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**Bid Receiving Public Works and Government
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800 Burrard Street, Room 219
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Vancouver
British Columbia
V6Z 0B9
Bid Fax: (604) 775-9381

**SOLICITATION AMENDMENT
MODIFICATION DE L'INVITATION**

The referenced document is hereby revised; unless otherwise indicated, all other terms and conditions of the Solicitation remain the same.

Ce document est par la présente révisé; sauf indication contraire, les modalités de l'invitation demeurent les mêmes.

Comments - Commentaires

**Vendor/Firm Name and Address
Raison sociale et adresse du
fournisseur/de l'entrepreneur**

Issuing Office - Bureau de distribution
Public Works and Government Services Canada - Pacific
Region
800 Burrard Street, Room 219
800, rue Burrard, pièce 219
Vancouver
British C
V6Z 0B9

Title - Sujet Upscheek Tashee Trail Construction	
Solicitation No. - N° de l'invitation 5P437-190013/B	Amendment No. - N° modif. 003
Client Reference No. - N° de référence du client 5P437-190013	Date 2019-03-26
GETS Reference No. - N° de référence de SEAG PW-\$PWY-019-8566	
File No. - N° de dossier PWY-8-41204 (019)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2019-04-18	
Time Zone Fuseau horaire Pacific Daylight Saving Time PDT	
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Ngan, Ken (PWY)	Buyer Id - Id de l'acheteur pwy019
Telephone No. - N° de téléphone (604) 671-0219 ()	FAX No. - N° de FAX (604) 775-6633
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: Parks Canada (PCA) - Upscheek Tashee Trail - Pacific Rim National Park - Ucluelet, BC	

Instructions: See Herein

Instructions: Voir aux présentes

Delivery Required - Livraison exigée	Delivery Offered - Livraison proposée
Vendor/Firm Name and Address Raison sociale et adresse du fournisseur/de l'entrepreneur	
Telephone No. - N° de téléphone Facsimile No. - N° de télécopieur	
Name and title of person authorized to sign on behalf of Vendor/Firm (type or print) Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)	
Signature	Date

Solicitation No. - N° de l'invitation
5P437-190013/B
Client Ref. No. - N° de réf. du client

Amd. No. - N° de la modif
003
File No. - N° du dossier
PWY-8-41204

Buyer ID - Id de l'acheteur
PWY019
CCC No./N° CCC - FMS No./N° VME

Les documents français seront disponibles sur demande.

This Solicitation Amendment 003 is raised to incorporate Addendum 3, and the associated revised Unit Price Table, Environmental Procedures, and Drawings.

This Addendum 3 Unit Price Table supersedes any previous versions. Failure to complete and submit this revised Unit Price Table, along with the bid submission will rendered the bid submission NON-COMPLIANT and will be given NO further consideration.

All other terms and conditions remain unchanged.

The following changes/clarifications in the tender documents are effective immediately.
This addendum will form part of the contract documents.

1.0 INVITATION TO TENDER, Unit Price Table:

Item107, Temporary culvert at all temporary access roads. Delete this item. Temporary culverts shall be paid under items 153 and 154. A revised Unit Price Table is included in this addendum.

Item128, Wood Fence – Solid Plank. 1.83 m High. Delete this item. This work is a duplicate of Item 127. A revised Unit Price Table is included in this addendum.

2.0 SPECIFICATION 01 35 43, ENVIRONMENTAL PROCEDURES:

Delete Specification 01 35 43 contained in the Contract Specifications and replace with a new Specification 01 35 43, attached as a PDF to this Addendum 3. Changes to these specifications are shown in red.

3.0 CONTRACT TENDER DRAWINGS, Sheet t-40.1 – Typical Trail Cross-sections:

On the typical “Wetland Section” The “See Root Barrier Detail” shall be revised as follows:

1. Root barrier note shall be deleted.
2. Structure: Note 3 – the reference to 75mm crushed granular subbase is deleted.
3. Structure: Note 8 – the reference to 75mm open graded subbase is deleted.

In the Wetland Cross-section the root barrier shall be installed only with the approval of the Owners Environmental Monitor (OEM) and only where large trees and tree roots are immediately beside the trail. If installed lengths will be less than 5 m. Any root barrier installed in wetland areas without the express consent of the OEM shall be removed at the Contractor’s expense

4.0 PAY ITEM 97, Granular Base at Radar Hill Road Parking Lot (100mm thick):

Pay item 97, described in Specification 32 11 23, Granular Base, shall include the following work in the unit price bid. The existing lot has been used for storage and milling of logs. The existing gravel surface has minor damage and wood chips. The Contractor will regrade and clean the sub-base to a suitable condition prior to placing the 100mm gravel base. The thickness of the gravel base is revised by this addendum on contract drawing sheets PL-1.1 and PL-1.2 to 100mm thickness.

5.0 QUESTIONS RECEIVED FROM PROSPECTIVE BIDDERS:

1. **Question:** For pay item #192, 200mm diam. lawn basin grate inlet, please provide locations, detail and specifications for lawn basin grate inlet.
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Answer: Pay item 192 is revised to 300mm diameter lawn basin as detailed in Master Municipal Construction Documents (2009) Drawing Number S12, Type 1 lawn basin, and Dabney Foundry grate D-2, drawing no. D-2. Both drawings included in this addendum. Lawn basins will be placed at the low points of the swales at the retaining wall locations detailed in the “W” series of the contract drawings and connected into the wall drainage system. The low point shall be determined at time of construction to ensure the actual low point is drained.

2. Question: For pay item #7, poly or nylon sandbags (supply, install, and remove), what’s the size of sand bag?

Answer: Sandbags shall be approximately 350mm X 650mm when flat and when filled with material be approximately 150mm thick. Bags up to 10% smaller or any percentage larger are acceptable.

