: 10 JUN 2014
REV: 0

FILE NAME: C:\FW_WORKER\DENG01\TATARINN\D0141969\07000-CI-60-117_1-7.DWG PLOT DATE: 26 January 2015 PLOT STYLE: FULL_EW.CTB



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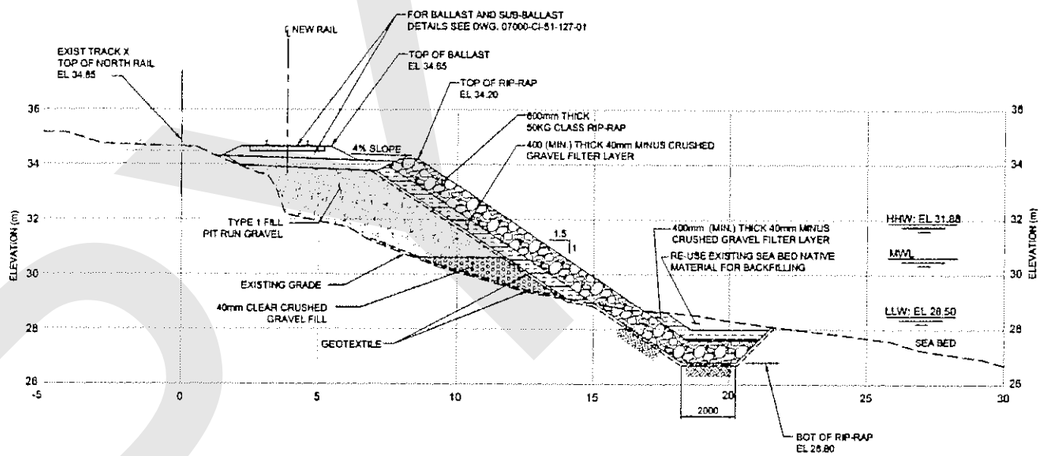
SCALE: 1:100



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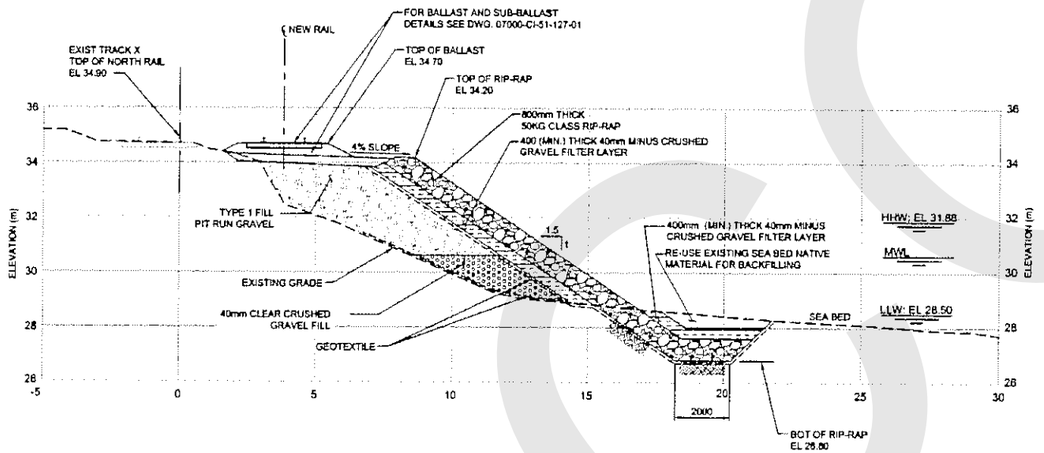

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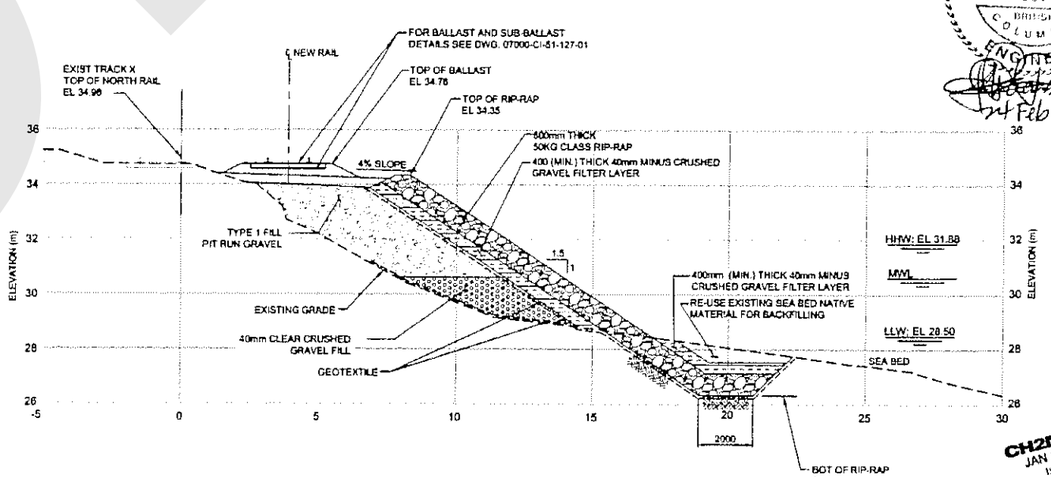


STA 0+160.00

SCALE: 1:100

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
J. P PACAMARRA
36141
ENGINEER
24 Feb 2015

CH2MHILL.
JAN 30 2015
ISSUED FOR CONSTRUCTION

CH2MHILL.
PROJECT # 498103

DRAWING NO	TITLE
07000-CI-60-101	GENERAL NOTES
07000-CI-60-116	RAIL EXTENSION AND SHORE PROTECTION PLAN AND PROFILES

REFERENCE DRAWINGS

REV	DATE	DESCRIPTION	DRN	CHK	APP
0	30-JAN-2015	ISSUED FOR CONSTRUCTION (CH2MHILL PROJ # 494217)	EBA	JP	
C	14 NOV 2014	ISSUED FOR TENDER		JP	
B	08 SEP 2014	ISSUED FOR REVIEW	MS	JP	
A1	04 JULY 2014	ISSUED FOR INTERDISCIPLINE AND S.I.T. REVIEW	NDT	JP	

REVISIONS

K+S Potash Canada

PCT

PROJECT NAME: POTASH HANDLING FACILITIES, PORT MOODY, BC

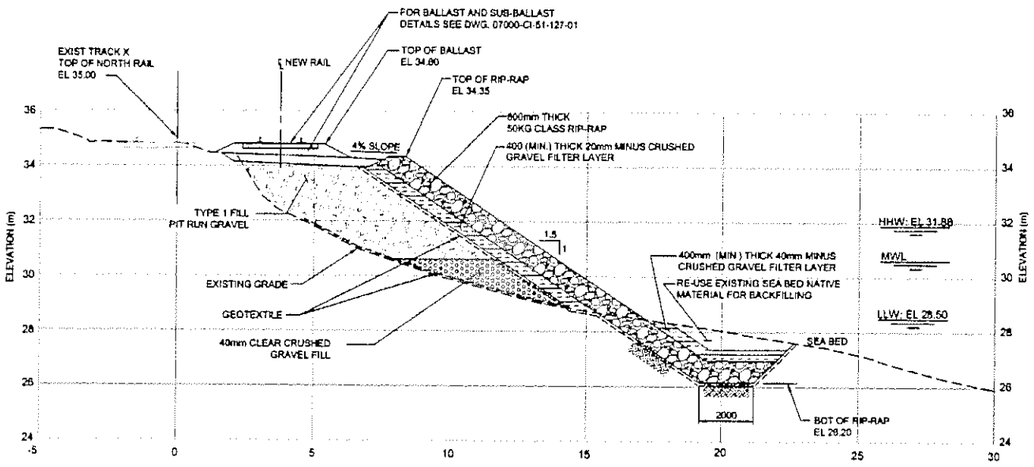
DRAWN: NDT
DESIGNED: JP
CHECKED:
APPROVED:

GENERAL SITE INFRASTRUCTURE
RAIL EXTENSION AND SHORE PROTECTION
SECTIONS

CH2MHILL

DRAWING NUMBER: 07000-CI-60-117-02
SHEET: 2 OF 7
PROJECT NO: 498103
SCALE: 1:100
DATE: 10 JUN 2014
REV: 0

FILE NAME: C:\Pw_WORKDIR\DENDOIT\TATARINN\D0141969\07000-CI-60-117_1-7.DWG PLOT DATE: 26 January 2015 PLOT STYLE: FULL_BW.CTB



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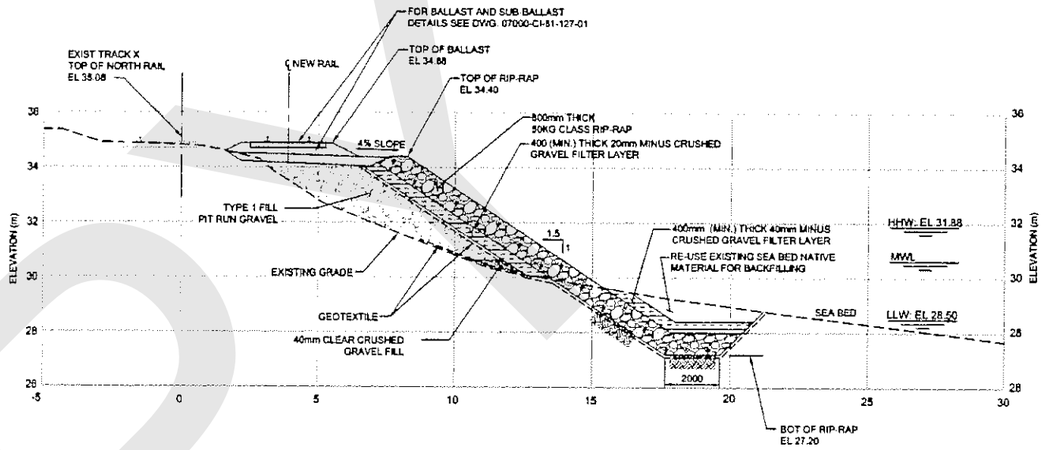
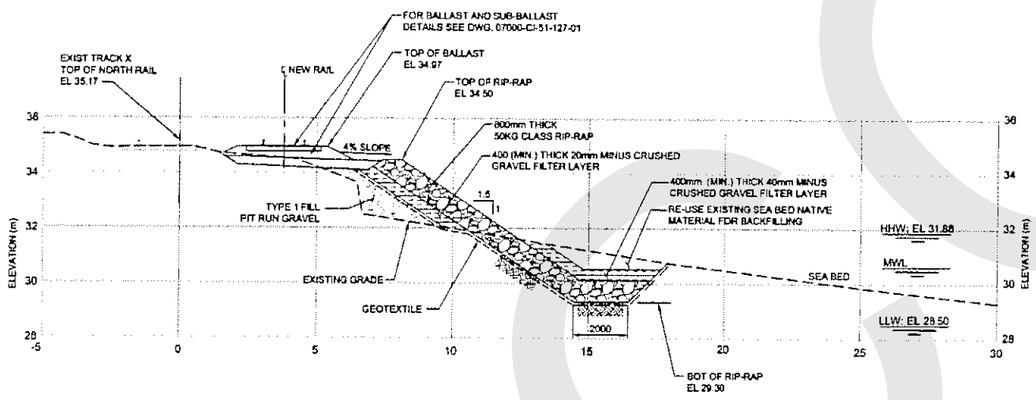


STA 0+200.00
SCALE: 1:100

GEOGRID	
NUMBER	LENGTH (m)
3	2.60
2	2.10
1	2.10

4 BLOCKS HIGH WALL (3.0 M)



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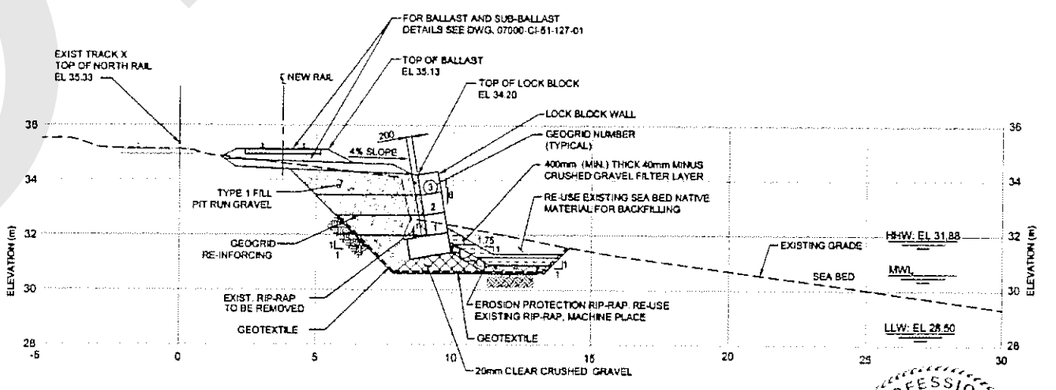


STA 0+280.00
SCALE: 1:100

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
J. P. PACAMARRA
36141
24 Feb 15

CH2MHILL
JAN 30 2015
ISSUED FOR CONSTRUCTION

		0	30-JAN-2015	ISSUED FOR CONSTRUCTION (CH2MHILL PROJ # 494217)	EBA	JP	
		C	14 NOV 2014	ISSUED FOR TENDER		JP	
07000-CI-60-101	GENERAL NOTES	B	26 SEP 2014	ISSUED FOR REVIEW	MS	JP	
07000-CI-60-116	RAIL EXTENSION AND SHORE PROTECTION PLAN AND PROFILES	A1	19 JULY 2014	ISSUED FOR INTERDISCIPLINE AND SIT REVIEW	NDT	JP	
DRAWING NO	TITLE	REV	DATE	DESCRIPTION	DRN	CHK	APP
REFERENCE DRAWINGS		REVISIONS					

K+S Potash Canada

PROJECT NAME: POTASH HANDLING FACILITIES, PORT MOODY, BC

DRAWN: NDT
DESIGNED: JP
CHECKED:
APPROVED:

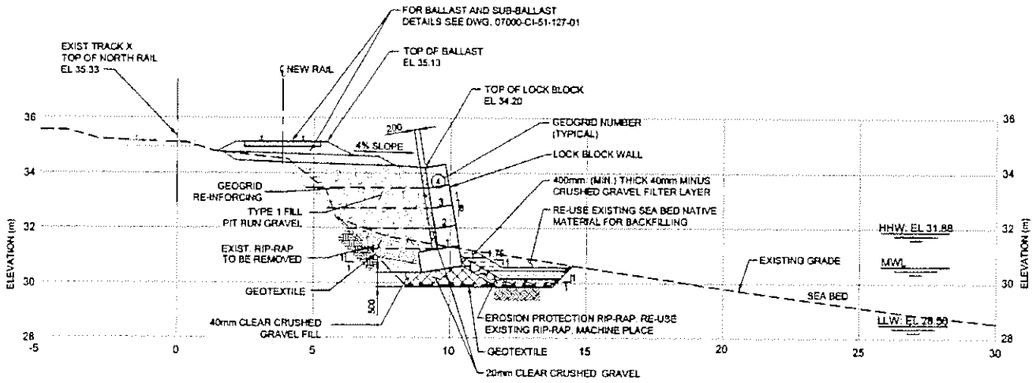
GENERAL SITE INFRASTRUCTURE
RAIL EXTENSION AND SHORE PROTECTION
SECTIONS

CH2MHILL

DRAWING NUMBER: 07000-CI-60-117-03
SHEET: 3 OF 7
PROJECT NO.: 498103
SCALE: 1:100
DATE: 10 JUN 2014
REV: 0

CH2MHILL PROJECT # 498103

FILE NAME: C:\PW_WORKDIR\DENOD1\TATARINN\80141969\07000-CI-60-117_1-7.DWG PLOT DATE: 26 January 2015 PLOT STYLE: FULL_GW.CTB



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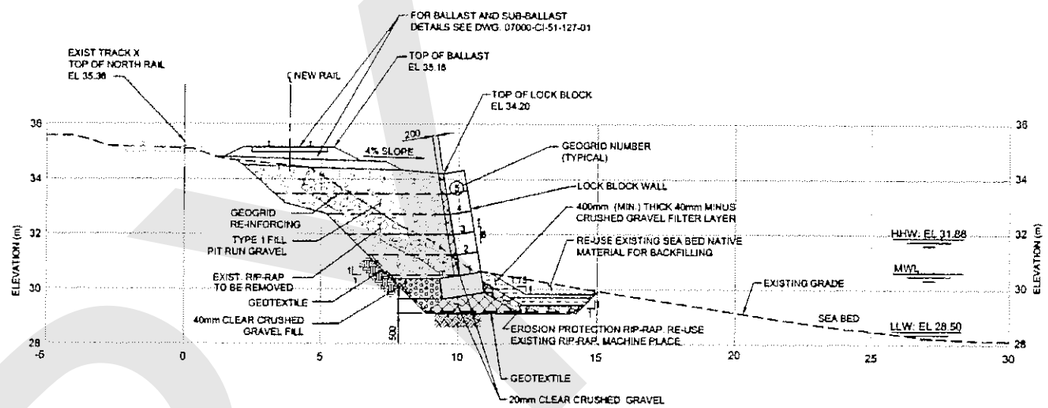
SCALE: 1:100



STA 0+320.00

SCALE: 1:100

GEOGRID	
NUMBER	LENGTH (m)
4	3.60
3	3.20
2	2.60
1	2.60

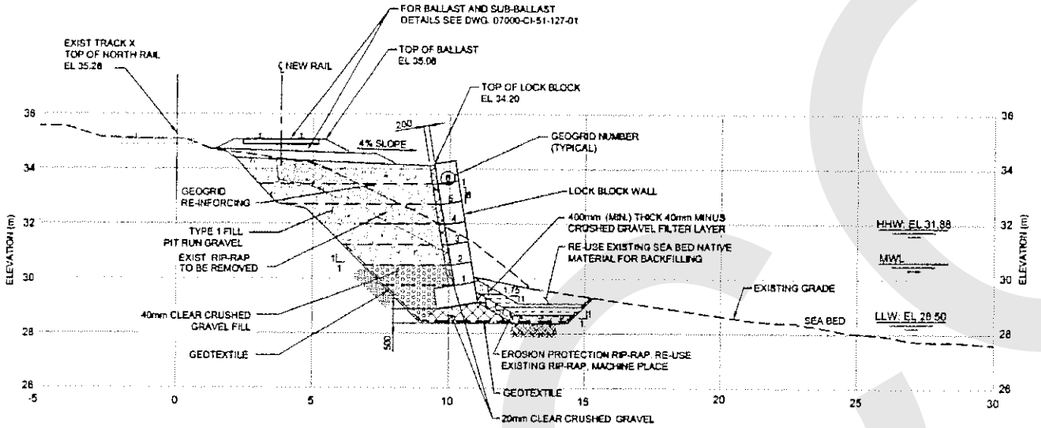
5 BLOCKS HIGH WALL (3.0 M)

GEOGRID	
NUMBER	LENGTH (m)
5	6.30
4	4.50
3	3.80
2	3.20
1	3.20

6 BLOCKS HIGH WALL (4.50 M)

GEOGRID	
NUMBER	LENGTH (m)
6	7.90
5	7.40
4	5.30
3	4.50
2	3.70
1	3.70

7 BLOCKS HIGH WALL (5.25 M)



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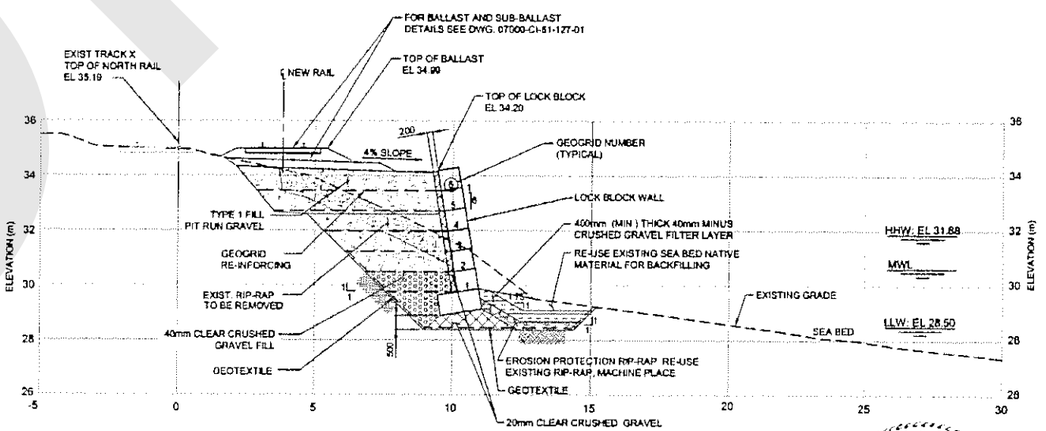
SCALE: 1:100



STA 0+360.00

SCALE: 1:100

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
J. P. PACAMARRA
36141
24 FEB 15

CH2MHILL
JAN 30 2015
ISSUED FOR CONSTRUCTION

CH2MHILL
PROJECT # 498103

REFERENCE DRAWINGS	
07000-CI-60-101	GENERAL NOTES
07000-CI-60-116	RAIL EXTENSION AND SHORE PROTECTION PLAN AND PROFILES
DRAWING NO	TITLE

REVISIONS					
REV	DATE	DESCRIPTION	DRN	CHK	APP
0	30-JAN-2015	ISSUED FOR CONSTRUCTION (CH2MHILL PROJ # 494217)	EBA	JP	
C	14 NOV 2014	ISSUED FOR TENDER		JP	
B	08 SEP 2014	ISSUED FOR REVIEW	MS	JP	
A1	19 JULY 2014	ISSUED FOR INTERDISCIPLINE AND S.I.T. REVIEW	NDT	JP	

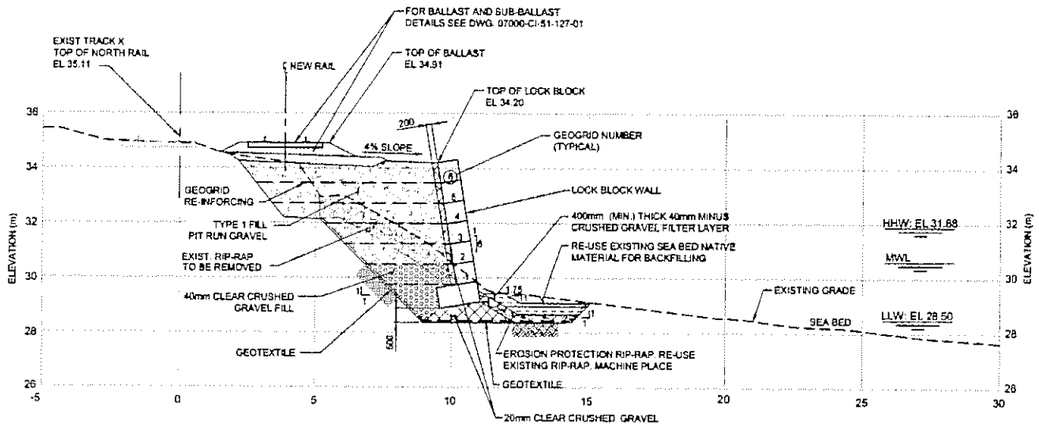
K+S Potash Canada

PCT

PROJECT NAME: POTASH HANDLING FACILITIES, PORT MOODY, BC

DRAWN: NDT	GENERAL SITE INFRASTRUCTURE RAIL EXTENSION AND SHORE PROTECTION SECTIONS	CH2MHILL	
DESIGNED: JP		PROJECT NO. 498103	SCALE 1:100
CHECKED		DATE 10 JUN 2014	REV 0
APPROVED	DRAWING NUMBER 07000-CI-60-117-04	SHEET 4 OF 7	

FILE NAME: C:\PW_WORKDIR\DEFAULT\TATARYNN\D0141969\07000-CI-60-117_1-7.DWG PLOT DATE: 26 January 2015 PLOT STYLE: FULL_BW.CTB



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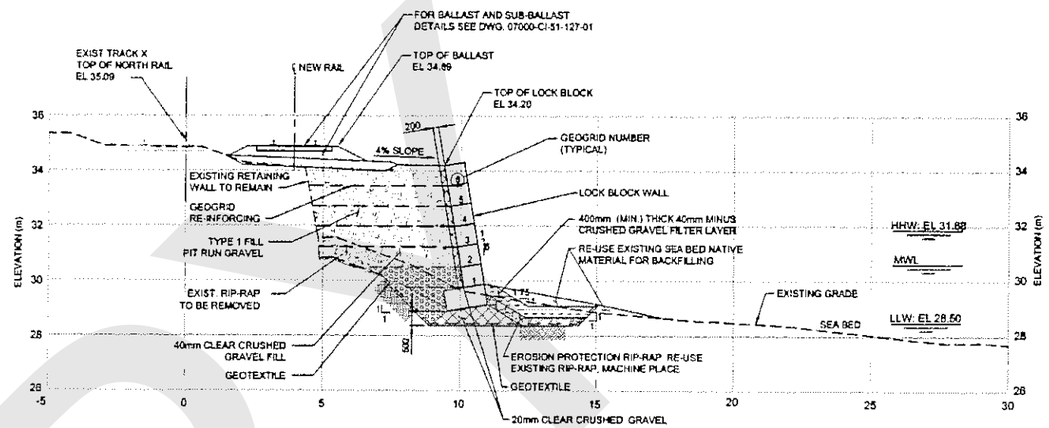
SCALE: 1:100



STA 0+400.00

SCALE: 1:100

GEOGRID	
NUMBER	LENGTH (m)
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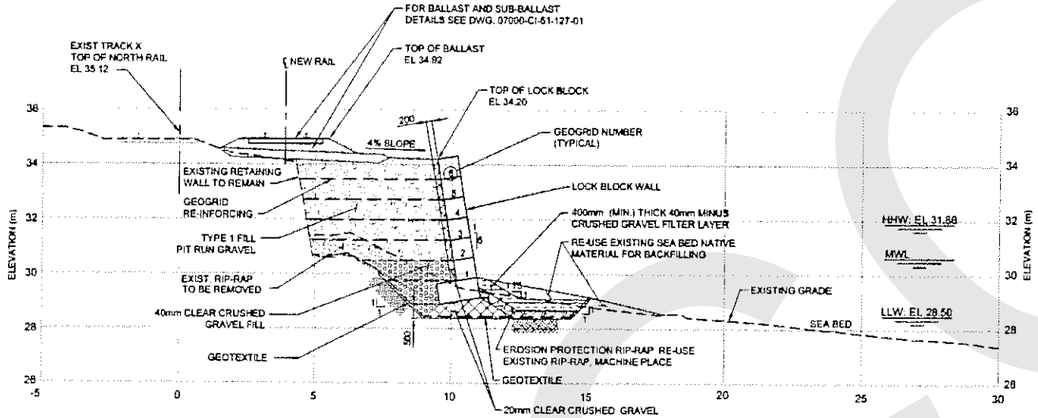
5	7.40
4	5.30
3	4.50
2	3.70
1	3.70

7 BLOCKS HIGH WALL (5.25 M)



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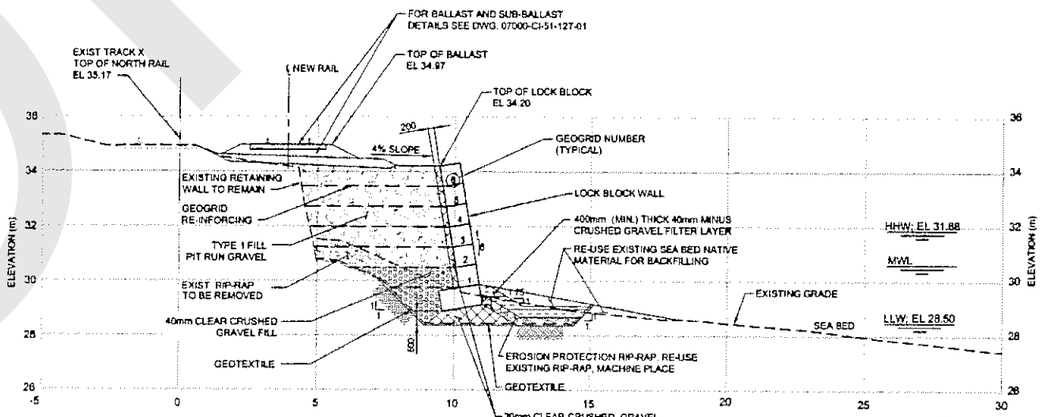
SCALE: 1:100



STA 0+440.00

SCALE: 1:100

NOTE:

THUS, THE GEOGRID LENGTHS MAY BE SHORTER THAN THE MINIMUM GEOGRID LENGTHS SPECIFIED IN THE TABLE ABOVE. EXTEND GEOGRID TO THE FACE OF THE EXISTING STRESS WALL.