3. Question: There are three pay items (#107, #153 & #154) for temporary culverts at temp access roads. Please clarify which pay item should be for temporary culverts?

Answer: Delete pay item 107. Temporary culverts shall be paid under item 153 (for 450 mm diameter) and item 154 (for 600 mm diameter) culverts. A revised Unit Price Table is attached to this addendum.

4. Question: Please advise if GUL cement will be allowed in the manufacturing of precast concrete components.

Answer: General Use Limestone Cement (GUL) is an accepted alternative to GU cement.

5. Question: I noticed that the Pavement Markings are to be paint only, normally thermoplastic would be used for the Crosswalks, Stop Bars and Arrows. Are they to be thermoplastic because paint will not last for very long due to the large amount of traffic crossing them every day?

Answer: To reduce capital costs Parks Canada has specified the use of paint.

6. Question: Can the Radar Hill Parking Lot be used throughout the project for a temporary camp setup to house employees?

Answer: No, Parks Canada does not permit temporary camps within the Park.

- 7. Question:** Radar Hill Parking Lot is currently filled with merchantable timber. Will this timber be removed prior to our contract or are we responsible for removing it? If the intent is to use this as a laydown area, this wood will need to be removed.
- Answer:** This timber is presently being milled in this parking lot. Approximately half of it will be removed prior to the start of construction providing a laydown area of about 2,800 square metres at the start of construction. This will expand to 5,600 square metres by the summer of 2019. The lot will be left in a clean condition, but the Bidder shall include the cost of regrading and compacting the existing surface in the price of the granular base used in this lot.
- 8. Question:** There is a pay item on the tender form for the precast curbs installed on the edges of box culverts but spec section 33 42 13 1.1.3 says that curbs are inclusive in the box culvert pay items. Please confirm which is correct.
- Answer:** The pay item for precast curbs is for curbs in the parking lots, Long Beach Lot and, Incinerator Rock Lot. Curbs used on the box culverts shall be included in the price of the concrete box culvert.
- 9. Question:** Please confirm that the scope for pay items under “Fisheries Work” are only to include the enhancements to the streambeds. For example, F5 shows a culvert installation as a part of the Fisheries work but I assume the culvert installation itself is paid under the box culvert pay item? Likewise, F5 shows a new enviro-grid wall, which I assume should only be priced under the retaining wall pay items and not in Fisheries Work. Rip rap shown on Fisheries drawings should be paid under rip rap bid items.
- Answer:** Retaining walls, culverts, culvert extensions, and trail work shown on the fisheries drawings will be paid separately. The work specifically related to improvements to the water course for fisheries enhancements, including gravels, rip rap, logs, and other materials specifically related to the fisheries improvement, shall be included in the Lump Sum pay items 178 to 189.
- 10. Question:** For pay item #105, please provide the volume of gravel fill for each cistern for pricing.
- Answer:** The maximum volume for each cistern is 8.0 cubic metres.
- 11. Question:** For pay item #116, are the project signs supplied by the park? Otherwise, please provide a detail and specs of sign for pricing.
- Answer:** These signs shall be supplied, installed, maintained, and removed by the Contractor under this item. Sign supports may be 100mm X 100mm X3m long wood posts with 89mm X 38mm wood support frames. Sign face may be corrugated plastic sheet (Coroplast, Hi-Core, or equal) or weatherproof plywood. Paint shall be all weather paint to Ministry of
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Transportation sign standards. The layout, color, and wording on the signs shall be as shown in the photo included at the end of this addendum.

12. Question: Where is the excavation pay item for Incinerator Rock Parking Lot?

Answer: The excavation for this parking lot shall be paid under Item 68, "Highway off site waste excavation."

13. Question: Pay Item 161. For installation of amphibian crossings on highway. Should this pay item include the asphalt to restore the highway or will that be included in another pay item?

Answer: The lump sum pay item for each of the box culverts under Highway 4 shall include all work related to installation of these culverts including the saw cutting and removal of the asphalt and asphalt replacement. Only items paid under Division 1 (pay items 1, Mob and Demob, 2, Traffic Control, and 3, Quality Control) shall be paid separately.

14. Question: Please confirm how geotextiles are paid for with regard to temporary access roads. Will this be included in the temp access road pay item or under the geotextile pay items?

Answer: The lump sum item for temporary access roads shall include the cost to supply, install, and remove the geotextiles. The number of temporary access points shown on the drawings is the maximum number permitted.

15. Question: For temporary access roads, none of the drawings identify the depth of fill required above the culverts to fill the ditch up to bottom of crushed gravel base. Will this fill be paid for in unit rate item #99?

Answer: No, the Lump Sum price bid for items 106 and 107 shall include all labour, materials, and equipment to supply, install, and remove these temporary access points. The roadside ditches in the Park average 1.0 m deep and 1.5 m wide with 2:1 side slopes. The height of fill above the culvert will generally be dictated by the elevation required to match the highway shoulder. As these access roads are temporary and for the Contractors convenience to access the trail during construction, the height of fill over the culverts can be determined by the Contractor to satisfy their needs.

16. Question: Please provide a detail for the forestry gates trail.

Answer: Pay Items 52 (8m wide parking lot gate) and item 53 (5 m wide access gate) are for the supply and installation of each size of metal gate. Specification 05 51 00, clause 2.1.7 provides a generic description of the gates and the minimum dimensions of the steel components. A typical swing gate design is included in this addendum. Alternate designs providing similar security and durability are acceptable.

- 17. Question:** For Does payment for the extension of culverts include backfill? If so where does the backfill stop for this pay item? There will be a lot of fill required over the extension as part of the trail construction so I assume most, if not all, of the fill required over culverts will be paid in the aggregate installation pay items for constructing the trail.
- Answer:** Included in the payment for culverts and culvert extensions is the bedding up to the springline of the pipe. Fill above this point shall be paid under the appropriate item (for example; sub-grade fill, sub-base, base.)
- 18. Question:** Bid Item 166 says HDPE on the tender form but drawing D1 says these culverts are CSP. Please confirm which is correct. If the drawings are correct, then Bid Item 175 should not be needed?
- Answer:** The unit price table with two 600mm HDPE pipes are correct. Item 175 is a contingency amount to permit additional extensions where required.
- 19. Question:** Addenda #2 changed bid item #165 to 1200mm HDPE but Drawing D1 and W5 show this culvert as 1300mm HDPE. Please clarify which is correct.
- Answer:** The correct diameter for this culvert is 1200 mm.
- 20. Question:** Please advise if SI11.4 applies to independent legal companies who are owned by the same parent company.
- Answer:** Company A can propose Company B as a member of its team or Subcontractor even if they are owned by the same parent company. However, Company B cannot also submit a bid on its own or a part of a joint venture.



Ups-cheek Ta-shee
Pacific Rim National Park Reserve, British Columbia
Public Works and Government Services Canada
Project Number: R .081570.001

Unit Price Table
Addendum 3

Trail, Road, and Bridge Works
South Park Boundary to North Park Boundary

Item	Specification Reference	Class of Labor, Plant or Material	Unit of Measurement	Estimated Quantity	Price per Unit applicable taxes extra (PU)	Extended amount (EQ x PU) applicable taxes extra
Division 1 General Requirements						
1	01 25 20	Mobilization and Demobilization	Lump Sum	1		
2	01 35 00	Special Procedures for Traffic Control	Lump Sum	1		
3	01 45 00	Quality Control	Lump Sum	1		
Environmental Procedures - Supply, Install, & Remove - above that required for incidental environmental work						
4	01 35 43	Light Duty Silt Fence Barrier (SI&R)	Lin.m	2,000		
5	01 35 43	Heavy Duty Silt Fence Barrier (SI&R)	Lin.m	500		
6	01 35 43	Erosion Control Blanket (SI&R)	sq.m	5,000		
7	01 35 43	Poly or Nylon Sand Bags (SI&R)	Each	1,000		
8	01 35 43	Poly Sheeting (6 mm) (SI&R)	sq.m	1,000		
9	01 35 43	Rock Check Dam (SI&R)	Each	100		
10	01 35 43	1.4 m high orange safety fence (SI&R)	Lin.m	200		
11	01 35 43	2.29 m X 2.29 m Small Wetland Filter Bag (SI&R)	Each	20		
12	01 35 43	4.57 m X 4.57 m Large Wetland Filter Bag (SI&R)	Each	20		
13	01 35 43	50mm trash pump + 61 m discharge hose	Daily	300		
14	01 35 43	75mm trash pump + 61 m discharge hose	Daily	150		
Environmental Procedures - Standby Equipment and Materials						
15	01 35 43	50mm trash pump + 61 m discharge hose	Lump Sum	2		
16	01 35 43	75mm trash pump + 61 m discharge hose	Lump Sum	2		
17	01 35 43	Standby Materials (Quantities in Table 2 - light and heavy duty silt barrier, stakes, erosion control blanket, sandbags, poly sheeting, crushed rock, pea gravel, safety fencing, filter bags, Sorbent booms)	Lump Sum	1		
18	01 35 43	Large Spill Kits (110% of equipment fluids)	Lump Sum	2		
Subtotal General Requirements						
Bridge and Elevated Trail Work						
Concrete Reinforced Precast Concrete Components						
19	03 41 00	Bridge 19 girders (30.6 m long)	Each	3		
20	03 41 00	Bridge 20 girders (30.6 m long)	Each	3		
Concrete Reinforced Cast in Place Concrete Components						
21	03 41 00	Bridge 3 - Abutments, wingwalls, approach slabs	L.S.	1		