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
J. P. PACAMARRA
36141
24 Feb 2015

CH2MHILL
JAN 30 2015
ISSUED FOR CONSTRUCTION

CH2MHILL.
PROJECT # 498103

REFERENCE DRAWINGS		REVISIONS					
DRAWING NO	TITLE	REV	DATE	DESCRIPTION	DRN	CHK	APP
07000-CI-60-101	GENERAL NOTES	0	30-JAN-2015	ISSUED FOR CONSTRUCTION (CH2MHILL PROJ # 454217)	EBA	JP	
07000-CI-60-116	RAIL EXTENSION AND SHORE PROTECTION PLAN AND PROFILES	C	14 NOV 2014	ISSUED FOR TENDER		JP	
		B	26 SEP 2014	ISSUED FOR REVIEW	MS	JP	
		A1	19 JULY 2014	ISSUED FOR INTERDISCIPLINE AND SI/T REVIEW	NDT	JP	

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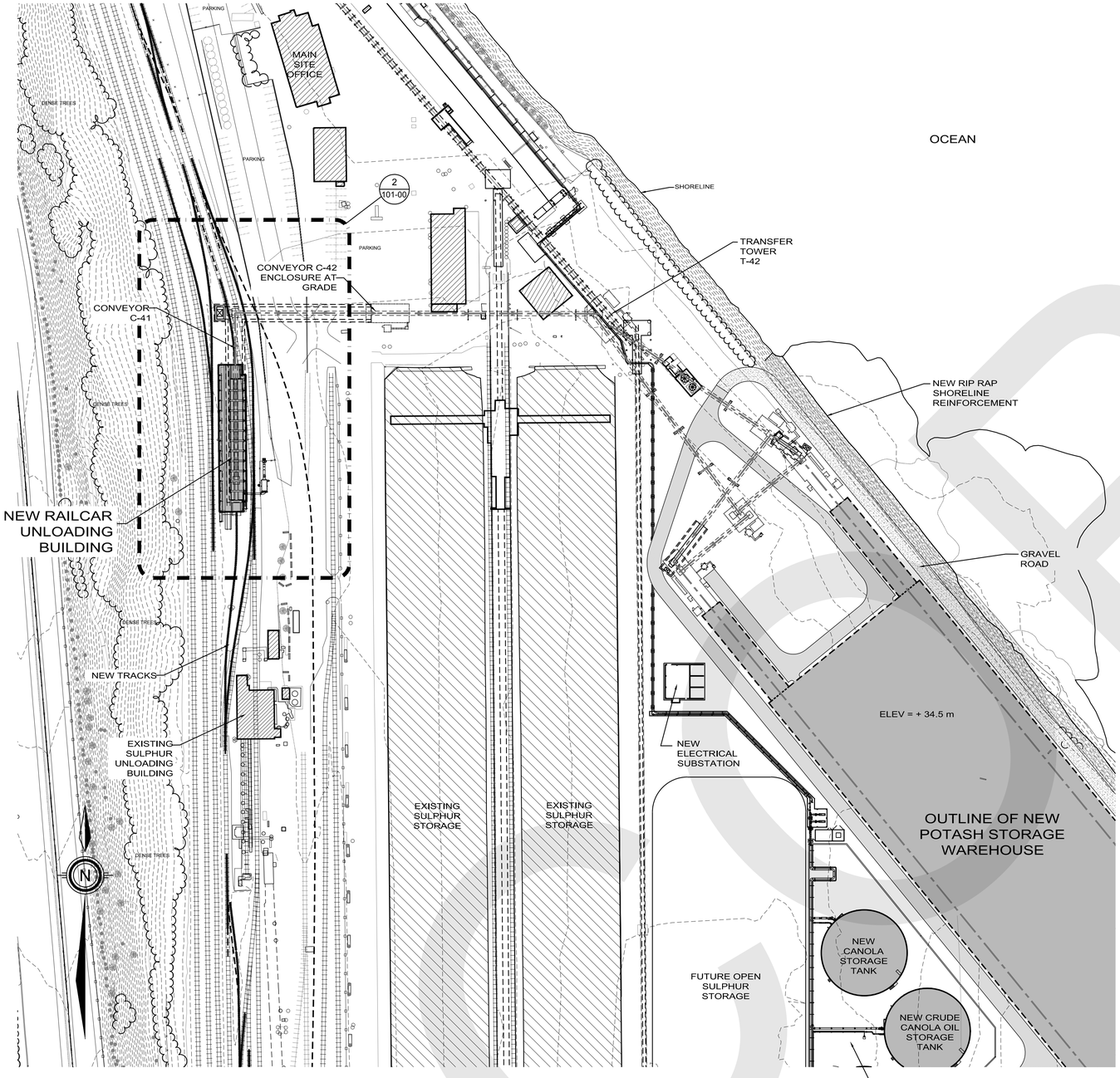
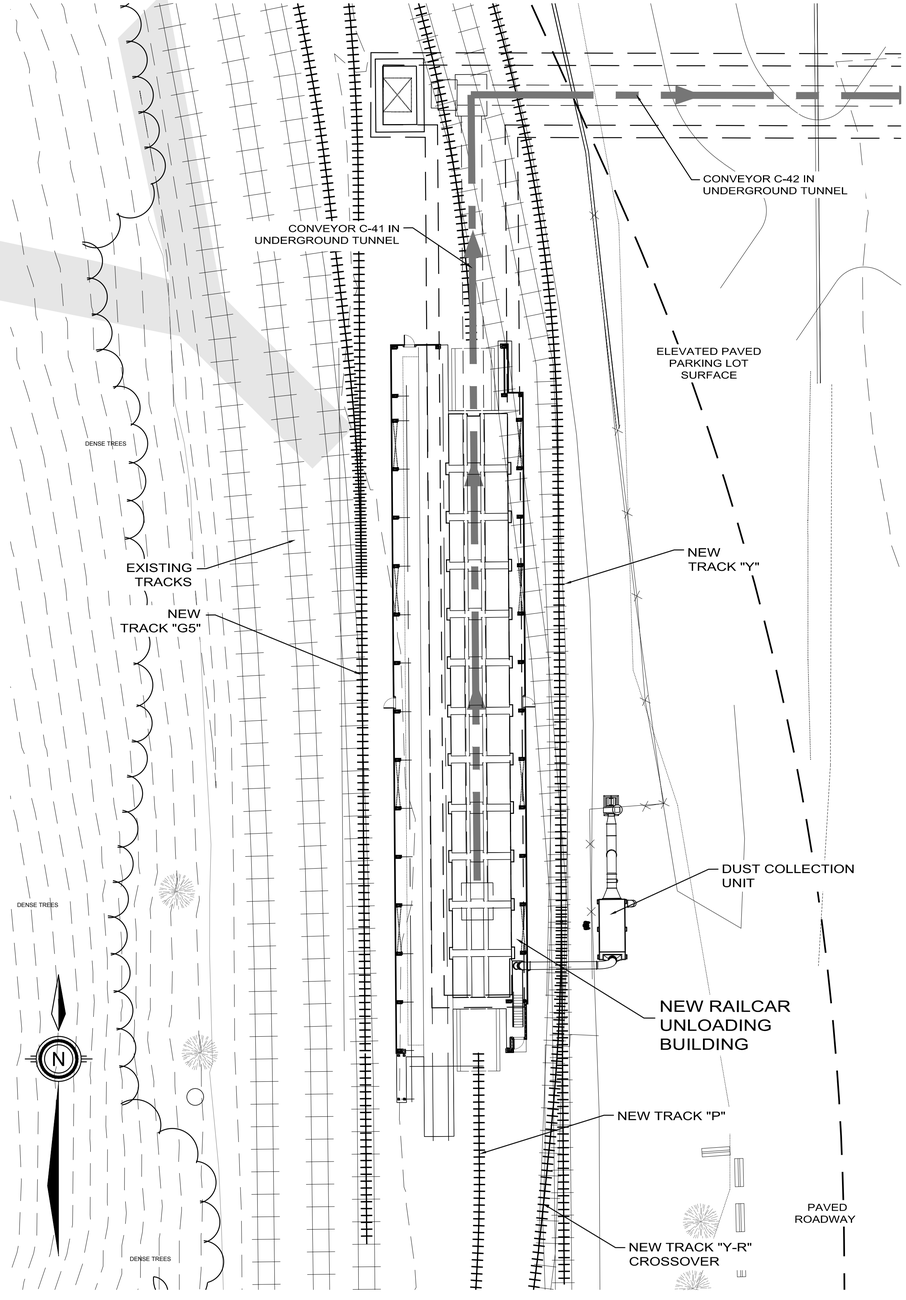
PROJECT NAME: POTASH HANDLING FACILITIES, PORT MOODY, BC

DRAWN: NDT	GENERAL SITE INFRASTRUCTURE RAIL EXTENSION AND SHORE PROTECTION SECTIONS	CH2MHILL	
DESIGNED: JP		PROJECT NO. 498103	SCALE 1:100
CHECKED		DATE 10 JUN 2014	REV 0
APPROVED	DRAWING NUMBER 07000-CI-60-117-05	SHEET 5 OF 7	

FILE NAME: C:\PW_WORKDIR\DEIR001\TATARYNN\D0141969\07000-CI-60-117_1-7.DWG PLOT DATE: 26 January 2015 PLOT STYLE: FULL_EW.CTB



1 Railcar Unloading Building Context Plan
1 : 1000



2 Railcar Unloading Building Site Detail Plan
1 : 250

NOTE:

FOR BUILDING PLACEMENT ON SITE, SEE 07000-CI-60-100-01
- GENERAL SITE INFRASTRUCTURE POTASH HANDLING FACILITIES SITE PLAN

FOR CONVEYOR DISTRIBUTION AND COMPONENTS, SEE 07000-ME-80-114-00
- MECHANICAL LAYOUT - KEY PLAN

CH2MHILL.
Feb 10 2015
ISSUED FOR CONSTRUCTION

DRAWING NO.	TITLE	REV	DATE	DESCRIPTION	DRN	CHK	APP
07000-CI-60-100-01	GENERAL SITE INFRASTRUCTURE – SITE PLAN	C	Feb 10 2015	Issued for Construction	EP	EP	
07000-ME-80-114-00	MECHANICAL LAYOUT DRAWING	B	Dec 05 2014	Issued for Tender	EP	EP	
07000-AR-81-102-00	RAILCAR UNLOADING BUILDING – FLOOR PLAN	A	Nov 28 2014	Issued for IDC	EP	EP	
REFERENCE DRAWINGS		REVISIONS					

K+S Potash Canada

PCT

PROJECT NAME: POTASH HANDLING FACILITIES, PORT MOODY, BC

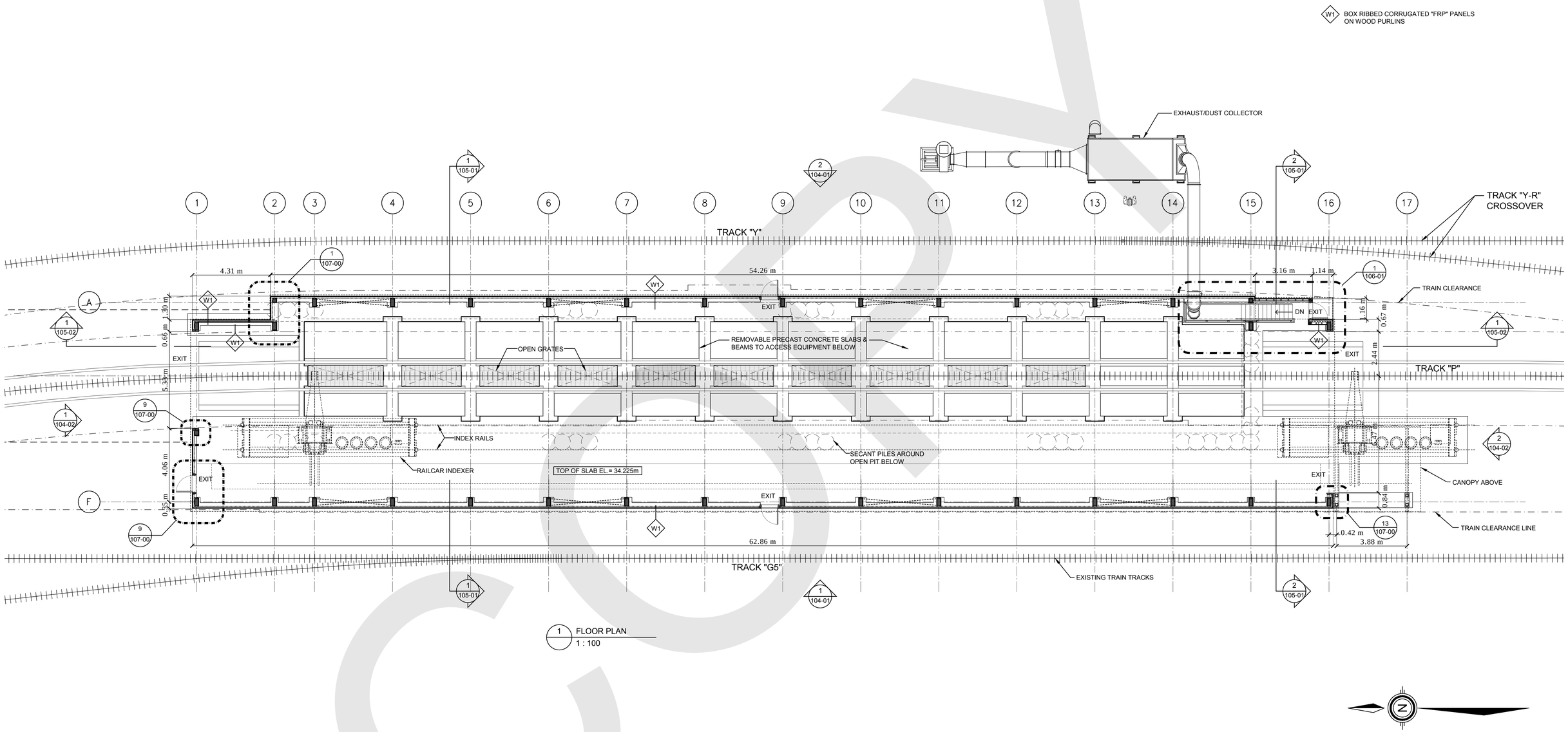
DRAWN: RD/EP
DESIGNED: DG
CHECKED:
APPROVED:

ARCHITECTURAL
RAILCAR UNLOADING BUILDING
SITE PLAN / CONTEXT PLAN

OPENSPACE ARCHITECTURE

DRAWING NUMBER: 07000-AR-81-101-00
SHEET: 00
PROJECT NO.: 494217
SCALE: 1:1000
DATE: 10 FEB 2015
REV: C

FILE NAME: V:\12-14 POTASH PLANT CH2M HILL\CADFILES\CIOR PROJECT 2014\A2-RAIL UNLOADER BUILDING\07000-AR-81-101-00 RDR-DETAILED SITE PLAN.DWG PLOT DATE: 16 February 2015 PLOT STYLE: PLOT-SET-2002.ctb



NOTE:

FOR BUILDING PLACEMENT ON SITE, SEE 07000-CI-60-100-01
- GENERAL SITE INFRASTRUCTURE POTASH HANDLING FACILITIES SITE PLAN

CH2MHILL. Feb 10 2015 ISSUED FOR CONSTRUCTION

REFERENCE DRAWINGS		REVISIONS					
DRAWING NO.	TITLE	REV	DATE	DESCRIPTION	DRN	CHK	APP
07000-CI-60-100-01	GENERAL SITE INFRASTRUCTURE – SITE PLAN						
07000-AR-81-104-01	RAILCAR UNLOADING BUILDING – SIDE ELEVATIONS						
07000-AR-81-104-02	RAILCAR UNLOADING BUILDING – END WALL ELEVATIONS						
07000-AR-81-105-01	RAILCAR UNLOADING BUILDING – CROSS SECTIONS	D	Feb 10 2015	Issued for Construction	EP	EP	
07000-AR-81-105-02	RAILCAR UNLOADING BUILDING – LONGITUDINAL SECTION	C	Dec 05 2014	Issued for Bid	EP	EP	
07000-AR-81-106-00	RAILCAR UNLOADING BUILDING – DETAILED PLANS AND WALL SECTIONS	B	Nov 28 2014	Issued for IDC	EP	EP	
07000-AR-81-108-00	RAILCAR UNLOADING BUILDING – DOOR & MISC DETAILS	A	Nov 24 2014	Issued for Internal Review	EP	EP	

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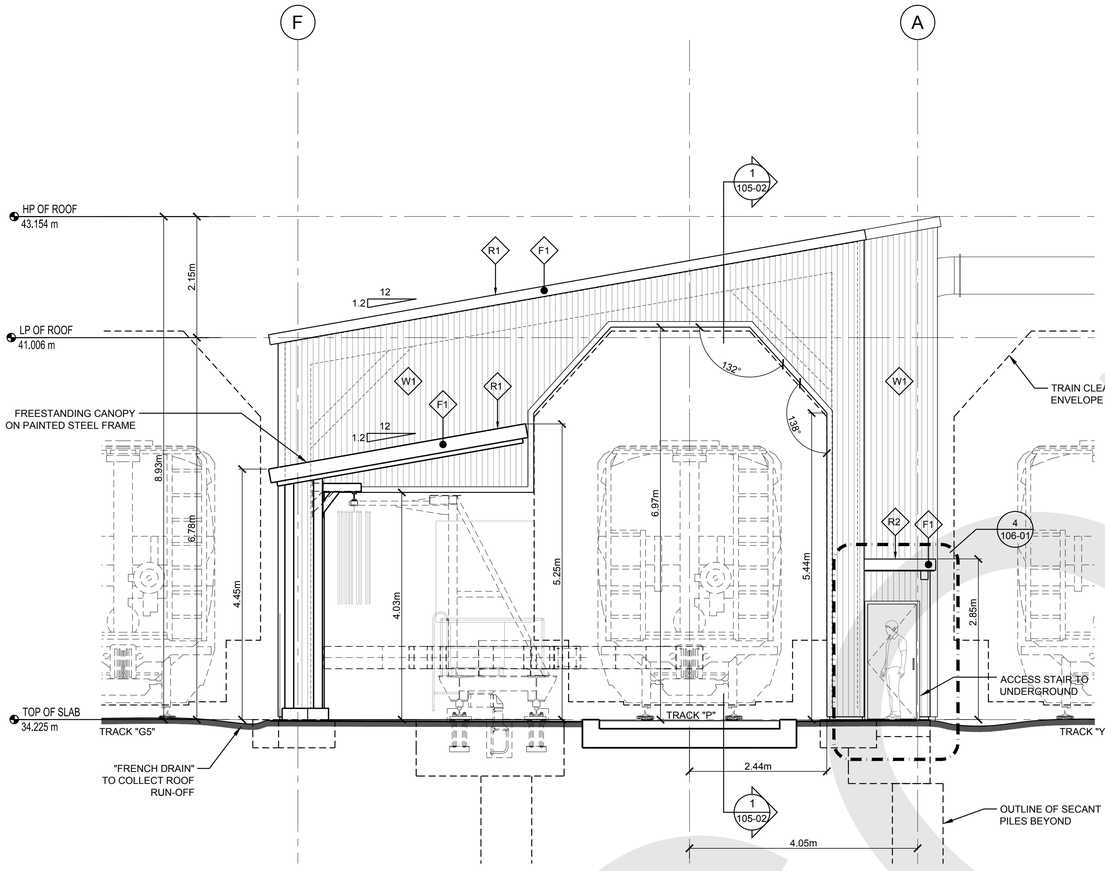
PROJECT NAME	POTASH HANDLING FACILITIES, PORT MOODY, BC		
DRAWN RD/EP	ARCHITECTURAL RAILCAR UNLOADING BUILDING FLOOR PLAN	OPENSPACE ARCHITECTURE	
DESIGNED DG		PROJECT NO. 494217	SCALE 1:100
CHECKED		DATE 10 FEB 2015	REV D
APPROVED	DRAWING NUMBER 07000-AR-81-102-00	SHEET 00	

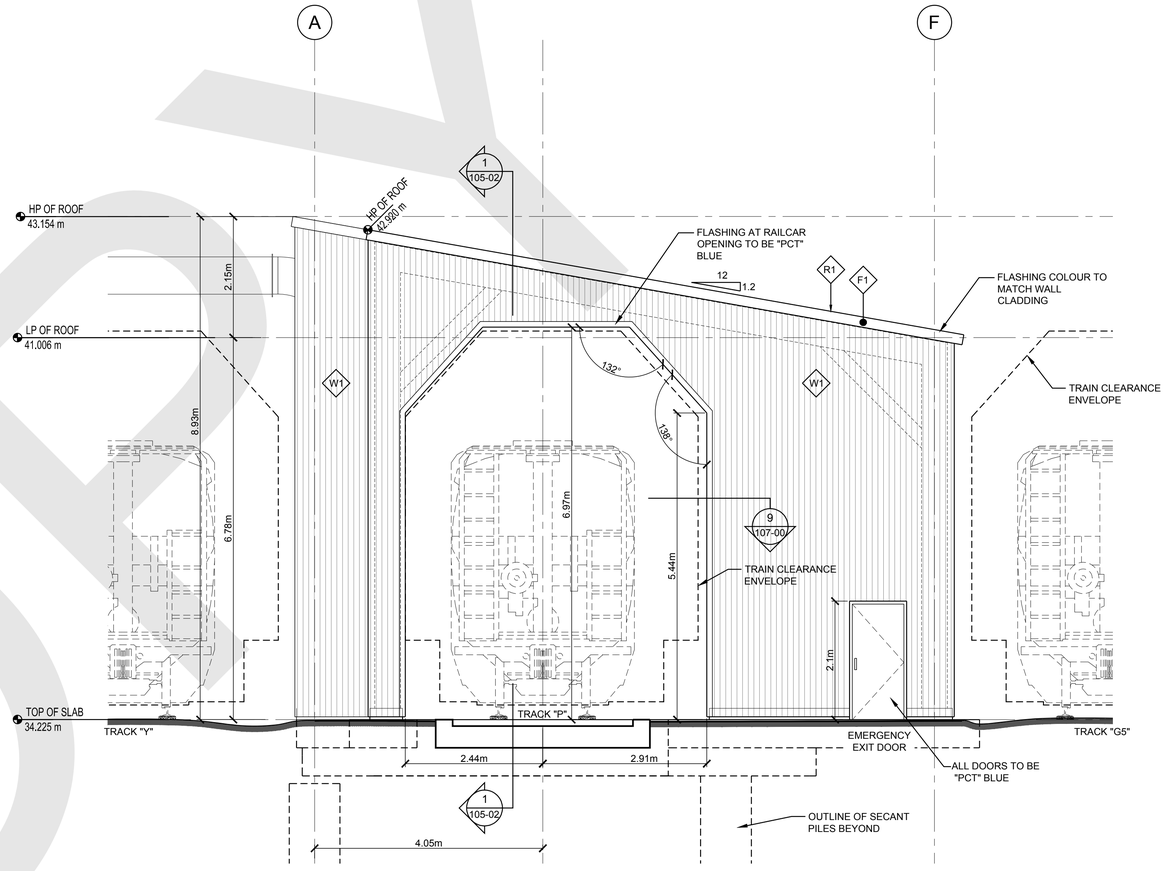
FILE NAME: V:\12-14 POTASH PLANT CH2M HILL\CADFILES\CICR PROJECT 2014\A2-RAIL UNLOADER BUILDING\07000-AR-81-102-00.RDR-FLOOR PLAN.DWG PLOT DATE: 25 February 2015 PLOT STYLE: PLOT-SET-2002.ctb



1 SOUTH ELEVATION
1 : 50

SOUTH ELEVATION SIDING TAKE-OFF:

W1 = 37.6 sm



2 NORTH ELEVATION
1 : 50

NORTH ELEVATION SIDING TAKE-OFF:

W1 = 54 sm

W1 VERTICAL CORRUGATED 'FRP' PANELS

R1 'FRP' ROOFING PANELS

R2 DURO-LAST MEMBRANE

G1 16mm TRIPLE WALLED POLYCARBONATE PANEL - CLEAR

F1 PRE-FINISHED METAL FLASHING

CH2MHILL.
Feb 10 2015
ISSUED
FOR
CONSTRUCTION

DRAWING NO.	TITLE
07000-AR-81-105-02	RAILCAR UNLOADING BUILDING – LONGITUDINAL SECTION
07000-AR-81-106-00	RAILCAR UNLOADING BUILDING – DETAILED PLANS & WALL SECTIONS
07000-AR-81-107-00	RAILCAR UNLOADING BUILDING – PLAN & DOOR DETAILS

REFERENCE DRAWINGS

REV	DATE	DESCRIPTION	DRN	CHK	APP
C	Feb 10 2015	Issued for Construction	EP	EP	
B	Dec 05 2014	Issued for Bid	EP	EP	
A	Nov 28 2014	Issued for Internal Review	EP	EP	

REVISIONS

K+S Potash Canada

PCT

PROJECT NAME
POTASH HANDLING FACILITIES, PORT MOODY, BC

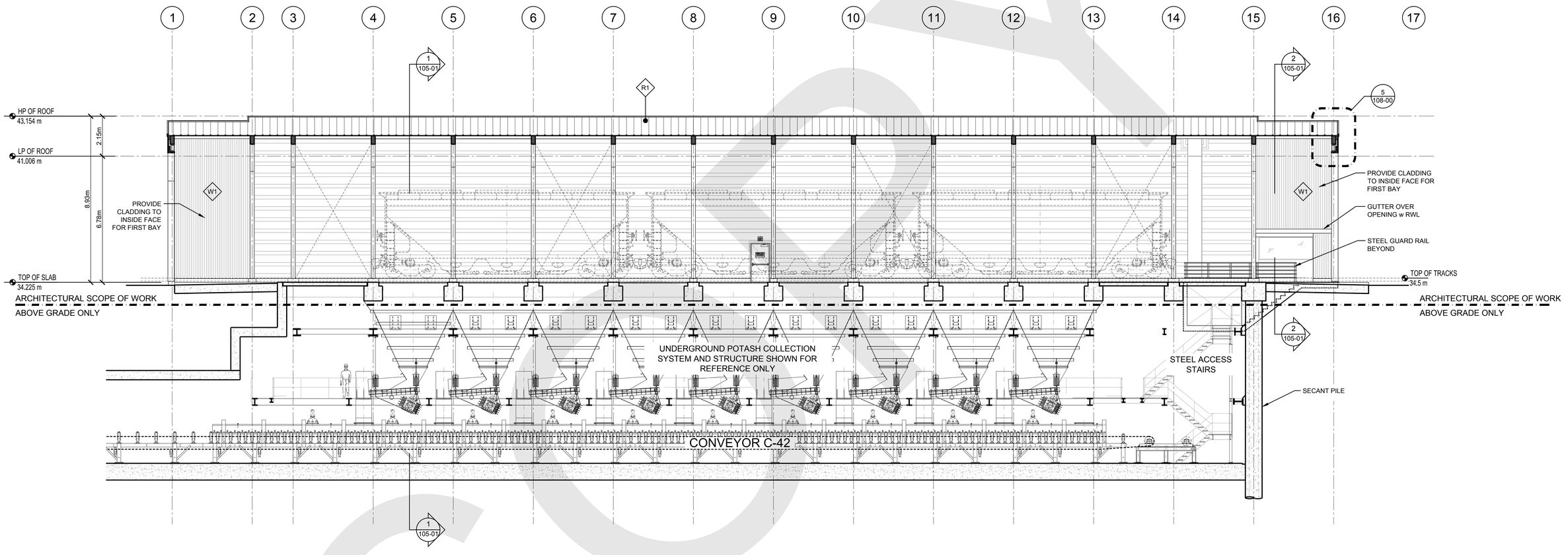
DRAWN RD/EP
DESIGNED DG
CHECKED
APPROVED

ARCHITECTURAL
RAILCAR UNLOADING BUILDING
END ELEVATIONS

OPENSPACE ARCHITECTURE

PROJECT NO. 494217
SCALE 1:50
DRAWING NUMBER 07000-AR-81-104-02
SHEET 01
DATE 10 FEB 2015
REV C

FILE NAME: V:\12-14_POTASH_PLANT_CH2M_HILL\CADFILES\CICP_PROJECT_2014\A2-Rail_UNLOADER_BUILDING\07000-AR-81-104-02_PDP-ELEVATIONS_-_END_WALLS.DWG PLOT DATE: 25_February_2015 PLOT STYLE: PLOT-SET-2002.ctb



1 BUILDING SECTION
1 : 100

W1 VERTICAL CORRUGATED 'FRP' PANELS

R1 'FRP' ROOFING PANELS

R2 DURO-LAST MEMBRANE

G1 16mm TRIPLE WALLED POLYCARBONATE PANEL - CLEAR

F1 PRE-FINISHED METAL FLASHING

CH2MHILL.
Feb 10 2015
ISSUED FOR CONSTRUCTION

DRAWING NO.	TITLE
07000-AR-81-105-01	RAILCAR UNLOADING BUILDING – CROSS SECTIONS
07000-AR-81-108-00	RAILCAR UNLOADING BUILDING – CLADDING & ROOFING DETAILS

REFERENCE DRAWINGS

REV	DATE	DESCRIPTION	DRN	CHK	APP
C	Feb 10 2015	Issued for Construction	EP	EP	
B	Dec 05 2014	Issued for Bid	EP	EP	
A	Nov 28 2014	Issued for Internal Review	EP	EP	

REVISIONS

K+S Potash Canada

PROJECT NAME: POTASH HANDLING FACILITIES, PORT MOODY, BC

DRAWN: RD/EP
DESIGNED: DG
CHECKED:
APPROVED:

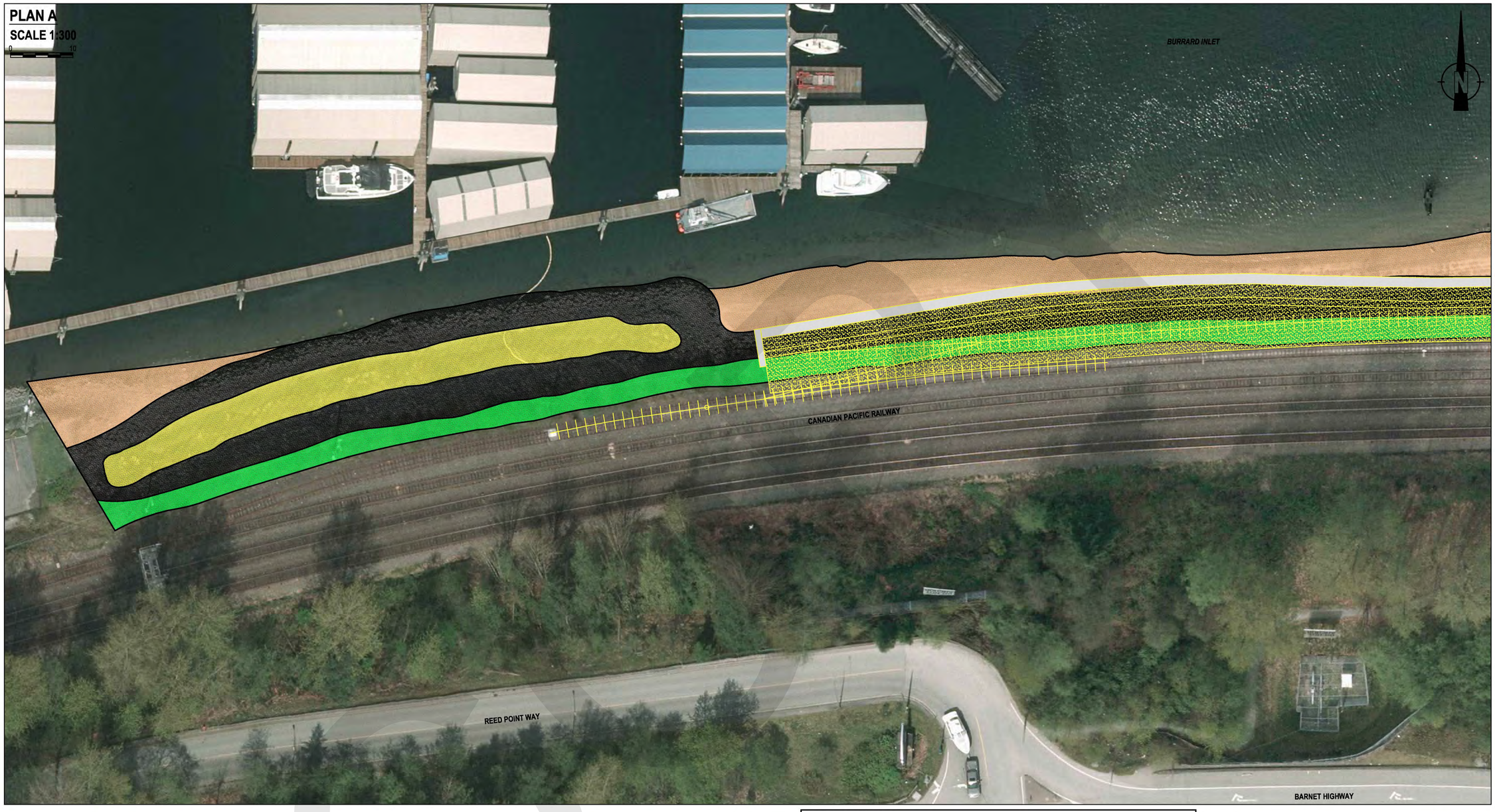
ARCHITECTURAL
RAILCAR UNLOADING BUILDING
LONG SECTION

OPENSPACE ARCHITECTURE

DRAWING NUMBER: 07000-AR-81-105-02
SHEET: 01
PROJECT NO.: 494217
SCALE: 1:100
DATE: 10 FEB 2015
REV: C

FILE NAME: V:\12-14_POTASH_PLANT_CH2M_HILL\CADFILES\CICP_PROJECT_2014\A2-RAIL_UNLOADER_BUILDING\07000-AR-81-105-02_RDP-LONG_SECTION.DWG PLOT DATE: 25_February_2015 PLOT STYLE: PLOT-SET-2002.ctb

PLAN A
SCALE 1:300
0 10



REFERENCE DRAWINGS

1. Drawing No. 07100-C1-60-003. Sheet 2 of 2. Rev. B. "General Site Infrastructure Shore Protection - Rail Extension Site Plan". April 11, 2014. CH2M Hill.
2. Drawing No. H-2733A. Sheets 1 to 5. "Topographic Survey of Portions of The Public Harbour of Burrard Inlet Fronting D.L. 203 Plan LMP52604, and Portions of Parcel I and J Plan 55408". March 06, 2014. Underhill & Underhill.
3. 2004 Ortho Photograph From Metro Vancouver.
4. 2012 Ortho Photograph From McElhanney Consulting Services Ltd.
5. Document: Pacific Coast Terminals Co. Ltd. Project Environmental Review Document Proposed Potash Handling And Storage System. April 30, 2014.

LEGEND - PLAN A

PROPOSED WORKS
- Retaining Wall
- Rip Rap
- Track, Ballast and Aggregate Fill

EXISTING HABITAT TYPES
- Backshore Trees/Shrubs
- Rip Rap
- Salt Marsh
- Beach

PERMANENT IMPACTS TO HABITAT - PLAN A

Backshore Trees/Shrubs: 426m²

Rip Rap: 658m²

Beach: 114m²

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POTASH HANDLING AND STORAGE SYSTEM

envirowest consultants inc.
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facsimile: 604-944-0507
www.envirowest.ca

RAIL LINE HABITAT IMPACTS
PLAN A

DESIGN:	DRAWN:	CHECKED:	REVISION:	REVISION DATE:
GW	SDJ	MAA	00	
SCALE: As Shown			DRAWING NUMBER: 1671-03-01	
DATE: July 07, 2014			SHEET 1 OF 3	

DATE: 2014-07-07 - 9:27am
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LAYOUT: 1671-03-01

PLAN B
SCALE 1:300
0 10

LOCATION
SCALE 1:15000
0 600

REFERENCE DRAWINGS
1. Drawing No. 07100-C1-60-003. Sheet 2 of 2. Rev. B. "General Site Infrastructure Shore Protection - Rail Extension Site Plan". April 11, 2014. CH2M Hill.
2. Drawing No. H-2733A. Sheets 1 to 5. "Topographic Survey of Portions of The Public Harbour of Burrard Inlet Fronting D.L. 203 Plan LMP52604, and Portions of Parcel I and J Plan 55408". March 06, 2014. Underhill & Underhill.
3. 2004 Ortho Photograph From Metro Vancouver.
4. 2012 Ortho Photograph From McElhanney Consulting Services Ltd.
5. Document: Pacific Coast Terminals Co. Ltd. Project Environmental Review Document Proposed Potash Handling And Storage System. April 30, 2014.

LEGEND - PLAN B

PROPOSED WORKS
- Retaining Wall
- Rip Rap
- Track, Ballast and Aggregate Fill

EXISTING HABITAT TYPES
- Backshore Trees/Shrubs
- Rip Rap
- Salt Marsh
- Beach

PERMANENT IMPACTS TO HABITAT - PLAN B

Backshore Trees/Shrubs: 1144m²

Rip Rap: 902m²

Beach: 66m²

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Port Moody, BC

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RAIL LINE HABITAT IMPACTS
PLAN B

DESIGN:	DRAWN:	CHECKED:	REVISION:	REVISION DATE:
GW	SDJ	MAA	00	
SCALE: As Shown			DRAWING NUMBER: 1671-03-02	
DATE: July 07, 2014			SHEET 2 OF 3	

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LAYOUT: 1671-03-02

PLAN C
SCALE 1:300
0 10

LOCATION
SCALE 1:15000
0 600

REFERENCE DRAWINGS
1. Drawing No. 07100-C1-60-003. Sheet 2 of 2. Rev. B. "General Site Infrastructure Shore Protection - Rail Extension Site Plan". April 11, 2014. CH2M Hill.
2. Drawing No. H-2733A. Sheets 1 to 5. "Topographic Survey of Portions of The Public Harbour of Burrard Inlet Fronting D.L. 203 Plan LMP52604, and Portions of Parcel I and J Plan 55408". March 06, 2014. Underhill & Underhill.
3. 2004 Ortho Photograph From Metro Vancouver.
4. 2012 Ortho Photograph From McElhanney Consulting Services Ltd.
5. Document: Pacific Coast Terminals Co. Ltd. Project Environmental Review Document Proposed Potash Handling And Storage System. April 30, 2014.

LEGEND - PLAN C

PROPOSED WORKS
- Retaining Wall
- Rip Rap
- Track, Ballast and Aggregate Fill

EXISTING HABITAT TYPES
- Backshore Trees/Shrubs
- Rip Rap
- Salt Marsh
- Beach

PERMANENT IMPACTS TO HABITAT - PLAN C

Backshore Trees/Shrubs: 470m²

Rip Rap: 1740m²

Beach: 640m²

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RAIL LINE HABITAT IMPACTS
PLAN C

DESIGN:	DRAWN:	CHECKED:	REVISION:	REVISION DATE:
GW	SDJ	MAA	00	

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DATE: July 07, 2014

DRAWING NUMBER: 1671-03-03

SHEET 3 OF 3

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LAYOUT: 1671-03-03

PLAN D
SCALE 1:600
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BURRARD INLET

LOCATION
SCALE 1:15000
0 600

REFERENCE DRAWINGS
1. Drawing No. 07100-C1-60-003. Sheet 1 of 2. Rev. A. "General Site Infrastructure Shore Protection - Potash Bldg Site Plan". April 11, 2014. CH2M Hill.
2. Drawing No. H-2733A. Sheets 1 to 5. "Topographic Survey of Portions of The Public Harbour of Burrard Inlet Fronting D.L. 203 Plan LMP52604, and Portions of Parcel I and J Plan 55408". March 06, 2014. Underhill & Underhill.
3. 2004 Ortho Photograph From Metro Vancouver.
4. 2012 Ortho Photograph From McElhanney Consulting Services Ltd.
5. Document: Pacific Coast Terminals Co. Ltd. Project Environmental Review Document Proposed Potash Handling And Storage System. April 30, 2014.

LEGEND - PLAN D

PROPOSED WORKS
- Road
- Rip Rap
- Potash Building

EXISTING HABITAT TYPES
- Backshore Trees/Shrubs
- Rip Rap
- Mud Flat

PERMANENT IMPACTS TO HABITAT - PLAN D
Backshore Trees/Shrubs: 1220m²
Rip Rap: 2330m²
Mud Flat: 285m²

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POTASH SHED HABITAT IMPACTS
PLAN D

DESIGN:	DRAWN:	CHECKED:	REVISION:	REVISION DATE:
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LAYOUT: 1671-03-04

REFERENCE DRAWING
2004 Ortho Photograph From Metro Vancouver.

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Port Moody, BC

POTASH HANDLING AND STORAGE SYSTEM

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BACKSHORE VEGETATION OFFSETS LOCATIONS

DESIGN:	DRAWN:	CHECKED:	REVISION:	REVISION DATE:
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DATE: December 02, 2014				

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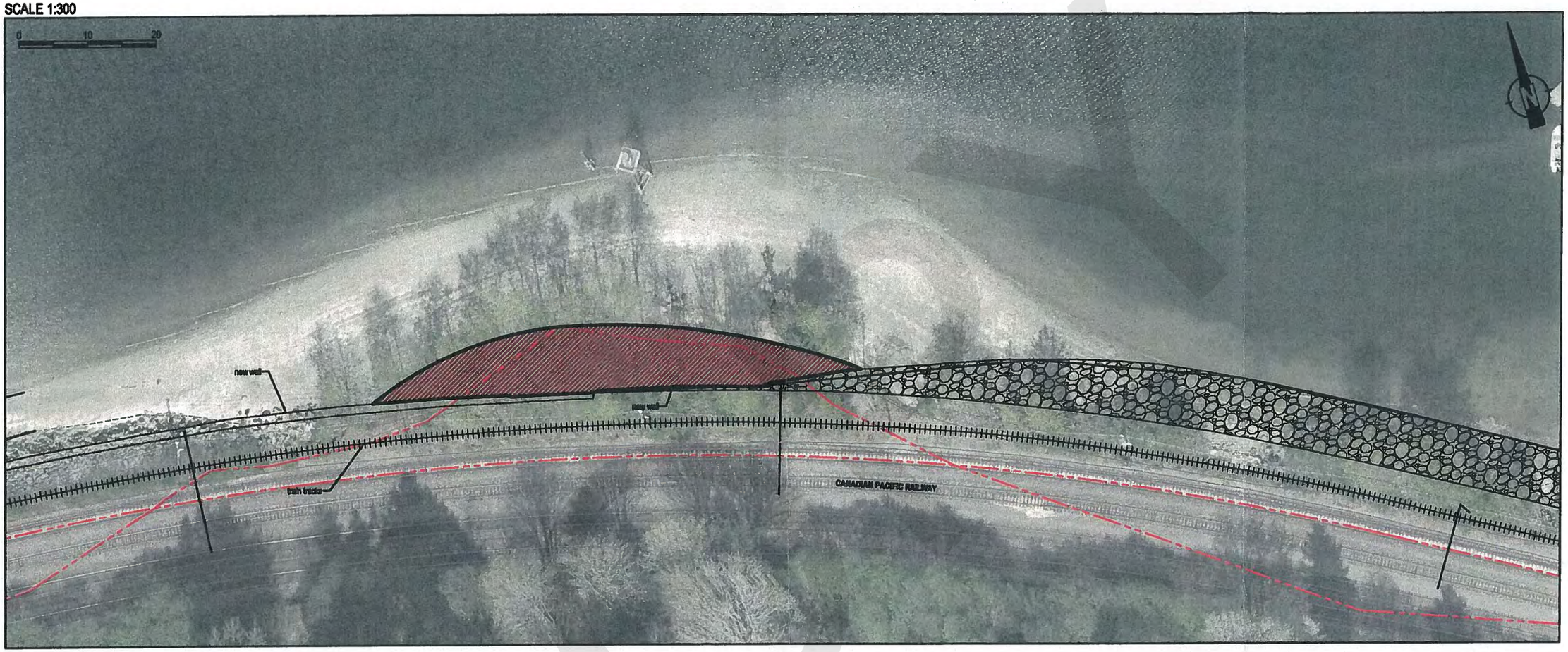
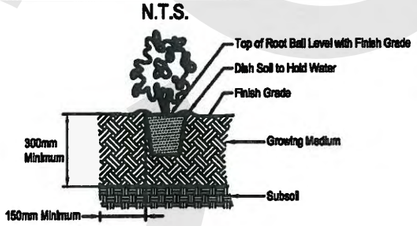


GENERAL LANDSCAPE SPECIFICATIONS

1. Plant material and the planting of such material are to be in accordance with the British Columbia Landscape Standard (seventh edition) jointly published by the British Columbia Society of Landscape Architects and the British Columbia Landscape Nursery Association.
2. Clear and grub English ivy (*Hedera helix*) and blackberry (*Rubus* spp.); dispose of waste to an approved green waste facility. Herbicides are not to be used as part of the removal of invasives.
3. Plant 100 no.2 pot Douglas fir (*Pseudotsuga menziesii*) and 200 no.1 pot salal (*Gaultheria shallon*) as directed by Envirowest in the field.
4. All works are to be conducted in accordance with the sediment control provisions of the "Land Development Guidelines for the Protection of Aquatic Habitat" jointly published by BC Ministry of Environment and Fisheries and Oceans Canada.
5. All plant material is to be inspected and approved by Envirowest prior to installation.
6. Growing medium is to be free of any subsoils, roots, noxious grass, weeds, toxic materials, stone over 30 mm diameter, foreign objects, and possess an acidity range (pH) of 5.5 to 7.5. Growing medium is to be inspected by Envirowest prior to placement.
7. Disturbed areas to be seeded with red fescue (*Festuca rubra*); application rate in accordance with supplier's recommendation.
8. Offset area is to be maintained as part of the overall continuous maintenance regime for the terminal facility. Maintenance of the offset area is to include watering, selective pruning, and physical removal of invasive plants, including English ivy (*Hedera helix*), blackberry (*Rubus discolor*.), Scot's broom (*Cytisus scoparius*) and Japanese knotweed (*Polygonum cuspidatum*). Herbicides are not to be used as part of the maintenance of the offset area.
9. Survivorship of planted species is to equal ninety (90) percent five years from planting. Replacement of dead stock may be required to fulfill this specification. Replacement stock must be alive for at least two (2) years to fulfill this specification.

TYPICAL CONTAINER SHRUB AND No. 1 AND 2 POT TREE PLANTING DETAIL
N.T.S.



LEGEND
Offset Area (488 m²)

REFERENCE DRAWINGS
1. Drawing No. 07100-C1-60-003. Sheet 2 of 2. Rev. B. "General Site Infrastructure Shore Protection - Rail Extension Site Plan". April 11, 2014. CH2M Hill.
2. Drawing No. H-2733A. Sheets 1 to 5. "Topographic Survey of Portions of The Public Harbour of Burrard Inlet Fronting D.L. 203 Plan LMP52604, and Portions of Parcel I and J Plan 55408". March 06, 2014. Underhill & Underhill.
3. 2012 Ortho Photograph From McElhanney Consulting Services Ltd.

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REED POINT OFFSET PRESCRIPTION

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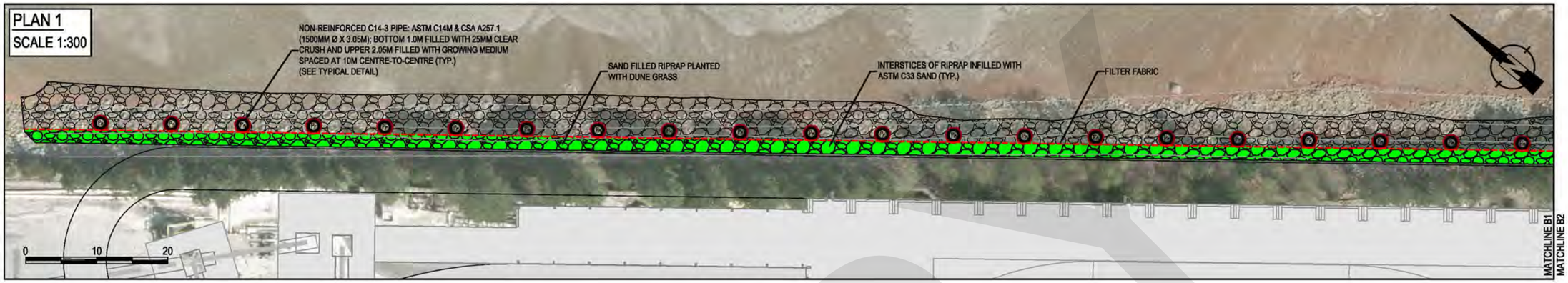
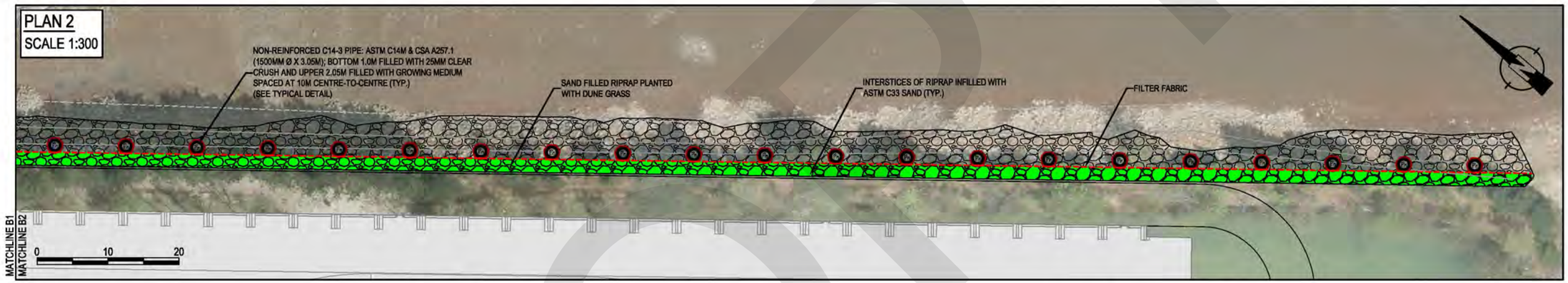
DATE: December 02, 2014			SHEET 1 OF 5	





PLANT SPECIES LIST AND SPECIFICATIONS

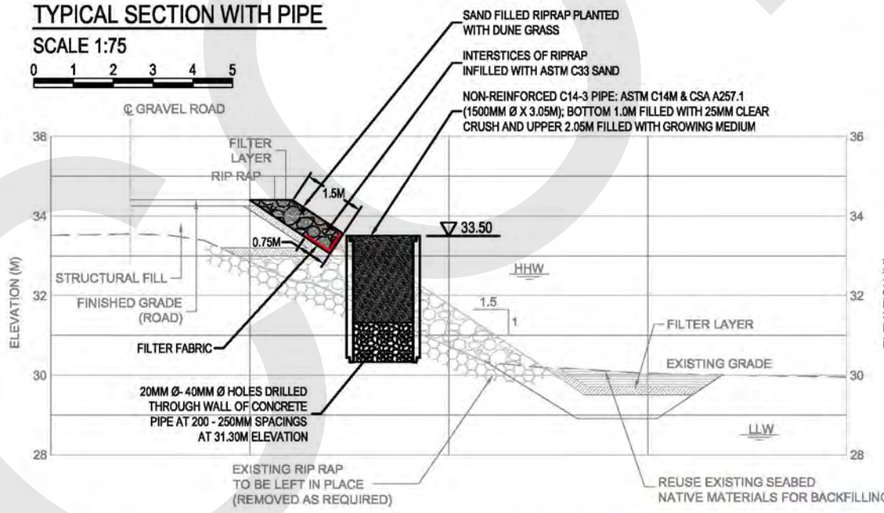
SYMBOL	COMMON NAME	LATIN NAME	NUMBER	COMMENTS
Pp	shore pine	*Pinus contorta*	42	2.5m B&B; well branched; header not exceeding 300mm Ø
	dune grass	*Leymus mollis*	4000	77 415D plug; well established; planted no greater than 0.5m centre-to-centre spacing

GENERAL LANDSCAPE SPECIFICATIONS

1. Plant material and the planting of such material are to be in accordance with the British Columbia Landscape Standard (seventh edition) jointly published by the British Columbia Society of Landscape Architects and the British Columbia Landscape Nursery Association.
2. All works are to be conducted in accordance with the sediment control provisions of the "Land Development Guidelines for the Protection of Aquatic Habitat" jointly published by BC Ministry of Environment and Fisheries and Oceans Canada.
3. All plant material is to be inspected and approved by Envirowest prior to installation.
4. Growing medium is to be free of any subsoils, roots, noxious grass, weeds, toxic materials, stone over 30 mm diameter, foreign objects, and possess an acidity range (pH) of 5.5 to 7.5. Growing medium is to be inspected by Envirowest prior to placement.
5. Offset area is to be maintained as part of the overall continuous maintenance regime for the terminal facility. Maintenance of the offset area is to include watering, selective pruning, and physical removal of invasive plants, including English ivy (*Hedera helix*), blackberry (*Rubus discolor*), Scot's broom (*Cytisus scoparius*) and Japanese knotweed (*Polygonum cuspidatum*). Herbicides are not to be used as part of the maintenance of the offset area.
6. Survivorship of planted species is to equal one hundred (100) percent five years from planting for shore pine (*Pinus contorta*)and ninety (90) percent for dune grass (*Leymus mollis*). Replacement of dead stock may be required to fulfill this specification. Replacement stock must be alive for at least two (2) years to fulfill this specification.