Item	Specification Reference	Class of Labor, Plant or Material	Unit of Measurement	Estimated Quantity	Price per Unit applicable taxes extra (PU)	Extended amount (EQ x PU) applicable taxes extra
22	03 41 00	Bridge 19 Abutments, wingwalls, approach slabs, deck, curbs	L.S.	1		
23	03 41 00	Bridge 20 Abutments, wingwalls, approach slabs, deck, curbs	L.S.	1		
		Site Preperation, Delivery, Bearings, Installation, Wood Deck, Miscellaneous				
24	03 20 01	Bridge 3 - 20 m Steel & Timber Bridge	Each Bridge	1		
25	03 20 01	Bridge 19 - 30 m Precast Concrete Girder Bridge	Each Bridge	1		
26	03 20 01	Bridge 20 - 30 m Precast Concrete Girder Bridge	Each Bridge	1		
27	03 20 01	Elevated trail - Install and Finish	Lin.m	370		
		Subtotal Bridge and Elevated Trail Concrete				
Division 05	Metal Work	Structural Steel Bridge Components				
28	05 12 33	Bridge 3 - 20 metre Supply and Fabricate Steel	Lump Sum	1		
		Railings - Metal and Wood				
29	32 31 14	20 metre Span Bridge Steel (50.5m of Wood Railing)	Lump Sum	1		
30	05 12 33	30 metre Span Bridge Steel (82.4 m of Metal Railing)	Lump Sum	2		
31	32 31 14	Elevated trail - Wood Railings	Lin.m	150		
		Subtotal Metal Work				
Division 31	Earthworks (Piling)					
32	31 66 13	Helical Piles - 114mm dia, 6.0m Long 8.6mm WT screw piles for elevated trail sections (Drawing S-2.5 - Type A)	Each	280		
33	31 66 13	Helical Piles - 114mm dia, 9.0m Long 8.6mm WT screw piles for elevated trail sections (Drawing S-2.5 - Type B)	Each	46		
34	31 62 16	Mobilize and demobilize for bridge piling 20 m span Bridge 3	Lump Sum	1		
35	31 62 16	Mobilize and demobilize for bridge piling 30 m span Bridge 19 Sandhill Creek on Wick Road	Lump Sum	1		
36	31 62 16	Mobilize and demobilize for bridge piling 30 m span Bridge 20 Lost Shoe Creek Bridge 20 on Highway 4	Lump Sum	1		
37	31 62 16	Piling -610mm dia 16mm WT driven steel piles for bridge # 3 structure	Lin.m	50.4		
38	31 62 16	Piling -610mm dia 19mm WT driven steel piles for bridge# 19 structure	Lin.m	94		
39	31 62 16	Piling -762mm dia 19mm WT driven steel piles for bridge# 20 structure	Lin.m	147.6		
40	31 62 16	Piling - Concrete fill and reinforcing steel in 610mm dia steel piles for bridge structures	Each	16		
		Subtotal Bridge and Elevated Trail Piling				
At Grade Trail Work						
Division 03	Concrete					
41	03 30 20	Concrete Wall Curb, 300 high (Cast in Place)	Lin.m	150		
42	03 48 00	280 X 150 X 2130 parking curb (Precast)	Each	205		
43	03 48 00	2.13 m high concrete fence (Precast)	Lin.m	166		
		Roadside Precast Concrete Barriers				
44	03 48 00	460 high bull-nose 1.2 m Long (Precast)	Each	17		
45	03 48 00	460 high concrete barrier 3.0 m Long (Precast)	Each	6		
46	03 48 00	690 high concrete barrier 2.5 m Long (Precast)	Each	163		
47	03 48 00	460 to 690 high transition barrier 2.5 m Long (Precast)	Each	29		
48	03 48 00	690 high drainage barrier 2.5 m Long (Precast)	Each	212		
49	03 48 00	Relocate 690 high conc. barrier 2.5 m Long	Each	22		
50	03 48 00	Install 2.5m L 690 conc. barrier Supplied by PCA	Each	95		

Item	Specification Reference	Class of Labor, Plant or Material	Unit of Measurement	Estimated Quantity	Price per Unit applicable taxes extra (PU)	Extended amount (EQ x PU) applicable taxes extra
		Subtotal Concrete				
Division 05	Metal Work					
51	05 51 00	Swing Bike Baffles	Each Pair	37		
52	05 51 00	8 m Wide Parking Lot Gate	Each	2		
53	05 51 00	5 m Wide Access Gate	Each	13		
54	05 51 00	Relocate and repaint existing forestry gate. Complete sets	Each set	2		
55	05 51 00	680 mm X 2400 mm galvanized rails on roadside concrete barriers	Each	440		
56	05 51 00	680 mm X 2400 mm galvanized rails on roadside concrete barriers with sign post	Each	20		
57	05 51 00	680 mm X 1800 mm galvanized rails on W-beam Guardrails	Each	212		
58	05 51 00	100 mm dia. Steel removable bollards	Each	6		
		Subtotal Metal Work				
Division 31	Earthworks					
		Clearing and Grubbing				
59	31 11 00	Tree and brush clearing and removal East side of Esowista Curve (Sta 15+400 to 15+880)	Hectare	0.30		
60	31 11 00	Tree and brush clearing for Trail	Hectare	1.40		
61	31 11 00	Grubbing	Hectare	15		
62	31 11 00	Stump Grinding	Cu. m	500		
		Topsoil, Organic Soil, and Wood Chips				
63	31 14 13	Organic soil side casting and respreading for shoulder dressing	Lin. m	47,000		
64	31 14 13	Supply and dress trail shoulders with wood chips on paved trail	Lin.m (Each side)	1,130		
65	31 14 13	Trail off site waste excavation - Organic Material	Cu. m	20,700		
		Mineral Soils Excavations and Fills				
66	31 14 13	Trail waste excavation - Non-organic material	Cu. m	14,100		
67	31 14 13	Trail embankment (Used on site)	Cu. m	2,800		
68	31 24 13	Highway off site waste excavation	Cu. m	7,500		
69	31 24 13	Highway embankment (Used on site)	Cu. m	1,000		
		Archaeological Site Excavations and Fills				
70	01 35 44	Organic Soils excavation and spreading in Archaeological site	Cu. m	10,400		
71	01 35 44	Organic Soils excavation - storage and recording at Grice Bay Parking Lot	Cu. m	1,900		
72	01 35 44	Mineral Soil excavation and fill in Archaeological Sites	Cu. m	2,600		
73	01 35 44	Mineral Soil excavation in Archaeological Sites - storage and recording at Grice Bay Parking Lot	Cu. m	3,000		
74	01 35 44	Mineral Soil excavation in Archaeological Sites - disposal at Tofino Airport	Cu. m	2,350		
		Geotextiles, Geogrids, Erosion Control Blankets				
75	31 32 19	Geotextiles - Woven high survivability	Sq. m	21,000		
76	31 32 19	Geotextiles - Install only -Woven Mirafi HP570 (71 rolls)	Sq. m	29,700		
77	31 32 19	Geogrid plus nonwoven or composite geotextile	Sq. m	53,400		
78	31 32 19	Erosion Control Blanket (Biodegradable)	Sq. m	62,000		
79	31 32 19	Erosion Control Blanket Install Only NAG C125BN (57 rolls)	Sq. m	4,200		
80	31 32 19	40 mil Root Barrier	Lin. m	40,000		
81	31 32 19	Buried Check Dam with LLPDE liner	Each	20		
82	31 37 00	Riprap Class 10 kg (350 mm thick)	Sq. m	3,000		
83	31 37 00	Riprap Class 25 kg (450 mm thick)	Sq. m	750		

Item	Specification Reference	Class of Labor, Plant or Material	Unit of Measurement	Estimated Quantity	Price per Unit applicable taxes extra (PU)	Extended amount (EQ x PU) applicable taxes extra
84	31 37 00	Riprap Class 500 kg	Cu. m	340		
		Subtotal Earthworks				
Division 32 Road and Site Improvements						
85	32 01 11	Removal of pavement markings on Highway 4 at Esowista Curve	Lump Sum	1		
86	32 01 16.7	200 mm wide - edge cold milling	Lin. m	900		
87	32 01 16.7	200 mm wide - asphalt saw cut and removal	Lin. m	900		
88	32 01 16.9	Asphalt pavement removal	Sq. m	3,050		
		Aggregates for Highways and Roads (Free of invasive species)				
89	32 11 10	Select Granular Sub-grade fill (75 mm minus)	Cu.m.	600		
90	32 11 16	Crushed Granular Sub-base (450 mm thick Esowista Curve)	Sq. m	3,600		
91	32 11 16	Crushed Granular Sub-base (300 mm thick Roadside Barrier Widening)	Sq. m	4,000		
92	32 11 23	Granular Base (150 mm thick)	Sq. m	3,400		
93	32 11 23	Granular Base (100 mm thick)	Sq. m	4,000		
94	32 11 23	Granular base shoulder dressing	Lin. m	1,000		
		Aggregates for Parking Lots (Free of invasive species)				
95	32 11 16	Crushed Granular Sub-base at Incinerator Rock Parking Lot (600 mm thick)	Sq. m	1,000		
96	32 11 23	Granular Base at Incinerator Rock Parking Lot (100 mm thick)	Sq. m	3,050		
97	32 11 23	Granular Base at Radar Hill Road Parking Lot (100 mm thick) and preparation of existing surface	Sq. m	5,600		
98	32 11 23	Gran. base shoulder 0.5 wide at Incinerator Rk P.L.	Lin. m	160		
		Aggregates for Trail (Free of invasive species)				
99	32 11 10	Select Granular Sub-grade fill (75mm minus)	Cu.m.	25,000		
100	32 11 16	Crushed Granular Sub-base (300 mm thick - 75mm minus)	Sq. m	45,800		
101	32 11 16	Open Graded Subbase (600 mm thick - 150 mm or 75mm minus)	Sq.m.	53,500		
102	32 11 16	Open Graded Sub-base (450 mm thick - 75 mm minus open graded crush)	Sq.m.	8,700		
103	32 11 16	Open Graded Subbase (150 mm or 75 mm minus for strengthening areas)	Cu. m	5,000		
104	32 11 23	Granular Base (100 mm thick)	Sq. m	84,500		
		Fill Existing Cisterns				
105	32 11 23	Fill existing cisterns with granular base	Each	4.00		
		Temporary Access				
106	32 11 24	Temporary Access Roads	Lump Sum	1.00		
107	32 11 24	Delete. Item not used				
		Asphalt Pavement				
108	32 12 13.16	Asphalt tack coat	Sq.m	7,150		
109	32 12 16	Incinerator Rock Parking Lot (50 mm thick)	Sq. m	2,900		
110	32 12 16	Trail Paving (50 mm thick X 3.2 m Wide)	Sq. m	2,950		
		Esowista Curve Paving				
111	32 12 16	Highway widening lower course (75 mm thick)	Sq. m	3,000		
112	32 12 16	Highway widening upper course (50 mm thick)	Sq. m	3,100		
		Painted Pavement Markings				
113	32 17 23	Highway 4 Widening 75+380 to 76+035	Lump Sum	1		
114	32 17 23	Long Beach Parking Lot	Lump Sum	1		
115	32 17 23	Incinerator Rock Parking Lot	Lump Sum	1		
		Traffic and Project Signs				
116	32 17 25	Temporary static project signs, 1220 X 2440 on timber posts, supply, install, maintain, and remove	Each	6		