TYPICAL SECTION WITH PIPE

SCALE 1:75



TYPICAL SECTION WITHOUT PIPE

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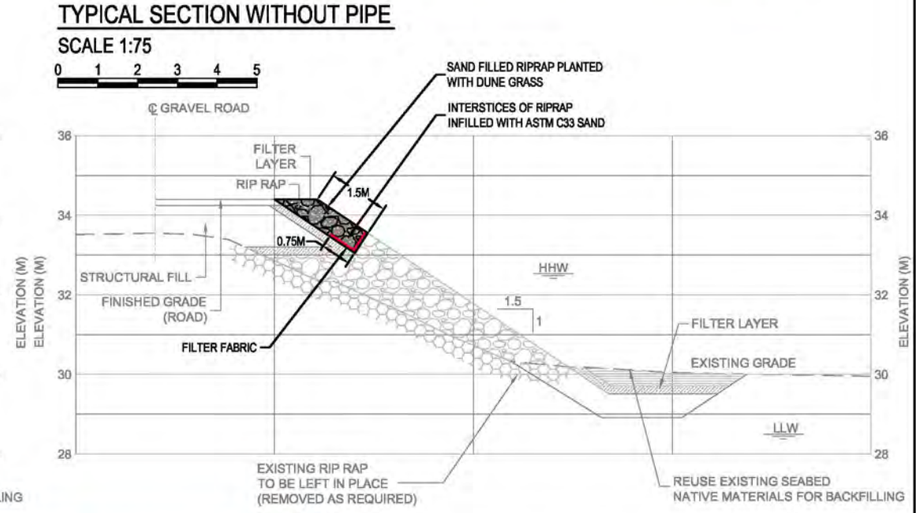

REFERENCE DRAWINGS

1. Drawing No. 07100-C1-60-003. Sheet 2 of 2. Rev. B. "General Site Infrastructure Shore Protection - Rail Extension Site Plan". April 11, 2014. CH2M Hill.
2. Drawing No. H-2733A. Sheets 1 to 5. "Topographic Survey of Portions of The Public Harbour of Burrard Inlet Fronting D.L. 203 Plan LMP52604, and Portions of Parcel I and J Plan 55408". March 06, 2014. Underhill & Underhill.
3. 2012 Ortho Photograph From McElhanney Consulting Services Ltd.

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Port Moody, BC

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POTASH SHED OFFSET PRESCRIPTION

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MAA	CEV		00	
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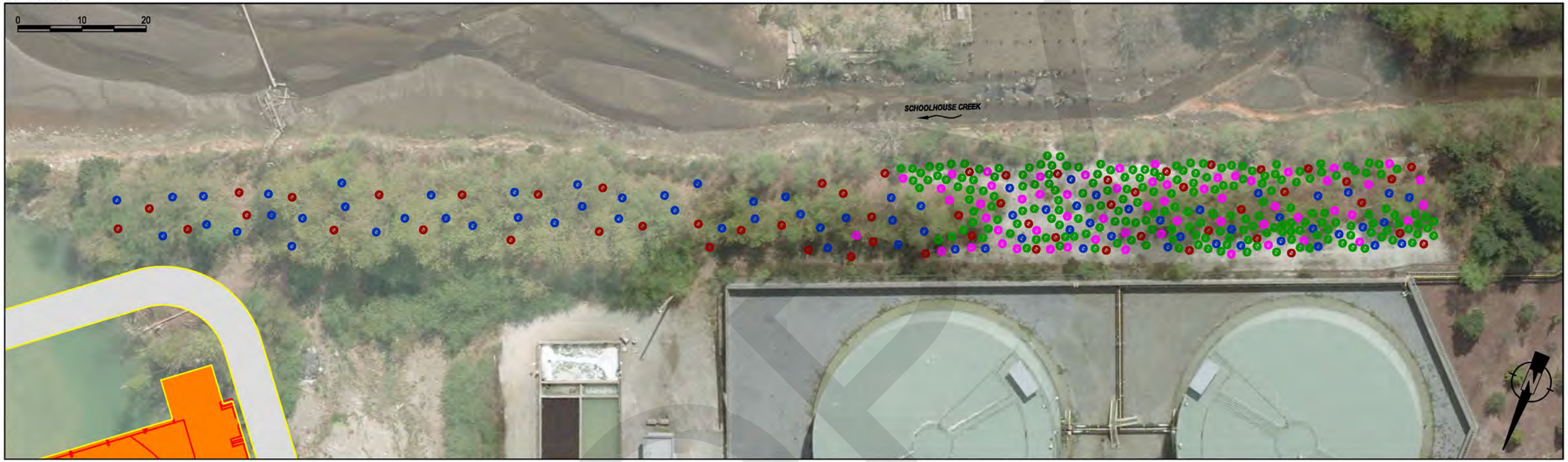
DATE: December 02, 2014			SHEET 2 OF 5	

DRAFT

PLAN

SCALE 1:300

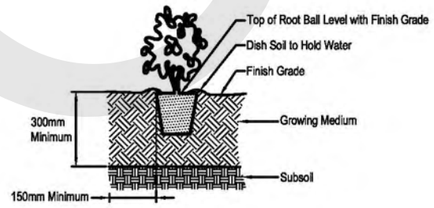


GENERAL LANDSCAPE SPECIFICATIONS

1. Plant material and the planting of such material are to be in accordance with the British Columbia Landscape Standard (seventh edition) jointly published by the British Columbia Society of Landscape Architects and the British Columbia Landscape Nursery Association.
2. Clear and grub Scot's broom (*Cytisus scoparius*) and blackberry (*Rubus* spp.); dispose of waste to an approved green waste facility. Herbicides are not to be used as part of the removal of invasives.
3. All works are to be conducted in accordance with the sediment control provisions of the "Land Development Guidelines for the Protection of Aquatic Habitat" jointly published by BC Ministry of Environment and Fisheries and Oceans Canada.
4. All plant material is to be inspected and approved by Envirowest prior to installation.
5. Growing medium is to be free of any subsoils, roots, noxious grass, weeds, toxic materials, stone over 30 mm diameter, foreign objects, and possess an acidity range (pH) of 5.5 to 7.5. Growing medium is to be inspected by Envirowest prior to placement.
6. All debris and/or excess material from landscape operations are to be collected and disposed offsite in accordance with all regulatory requirements.
7. Disturbed areas to be seeded with red fescue (*Festuca rubra*); application rate in accordance with supplier's recommendation.
8. Offset area is to be maintained as part of the overall continuous maintenance regime for the terminal facility. Maintenance of the offset area is to include watering, selective pruning, and physical removal of invasive plants, including English ivy (*Hedera helix*), blackberry (*Rubus discolor*), Scot's broom (*Cytisus scoparius*) and Japanese knotweed (*Polygonum cuspidatum*). Herbicides are not to be used as part of the maintenance of the offset area.
9. Survivorship of planted species is to equal ninety (90) percent five years from planting. Replacement of dead stock may be required to fulfill this specification. Replacement stock must be alive for at least two (2) years to fulfill this specification.

TYPICAL CONTAINER SHRUB AND No. 2 AND 3 POT TREE PLANTING DETAIL

N.T.S.



PLANT SPECIES LIST AND SPECIFICATIONS

SYMBOL	COMMON NAME	LATIN NAME	NUMBER	COMMENTS
	Douglas-fir	*Pseudotsuga menziesii*	75	no. 3 pot; densely branched; well established
	shore pine var. contorta	*Pinus contorta*	58	no. 3 pot; densely branched; well established
	paper birch	*Betula papyrifera*	59	no. 3 pot; densely branched; well established
	Saskatoon	*Amelanchier alnifolia*	197	no. 2 pot; densely branched; well established

REFERENCE DRAWINGS

1. Drawing No. 07100-C1-60-003. Sheet 2 of 2. Rev. B. "General Site Infrastructure Shore Protection - Rail Extension Site Plan". April 11, 2014. CH2M Hill.
2. Drawing No. H-2733A. Sheets 1 to 5. "Topographic Survey of Portions of The Public Harbour of Burrard Inlet Fronting D.L. 203 Plan LMP52604, and Portions of Parcel I and J Plan 55408". March 06, 2014. Underhill & Underhill.
3. 2012 Ortho Photograph From McElhanney Consulting Services Ltd.

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SCHOOLHOUSE CREEK OFFSET PRESCRIPTION

DESIGN:	DRAWN:	CHECKED:	REVISION:	REVISION DATE:
MAA	CEV		00	
SCALE: As Shown			DRAWING NUMBER: 1671-03-08	
DATE: December 02, 2014			SHEET 3 OF 5	

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LAYOUT: 1671-03-08

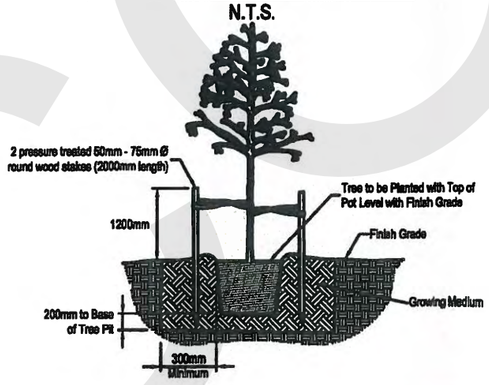
PLAN
SCALE 1:300

GENERAL LANDSCAPE SPECIFICATIONS

1. Plant material and the planting of such material are to be in accordance with the British Columbia Landscape Standard (seventh edition) jointly published by the British Columbia Society of Landscape Architects and the British Columbia Landscape Nursery Association.
2. Clear and grub Scott's broom (*Cytisus scoparius*) and blackberry (*Rubus* spp.); dispose of waste to an approved green waste facility. Herbicides are not to be used as part of the removal of invasives.
3. All works are to be conducted in accordance with the sediment control provisions of the "Land Development Guidelines for the Protection of Aquatic Habitat" jointly published by BC Ministry of Environment and Fisheries and Oceans Canada.
4. All plant material is to be inspected and approved by Envirowest prior to installation.
5. Growing medium is to be free of any subsoils, roots, noxious grass, weeds, toxic materials, stone over 30 mm diameter, foreign objects, and possess an acidity range (pH) of 6.5 to 7.5. Growing medium is to be inspected by Envirowest prior to placement.
6. All debris and/or excess material from landscape operations are to be collected and disposed offsite in accordance with all regulatory requirements.
7. Disturbed areas to be seeded with red fescue (*Festuca rubra*); application rate in accordance with supplier's recommendation.
8. Offset area is to be maintained as part of the overall continuous maintenance regime for the terminal facility. Maintenance of the offset area is to include watering, selective pruning, and physical removal of invasive plants, including English ivy (*Hedera helix*), blackberry (*Rubus discolor*.), Scott's broom (*Cytisus scoparius*) and Japanese knotweed (*Polygonum cuspidatum*). Herbicides are not to be used as part of the maintenance of the offset area.
9. Survivorship of planted species is to equal ninety (90) percent five years from planting. Replacement of dead stock may be required to fulfill this specification. Replacement stock must be alive for at least two (2) years to fulfill this specification.

TYPICAL CONTAINER (No. 7 POT) TREE PLANTING WITH STAKING DETAIL

N.T.S.



TYPICAL CONTAINER SHRUB AND No. 3 POT TREE PLANTING DETAIL

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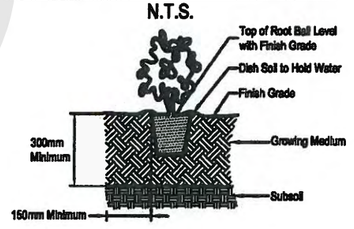

PLANT SPECIES LIST AND SPECIFICATIONS

SYMBOL	COMMON NAME	LATIN NAME	NUMBER	COMMENTS
	shore pine	*Pinus contorta*	21	1.5m - 2.0m container grown (min. no. 7 pot); densely branched; well established
	Douglas-fir	*Pseudotsuga menziesii*	17	no. 3 pot; densely branched; well established

REFERENCE DRAWINGS
2012 Ortho Photograph From McElhanney Consulting Services Ltd.

PACIFIC COAST TERMINALS CO. LTD.
Port Moody, BC

POTASH HANDLING AND STORAGE SYSTEM

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GLYCOL TANK OFFSET PRESCRIPTION

DESIGN:	DRAWN:	CHECKED:	REVISION:	REVISION DATE:
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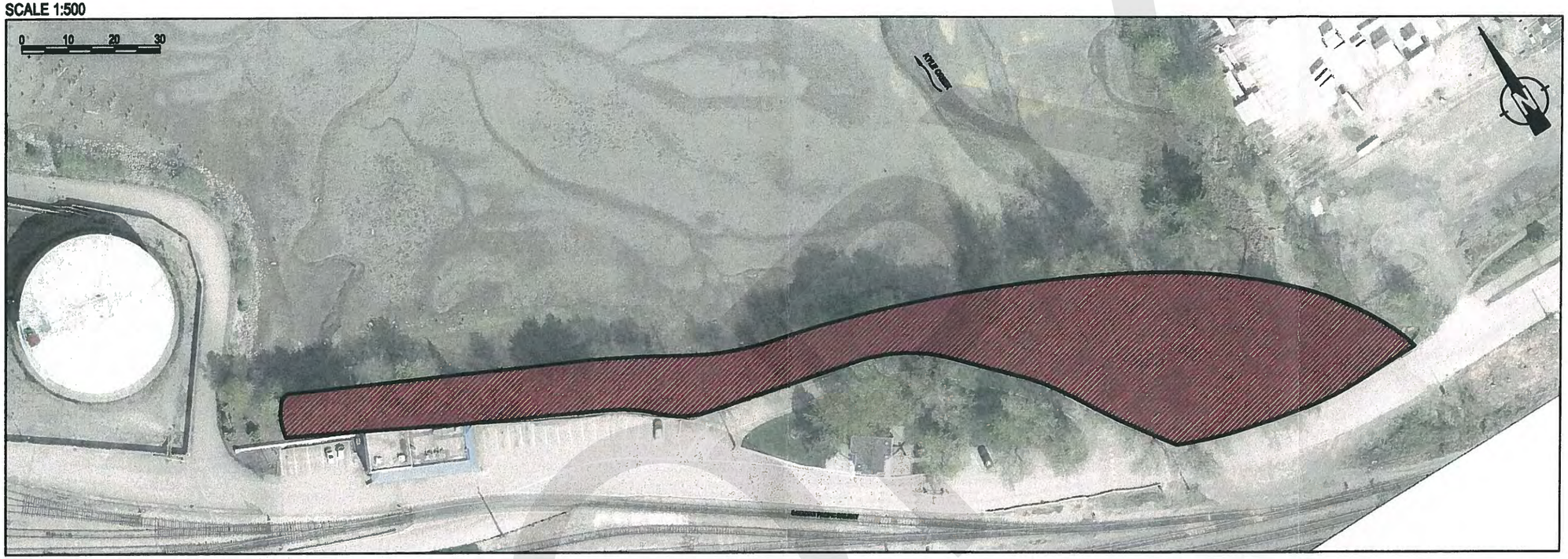
DRAWING NUMBER: 1671-03-09

PLAN

SCALE 1:500



LEGEND

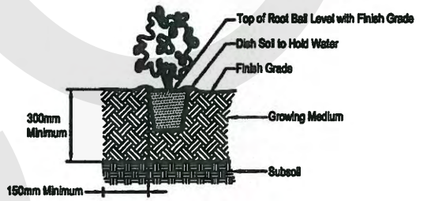
Offset Area (4180 m²)

GENERAL LANDSCAPE SPECIFICATIONS

1. Plant material and the planting of such material are to be in accordance with the British Columbia Landscape Standard (seventh edition) jointly published by the British Columbia Society of Landscape Architects and the British Columbia Landscape Nursery Association.
2. Clear and grub English ivy (*Hedera helix*), Japanese knotweed (*Polygonum cuspidatum*) and blackberry (*Rubus* spp.); dispose of waste to an approved green waste facility. Herbicides are not to be used as part of the removal of invasives.
3. Plant 100 no.2 pot western redcedar (*Thuja plicata*), 100 no.1 pot Indian plum (*Oemleria cerasiformis*) and 100 no. 1 pot salmonberry (*Rubus spectabilis*) as directed by Envirowest in the field.
4. All western redcedar (*Thuja plicata*) must be of native stock; any cultivars, such as *Thuja plicata* var. *excelsa*, are not to be planted.
5. All works are to be conducted in accordance with the sediment control provisions of the "Land Development Guidelines for the Protection of Aquatic Habitat" jointly published by BC Ministry of Environment and Fisheries and Oceans Canada.
6. All plant material is to be inspected and approved by Envirowest prior to installation.
7. Growing medium is to be free of any subsoils, roots, noxious grass, weeds, toxic materials, stone over 30 mm diameter, foreign objects, and possess an acidity range (pH) of 5.5 to 7.5. Growing medium is to be inspected by Envirowest prior to placement.
8. Disturbed areas to be seeded with red fescue (*Festuca rubra*); application rate in accordance with supplier's recommendation.
9. Offset area is to be maintained as part of the overall continuous maintenance regime for the terminal facility. Maintenance of the offset area is to include watering, selective pruning, and physical removal of invasive plants, including English ivy (*Hedera helix*), blackberry (*Rubus discolor*.), Scot's broom (*Cytisus scoparius*) and Japanese knotweed (*Polygonum cuspidatum*). Herbicides are not to be used as part of the maintenance of the offset area.
10. Survivorship of planted species is to equal ninety (90) percent five years from planting. Replacement of dead stock may be required to fulfill this specification. Replacement stock must be alive for at least two (2) years to fulfill this specification.

TYPICAL CONTAINER SHRUB AND No. 1 AND 2 POT TREE PLANTING DETAIL

N.T.S.



REFERENCE DRAWINGS

2006 Ortho Photograph From McElhanney Consulting Services Ltd.

PACIFIC COAST TERMINALS CO. LTD.
Port Moody, BC

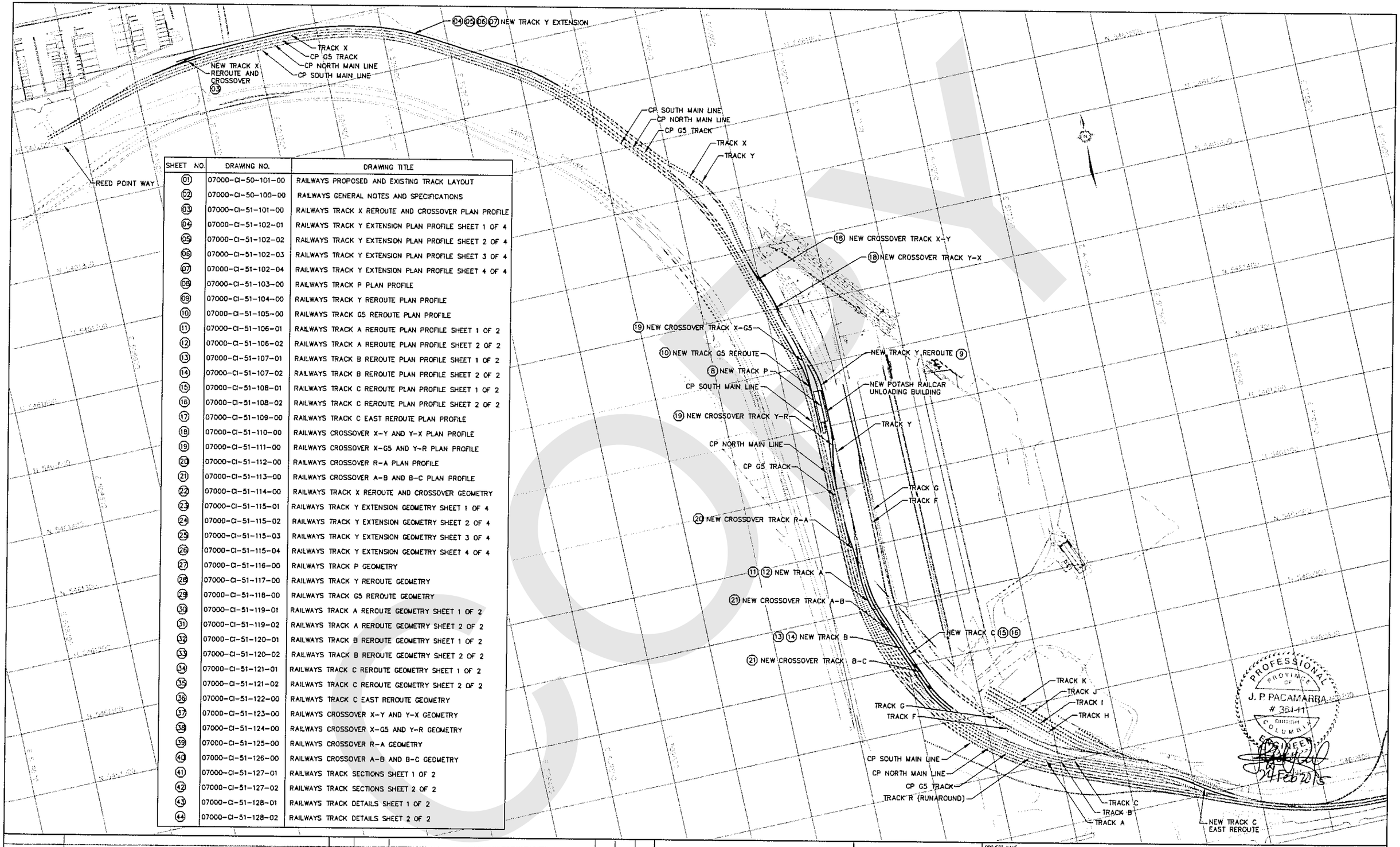
POTASH HANDLING AND STORAGE SYSTEM

envirowest consultants inc.
Suite 101 - 1515 Broadway Street
Port Coquitlam, British Columbia
Canada V3C 6M2
office: 604-944-0502
facsimile. 604-944-0507
www.envirowest.ca

KYLE CREEK OFFSET PRESCRIPTION

DESIGN:	DRAWN:	CHECKED:	REVISION:	REVISION DATE:
MAA	CEV		00	
SCALE: As Shown			DRAWING NUMBER: 1671-03-10	
DATE: December 02, 2014			SHEET 5 OF 5	

SHEET NO.	DRAWING NO.	DRAWING TITLE
01	07000-CI-50-101-00	RAILWAYS PROPOSED AND EXISTING TRACK LAYOUT
02	07000-CI-50-100-00	RAILWAYS GENERAL NOTES AND SPECIFICATIONS
03	07000-CI-51-101-00	RAILWAYS TRACK X REROUTE AND CROSSOVER PLAN PROFILE
04	07000-CI-51-102-01	RAILWAYS TRACK Y EXTENSION PLAN PROFILE SHEET 1 OF 4
05	07000-CI-51-102-02	RAILWAYS TRACK Y EXTENSION PLAN PROFILE SHEET 2 OF 4
06	07000-CI-51-102-03	RAILWAYS TRACK Y EXTENSION PLAN PROFILE SHEET 3 OF 4
07	07000-CI-51-102-04	RAILWAYS TRACK Y EXTENSION PLAN PROFILE SHEET 4 OF 4
08	07000-CI-51-103-00	RAILWAYS TRACK P PLAN PROFILE
09	07000-CI-51-104-00	RAILWAYS TRACK Y REROUTE PLAN PROFILE
10	07000-CI-51-105-00	RAILWAYS TRACK G5 REROUTE PLAN PROFILE
11	07000-CI-51-106-01	RAILWAYS TRACK A REROUTE PLAN PROFILE SHEET 1 OF 2
12	07000-CI-51-106-02	RAILWAYS TRACK A REROUTE PLAN PROFILE SHEET 2 OF 2
13	07000-CI-51-107-01	RAILWAYS TRACK B REROUTE PLAN PROFILE SHEET 1 OF 2
14	07000-CI-51-107-02	RAILWAYS TRACK B REROUTE PLAN PROFILE SHEET 2 OF 2
15	07000-CI-51-108-01	RAILWAYS TRACK C REROUTE PLAN PROFILE SHEET 1 OF 2
16	07000-CI-51-108-02	RAILWAYS TRACK C REROUTE PLAN PROFILE SHEET 2 OF 2
17	07000-CI-51-109-00	RAILWAYS TRACK C EAST REROUTE PLAN PROFILE
18	07000-CI-51-110-00	RAILWAYS CROSSOVER X-Y AND Y-X PLAN PROFILE
19	07000-CI-51-111-00	RAILWAYS CROSSOVER X-G5 AND Y-R PLAN PROFILE
20	07000-CI-51-112-00	RAILWAYS CROSSOVER R-A PLAN PROFILE
21	07000-CI-51-113-00	RAILWAYS CROSSOVER A-B AND B-C PLAN PROFILE
22	07000-CI-51-114-00	RAILWAYS TRACK X REROUTE AND CROSSOVER GEOMETRY
23	07000-CI-51-115-01	RAILWAYS TRACK Y EXTENSION GEOMETRY SHEET 1 OF 4
24	07000-CI-51-115-02	RAILWAYS TRACK Y EXTENSION GEOMETRY SHEET 2 OF 4
25	07000-CI-51-115-03	RAILWAYS TRACK Y EXTENSION GEOMETRY SHEET 3 OF 4
26	07000-CI-51-115-04	RAILWAYS TRACK Y EXTENSION GEOMETRY SHEET 4 OF 4
27	07000-CI-51-116-00	RAILWAYS TRACK P GEOMETRY
28	07000-CI-51-117-00	RAILWAYS TRACK Y REROUTE GEOMETRY
29	07000-CI-51-118-00	RAILWAYS TRACK G5 REROUTE GEOMETRY
30	07000-CI-51-119-01	RAILWAYS TRACK A REROUTE GEOMETRY SHEET 1 OF 2
31	07000-CI-51-119-02	RAILWAYS TRACK A REROUTE GEOMETRY SHEET 2 OF 2
32	07000-CI-51-120-01	RAILWAYS TRACK B REROUTE GEOMETRY SHEET 1 OF 2
33	07000-CI-51-120-02	RAILWAYS TRACK B REROUTE GEOMETRY SHEET 2 OF 2
34	07000-CI-51-121-01	RAILWAYS TRACK C REROUTE GEOMETRY SHEET 1 OF 2
35	07000-CI-51-121-02	RAILWAYS TRACK C REROUTE GEOMETRY SHEET 2 OF 2
36	07000-CI-51-122-00	RAILWAYS TRACK C EAST REROUTE GEOMETRY
37	07000-CI-51-123-00	RAILWAYS CROSSOVER X-Y AND Y-X GEOMETRY
38	07000-CI-51-124-00	RAILWAYS CROSSOVER X-G5 AND Y-R GEOMETRY
39	07000-CI-51-125-00	RAILWAYS CROSSOVER R-A GEOMETRY
40	07000-CI-51-126-00	RAILWAYS CROSSOVER A-B AND B-C GEOMETRY
41	07000-CI-51-127-01	RAILWAYS TRACK SECTIONS SHEET 1 OF 2
42	07000-CI-51-127-02	RAILWAYS TRACK SECTIONS SHEET 2 OF 2
43	07000-CI-51-128-01	RAILWAYS TRACK DETAILS SHEET 1 OF 2
44	07000-CI-51-128-02	RAILWAYS TRACK DETAILS SHEET 2 OF 2



DRAWING NO.	TITLE	REV	DATE	DESCRIPTION	DRN	CHK	APP
		A	24 FEB 2015	ISSUED FOR PERMIT	RV	GP	TH

REFERENCE DRAWINGS

REVISIONS

K+S Potash Canada

PROJECT NAME: POTASH HANDLING FACILITIES, PORT MOODY, BC

DRAWN: RV
DESIGNED: GP
CHECKED: GP
APPROVED: TH

RAILWAYS
PROPOSED AND EXISTING
TRACK LAYOUT

CH2MHILL

PROJECT NO: 494217
SCALE: 1:250
DRAWING NUMBER: 07000-CI-50-101-00
SHEET: 01
DATE: 24 FEB 2015
REV: A

FILE NAME: \\NUFCFS\GROUPS\CAD\PROJECT DWGS\464599 KSPCT POTASH FACILITY PROJECT\DWG\DRAWINGS IN PROGRESS\SHT 1 OVERALL TRACK LAYOUT.DWG PLOT DATE: 24 February 2015 PLOT STYLE: HALF RW 15-3-13.CTB

BC HYDRO SYSTEM
24.940Y/14400V, 600A, 3 PH, 60HZ
GROUNDED WYE 8 C. 1720MVA
0.04 X/R

PCT
25kV SWITCH AT PCT ENTRANCE
(POINT OF DELIVERY)