Item	Specification Reference	Class of Labor, Plant or Material	Unit of Measurement	Estimated Quantity	Price per Unit applicable taxes extra (PU)	Extended amount (EQ x PU) applicable taxes extra
117	32 17 25	Changeable message signs ,supply, install, maintain, and remove	Month	48		
118	32 17 25	Trail signs mounted on curved steel post and precast concrete base	Each	130		
119	32 17 25	Traffic signs mounted on W-channel steel post	Each	65		
120	32 17 25	Traffic signs mounted on concrete roadside barriers (sign face and mounting brackets)	Each	20		
121	32 17 25	Relocate existing signs at Highway 4 Widening 75+380 to 76+035	Lump sum	1		
122	32 17 25	Relocate existing sign at Highway 4 and south Park Boundary	Lump sum	1		
		Install Wood Fencing, Wood Railings, and Amphibian Fencing				
123	32 31 14	Wood safety railings conc. foundation, 1400 mm high (Timber supplied by PCA.)	Lin.m	1,210		
124	32 31 14	Wood safety railings, installed on Lockblock wall, 1400 mm high (Timber supplied by PCA.)	Lin.m	190		
125	32 31 14	Supply and Install Wood Log rails, 600 mm high	Lin.m	1,700		
126	32 31 14	Supply and Install Wood Log rails, 900 mm high	Lin.m	750		
127	32 31 14	Wood Fence - Solid plank, 1.83 mm high (Timber supplied by PCA.)	Lin.m	150		
128	32 31 14	Delete. Item not used				
129	32 31 15	Supply and Install Amphibian Fencing - Animex & Hilsperger's poly with plastic wood framework	Lin.m	300		
		Retaining Walls c/w sub-drains				
130	32 32 34	Envirogrid or equal retaining walls 1.2 Max. Height	Sq. m	400		
131	32 32 34	Envirogrid or equal retaining walls over 1.2 m Height with uniaxle geogrid reinforcement	Sq. m	1,900		
132	32 32 34	Concrete segmental block retaining walls	Sq. m	100		
133	32 32 34	Lock Block Wall - Standard Block	Block	121		
134	32 32 34	Lock Block Wall -Bench Block	Block	121		
135	32 32 34	Aluminum Amphibian Barrier Strip on Lock Blocks	Lin.m	190		
136	32 32 34	Dry stack rock walls	Sq. m	300		
137	31 32 19	Geogrid Uni-axial for MSE walls	Sq. m	9,500		
138	32 32 34	Light weight fill - Styrofoam SP 29	Cu.m.	1,300		
		Invasive Species Control Program				
139	31 93 02	Invasive Species Control Program	Lump Sum	1.00		
		Subtotal Road and Site Improvements				
Division 33	Utilities					
		Pipe Culverts				
140	33 42 13	200 mm dia HDPE	Lin. m	55		
141	33 42 13	250 mm dia HDPE	Lin. m	100		
142	33 42 13	300 mm dia HDPE	Lin. m	8		
143	33 42 13	400 mm dia HDPE	Lin. m	15		
144	33 42 13	450 mm dia HDPE	Lin. m	200		
145	33 42 13	600 mm dia HDPE	Lin. m	320		
146	33 42 13	600 mm dia HDPE 45 degree bend	Each	1		
		Pipe Culverts c/w 300mm Fisheries Gravel or Native Organics				
147	33 42 13	600 mm dia, 8 m long HDPE, complete	Each	87		
148	33 42 13	600 mm dia, 12 m long HDPE, complete	Each	8		
149	33 42 13	750 mm dia, 8 m long HDPE, complete	Each	15		
150	33 42 13	900 mm dia, 8 m long HDPE, complete	Each	7		
151	33 42 13	1200 mm dia, 8 m long HDPE, complete	Each	1		
152	33 42 13	600 mm dia HDPE additional length to above	Lin. m	100		

Item	Specification Reference	Class of Labor, Plant or Material	Unit of Measurement	Estimated Quantity	Price per Unit applicable taxes extra (PU)	Extended amount (EQ x PU) applicable taxes extra
		Temporary Pipe Culverts at Temporary Access Points				
153	33 42 13	450 mm diameter 8 m long	Each	51		
154	33 42 13	600 mm diameter 8 m long	Each	12		
		Concrete Box Culverts For Water Passage				
155	33 42 13	1800mm X 900 mm X 5 m long water passage culvert, complete	Each	3		
156	33 42 13	1800mm X 1200 mm X 5 m long water passage culvert, complete	Each	11		
157	33 42 13	Delete. Item not used				
158	33 42 13	2100mm X 1200 mm X 5 m long water passage culvert, complete	Each	3		
159	33 42 13	2400mm X 1200 mm X 5 m long water passage culvert, complete	Each	4		
		Concrete Box Culverts for Amphibians				
160	33 42 13	1800mm X 900 mm X 3.75 m long Amphibian underpass culvert, complete	Each	60		
161	33 42 13	1800mm X 900 mm X 17.5 m long Amphibian underpass culvert, complete with Pavement rehab	Each	3		
		Extend Existing Pipe Culverts				
162	33 42 13	H20+737 - 800 mm CSP, 1.5 m long extension	Lump Sum	1		
163	33 42 13	H18+221 - 1200 mm CSP, 2 m long extension	Lump Sum	1		
164	33 42 13	H17+929 - 800 mm CSP, 4.5 m long extension	Lump Sum	1		
165	33 42 13	H16+067 -1200 mm HDPE 3 m long extension	Lump Sum	1		
166	33 42 13	H15+262 2X600 mm HDPE 5 m long extension	Lump Sum	1		
167	33 42 13	H15+097 600 mm CSP 5 m long extension	Lump Sum	1		
168	33 42 13	H9+110 -500 mm CSP 5 m long extension	Lump Sum	1		
169	33 42 13	H7+631 - 1200 mm HDPE, 2 m long extension	Lump Sum	1		
170	33 42 13	H0+119 - 600 mm CSP, 5 m long extension	Lump Sum	1		
171	33 42 13	H0+201 - 600 mm CSP, 5 m long extension	Lump Sum	1		
172	33 42 13	500 mm dia CSP additional length to above	Lin. m	5		
173	33 42 13	600 mm dia CSP additional length to above	Lin. m	5		
174	33 42 13	800 mm dia CSP additional length to above	Lin. m	10		
175	33 42 13	600 mm dia HDPE additional length to above	Lin. m	10		
176	33 42 13	1200 mm dia HDPE additional length to above	Lin. m	5		
177	31 23 33	Over excavation, backfill, and bedding	Cu.m	400		
		Fisheries Work				
178	33 42 15	Fisheries enhancement work detailed on sheet F-2	Lump Sum	1		
179	33 42 15	Fisheries enhancement work detailed on sheet F-3	Lump Sum	1		
180	33 42 15	Fisheries enhancement work detailed on sheet F-4	Lump Sum	1		
181	33 42 15	Fisheries enhancement work detailed on sheet F-5	Lump Sum	1		
182	33 42 15	Fisheries enhancement work detailed on sheet F-6	Lump Sum	1		
183	33 42 15	Fisheries enhancement work detailed on sheet F-7	Lump Sum	1		
184	33 42 15	Fisheries enhancement work detailed on sheet F-9	Lump Sum	1		
185	33 42 15	Fisheries enhancement work detailed on sheet F-10	Lump Sum	1		
186	33 42 15	Fisheries enhancement work detailed on sheet F-12	Lump Sum	1		
187	33 42 15	Fisheries enhancement work detailed on sheet F-13	Lump Sum	1		
188	33 42 15	Fisheries enhancement work detailed on sheet F-14	Lump Sum	1		
189	33 42 15	Fisheries enhancement work detailed on sheet F-15	Lump Sum	1		
		Manholes and Grates				
190	33 44 01	Man Hole Frame & Grates at 3 Amphibian Crossings	Each	6		
191	33 44 01	Adjust Existing Man Holes	Each	3		
192	33 44 01	300mm diam. Lawn basin grate inlet	Each	8		
		Subtotal Utilities				
Division 34	Transportation					
		Traffic Barriers				