3C 350 KCMIL 133% 25kV TECKSHIELD
300 M

SUBSTATION 'A'
25kV SECTION
25kV, 600A, 16kA SYMM., 3 PH, 60 Hz, 125kV BIL

DS01 600A
NOTE 12
K31
24,400:120V
600:5
CB01 600A
52
24,000:120V
BCH REVENUE METER
600:5
800:5
GE 345

3C 350 KCMIL 133% 25kV TECKSHIELD
300 M

10/14/(FUT) MVA
24.94kV/12.47kV
KNAN/KNAF/(FUT)
Z=7%
Dyn1

200A 10 SEC

3C 500 KCMIL 133% 15kV TECKSHIELD
300 M

SUBSTATION 'A'
15kV SECTION

12.5kV, 1200A, 20 kA SYMM., 3 PH, 60 Hz, 95kV BIL

DS02 600A
DS03 600A
ACCESS DOOR
K34
K35
K36
CB02 600A
52
SPACE
SPACE
800:5
80:5
GE MIF II

3C 350 KCMIL 133% 15kV TECKSHIELD (HV)
250 M

3C 350 KCMIL 133% 15kV TECKSHIELD (HV)
300 M

TO SUB 'B'
(ABOVE RIGHT)

TO SUB 'C'
SEE DWG
07000-EL-00-200-02

WORK SHOWN WITHIN HEAVY CLOUD DEFINES SCOPE OF WORK FOR THE K+S POTASH HANDLING PROJECT (CH2MHILL #494217)

TO SUB 'A'
(BELOW LEFT)

SUBSTATION 'B'

K2 K1
NOTE 1
K1
800 A NOTE 5
NOTE 7
14,400:120V
400:5
NOTE 8
NOTE 9
K2 K3
NOTE 2
K3
STATION SERVICE TRANSFORMER
1B, 15kVA, ONAN
12.5kV - 120/240V

SUBSTATION 'B'
12.5kV
NOTE 5 & 6

CELL 1 600A NOTE 5
CELL 2 600A NOTE 5
CELL 3 600A NOTE 5
CELL 4 600A NOTE 5
CELL 5 600A NOTE 5
CELL 6 600A NOTE 5
CELL 7 600A NOTE 5
NOTE 3
600A NOTE 5

K4 K5 K6 K7 K8 K9 K10 K10
NOTE 3
K4 SF6 K5 SF6 K6 SF6 K7 SF6 K8 SF6 K9 SF6 K10 SF6 K10 SF6
NOTE 7
100:5
NOTE 8 (TYP)
51G
NOTE 10
SPARE
300:5
CB SF6
3C #1 133% TECK 820 FEET
3C #1 133% TECK 481 FEET
3C #1 133% TECK 361 FEET
3C #1 133% TECK 320 FEET
3C #1 133% TECK 1220 FEET
3C #1 133% TECK 370 M
2500kVA ONAN 12.5kV-575V Z=5.75% 1600 AF 1200 AT
2500kVA ONAN 12.5kV-600V IZ=5%
3000kVA ONAN 12.5kV-600V IZ=4.56%
600V
ADMIN BUILDING SEE EL 65-750 FOR CONTINUATION
575V
CB1, SHIPLOADER
1A
NOTE 9 800A
3000 AF
TIE
NO
1200A
SPARE
600V
MCC 3
MCC 4
ADDITIONAL LOADS
600V MCC OPTIONAL BERTH #1 FEED
CB8-1 1200-4P
CB8-2 1200-4P
PRIMARY
SECONDARY
CB8-3 2000-4P
CB8-4 2000-4P
T5
3000 kVA KNAN 12.5kV-600V Z=5% Dyn1
T7
2000kVA ONAN 12.5kV-600V IZ=6%
2500A NC
2000A
SPACE
RAILCAR UNLOADING
600V, 1200A, 42 kA SYMM., 3 PH, 3W, 60 Hz
MCC 5 (POTASH)
MCC 7 (SULPHUR)
C41 150HP
C42 200HP
C43 200HP
CONVEYOR
CONVEYOR
CONVEYOR

WORK SHOWN WITHIN HEAVY CLOUD DEFINES SCOPE OF WORK FOR THE K+S POTASH HANDLING PROJECT (CH2MHILL #494217)

12.5 kV SUBSTATION 'C'

K13 K12
K12
800 A NOTE 5
NOTE 7
14,400:120V
400:5
NOTE 8
NOTE 9
K13 K14
NOTE 2
K14
STATION SERVICE TRANSFORMER
1C, 15kVA, ONAN 12.5kV - 120/240V

12.5kV
NOTE 5 & 6

CELL 8 600A NOTE 5
CELL 9 600A NOTE 5
CELL 10 600A NOTE 5
CELL 12 600A NOTE 5
CELL 11 600A NOTE 5

K15 K16 K17 K18 K18 K19
K15 SF6 K16 SF6 K17 SF6 K18 SF6 K18 SF6 K19 SF6
NOTE 7
NOTE 5
100:5
300:5
NOTE 10
51G
3C #1 133% TECK 60 FEET
3C #1 133% TECK 1800 FEET
3C #1 133% TECK 60 FEET
T8
2000kVA ONAN 12.5kV-600V IZ=6%
T9
2000kVA ONAN 12.5kV-600V IZ=6%
T12
1000kVA ONAN 12.5kV-600V/347V IZ=4.40%
T11
2000kVA ONAN 12.5kV-4160/600V IZ=5.1%
2500A NC
3000 AF
600V, 42kA
1200A
SPACE
MCC 8
MCC 9
ADDITIONAL LOADS NOTE 11
C77 300HP
C78-1 150HP
3A 250HP
C78-2 150HP
4A 250HP
GLYCOL BOOSTER PUMP
SUB 'B'
TANK FARM
3C 500 KCMIL 133% 15kV TECKSHIELD (HV)
60 FEET
4160V SWITCHGEAR
K20
K20
800 A NOTE 5
NOTE 7
4000:120V
400:5
NOTE 8
NOTE 9
4160V
4160V SWITCHGEAR
K21 K22
K21
K22
K23
K23
STACK/RAKE BREAKER
SPARE BREAKER

LEGEND

- DISCONNECT
- CIRCUIT BREAKER
- CB01 600A 52 POWER CIRCUIT BREAKER
- PHASE C.T.'S
- GROUND C.T.
- H.V. CABLE STRESS CONE
- LOAD BREAK SWITCH
- PILC POTHEAD TERMINATION
- 50/51 INSTANTANEOUS & LONG TIME OVERCURRENT RELAY
- 50G/51G INSTANTANEOUS & LONG TIME GROUND OVERCURRENT RELAY
- 46 REVERSE PHASE RELAY
- 49 TRANSFORMER OVERTEMP RELAY
- 63 TRANSFORMER SUDDEN PRESSURE RELAY

NOTES

1. K1 CAPTIVE WHEN MAIN CIRCUIT BREAKER CLOSED.
2. K2 CAPTIVE WHEN SWITCH CLOSED. PREVENTS ACCESS TO FUSE COMPARTMENT WHEN ENERGIZED.
3. K3 CAPTIVE WHEN FEEDER CIRCUIT BREAKER CLOSED. TYPICAL ON ALL FEEDER CELLS.
4. ALL NEW EQUIPMENT TO BE BRACED TO 500 MVA (MINIMUM) LEVEL.
5. 15kV SWITCHES TO BE 600A, 40KA MOM, 40KA FAULT CLOSE.
6. ALL EQUIPMENT TO BE SEISMIC ZONE 4 QUALIFIED.
7. CIRCUIT BREAKERS TO BE 600A, 25KA, 250 MVA RATED.
8. ALL PROTECTION CURRENT TRANSFORMER TO HAVE MINIMUM ACCURACY CLASS OF C400.
9. PROTECTIVE RELAY TO BE GE MULTILIN F650, PART NO. IS 650-M-A-B-F-1-G-0-HI. THIS RELAY IS EQUIPPED WITH ETHERNET METERING COMMUNICATION.
10. PROTECTIVE RELAY TO BE GE MULTILIN MIFII. PART NUMBER IS MIFII-P-A-5-5-E-0-0-H1. RESIDUAL CT CONNECTION FOR GROUND FAULT SENSING.
11. OTHER LOADS INCLUDE SUMP PUMPS, DUST BIND & SLS PUMPS, SHOE BRAKES, ETC. SEE 600V SINGLE LINE DIAGRAM.
12. K31 CAPTIVE WHEN MAIN CIRCUIT BREAKER 12. CLOSED.
13. THIS DRAWING HAS BEEN RE-DRAWN FROM, AND SUPERSEDES 07000-EL-65-151, REV 9.

SEE NOTE 13

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
J. G. ESTERER

CH2MHILL
24 FEB 2015
ISSUED FOR PERMIT

DRAWING NO.	TITLE	REV	DATE	DESCRIPTION	DRN	CHK	APP
		C	24 FEB 2015	ISSUED FOR PERMIT (CH2MHILL #494217)	PB		JE
		B	02 OCT 2014	ISSUED FOR BID (CH2MHILL #494217)	PB	TH	JE
-	-	A	17 SEP 2014	ISSUED FOR CLIENT REVIEW (CH2MHILL #494217)	PB	TH	

REFERENCE DRAWINGS

REVISIONS

K+S Potash Canada

PCT

PROJECT NAME: POTASH HANDLING FACILITIES, PORT MOODY, BC

DRAWN: PB
DESIGNED: JE
CHECKED: TH
APPROVED:

PACIFIC COAST TERMINALS CO. LTD
25kV & 12.5kV DISTRIBUTION
SINGLE LINE DIAGRAM

CH2MHILL

DRAWING NUMBER: 07000-EL-00-200-01
SHEET: 1
PROJECT NO.: 494217
SCALE: NONE
DATE: 15 SEP 2014
REV: C

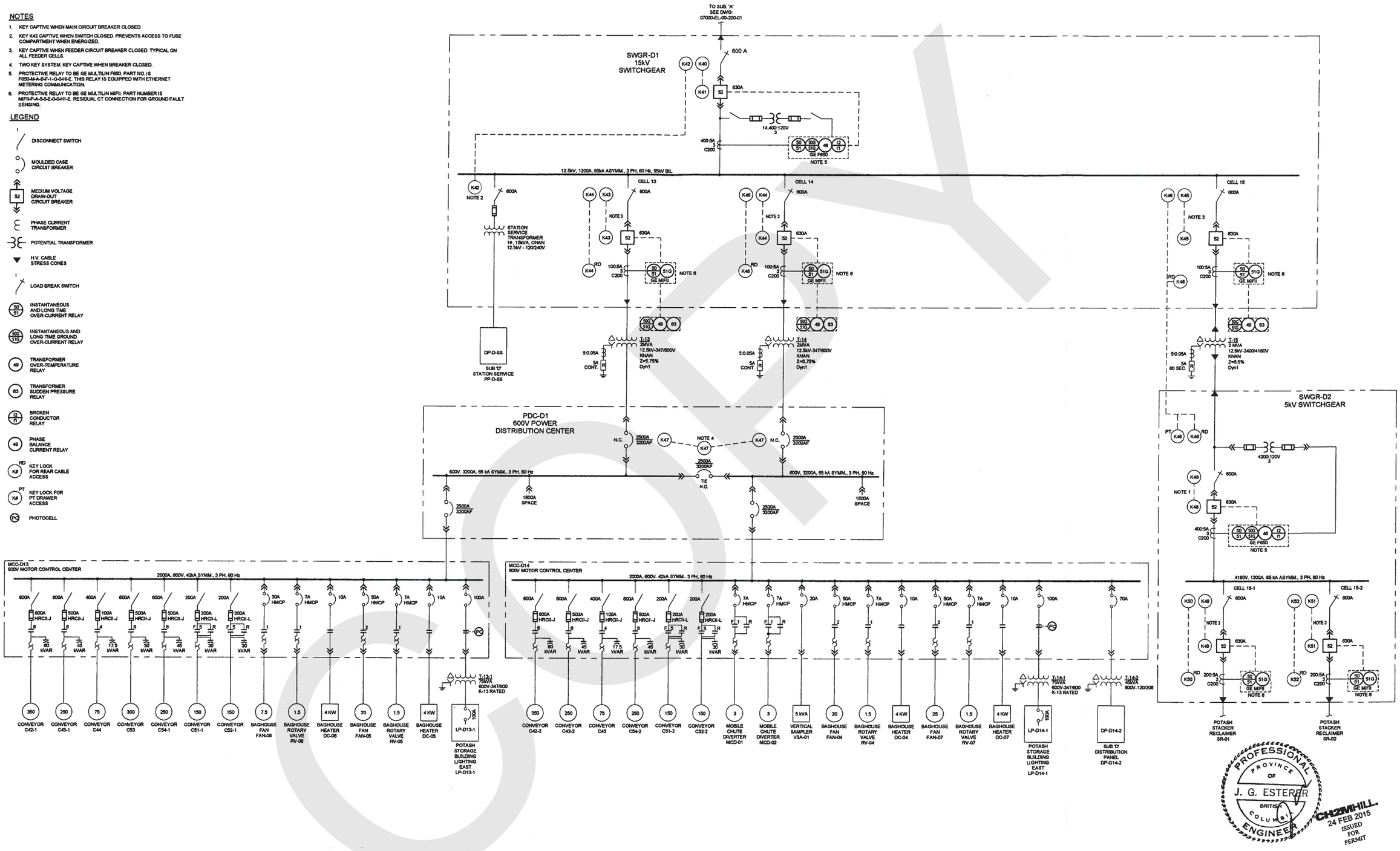
FILE NAME: C:\PW_WORKDIR\DEN001\BEAULIEUP\D0150146\07000-EL-00-200-01.DWG PLOT DATE: 24 February 2015 PLOT STYLE: FULL_BW.CTB

NOTES

1. KEY CAPTIVE WHEN MAIN CIRCUIT BREAKER CLOSED.
2. KEY K42 CAPTIVE WHEN SWITCH CLOSED. PREVENTS ACCESS TO FUSE COMPARTMENT WHEN ENERGIZED.
3. KEY CAPTIVE WHEN FEEDER CIRCUIT BREAKER CLOSED. TYPICAL ON ALL FEEDER CELLS.
4. TWO KEY SYSTEM. KEY CAPTIVE WHEN BREAKER CLOSED.
5. PROTECTIVE RELAY TO BE GE MULTILIN F650, PART NO. IS F650-M-A-S-F-1-G-0-HI-E. THIS RELAY IS EQUIPPED WITH ETHERNET METERING COMMUNICATION.
6. PROTECTIVE RELAY TO BE GE MULTILIN MIFII. PART NUMBER IS MIFII-P-A-S-S-E-0-0-H1-E. RESIDUAL CT CONNECTION FOR GROUND FAULT SENSING.

LEGEND

- DISCONNECT SWITCH
- MOULDED CASE CIRCUIT BREAKER
- 52 — MEDIUM VOLTAGE DRAW-OUT CIRCUIT BREAKER
- PHASE CURRENT TRANSFORMER
- POTENTIAL TRANSFORMER
- H.V. CABLE STRESS CONES
- LOAD BREAK SWITCH
- 50/51 — INSTANTANEOUS AND LONG TIME OVER-CURRENT RELAY
- 50G/51G — INSTANTANEOUS AND LONG TIME GROUND OVER-CURRENT RELAY
- 49 — TRANSFORMER OVER-TEMPERATURE RELAY
- 63 — TRANSFORMER SUDDEN PRESSURE RELAY
- I2/I1 — BROKEN CONDUCTOR RELAY
- 46 — PHASE BALANCE CURRENT RELAY
- K# (RD) — KEY LOCK FOR REAR CABLE ACCESS
- K# (PT) — KEY LOCK FOR PT DRAWER ACCESS
- PC — PHOTOCELL



PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — J. G. ESTERER

CH2MHILL 24 FEB 2015 ISSUED FOR PERMIT

REV	DATE	DESCRIPTION	DRN	CHK	APP
C	24 FEB 2015	ISSUED FOR PERMIT (CH2MHILL #494217)	PB		JE
B	28 NOV 2014	ISSUED FOR CLIENT REVIEW (CH2MHILL #494217)	PB	TH	
A1	14 NOV 2014	ISSUED FOR INTERNAL REVIEW (CH2MHILL #494217)	PB	TH	

REVISIONS

DRAWING NO.	TITLE
07000EL-00-200-01	25kV & 12.5kV DISTRIBUTION SINGLE LINE DIAGRAM

REFERENCE DRAWINGS

K+S Potash Canada

PCT

PROJECT NAME	POTASH HANDLING FACILITIES, PORT MOODY, BC
DRAWN	PB
DESIGNED	JE
CHECKED	
APPROVED	
	POTASH STORAGE AREA ELECTRICAL DISTRIBUTION SUBSTATION "D" SINGLE LINE DIAGRAM
	CH2MHILL
DRAWING NUMBER	07000-EL-00-200-02
SHEET	2
PROJECT NO.	494217
SCALE	NONE
DATE	16 SEP 2014
REV	C

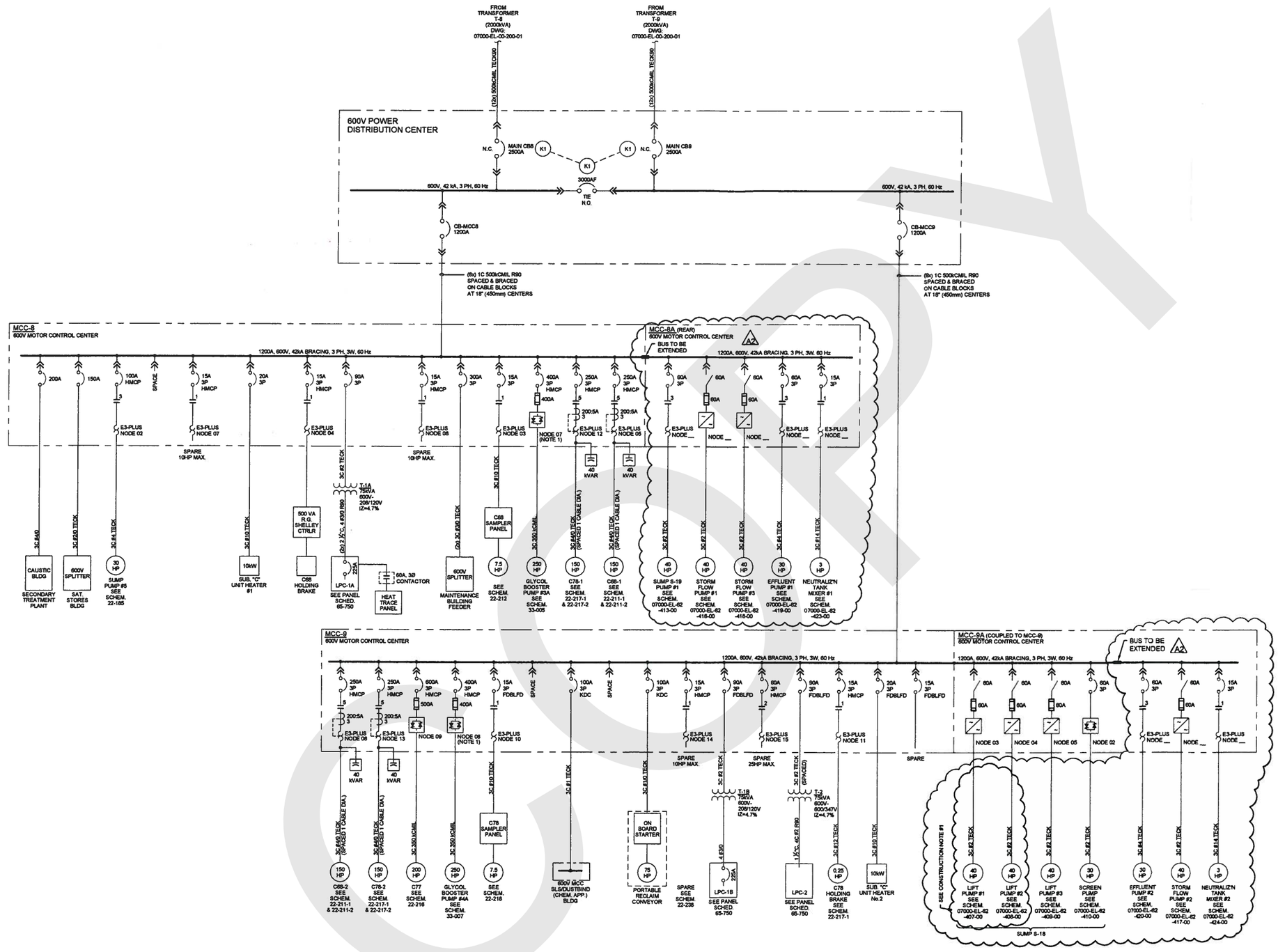
FILE NAME: C:\PW_WORKDIR\DEN001\BEAULIEUP\D0150146\07000-EL-00-200-02.DWG PLOT DATE: 24 February 2015 PLOT STYLE: FULL_BW.CTB

NOTES

1. BOOSTER PUMPS ARE ON THE LIFT STATION (WASTE WATER) DEVICENET.
2. THIS DRAWING REDRAWN FROM DRAWING No. 19793-EL-65-730, REVISION 3.

LEGEND

- DISCONNECT SWITCH
- MOULDED CASE CIRCUIT BREAKER
- PHASE CURRENT TRANSFORMER
- POTENTIAL TRANSFORMER
- K# KEY LOCK
- VARIABLE FREQUENCY DRIVE
- SOFT STARTER



CONSTRUCTION NOTES: A2

1. LIFT PUMPS #1 AND #2 TO BE RELOCATED TEMPORARILY FROM SUMP S-15 TO THE INTERIM STORM WATER LIFT STATION (USING 3c#6 AWG TECK MOTOR CABLES) UNTIL THE COMPLETION OF SUMP S-18 CONSTRUCTION, AT WHICH TIME THEY WILL BE RELOCATED AGAIN (USING MOTOR CABLE SIZES AS SHOWN) TO SUMP S-18.

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — J. G. ESTERER

CH2MHILL 24 FEB 2015 ISSUED FOR PERMIT

SUPERCEDES DWG: 19793-EL-85-730

REV	DATE	DESCRIPTION	DRN	CHK	APP
A2	xx MAR 2015	ISSUED FOR PERMIT – WASTE WATER (CH2M HILL #498103, 494217)	PB	WT	
A1	06-FEB-2015	ISSUED FOR INTERNAL REVIEW (CH2MHILL #498103)	PB	WT	

REVISIONS

DRAWING NO.	TITLE
07000EL-00-200-01	25kV & 12.5kV DISTRIBUTION SINGLE LINE DIAGRAM

REFERENCE DRAWINGS

K+S Potash Canada

pct

PROJECT NAME: POTASH HANDLING FACILITIES, PORT MOODY, BC

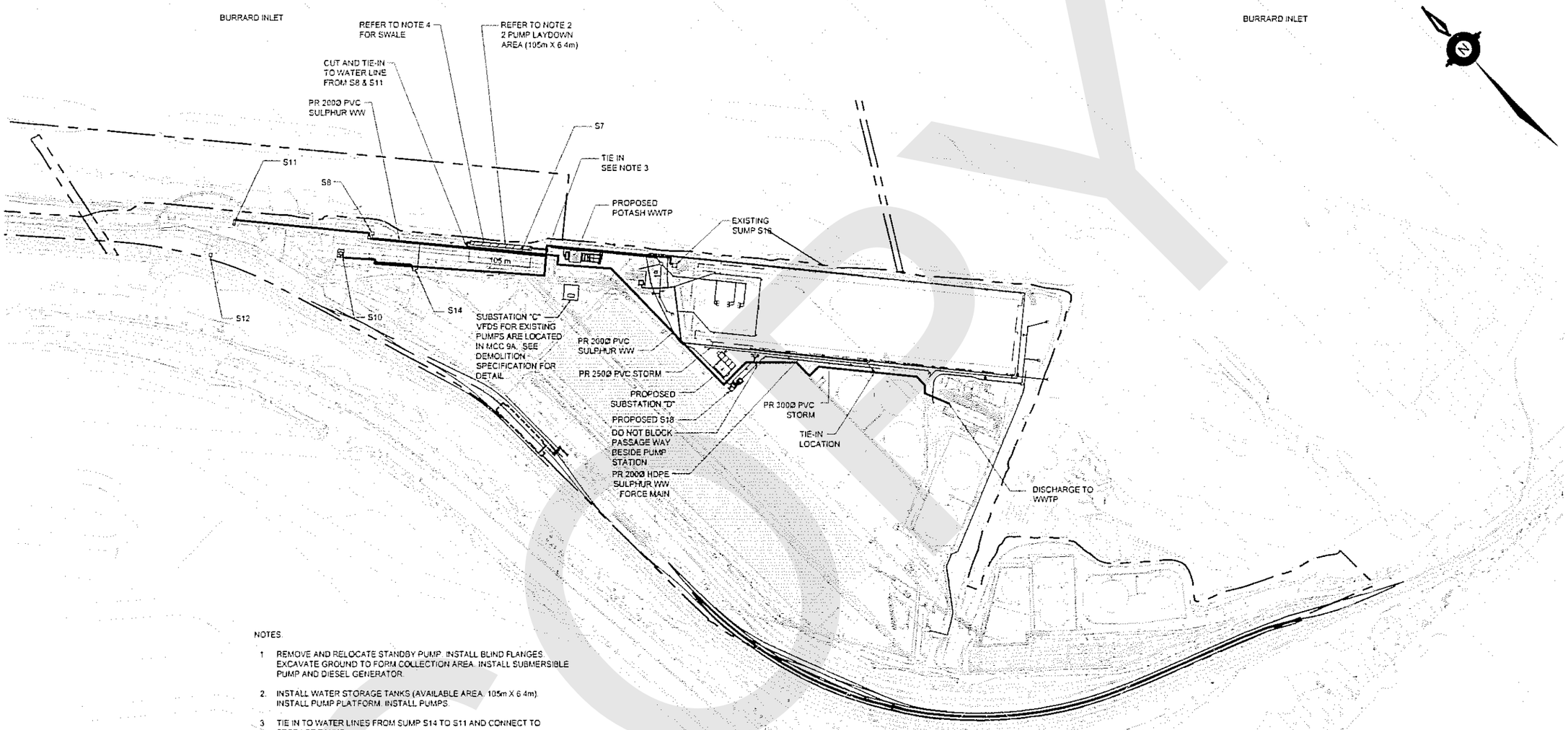
DRAWN: PB
DESIGNED: –
CHECKED: JE
APPROVED: –

PACIFIC COAST TERMINALS
600V ELECTRICAL DISTRIBUTION
SUBSTATION "C" SINGLE LINE DIAGRAM

CH2MHILL

DRAWING NUMBER	SHEET	PROJECT NO.	SCALE	DATE	REV
07000-EL-00-201-00	1	498103	NONE	26 JAN 2015	A2

FILE NAME: C:\PW_WORKDIR\DEN001\BEAULIEUP\D0150146\07000-EL-00-201-00.DWG PLOT DATE: 24 February 2015 PLOT STYLE: FULL_BW.CTB



NOTES.

1. REMOVE AND RELOCATE STANDBY PUMP. INSTALL BLIND FLANGES. EXCAVATE GROUND TO FORM COLLECTION AREA. INSTALL SUBMERSIBLE PUMP AND DIESEL GENERATOR.
2. INSTALL WATER STORAGE TANKS (AVAILABLE AREA: 105m X 6.4m). INSTALL PUMP PLATFORM. INSTALL PUMPS.
3. TIE IN TO WATER LINES FROM SUMP S14 TO S11 AND CONNECT TO STORAGE TANKS.
4. FILL SWALE WITH CLEAN GRAVEL TO PROVIDE LEVEL WORKING SURFACE.

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA T.M.R. JONES
24 Feb 2015.

CH2MHILL Feb. 5, 2015 ISSUED FOR IDC

DRAWING NO	TITLE
	REFERENCE DRAWINGS

REV	DATE	DESCRIPTION	DRN	CHK	APP
A	FEB. 5, 2015	ISSUED FOR INTERNAL DESIGN CHECK			

REVISIONS

K+S Potash Canada

pct

PROJECT NAME: POTASH HANDLING FACILITIES, PORT MOODY, BC

DRAWN: GH
DESIGNED: JC
CHECKED: MD
APPROVED: JC

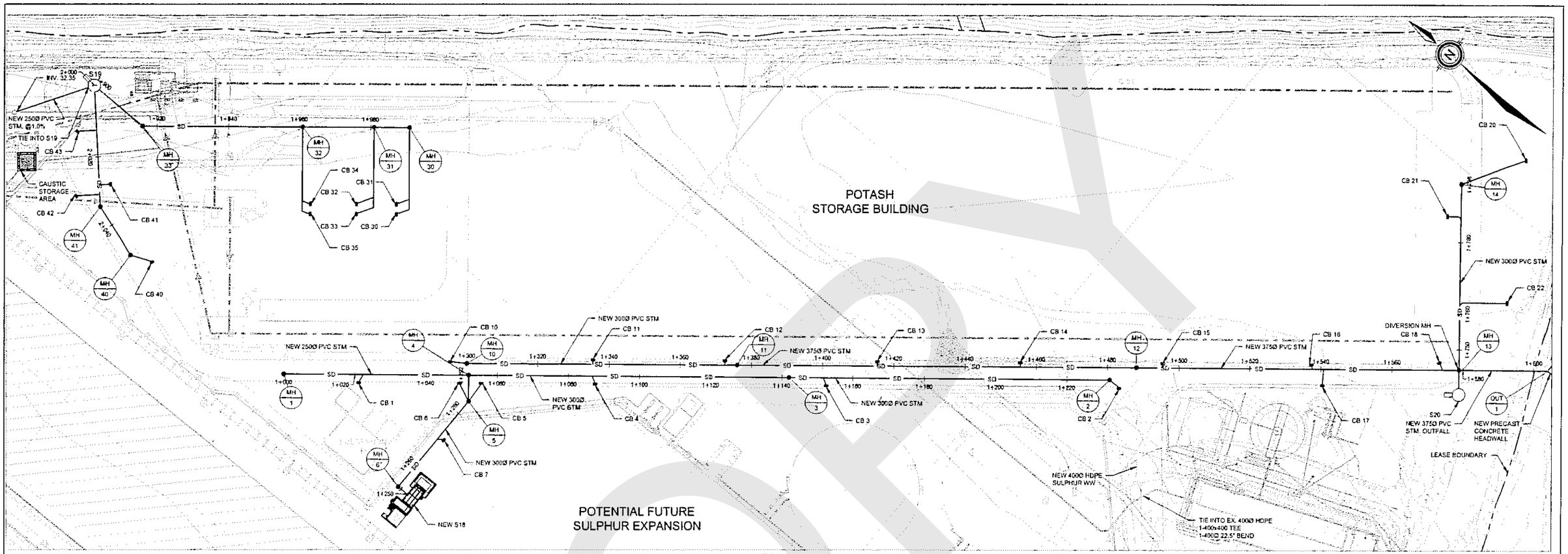
INTERIM WATER MANAGEMENT OVERALL SITE PLAN

DRAWING NUMBER: 07000-CI-62-114-00
SHEET: 1 OF 1

CH2MHILL

PROJECT NO: 498103
SCALE: 1:2000
DATE: 10 JUN 2014
REV: A

FILE NAME: C:\PW_WORK\DIR\DEN001\PKWON\D0215162\D7000-CI-62-114-00.DWG PLOT DATE: 11 February 2015 PLOT STYLE: HALF_BW.CTB



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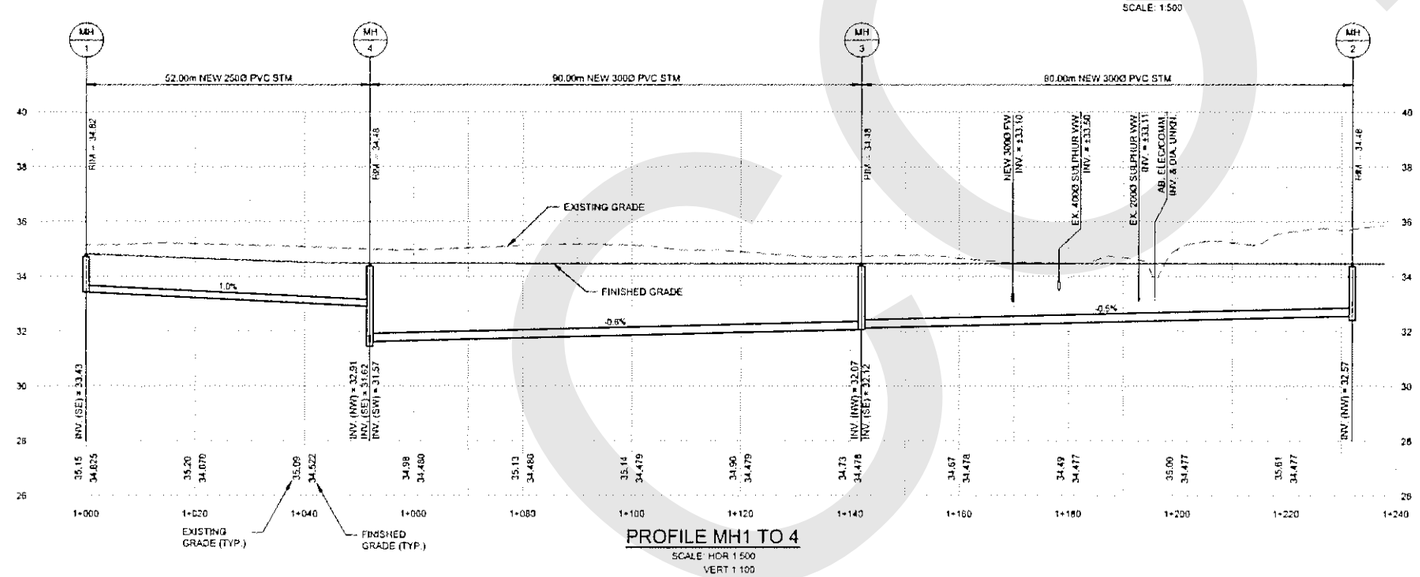

PROFILE MH1 TO 4
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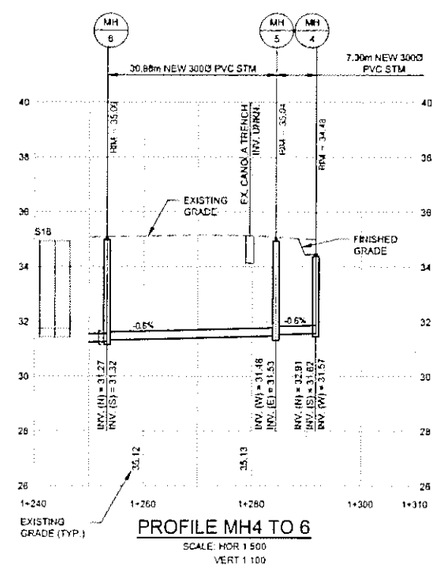
VERT 1:100



PROFILE MH4 TO 6
SCALE: HOR 1:500
VERT 1:100

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
J. C. P. CHENG
34182
24 FEB 2015

DRAWING NO.	TITLE
REFERENCE DRAWINGS	

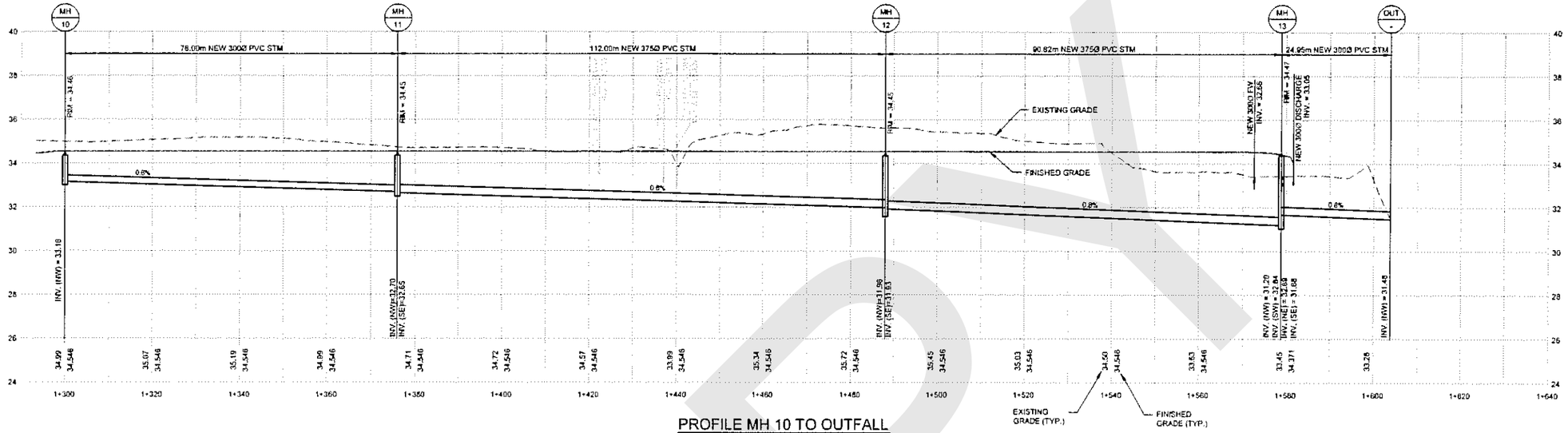
REV	DATE	DESCRIPTION	DRN	CHK	APP
C		ISSUED FOR CONSTRUCTION	MS	MD	JC
B	30 NOV 2014	ISSUED FOR CLIENT REVIEW	MS	MD	JC
A	23-OCT-2014	ISSUED FOR QC REVIEW AND SOLAD CHECK	GH	MD	JC
REVISIONS					

K+S Potash Canada

pct

PROJECT NAME	POTASH HANDLING FACILITIES, PORT MOODY, BC
DRAWN: GH	POTASH WASTEWATER TREATMENT POTASH WAREHOUSE STORM SEWER PLAN AND PROFILE
DESIGNED: JC	CH2MHILL
CHECKED: MD	PROJECT NO.: 498103 — SCALE: AS SHOWN
APPROVED: JC	DRAWING NUMBER: 07000-CI-62-109-01 — SHEET: 1 of 3 — DATE: 20 OCT 2014 — REV: C

FILE NAME: C:\PW_WORKDIR\DEN001\MSUNDERL\D0235209\C3D_07000-CI-62-109-01.DWG PLOT DATE: 30 January 2015 PLOT STYLE: FULL_BW.CTB



PROFILE MH 10 TO OUTFALL

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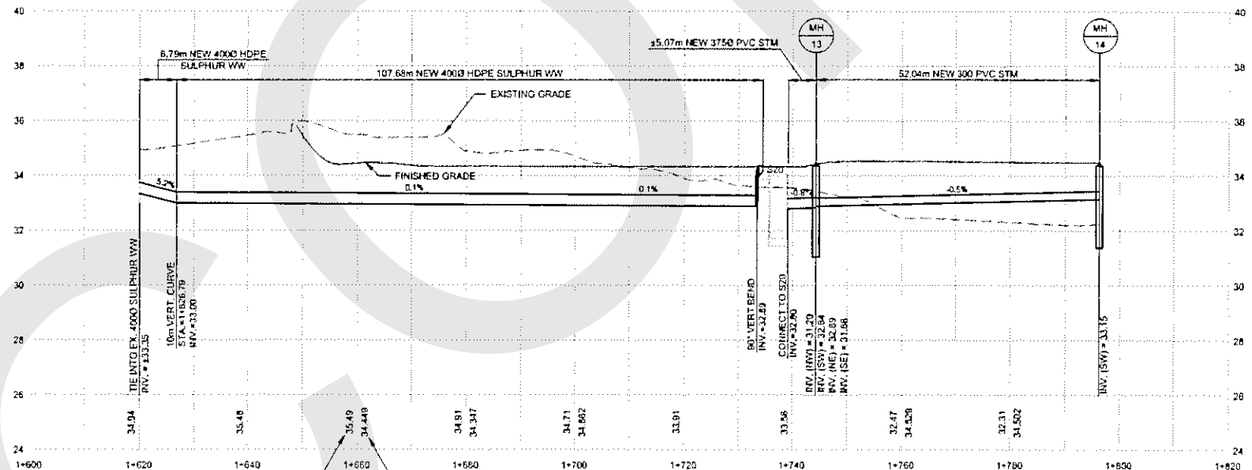
VERT 1:100



PROFILE MH 14 TO SULPHUR WW LINE

SCALE: HOR 1:500
VERT 1:100

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
J.T.D. SHENG
23950

24 FEB 2015

DRAWING NO	TITLE
REFERENCE DRAWINGS	

REV	DATE	DESCRIPTION	DRN	CHK	APP
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A	20-OCT-2014	ISSUED FOR QC REVIEW AND SQUAD CHECK	GH	MD	JC

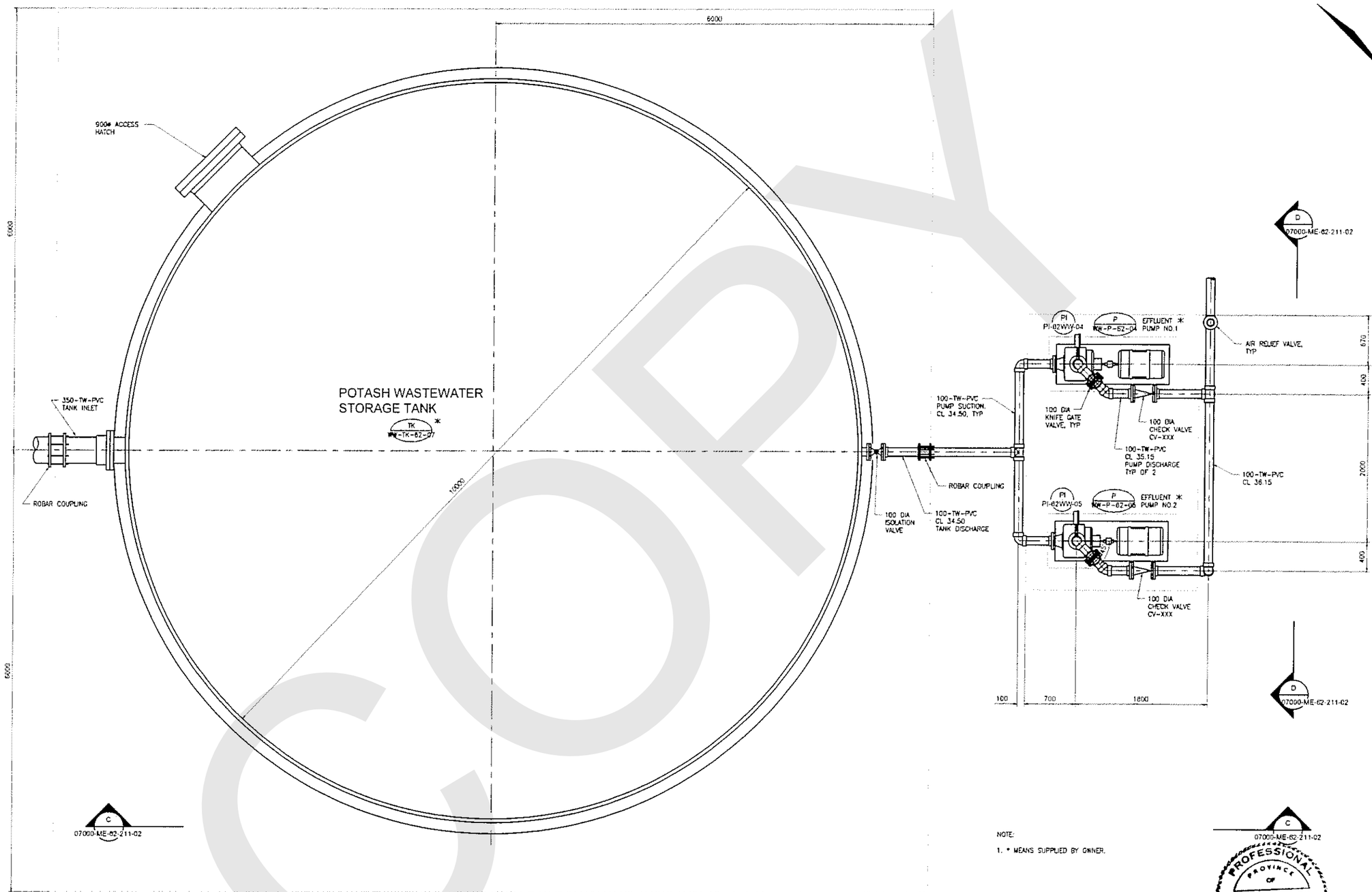
REVISIONS

K+S Potash Canada

PROJECT NAME: POTASH HANDLING FACILITIES, PORT MOODY, BC

DRAWN: GH	POTASH WASTEWATER TREATMENT POTASH WAREHOUSE STORM SEWER PROFILES	CH2MHILL
DESIGNED: JC		PROJECT NO: 498103
CHECKED: MD		SCALE: AS SHOWN
APPROVED: JC	DRAWING NUMBER: 07000-CI-62-109-02	SHEET: 2 of 3
		DATE: 20 OCT 2014
		REV: C

FILE NAME: C:\PW_WORKDIR\DEN001\MSUNDERL\D0235209\C3D_07000-CI-62-109-02.DWG PLOT DATE: 24 February 2015 PLOT STYLE: FULL_BW.CTB



NOTE:

1. * MEANS SUPPLIED BY OWNER.

C
07000-ME-62-211-02

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
T.M.R. JONES
24 FEB 2015

CH2MHILL
Feb. 5, 2015
ISSUED FOR IDC

WASTEWATER STORAGE TANK AND PUMPS PLAN

SCALE: 1:25

REV	DATE	DESCRIPTION	DRN	CHK	APP
A	FEB. 5, 2015	ISSUED FOR INTERNAL DESIGN CHECK	–		

REVISIONS

DRAWING NO	TITLE
–	–

REFERENCE DRAWINGS

K+S Potash Canada

PCT

PROJECT NAME: POTASH HANDLING FACILITIES, PORT MOODY, BC

DRAWN: P. KWONG	POTASH WASTEWATER TREATMENT PLANT WASTEWATER STORAGE TANK AND PUMPS PLAN		CH2MHILL	
DESIGNED: T. JONES			PROJECT NO: 494217	SCALE: 1:25
CHECKED: F. A.				
APPROVED: V. B.	DRAWING NUMBER: 07000-ME-62-210-02	SHEET: 2 OF 2	DATE: 10 JAN 2015	REV: A

FILE NAME: C:\PW_WORKDIR\GENG01\PKWONG\DC215162\07000-ME-62-210-02.DWG PLOT DATE: 11 February 2015 PLOT STYLE: HALF_SW.CTB

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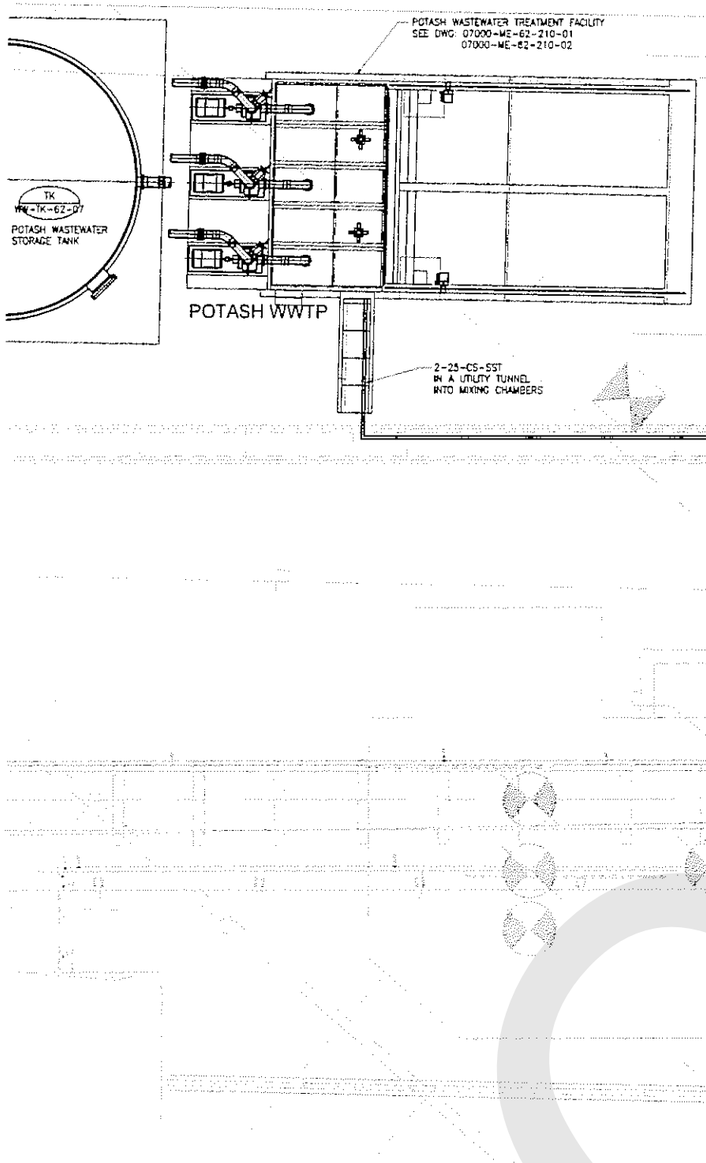
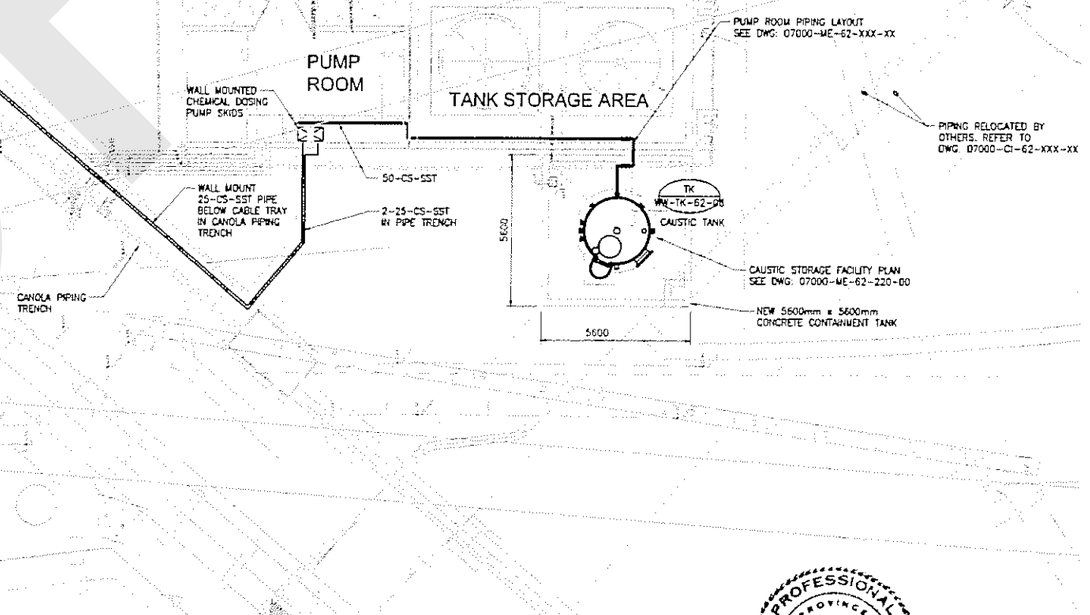




PARTIAL SITE PLAN

SCALE: 1:100

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
T.M.R. JONES
24 FEB 2015
CH2MHILL
Feb. 5, 2015
ISSUED FOR IDC

DRAWING NO	TITLE
REFERENCE DRAWINGS	

REV	DATE	DESCRIPTION	DRN	CHK	APP
A	FEB. 5, 2015	ISSUED FOR INTERNAL DESIGN CHECK			

REVISIONS

K+S Potash Canada

PCT

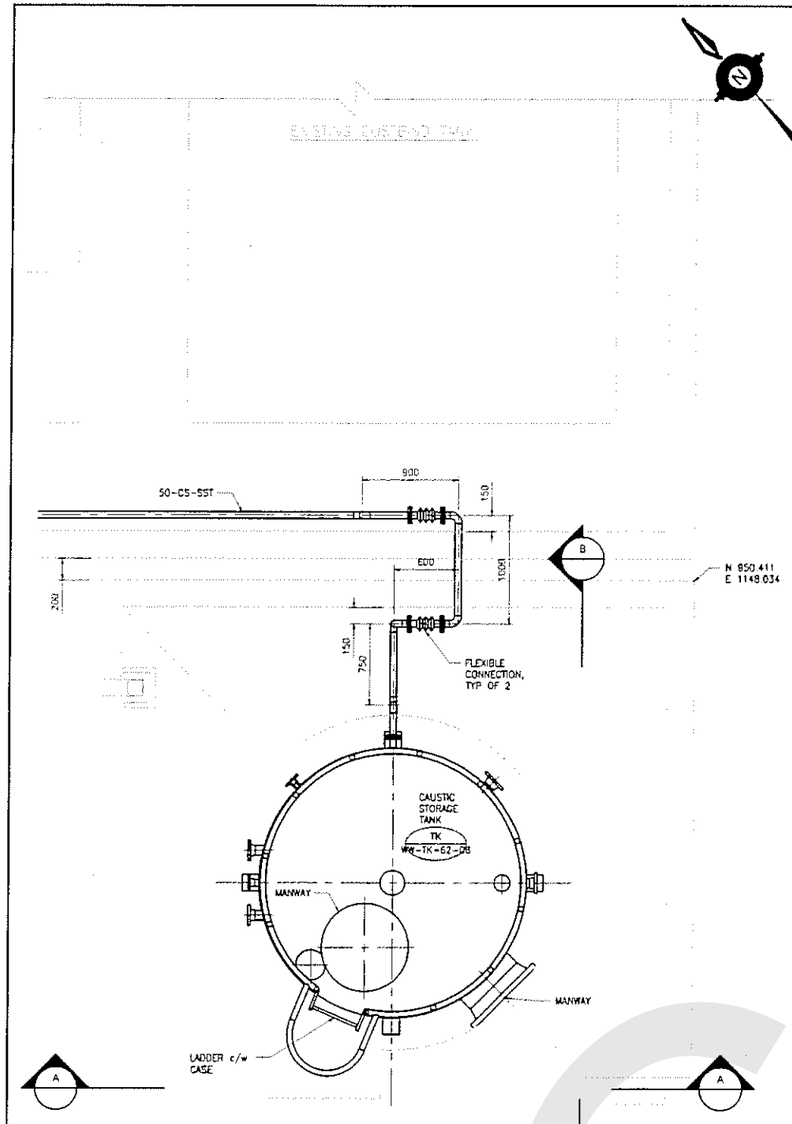
PROJECT NAME: POTASH HANDLING FACILITIES, PORT MOODY, BC

DRAWN: P. KWONG	POTASH WASTEWATER TREATMENT PLANT SITE PLAN YARD PIPING PLAN		CH2MHILL
DESIGNED: T. JONES			
CHECKED: F.A.			PROJECT NO: 494217 — SCALE: 1:100
APPROVED: V.B.	DRAWING NUMBER: 07000-ME-62-xxx-01 — SHEET: 1		DATE: 10 JAN 2015 — REV: A

FILE NAME: C:\PW_WORKING\DEN001\PKWONG\D0215162\07000-ME-62-XXX-01.DWG PLOT DATE: 11 February 2015 PLOT STYLE: MASF_BW.CTB