Item	Specification Reference	Class of Labor, Plant or Material	Unit of Measurement	Estimated Quantity	Price per Unit applicable taxes extra (PU)	Extended amount (EQ x PU) applicable taxes extra
193	34 71 13	Supply and Install Posts and W- beam guard rail	Lin. m	587		
194	34 71 13	Wood plank on guard rail (Timber supplied by PCA.)	Lin. m	587		
195	34 71 13	FLEAT 350 Barrier Terminal (or equal)	Each	6		
		Subtotal Transportation				
					TOTAL =	

- .3 The Contractor shall note that the quantities for erosion control blanket in the Temporary Environmental Procedures is in addition to the quantities for permanent erosion control blanket in the Pricing Schedule.
 - .4 Additional payment for this item for quantities exceeding the Contract Quantities in Table 1 above shall be at the unit price provided by the Contractor in the Pricing Schedule for each Temporary Environmental Procedure, supplied, installed, maintained, and removed as measured and accepted by the DR.
 - .5 There will be no consideration for any other additional payment or extension of contract time, for events including but not limited to shut downs due to heavy rain events, breeding bird timing restrictions, amphibian timing restrictions, or other wildlife encounters, for the Contractor other than Items 1.1.1.1 and 1.1.1.3 to implement the Temporary Environmental Procedures or as specified elsewhere in the Contract.
- .2 Payment for invasive species control:
 - .1 Payment for this item shall be as described in Section 31 93 02 – Invasive Species Control, Clause 1.2.
 - .3 Payment for Standby Equipment and Materials:
 - .1 The Contractor is required to provide, store on-site, and maintain the specified quantities for the duration of the contract, the mandatory standby equipment and materials detailed in Table 2 below. Measurement for payment for this item shall be at the Lump Sum price tendered for standby equipment and material. If the equipment and/or materials are required to be implemented, The cost of replacement equipment shall be included in the unit prices tendered for the Temporary Environmental Procedures. Quantities of standby equipment and materials are subject to verification by the DR.
 - .2 The Contractor shall immediately replace, not later than 48 hours, any standby equipment and/or material implemented to maintain the required quantities of mandatory standby equipment and materials stored on-site.

Table 2 – Mandatory Standby Equipment and Materials

Standby Equipment and Materials	Standby Quantity
50 mm Diameter Trash Pump and 61 m Discharge Hose	2
75 mm Diameter Trash Pump and 61 m Discharge Hose	2
Poly or Nylon Sandbags	500
Poly Sheeting 6 mm, 3 metres by 50 metres	150 square metres
Coconut Erosion Control Blanket 3 metres by 50 metres (all natural & bio-degradable)	150 square metres

Standby Equipment and Materials	Standby Quantity
Wooden Stakes, between 0.7 metres and 1.0 metre in length	150
Light Duty Silt Fence Barrier	500 metres
Heavy Duty Silt Fence Barrier	100 metres
Crushed Rock, ϕ 115 cm	5 cubic metres
Pea Gravel	2 cubic metres
Orange Safety Fencing, 1.4 metres height	200 metres
Floating Sorbent Booms 100mm diameter	60 metres
Large Spill Kit capable of containing 110% of the Volume of Fuel and Fluids in the Contractor's Largest Machinery on-site	2

1.2 Environmental Significance

- .1 The Project is contained within the boundaries of the Pacific Rim National Park Reserve, an area of significant ecological importance. The area is a coastal temperate rainforest, and a protected area of the Clayoquot Sound UNESCO World Biosphere Reserve. The reserve is home to old growth rainforest, dozens of protected species at risk, and highly sensitive ecosystems. Critical habitat, as defined and protected by the Species at Risk Act, is located within the Project area and the Project has a Species at Risk Act-Compliant Authorization to work within the critical habitat buffers of the Dromedary Jumping-slug. **There are two Critical Habitat and buffer areas located along the trail at approximately H7+550 to H8+425 and H1+900 to H2+525.**
- .2 Within the reserve, the precipitation is high, 400 to 500mm per month on average, with the potential for heavy rainfall events, 50 to 100mm in 24 hours. The schedule of works needs to be considered very carefully. The water table is high for the entire length of the trail and >1/3 of the proposed trail has standing water present during the winter months. As noted in trail drawings, many wetland zones occur within the area where works will occur and they require specialized construction techniques and mitigation measures
- .3 Watercourses and Riparian Areas occur in the area where works will occur and are protected under the *Fisheries Act*. While the roadside ditches and small Watercourses involved in the Project do not likely support fish during the summer months, all of these areas have the potential to support fish (especially rearing Coho Salmon) during the winter months (October to May) when the water levels are higher. Instream and riparian works will only proceed following a review of the proposed Works by Fisheries and Oceans Canada to confirm that all plans, designs and mitigation measures are compliant with the *Fisheries Act*. This request for review will be completed by others but the Contractor will not be allowed to complete instream works until they receive written notice from the OEM that this review has been completed by Fisheries and Oceans Canada.
- .4 Due to the complicated and extreme environmental conditions of the Project area, the Contractor will need to factor environmental issues and requirements into all components of the approach to work and schedule and coordinate extensively

with the OEM in order to successfully complete this Project.