NOTE:

1. TANK SUPPLIED BY OWNER. COORDINATE IMMERSION HEATER DETAILS WITH VENDORS.

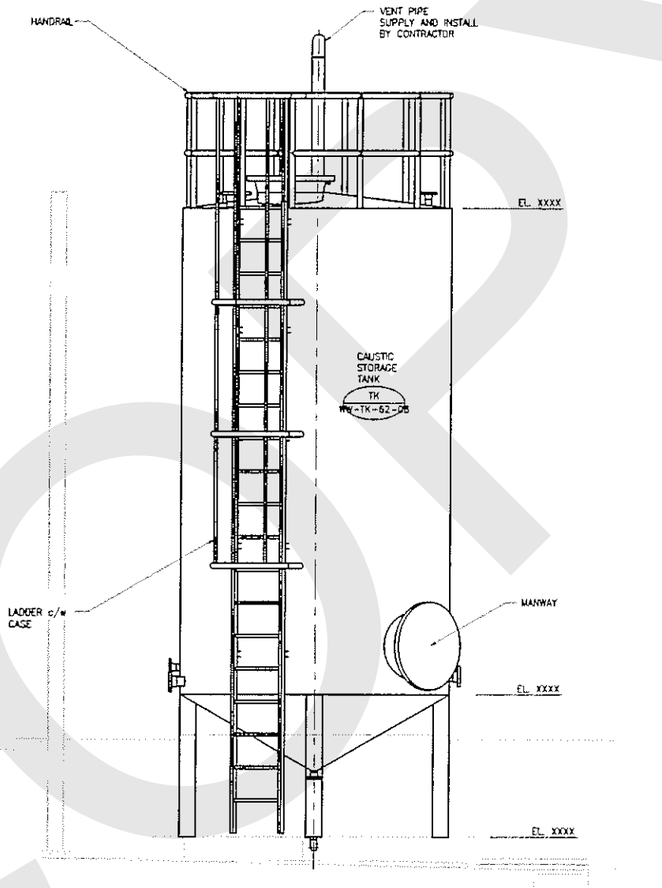


CHEMICAL STORAGE CONTAINMENT

NOTES:

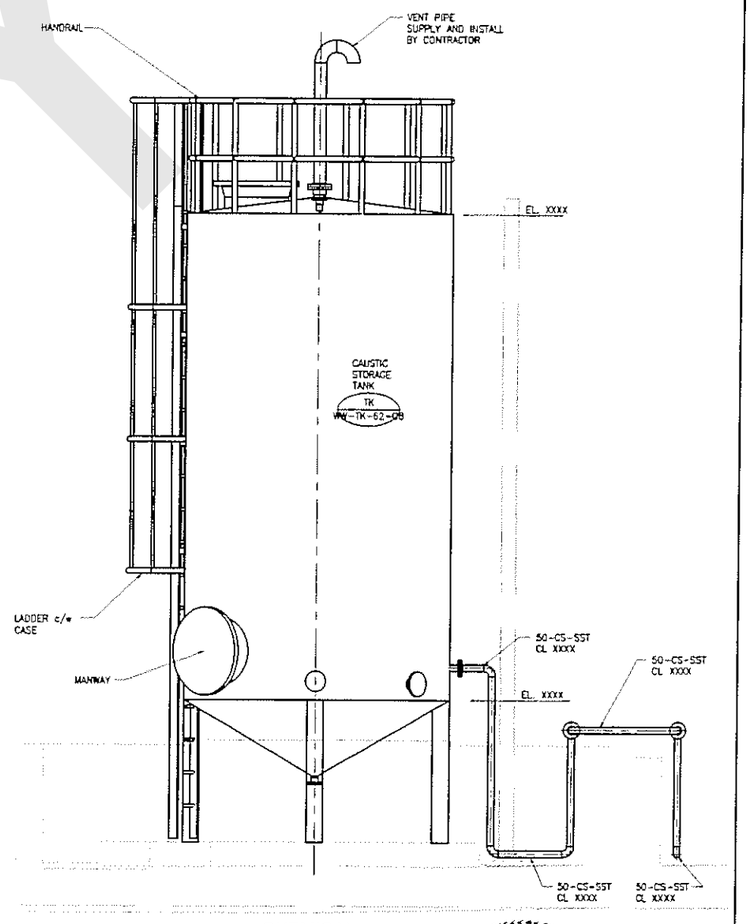
1. FOR TANK DETAILS SEE DWG. 07000-ME-62-223-01
2. FOR TANK NOZZLE ORIENTATION AND ELEVATION SEE DWG. 07000-ME-62-223-02

PLAN AT GRADE LEVEL
SCALE: 1:25



CHEMICAL STORAGE CONTAINMENT

A SECTION
SCALE 1:25
07000-ME-62-223-01 / 02



CHEMICAL STORAGE CONTAINMENT

B SECTION
SCALE 1:25
07000-ME-62-223-01 / 02

PROFESSIONAL ENGINEER
PROVINCE OF
T.M.R. JONES
24 FEB 2014
CH2MHILL
Feb. 5, 2015
ISSUED FOR IDC

DRAWING NO	TITLE
REFERENCE DRAWINGS	

REV	DATE	DESCRIPTION	DRN	CHK	APP
A	FEB. 5, 2015	ISSUED FOR INTERNAL DESIGN CHECK	-		
REVISIONS					

K+S Potash Canada

pct

PROJECT NAME	POTASH HANDLING FACILITIES, PORT MOODY, BC
DRAWN: P. KWONG	POTASH WASTEWATER TREATMENT PLANT
DESIGNED: T. JONES	CAUSTIC STORAGE FACILITY
CHECKED: F. A.	PLAN AND SECTIONS
APPROVED: V. B.	CH2MHILL
DRAWING NUMBER: 07000-ME-62-220-00	SHEET: 1 OF 1
PROJECT NO: 494217	SCALE: 1:25
DATE: 10 JAN 2015	REV: A

FILE NAME: C:\PW_WORKDIR\DENCOFF\PKWONG\D0215162\C7000-ME-62-220-00.DWG PLOT DATE: 11 February 2015 PLOT STYLE: HALF_SW.CTB

Project Description

In this Schedule, "Project" means the physical activities authorized by VFPA to be carried out pursuant to Review Number 14-096, as described below.

- Pacific Coast Terminals (PCT) proposes to install and operate a potash handling facility and rail extension at their existing terminal in Port Moody, British Columbia (BC). Potash would be brought to site via rail in covered railcars from K&S Canada Legacy Mine in Saskatchewan (over a distance of 1900 km), stored in a fully enclosed 160,000 metric tonne Potash storage steel/wood building on site, and exported via ocean going vessel to multiple international destinations world-wide for industrial and agricultural applications.
- The terminal has been operational in its current location, Vancouver Fraser Port Authority (VFPA) leased land, since the early 1960's.
- The PCT site currently receives, stores and ships low-risk commodities including sulphur and monoethylene glycol.
- Other projects at the terminal recently permitted or in the permitting process include the following:
  1. Navigation channel dredging in Port Moody Arm, to enable greater scheduling flexibility and safety for vessels transiting to and from PCT subsequent to the planned operational modifications. This proposed Project is currently under review by Environment Canada (EC), the Department of Fisheries and Oceans (DFO) and VFPA (Review Number 12-127).
  2. Installation of a Canola Handling System that will involve handling, temporary storage and marine loading of food grade cooking oil bound for export markets. This proposed Project was permitted by VFPA (Review Number 13-104) in March 2014 and commissioning is expected in March 2015.
  3. Waste water systems upgrade including clarifier installation. This proposed Project was permitted by VFPA (Review Number 13-091) in April 2014.
  4. Secondary Pond Remediation, including pond sediment characterization and removal and backfilled to adjacent grade. Improvements will reduce seismic risk and environmental liability for site contamination. This proposed Project was permitted by VFPA (Review Number 14-095) in August 2014.
- This Proposed Project will involve the following proposed works and activities:
  - Construction of a new fully enclosed 160,000 metric tonne Potash storage steel/wood building (264 meters long, 83 meters wide and 34 meters high at the peak), with two new automated stacker/reclaimers and a two way belt system for optimal commodity handling efficiency. Rip rap will be installed in the foreshore over approximately 2330 m^2 of existing rip rap habitat and approximately 285 m^2 of mud flat habitat to provide lateral support for the Potash storage building while also preventing shoreline erosion.
  - Construction of new railcar bottom dumper building (dumper building) (50 meters long, 11 meters wide and 8 meters high) including below ground dumper vault (8.5 meters deep), indexer and two dedicated high efficiency baghouses for dust control;
  - Construction of a new conveyor network beginning at the railcar bottom dumper tunnels to the proposed Potash storage building. Dust will be controlled by new conveyor transfer point

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baghouses. Additionally, conveyors will either be covered or fully enclosed (e.g., within a tube). The existing shiploading conveyor from the proposed building to Berth II will also be covered.

- Removal of vegetation along strip of land (approximately 120 m^2 of backshore trees / shrubs habitat) from along northern extent between the proposed Potash storage building and Burrard Inlet;
- Modification to the existing Berth II quadrant shiploader with three new chutes and chute support towers. Two new baghouses will be installed for dust control on the shiploader, one each for the transfer conveyor and the spout.
- Installation of two new substations, that provide additional electrical power drawn from BC Hydro grid for the Potash handling system.
- Railway track modifications, additions and supporting works including:
  - Construction of new railway Track P (approximately 200 meters) in the existing PCT lease area which will be aligned through the new Unloading Building;
  - Re-alignment of rail tracks in the main yard extending west to Reed Point Marina. Careful designs were prepared to minimize disturbance to existing utilities and foreshore habitat;
  - Construction of new railway Track Y (approximately 500 meters) extension ("Rail Extension Project") along Burrard Inlet foreshore from the PCT terminal to Reed Point Marina that includes the following related works:
    - Construction of a new barge landing island (built of recovered rip rap, aggregate fill and larger rip rap) between Reed Point and the PCT terminal to act as delivery and staging point for materials (structural fill, lock block wall and new rip rap) during the construction phase of the Rail Extension Project;
    - Delivery by barge of construction materials for the Rail Extension Project (i.e., hydraulic fill, lock block wall and rip rap);
    - Removal of vegetation over an area of approximately 1570 m^2 from a strip along Reed Point Marina to Reed Point and approximately 470 m^2 east of Reed Point to the terminal;
    - Construction of a temporary access road over existing shoreline and land area eastward from Reed Point Marina to the island to transport construction equipment including excavators and tracked machinery. This temporary road will be built over an existing salt marsh at Reed Point Marina (which was constructed as part of mitigation measures for the West Coast Express rail line construction) and will include installation of a lock block wall and rip rap armoring along a portion of shoreline. The road will affect backshore and intertidal habitat and will require infilling covering approximately 820 m^2 square meters (m^2) of the beach habitat and approximately 3300 m^2 of the existing rip rap habitat from Reed Point Marina to the terminal;
    - From Reed Point Marina to Reed Point, encapsulation of shoreline features constructed as part of the mitigation measures for the West Coast Express project, including a concrete stress wall, rip rap scour protection at the base of the wall and a narrow strip of shrub plantings immediately landward of the top of the wall.

- ❖ Extension or modification of six existing drainage culverts under the CP Right of Way (one belonging to the City of Port Moody, one belonging to GVS&DD and the remaining four of undeterminable ownership);
- ❖ Protection of two of Imperial Oil's decommissioned underground pipelines (located in a single right of way);
- ❖ Upon completion of the Rail Extension Project the following will take place: i) conversion of the barge landing island into a habitat island (to be known as Reed Island) that will include fish and wildlife habitat offsets for the proposed Project); ii) removal of the temporary access road from Reed Point Marina to the construction area for the proposed Track Y; and iii) re-instating the salt marsh by PCT at Reed Point Marina.

- Removal of invasive species in vegetated areas as indicated in the Vegetation Management Plan (Appendix 3.0 Vegetation Management Prescriptions referenced below in the "**Information Sources**" section) restricted to mechanical means. Including the following:
  - Both manual and machine grubbing of below ground parts;
  - Maceration of both above and below ground parts by a small chipper where practical;
  - Disposal of green waste at a composting facility;
  - No use of herbicides (should herbicide use be considered necessary, PCT will consult with VFPA Environmental Programs prior to use);
  - Knotweed infestation is in early stages and the prospect for success by mechanical removal is high; and
  - Regular scheduled monitoring and adaptive management / removal of invasive species.
- Planting of vegetation as indicated in the Vegetation Management Plan (Appendix 3.0 Vegetation Management Prescriptions referenced below in the "**Information Sources**" section).
- Handling, management and disposal of solid non-hazardous waste and hazardous waste generated during the construction phase as described in the Project Environmental Review Document, Proposed Potash Handling and Storage System, referenced in the "**Information Sources**" section below.
- The use of local roadways will increase during the construction phase as a result of equipment and material deliveries, site services and contract labour transits. This will involve an estimate of approximately 7500 trips over the construction period.
- The new potash handling system will require on average approximately four vessels per month, assuming 50,000 metric tonne per ship loading event;
- Inclusive of all other commodities that will be transferred at PCT, this will result in a planned peak of 141 vessels per year (an average of 12 per month). This represents a modest but consistent increase from 2010, but below the historic peak of 182 vessels per year reached in 2004.

- Noise impacts to the surrounding community have been identified by PCT as a significant aspect within their corporate Environmental Management System (EMS). Through the EMS, noise issues are tracked, addressed as needed, and reviewed by management on a regular basis. *Note that the Port expects PCT to continue with the existing programs captured within the EMS and provide summary reports if requested by the Port.*

- It is estimated that this proposed Project would be complete by September 2016.

Information Sources

VFPA has relied upon the following sources of information in its assessment of the potential adverse environmental effects of the Proposed Project:

- A completed Port Metro Vancouver Project Review Application Form, dated April 29, 2014 and signed by Pacific Coast Terminals Ltd. (PCT).
- A document titled "Project Environmental Review Document Proposed Potash Handling and Storage System", dated February 3, 2015, prepared by Envirochem Services Inc. (Envirochem), along with the following Appendices:
  - Appendix 1.1 Location Plan and Site Plans;
  - Appendix 1.3: Railcar Unloading Area Drawings;
  - Appendix 1.5: Potash Storage Building Drawings;
  - Appendix 1.7: Rail Modification and Extension Drawings;
  - Appendix 1.8: Water Treatment System Upgrades;
  - Appendix 1.10 Material Safety Data Sheets;
  - Appendix 1.11 3D Model Views of Potash Facilities;
  - Appendix 2.0: Construction Equipment and Vehicle Inventory;
  - Appendix 3.0: Vegetation Management Prescriptions;
  - Appendix 4.0: Soil Analytical Data;
  - Appendix 5.0: Chance Find Procedure;
  - Appendix 6.0: Detailed Air Emissions Inventory;
  - Appendix 7.0: Dust Collection System Drawings and Specifications;
  - Appendix 8.0: Noise Assessment Report;
  - Appendix 9.0: Archaeological Impact Assessment Report; and
  - Appendix 10.0: Community Engagement.
- A document titled "Soil Management Plan, Pacific Coast Terminals Potash Project, Port Moody, BC", dated July 21, 2014, prepared by Envirochem.
- An email dated October 6, 2014 from Envirowest Consultants Inc. (Envirowest) to VFPA and PCT with the subject line *Vegetation Mitigation – Potash Project,* along with the attached jpg file 20140506_103502.
- An email dated October 8, 2014 from Invasive Species Council of Metro Vancouver to Envirowest with the subject line *New Submission from Contact*.
- A document titled "Port Metro Vancouver Supporting Documentation for Project Review Application, PCT Potash Project – Proposed Stormwater Management Plan. KWL Project No. 711.11", dated January 5, 2015, prepared by Kerr Wood Leidal Associates Ltd.
- A document titled "Soil Management Plan Pacific Coast Terminals Potash Project, Port Moody, BC", dated July 2014, prepared by Envirochem.

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- A letter between Her Majesty the Queen in Right of Canada as represented by the Minister of Fisheries and Oceans ("Her Majesty") and Canadian Pacific Limited (CP Rail) titled "Habitat Mitigation Agreement", dated December 4, 1995.
- A Request for Review Package sent to Fisheries and Oceans Canada by GL Williams & Associates Ltd., dated May 21, 2014.
- A letter from Fisheries and Oceans Canada to PCT with the subject "Implementation of mitigation measures to avoid and mitigate serious harm to fish. DFO file 14-HPAC- 00466", dated August 13, 2014.
- An email dated February 11, 2015 from Transport Canada to VFPA with the subject line *Section 67 CEAA - Pacific Coast Terminals Potash Handling and Storage System*.
- An email dated January 6, 2015 from VFPA with the subject line *PCT potash - response letter from City of Port Moody,* with the following attachments:
  - A letter from the City of Port Moody to VFPA titled "Re: Pacific Coast Terminals –Potash Handling Facility (PP 2014-096)", dated December 15, 2014; and
  - "Attachment 1: Proposed Potash Handling Facility – Detailed Comments".
- An email dated January 29, 2015 from PCT to VFPA with the subject line *City of Port Moody Comments Response Rev 4*, with an attachment titled "Response to City of Port Moody Letter to PCT".
- A letter from Tsleil-Waututh Nation, *People of the Inlet*, to VFPA title "Re: Permit Application by Pacific Coast Terminals – Potash Handling Facility", dated December 19, 2014.
- An email dated February 3, 2015 from Envirowest to VFPA with the subject line *PCT Habitat Impacts Map and Budget,* with the following attachments:
  - A Word file titled "The habitat Budget is amended as follows.doc";
  - PDF files, as follows:
    - Drawing Number: 1671-03-01, "Rail Line Habitat Impacts Plan A", dated July 07, 2014;
    - Drawing Number: 1671-03-02, "Rail Line Habitat Impacts Plan B", dated July 07, 2014;
    - Drawing Number: 1671-03-03, "Rail Line Habitat Impacts Plan C", dated July 07, 2014; and
    - Drawing Number: 1671-03-04, "Potash Shed Habitat Impacts Plan D", dated July 07, 2014.
- An email dated February 6, 2015 from Envirowest to VFPA with the subject line *PCT Potash - Offset Prescriptions,* with the following attachments:
  - A Word file titled "The habitat Budget is amended as follows2.doc";
  - PDF files, as follows:
    - Drawing Number: 1671-03-11, "Backshore Marine Woodland", dated February 04, 2015;
    - Drawing Number: 1671-03-12, "Backshore Marine Woodland with Grass Potash Shed Offset Prescription", dated February 04, 2015;
    - Drawing Number: 1671-03-13, "Riparian Woodland Schoolhouse Creek Offset Prescription", dated February 04, 2015;

- Drawing Number: 1671-03-14, "Backshore Marine Woodland Glycol Tank Offset Prescription", dated February 04, 2015;
- Drawing Number: 1671-03-15, "Riparian Woodland Kyle Creek Offset Prescription", dated February 04, 2015;
- Drawing Number: 1671-03-16, "Location of Beach Created through Removal of Existing Rip Rap Offset Prescription", dated February 04, 2015; and
- Drawing Number: 1671-03-17, "Reed Island Plan and Section Offset Prescription", dated February 04, 2015.

- An email dated January 9, 2015 from VFPA with the subject line *PCT potash* - response letter from City of Port Moody.
- An email dated January 27, 2015 from VFPA with the subject line DRAFT Review and Recommendations-PCT Potash Air Assessment", with the following attachment:
  - A document titled "Air Assessment Review and Recommendations-Pacific Coast Terminals Potash Project, dated January 26, 2015.
- An email dated March 3, 2015 from Envirowest to VFPA, with the subject line RE: PCT Potash Stormwater *Outfall to Schoolhouse Creek*, with the following attachment:
  - Drawing Number: 07000-CI-62-101-03, "Potash Wastewater Treatment, Utilities, Standard Details", dated December 15, 2014.

Environmental Effects Summary

Referrals to Government Agencies and Responses

- PCT forwarded proposed Project information to Transport Canada Navigation Protection Division. The in-water works portion of the Proposed Project may not proceed until the Transport Canada review is complete and an Approval received, if applicable.
- On May 21, 2014, the proponent sent a proposal to DFO for review. On August 13, 2014, DFO replied to PCT with a letter titled "Implementation of mitigation measures to avoid and mitigate serious harm to fish" and attachment titled "Measures to Avoid Causing Harm to Fish and Fish Habitat" (referred to above in the "**Information Sources**" section). DFO decided that, provided that the recommended mitigation measures are incorporated into the proposed Project plans, the Fisheries Protection Program is of the view that the proposal will not result in serious harm to fish; and that no formal approval is required from the Fisheries Protection Program under the *Fisheries Act* in order to proceed with the proposal. Adherence to the recommended mitigation measures for the proposed Project is included below as Condition 17, of this Schedule.
- On February 11, 2015 Transport Canada requested for VFPA to provide a copy of VFPA's section 67 environmental review; information on other *Canadian Environmental Assessment Act*, 2012 Authorities involved in the review at that time; and jurisdiction of proposed Project location lands. The requested information was provided.
- The proposed Project application was forwarded to the City of Port Moody for review. The City of Port Moody requested additional information on public safety, spill response and prevention, public

consultation, land use, transportation impacts, noise impacts, visual impacts, servicing considerations, economic considerations, environmental considerations, net positive, responsible sourcing and cumulative effects. The requested information was provided by both VFPA and PCT to the City of Port Moody in a response letter dated February 27, 2015.

- No other government agencies were identified that had germane information or expertise that was not already otherwise available to the assessment.

Aboriginal Consultation

- Proposed Project information was provided to Tsleil-Waututh Nation, Squamish Nation, Musqueam Indian Band and Sto:lo Nation on October 15, 2014.
- Consultation activities included sharing proposed Project information and updates, meetings, and correspondence via letter, email, and telephone.
- Concerns raised by First Nations included:
  - Impacts to unidentified archaeological resources;
  - Impacts to riparian areas along Schoolhouse Creek;
  - Impacts to Burrard Inlet and its marine resources, including endangered species, as a result of the in-water works and habitat compensation; and
  - Requests for the removal of creosote piles in Burrard Inlet;
- With regard to the concerns raised, VFPA has confirmed the following:
  - As confirmed in the 2014 Archaeological Impact Assessment conducted for the Proposed Project, no impacts to archaeology are expected, and no further assessment is required. It was recommended that archaeological monitoring be conducted during any construction-related activity with the potential to reach or penetrate native soils;
  - Riparian disturbances to Schoolhouse Creek are not expected as a result of this Proposed Project;
  - Impacts to fish and fish habitat in Burrard Inlet are not expected, provided the mitigation measures recommended by DFO and VFPA are followed;
  - The proposed Project is not anticipated to cause significant adverse effects on endangered species;
  - Noise, spill response, contaminated bilge water, debris generation, and other concerns, are being mitigated through either conditions in the proposed Project Permit or through operational practices by the proponent;
  - Creosote piles and dolphins along the shore between Reed Point and Reed Point Marina will be removed as part of the proposed Project, however the piles in the area of the Schoolhouse Creek estuary will remain as the potential adverse effect from the works to remove the piles have the potential to exceed the benefit of their removal;
- No outstanding concerns regarding First Nation consultation remain.

Referrals to Community and Public, and Responses

Public consultation on this proposed Project was undertaken by PCT.

- For a summary of PCT's public engagement activities on the Potash Handling Facility project, please refer to the Engagement Summary Report available on the VFPA website:

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http://www.portmetrovancouver.com/docs/default-source/PROJECTS-PCT/pct-potash-engagement-summary-report_october-2014_final.pdf?sfvrsn=0.

- For a summary of the feedback PCT received during the public consultation period on the Potash Handling Facility project, and how this feedback was considered, please refer to the Input Consideration Memo available on the VFPA website: http://www.portmetrovancouver.com/docs/default-source/PROJECTS-PCT/pct-potash-engagement-summary-report_october-2014_final.pdf?sfvrsn=0
- No outstanding issues or concerns are expected that may affect the outcome of this review.

Environmental Effects Checklist

The following table summarises the potential environmental effects the proposed Project could have on the identified environmental components.

Environmental Component	Potential Adverse Effects?			Residual Effects?		Mitigation Measures / Comments
	Yes	No	Unc	Yes	No	
Species/habitat with special status	☐	■	☐	☐	■	Species with special status are not found in the proposed Project area.

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Project: **Potash Handling**

Location: **Port Moody, British Columbia**

VFPA Site/Area No.: **PTM101**

Proponent(s): **Pacific Coast Terminal**

Environmental Component	Potential Adverse Effects?			Residual Effects?		Mitigation Measures / Comments
	Yes	No	Unc	Yes	No	
Vegetation	■	☐	☐	☐	■	Some vegetation removal will be required to construct the proposed Project, including removal of non-native planted coniferous trees, naturally occurring deciduous and coniferous trees, and associated understorey. Mitigation measures to offset vegetation removal, acceptable to VFPA, will be required as a condition of approval of this proposed Project, including and not limited to the following measures: • Removal of invasive species in vegetated areas as indicated in the Vegetation Management Plan (Appendix 3.0 Vegetation Management Prescriptions referenced above in the "**Information Sources**" section) restricted to mechanical means; • Planting of vegetation as indicated in the Vegetation Management Plan (Appendix 3.0 Vegetation Management Prescriptions referenced above in the "**Information Sources**" section); and • Replanting of vegetation on constructed salt marsh adjacent to Reed Point Marina. VFPA will require the implementation of a follow-up monitoring program to confirm that the constructed habitat functions as intended, and is not compromised by invasive species, as required through Condition 31 of this Schedule of Environmental Conditions.

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Wildlife / wildlife habitat	■	□	□	□	■	Measures to reduce the risk of proposed Project-related harm to wildlife including birds and/or their active nests and eggs form part of Conditions 32 of this Schedule. The table below presents the proposed Projects habitat impact and offset areas per habitat type.

Habitat Type	**Impact (m^2)**	**Offset (m^2)**
Backshore Marine Woodland	3260[1]	576*,[6]
Backshore Marine Woodland with Grass	0	1100[3]
Riparian Woodland	0	5180*,[7]
Intertidal Beach	820[2]	426[8]
Intertidal Mudflat	285[3]	0
Backshore Marine Boulder with Grass	0	650[5]
Backshore Marine/Intertidal Rip Rap	5630[4]	5680[4]
Intertidal Reef (Round Boulder)	0	1824[5]
Subtidal Reef (Rip Rap)	0	2676[5]
Subtidal Flat	4686[5]	0
Total	**14,681**	**18,112**

Notes:

**area enhanced through non-native invasive plant removal and native plantings*
[1]Potash Storage Building (1220 m^2) and Rail Extension (2040 m^2)
[2]Rail Extension
[3]Potash Storage Building
[4]Potash Storage Building and Rail Extension
[5]Reed Island
[6]Reed Point (486 m^2) and Glycol Tanks Shoreline (90 m^2)
[7]Schoolhouse Creek (1000 m^2) and Kyle Creek (4180 m^2)
[8]Reed Island (236 m^2) and Reed Point (190 m^2)

Wildlife habitat mitigation measures will be completed as indicated in the Vegetation Management Plan (Appendix 3.0 Vegetation Management Prescriptions and Habitat Impact and Offset drawings referenced above in the "**Information Sources**" section).

VFPA will require the implementation of a follow-up monitoring program to confirm that the constructed habitat functions as intended, and is not compromised by invasive species.

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Project: **Potash Handling**

Location: **Port Moody, British Columbia**

VFPA Site/Area No.: **PTM101**

Proponent(s): **Pacific Coast Terminal**

Environmental Component	Potential Adverse Effects?			Residual Effects?		Mitigation Measures / Comments
	Yes	No	Unc	Yes	No	
Aquatic species / fish habitat	■	□	□	□	■	The majority of works will be conducted above the high water mark; however, the proposed Project scope includes in-water works at the Potash storage building, barge landing area, and temporary access road over the salt marsh (which will be restored) at Reed Point. Most of the stormwater with low risk of being affected by the commercial operations will discharge to Burrard Inlet through existing stormwater outfalls, with the exception of a new proposed outfall that is proposed to discharge runoff from the Potash building Roof and vegetated area along Schoolhouse Creek to Schoolhouse Creek. DFO reviewed the proposed Project and decided that, provided the recommended mitigation measures are incorporated into the proposed Project plans, the Fisheries Protection Program is of the view that the proposal will not result in serious harm to fish; and that no formal approval is required from the Fisheries Protection Program under the *Fisheries Act* in order to proceed with the proposal. Adherence to the recommended mitigation measures for the proposed Project is below as Condition 17, of this Schedule. A Construction Environmental Management Plan (CEMP) and a site Erosion and Sediment Control Plan (ESCP), and a spill contingency and emergency response plan will be developed and put in place prior to work commencing. Mitigation measures described in these plans will be employed during construction to prevent and minimize adverse impacts to fishery resources. Heavy construction equipment will be regularly inspected for hydrocarbon leaks and a spill prevention and response plan implemented. In addition, all equipment will be operated from above the top of bank. No equipment or machinery will operate from the intertidal foreshore of Burrard Inlet. An appropriate spill prevention, containment, and clean-up contingency plan for hydrocarbon products (e.g., fuel, oil, hydraulic fluid, etc.) and other deleterious substances will be put in place prior to work commencing. Sediment and erosion control measures will be implemented to prevent induced sedimentation of foreshore and near shore areas and induced turbidity of local waters, and the release of sediment, sediment-laden waters, and turbid waters to the aquatic environment. If the proposed stormwater outfall discharging to Schoolhouse Creek is developed a sediment and erosion control monitoring plan will be implemented to identify any related effects to Schoolhouse Creek fish and fish habitat. Mitigation and management measures will be adapted to minimize the identified effects and avoid causing significant harm to fish or fish habitat.

Project: **Potash Handling**

Location: **Port Moody, British Columbia**

VFPA Site/Area No.: **PTM101**

Proponent(s): **Pacific Coast Terminal**

Environmental Component	Potential Adverse Effects?			Residual Effects?		Mitigation Measures / Comments
	Yes	No	Unc	Yes	No	
Other marine resources	☐	■	☐	☐	■	None were identified that were susceptible to proposed Project-related effects.
Soils	■	☐	☐	☐	■	A total of approximately 10,000m^3 of soil (predominantly fill) will be excavated from three primary areas: the dumper building, connected conveyor tunnels and new conveyor tower footings. An appropriate spill prevention, containment, and clean-up contingency plan for hydrocarbon products (e.g., fuel, oil, hydraulic fluid, etc.) and other deleterious substances will be put in place prior to work commencing. Any soils excavated during construction will be handled in a manner that will prevent their release into the aquatic environment, either directly or indirectly as silt in storm runoff. Water that has contacted uncured or partly cured concrete will be contained and will not be discharged to the aquatic environment. Materials brought onto the property for use as fill, backfill, or for site preparation must be from sources known to be clean and free of contamination. During any subsurface work at the site, a qualified environmental consultant will be available to identify, characterize and appropriately manage any environmental media that may be contaminated and may be encountered. Encountered contaminated soils during project excavation will be segregated and disposed of in an appropriate manner. A soil and groundwater management plan will be in place prior to construction and will address these issues.
Sediments	■	☐	☐	☐	■	The proposed Project scope includes in-water works at the Potash storage building, barge landing area, and temporary access road over the salt marsh (which will be restored) at Reed Point. Upland works that may increase sediment loading include soil excavation from three primary areas: the dumper building, connected conveyor tunnels and new conveyor tower footings. A Construction Environmental Management Plan (CEMP) and a site Erosion and Sediment Control Plan (ESCP) will developed and put in place prior to work commencing. Mitigation measures described in these plans will be employed during construction to prevent and minimize adverse impacts to and from sediments. Sediment control measures will be implemented to prevent induced sedimentation of foreshore and near shore areas and induced turbidity of local waters, and the release of sediment, sediment-laden waters, and turbid waters to the aquatic environment.

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Project: **Potash Handling**

Location: **Port Moody, British Columbia**

VFPA Site/Area No.: **PTM101**

Proponent(s): **Pacific Coast Terminal**

Environmental Component	Potential Adverse Effects?			Residual Effects?		Mitigation Measures / Comments
	Yes	No	Unc	Yes	No	
Groundwater	■	☐	☐	☐	■	Groundwater management will be needed for planned excavations for the dumper building, connected conveyor tunnels and new conveyor tower footings; and for installations at the Potash building. An appropriate spill prevention, containment, and clean-up contingency plan for hydrocarbon products (e.g., fuel, oil, hydraulic fluid, etc.) and other deleterious substances will be put in place prior to work commencing to prevent potential groundwater contamination. Groundwater controls for dumper building, connected conveyor tunnels and new conveyor tower footings excavations will include the following: • Installation of secant walls (formed by constructing intersecting reinforced concrete piles) as primary method to divert groundwater from excavations (walls to remain in place as structural foundations for dumper building and connected conveyor tunnel walls); and • Groundwater dewatering pumps will be set up for contingency, with diversion to PCT water treatment system. Groundwater controls for Potash Building Underground Transfer Point excavations will include dewatering pumps discharging to PCT water treatment system or surface water treatment before temporary discharge to ocean (with prior sampling and VFPA notification). As part of the Construction Environmental Management Plan, a soil and groundwater management plan will be in place prior to construction and will address this issue.

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Project: **Potash Handling**

Location: **Port Moody, British Columbia**

VFPA Site/Area No.: **PTM101**

Proponent(s): **Pacific Coast Terminal**

Environmental Component	Potential Adverse Effects?			Residual Effects?		Mitigation Measures / Comments
	Yes	No	Unc	Yes	No	
Surface water and water bodies	■	□	□	□	■	Proposed works to be carried out will be undertaken below the low water mark, in the foreshore and above the high water mark. The proposed work will be carried out with care to prevent materials from entering Burrard Inlet. Most of the stormwater with low risk of being affected by the commercial operations will discharge to Burrard Inlet through existing stormwater outfalls, with the exception of a new proposed outfall that is proposed to discharge runoff from the Potash building Roof and vegetated area along Schoolhouse Creek to Schoolhouse Creek. Any soils excavated during construction will be handled in a manner that will prevent their release into the aquatic environment, either directly or indirectly as silt in storm runoff. Water that has contacted uncured or partly cured concrete will be contained, will be diverted to the water treatment plant and will not be discharged to the aquatic environment. Discharges of substances deleterious to aquatic life will not be permitted. A soil and groundwater management plan will be implemented during construction. An appropriate spill prevention, containment, and clean-up contingency plan for hydrocarbon products (e.g., fuel, oil, hydraulic fluid, etc.) and other deleterious substances will be put in place prior to work commencing. Care will be taken to prevent the release of deleterious substances to the receiving environment. Heavy construction equipment will be regularly inspected for hydrocarbon leaks and a spill prevention and response plan implemented. During construction surface water will be contained and treated on site before either discharging to the Metro Vancouver (GVS&DD) sanitary system and / or recycled on site (e.g., dust suppression). A temporary water treatment system consisting of temporary storage (Baker) tanks and filtration will be used to treat surface water and potential additional volume generated by excavation dewatering. The system will also be available on a contingency basis. During operations a dedicated wastewater collection and treatment system will be in place to manage wastewater for the proposed Project. Waste water will be managed according to risk of potential impacts according to the following risk categories: general wastewater (wastewater from active working areas not associated with the proposed Project operations), potash wastewater (wastewater from active working areas where potash is handled), stormwater drain to ocean (water not likely to come into contact with sulfur, potash or waste material) and stormwater infiltration to ground (low risk pervious areas).

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Project: **Potash Handling**

Location: **Port Moody, British Columbia**

VFPA Site/Area No.: **PTM101**

Proponent(s): **Pacific Coast Terminal**

Environmental Component	Potential Adverse Effects?			Residual Effects?		Mitigation Measures / Comments
	Yes	No	Unc	Yes	No	
Wetlands	☐	■	☐	☐	■	No wetlands were identified in the project area.
Air quality	■	☐	☐	☐	■	In addition to the proposed handling of potash, PCT also handles sulphur, coal (temporarily), and glycol and was recently approved to handle canola oil. Overall throughput of all products combined at the terminal is expected to go from 2,914,998 tonnes in 2010 to 4,660,000 tonnes in 2020, a 60% increase. This corresponds to an increase in ship calls by 25% and trains by 54% over the same time period. Additionally, the proposed changes will allow the terminal to achieve a theoretical maximum of 13,700,000 tonnes for all commodities combined. The following provides a summary of PCT operational emissions management: • PCT has no direct control of marine vessels or rail operations other than the scheduling frequency for commodity transportation; • PCT is a Green Marine participant. For the most recent year that scores are available, it achieved 1-Greenhouse Gases, 2-Spill Prevention, 5-Dry Bulk Handling and Storage, 4-Community Impacts and 4-Environmental Leadership. Green Marine is a program in which participants must demonstrate "year-over-year improvements in a measureable way"; • In 1989, PCT eliminated its own locomotives/rail car pushers and installed electric rail car positioners for all on-site operations; • PCT operates one model year 2013 front end loader, which is a relatively new piece of equipment; • PCT light duty trucks are on short term lease and typically no more than 2 years old; • PCT commissioned a study for a chemical binding agent in 2006, to help manage fugitive sulphur dust emissions, and now uses the agent for mitigation, in addition to watering; and • Railcars are unloaded within an enclosed rotary dumper with baghouse. There is potential for dust and exhaust emissions to be generated during construction. Mitigation measures will be implemented throughout construction of the Project.
Lighting	■	☐	☐	☐	■	In order to minimize effects on nearby residents, construction will be scheduled between 7:00 am and 8:00 pm in compliance with the City of Port Moody's "Sound Level Bylaw". Any work outside these hours will be limited as much as possible, and will not occur without advising local citizens and businesses.

Project: **Potash Handling**

Location: **Port Moody, British Columbia**

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Environmental Component	Potential Adverse Effects?			Residual Effects?		Mitigation Measures / Comments
	Yes	No	Unc	Yes	No	
Noise	■	□	□	□	■	Noise may be an issue during both construction and operation of the project. During construction, activities will be scheduled to minimize disruption of nearby residences, where possible, and noise abatement measures appropriate to the activity undertaken will be implemented. Noise mitigation measures and low noise initiatives have been incorporated into the project to reduce impacts from operational noise. PCT sets targets to reduce the number of noise complaints received throughout the year. Controls include active noise monitoring and routine preventative maintenance to keep sound levels as low as possible. In order to minimize effects on nearby residents, construction will be scheduled between 7:00 am and 8:00 pm in compliance with the City of Port Moody's "Sound Level Bylaw". Any work outside these hours will be limited as much as possible, and will not occur without advising local citizens and businesses. Noise impacts are anticipated to be low or insignificant provided that noise mitigation measures are put in place and proven to be effective.
Archaeological/heritage resources	□	□	■	□	■	There are no known archaeological resources at risk from the proposed Project. Nevertheless, due to the possibility of cultural deposits, a qualified archaeologist will be present for all construction related activities with the potential to affect native sediments, intact or otherwise. In the event that potential archaeological resources are encountered during construction, the contractors will work under "Archaeological Chance Find Procedure" protocols including ceasing construction activities that may disturb potential resources and immediately contacting VFPA.
First Nations interests	■	□	□	□	■	First Nations concerns regarding the Proposed Project include comments related to archaeology, riparian disturbance to Schoolhouse Creek, vessel traffic, endangered species, marine shipping and loss or damage to habitat. These concerns are being mitigated through either conditions in the proposed Project Permit or through operational practices by the proponent. No outstanding issues remain.
Recreational interests	□	■	□	□	■	The project area is an industrial zone and recreational interests are not expected to be impacted by the proposed project.
Accidents and malfunctions	□	■	□	□	■	Mitigation measures to address impacts from accidents and malfunctions were considered during the review. The project has been designed to meet appropriate standards and environmental management plans and accident and spill response plans will be in place during project implementation.

Accidents and malfunctions

As with any project utilizing heavy duty equipment, spills or accidents resulting in hydrocarbon contamination are possible during the proposed work. The contractor will be required to regularly inspect equipment and to produce a spill prevention, containment, and clean-up contingency plan for hydrocarbon products prior to work commencing.

An appropriate spill prevention, containment, and clean-up contingency plan for hydrocarbon products (e.g., fuel, oil, hydraulic fluid, etc.) and other deleterious substances will be put in place prior to work commencing. Care will be taken to prevent the release of deleterious substances to the receiving environment.

Effects of the Environment on the Project

In addition to evaluating the effects of the proposed Project on the environment, changes to the proposed Project that may arise as a result of the environment have also been considered. The assessment of the effects of the environment on the proposed Project included identifying the environmental factors deemed to have possible consequences on the proposed Project, the likelihood and severity of their occurrence and mitigation measures planned to minimize their impact.

Natural hazardous events are not likely to cause adverse effects to compromise the proposed Project or cause significant adverse environmental effects beyond those that will be addressed with mitigation.

Cumulative Effects Summary

This environmental assessment has determined that residual adverse environmental effects are unlikely if readily available and practical mitigation measures are applied during the implementation of the proposed Project.

Follow-up Program

Implementation of a follow-up monitoring program will be required for this proposed Project, and this requirement is included as Condition 31 below. The scope of the program shall be determined in consultation with VFPA and must include, at a minimum:

- A Habitat Monitoring Program for the constructed habitat at Reed Point Marina and Reed Island to confirm that the habitat is functioning as intended, and is not compromised by invasive species;
- A follow-up monitoring program for the vegetation mitigation components of the Project; and
- A site-wide Invasive Species Monitoring and Management Plan, which shall include constructed habitat.

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Conditions for the Mitigation of Adverse Environmental Effects

In addition to the mitigation measures designed into the proposed Project (as indicated in the documents listed in the "Information Sources" section above), the Proponent is required to apply the following conditions to the Project:

1. The Proponent shall undertake and deliver the Project to total completion in a professional, timely and diligent manner in accordance with the applicable standards and specifications set out in the sections above entitled "Project Description" and "**Information Sources**". The Proponent shall not carry out any other physical activities unless expressly authorized by VFPA.
2. The Proponent shall at all times and in all respects comply with and abide by all applicable federal, provincial and municipal laws, statutes, by-laws, regulations, orders and policies from time to time in force and effect including, without limiting the generality of the foregoing, all rules and directions established by VFPA from time to time (collectively, "**Applicable Law**"). Any reference below to a specific law, statute, by-law, regulation, order or policy is for clarity only and in no way limits the generality of the foregoing.
3. The Proponent shall not, directly or indirectly: (i) deposit or permit the deposit of a deleterious substance of any type in water frequented by fish in a manner contrary to Section 36(3) of the *Fisheries Act*; or (ii) adversely affect fish or fish habitat in a manner contrary to Section 35(1) of the *Fisheries Act*.
4. The Proponent shall contain in the immediate working area all debris and waste materials resulting from the Project and remove such debris and waste material as soon as possible. The Proponent shall remove any submerged debris and waste material by means of a diver or other non-intrusive method. The Proponent shall not use a grappling hook or clamshell bucket to remove submerged debris or waste material unless such use is reviewed and approved by VFPA's Environmental Programs Department.
5. The Proponent shall ensure that debris and waste material resulting from the Project, including drill cuttings, equipment wash water, purge water, and any other waste waters resulting from the Project, are contained, collected, and disposed of at suitable upland locations using standards, practices, methods and procedures to a good commercial standard, conforming to "**Applicable Law**" and using that degree of skill and care, diligence, prudence and foresight which would be reasonably and ordinarily expected from a qualified, skilled and experienced person engaged in a similar type of undertaking under the same or similar circumstances. The Proponent shall have due regard for the applicable prohibitions and restrictions for burning a wide range of materials in British Columbia, such as creosote-treated wood.
6. All applicable legislation, guidelines, and best management practices shall be followed with respect to the application of wood preservatives and any other paints or coatings. Where practicable timber preservatives are to be applied upland in the dry prior to installation to allow the preservative to completely absorb and prevent leaching into the aquatic environment. A minimum of 45 days or compliance with wood treatment industry Best Management Practices (BMPs) is generally required to satisfy this criterion. This condition applies to initial construction and to subsequent maintenance. The applicant may wish to refer to the DFO Guidelines to Protect Fish and Fish Habitat from Treated Wood Used in Aquatic Environments in the Pacific Region (Hutton, K.E. and

S.C. Samis. 2000. Can. Tech. Rep. Fish. Aquat. Sci. 2314: vi + 34 p) for information concerning the BMPs.

7. Any piles to be removed shall be completely extracted to remove the entire length of pile from the seabed. Where physical conditions result in the breakage of piles, best efforts shall be made to remove entire pile stubs with the least amount of disturbance of the river bed as possible.
8. The Proponent shall conduct all work associated with the project involving the use of concrete, cement, mortars and other Portland cement or lime-containing construction materials must be conducted in a manner that prevents sediments, debris, concrete (cured or uncured), and concrete fines from being deposited into any aquatic environment, either directly or indirectly. Water that has contacted uncured or partly cured concrete or Portland cement or lime-containing construction materials, such as the water that may be used for exposed aggregate wash-off, wet curing, equipment and truck washing, etc. must be prevented from entering any aquatic environment. Containment facilities should be provided at the site for the wash-down water from concrete delivery trucks, concrete pumping equipment, and other tools and equipment as required.
9. If cast-in-place rather than precast construction methods are used, the Proponent must use concrete-tight forms to isolate the concrete form the receiving aquatic environment, and must take appropriate steps to ensure that uncured concrete, concrete fines or water that has been in contact with uncured concrete do not enter the receiving aquatic environment.
10. Prior to commencing any physical activities, the Proponent shall establish a comprehensive Construction Environmental Management Plan (CEMP) for the Project to mitigate identified issues related to air emissions, surface water quality, groundwater control, sedimentation, erosion, foreshore habitat alterations, contaminated soil, solid waste handling, fuel and chemical spills, noise and vibration, traffic and archaeological preservation. A copy of the plan shall be provided to VFPA Environmental Programs.
11. Prior to commencing any physical activities, the Proponent shall establish a spill prevention, containment and clean-up plan for hydrocarbon products (including fuel, oil and hydraulic fluid) and any other deleterious substances using standards, practices, methods and procedures to a good commercial standard, conforming to Applicable Law and using that degree of skill and care, diligence, prudence and foresight which would be reasonably and ordinarily expected from a qualified, skilled and experienced person engaged in a similar type of undertaking under the same or similar circumstances. The Proponent shall ensure that appropriate spill containment and clean-up supplies are available on site at all times and that all personnel working on the Project are familiar with the spill prevention, containment and clean-up plan.
12. In addition to the conditions listed in this Schedule of Environmental Conditions, the Proponent shall carry out the Project in compliance with the comprehensive Construction Environmental Management Plan (CEMP) referenced in condition 10 above, and in compliance with appropriate best construction industry environmental codes of practice. Where those conditions and codes of practice are in conflict with any listed in this Schedule the latter shall prevail. VFPA Environmental Programs should be consulted for clarifications where appropriate

13. The Proponent shall not conduct refuelling or maintenance activities within 30 metres of any watercourse, or in an area where there is potential for run-off to reach surface water bodies. Fuel and other hydrocarbon inventories shall not be stored in such areas, temporarily or otherwise.
14. All equipment working on the project site must be regularly inspected to ensure that it is in good mechanical condition and free from visible evidence of fuel, oil, coolant, solvents or hydraulic leaks. Equipment that is found to be other than in good condition should be removed from the job site immediately.
15. The Proponent shall not operate machinery or equipment on the intertidal foreshore.
16. The Proponent shall not permit barges or other vessels used during the Project to ground on the foreshore or seabed or otherwise disturb the foreshore or seabed (including disturbance as a result of vessel propeller wash), excepting only such disturbance as is reasonably required resulting from the use of barge spuds.
17. In addition to the conditions listed in this Schedule of Environmental Conditions, the Proponent shall carry out the Project in compliance with the Measures to Avoid Causing Harm to Fish and Fish Habitat attached to the August 13, 2015 letter from Regulatory Reviews, Fisheries Protection Program, DFO to PCT referenced in the Information Sources section above, and in compliance with appropriate best construction industry environmental codes of practice. Where those conditions and codes of practice are in conflict with any listed in this Schedule the latter shall prevail. VFPA Environmental Programs should be consulted for clarifications where appropriate.

18. The Proponent shall not permit sediment, sediment-laden waters, or other deleterious substances to enter the water during the Project. The Proponent shall carry out all physical activities in a manner that prevents induced sedimentation of foreshore and near shore areas and induced turbidity of local waters, and the release of sediment, sediment-laden waters, and turbid waters to the aquatic environment. All physical activities shall be in compliance with the following water quality criteria:
    - When background is less than or equal to 50 nephelometric turbidity units (NTU) or 100 milligrams per litre (mg/L) non-filterable residue (NFR), induced turbidity should not exceed 5 NTU or 10 mg/L NFR above the background values.
    - When background is greater than 50 NTU or 100 mg/L NFR, induced turbidity should not exceed the background values by more than 10% of the background value.

    For the purposes of this Section, "background" means the level at an appropriate adjacent reference site (as determined to the satisfaction of VFPA) that is affected neither by physical activities at the site, nor sediment-laden or turbid waters resulting from physical activities at the site.
19. Any soils excavated from the site during the proposed works shall be handled in a manner that will prevent their release into the aquatic environment, either directly or indirectly as silt in storm runoff.

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20. The Proponent shall dispose of any soils excavated from the site that are not suitable for backfill at appropriate off-site facilities in accordance with **Applicable Law**.
21. Excavations shall not be dewatered unless a dewatering plan has been reviewed and authorized by VFPA Environmental Programs.
22. Should contaminated materials be encountered, the Proponent shall ensure that all contaminated materials are removed, contained, and disposed of at appropriate off-site facilities using standards, practices, methods and procedures to a good commercial standard, conforming to Applicable Law and using that degree of skill and care, diligence, prudence and foresight which would be reasonably and ordinarily expected from a qualified, skilled and experienced person engaged in a similar type of undertaking under the same or similar circumstances. Suspect materials should be treated as contaminated or stockpiled until their environmental quality has been determined.
23. Intrusive investigations which extend beyond the modern fill layer to native soils, such as geotechnical drilling and excavation works shall be monitored by a qualified archaeologist.
24. In the event that potential archaeological resources are encountered, the proponent shall immediately cease construction activities that may disturb the potential resources until an agreement is reached with VFPA, the Archaeology Branch, First Nations and PCT regarding the scope of archaeological work required to mitigate proposed disturbances to these locations. The Proponent shall not resume physical activities until authorized by VFPA in writing.
25. Any materials brought onto the property to be used for backfilling, site preparation, or other uses shall be from sources documented to be clean and free of contamination.
26. Stormwater and surface runoff shall be managed using best available practices and in compliance with all applicable legislation, guidelines, and best management practices.
27. During project deconstruction, demolition and/or construction as applicable:
    a. Air emissions such as vehicle/equipment exhaust, dust and vapours, shall be minimized and managed to avoid adverse health, safety, nuisance and other environmental effects on and off site. In this regard, emission control measures shall be implemented as required and may include but are not limited to the following:
        i. No visible dust or track out beyond the lease boundary;
        ii. Onsite speed limit; and
        iii. More detailed guidance is available in *Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities* prepared for Environment Canada (Cheminfo Services Inc. March 2005).
    b. Proponent shall also:
        i. Make reasonable efforts to ensure that heavy duty diesel powered road licensed vehicles and engines are model year 2007 or newer;
        ii. Make reasonable efforts to ensure that diesel-powered non-road or off-road equipment is Tier 3 or better, or equivalent for emissions;

iii. Ensure the use of well-maintained engines and exhaust systems, in good operating order; and

iv. Ensure that vehicle and equipment idling are limited to the greatest practical and safe extent.

28. Dust, noise and other air emissions associated with deconstruction, demolition and/or construction and operation shall be minimized.

29. In addition to the conditions listed in this Schedule of Environmental Conditions, the Proponent shall, within 6 months of Project Permit issuance, submit to VFPA for approval, a consolidated Air Emissions Management Plan to facilitate continuous improvement in relation to air emissions that contribute to air quality and climate change, associated with the facility including this proposed Project. The plan content shall be determined in consultation with VFPA and shall include at a minimum:
    a. Scope and Objectives;
    b. Description of Operations;
    c. Roles and Responsibilities;
    d. Emissions Inventory;
    e. Impact Assessment;
    f. Control and Mitigation Measures;
    g. Monitoring;
    h. Data Management;
    i. Review Cycle; and,
    j. Reporting.

30. VFPA reserves the right to impose additional requirements in the future, at its sole discretion with regards to monitoring and managing air emissions associated with the facility.

31. Within 6 months of Project Permit issuance, PCT shall submit to VFPA for approval, a comprehensive Follow-up Monitoring Program. The scope of the program shall be determined in consultation with VFPA, and must include at a minimum:
    a. A Habitat Monitoring Program for the constructed habitat at Reed Point Marina and Reed Island;
    b. A follow-up monitoring program for the vegetation mitigation components of the Project; and
    c. A site-wide Invasive Species Monitoring and Management Plan, which shall include constructed habitat.

32. The Proponent shall have due regard to the potential application of the *Migratory Birds Convention Act* and/or the *Wildlife Act* of British Columbia. To reduce the risk of Project-related harm to birds and/or their active nests and eggs, the Proponent may wish to avoid certain physical activities during the general bird breeding season, which falls between April 1 and July 31. If potentially harmful activities must be undertaken during this period, the Proponent shall exercise all due

diligence to avoid causing harm to birds and/or their active nests and eggs. The Proponent shall also have due regard to nests of those species of birds protected by "**Applicable Law**" at all times of the year, regardless of the time of year or whether or not the nests are occupied. The Proponent should, where circumstances warrant, retain the services of qualified environmental professionals to assist in developing and undertaking appropriate bird nest surveys immediately before, during and after the general bird breeding season.

33. Prior to the start of operations at the new Potash Facility, PCT shall provide VFPA with an updated copy of PCT's Emergency Response Plan.
34. The Proponent shall cooperate fully with VFPA in respect of any review by VFPA of the Proponent's compliance with these conditions including, without limitation, providing any information or documentation required by VFPA.
35. The Proponent shall provide a copy of this Schedule to all employees, agents, contractors, licensees and invitees prior to commencing any physical activities. The Proponent shall be solely responsible for ensuring that all such employees, agents, contractors, licensees and invitees contractors, comply with these conditions.
36. The Proponent shall make available upon request by any regulatory authority (such as a Fishery Officer) a copy of this document

The above conditions are based solely upon VFPA's review of the Project and in no way limits the authority of, or constitutes any form of permit, authorization or approval by, any other governmental authority having jurisdiction. The Proponent is solely responsible for obtaining any and all required permits, authorizations and approvals from any other governmental authority having jurisdiction.

Notice to Shipping

The Proponent may contact the Coast Guard regarding the issuance of a Notice to Shipping in respect of the Project at the following address:

Canadian Coast Guard
Vessel Traffic Services
555 West Hastings
Vancouver BC V6B 4N6

Tel (604) 666-6011
Fax (604) 666-8453

Assessment Determination

In completing this federal environmental review, VFPA has reviewed and taken into account relevant information available on the proposed Project, has considered the information and proposed mitigations provided by Pacific Coast Terminal and other information as listed elsewhere in this document, and concludes that with the implementation of proposed mitigation measures and conditions (as described in this Schedule of Environmental Conditions), the Project is not likely to cause significant adverse environmental effects.

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