- .5 The Contractor shall be in full compliance with the contract environmental procedures, all regulatory approval terms and conditions and all applicable environmental legislation at all times throughout the duration of the contract, including during any shutdown periods.
- .6 Where, in the sole discretion of the DR or the OEM, the Contractor is not in full compliance with the contract environmental procedures, legislation or regulatory approval terms and conditions or fails to implement any environmental procedures direction from the DR or the OEM, and the Contractor, following notification from the DR or the OEM of any event of non-compliance, verbally or in writing, fails to immediately without any delay remedy any event of non-compliance, the Owner may terminate this contract upon written notice and the Contractor shall not be entitled to any claim for compensation from any loss or damages including, but not limited to, business losses or loss of profit. This right of the Owner to terminate the contract is in addition to any other Owner rights stipulated elsewhere in the contract.
- .7 Additional to the roadside ditches, the trail alignment crosses 39 watercourses that are either confirmed fish bearing or are connected to fish bearing habitat downstream. These watercourses range in size and significance from 1-2 m wide streams that provide potential winter rearing habitat for juvenile salmonids, to 10-15 m wide streams that flow year-round and support both spawning and rearing salmon immediately adjacent/under the trail alignment. Trail crossing structures have been carefully designed for these watercourses, and construction of these crossings need to be done during the least risk fisheries window of June 15th or August 15th (depending on the watercourse) until September 15th. These watercourses shall not be crossed by machinery unless permitted by DR & OEM.

1.3 Definitions

- .1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare, and/or the ecosystem health and functioning; unfavorable alterations ecological balances of importance to human life; affect other species of importance to humankind; or degrade the environment aesthetically, culturally, and/or historically.
- .2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction. Control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy, and radioactive material as well as other pollutants.
- .3 Invasive plants: are any alien plant species that have the potential to pose undesirable or detrimental impacts on humans, animals or ecosystems. Invasive plants have the capacity to establish quickly and easily on both disturbed and undisturbed sites, and can cause widespread negative economic, social, and environmental impacts.
- .4 Wetland: is a swamp, marsh, or other similar area that supports natural

vegetation that is distinct from the adjacent upland areas. More specifically, a Wetland is an area where a water table is at, near, or above the surface or where soils are water-saturated for a sufficient length of time that excess water and resulting low oxygen levels are principal determinants of vegetation and soil development. The Contractor shall rely on the Contract Drawings which delineate Wetland zones and the additional direction of the OEM for the determination of whether any other area is defined as a Wetland.

- .5 Watercourse: a Watercourse shall be defined as a natural or man-made channel from a permanent or periodical natural source, flowing in a particular direction and in a defined channel having a bed and banks or sides and discharging into another stream or body of water. It may sometimes be dry and may also include all highway ditches. The Contractor shall rely on the additional direction of the OEM for the determination of whether any natural or man-made channel or ditch is defined as a Watercourse.
- .6 Temporary Environmental Procedures: Temporary environmental procedures are limited to those environmental procedures specifically directed by the OEM or the DR for which the Contractor shall be paid on a time and materials basis. Temporary environmental procedures do not include any procedures for which this contract specifies as being incidental to the Work.
- .7 Riparian Areas: A Riparian Area is the area immediately adjacent to a watercourse, ditch, stream, creek, river, lake or wetland that is connected to fish bearing habitat downstream. Riparian Areas are 30 metres on either side of the Watercourse, ditch, stream, creek, river, lake, or Wetland or 15 metres from the top of a ravine bank on larger ravines. Riparian Areas that have been cleared of vegetation, either fully or partially, under previous contracts are considered to be Riparian Areas. For greater clarity, all culvert sites and proposed bridges listed on the Contract Drawing Sheets shall be treated as having Riparian Areas in addition to those identified to the Contractor by the OEM.
- .8 High water line: The maximum limit of a Watercourse as defined by the location of the terrestrial rooted vegetation as detailed in Figure 7 of the “Fish-stream Crossing Guidebook” revised September 2012, published by the BC Ministry of Forests, Lands, and Natural Resource Operations and Ministry of Environment.
- .9 “Owner’s Environmental Monitor” (OEM) shall mean a representative appointed by PCA for the purpose of execution of the contract.
- .10 “Environmental Management Plan” (EMP) shall mean the “Environmental Management Plan for ʔapsčiiik ʔašii - Going in the Right Direction on the Trail Construction” Draft 1, prepared by Wood PCL and Dated July 2017. Items contained in the EMP with cost implications are included in these Specifications. The EMP provides background information and details that will explain the Contractor the importance and rational of the environmental works.
- 1.4 Regulatory Overview .1 The Contractor shall comply with all applicable environmental laws, regulations and requirements of Federal authorities, and acquire and comply with such

permits, approvals and authorizations as may be required.

- 1.5 General
- .1 Due to the significant environmental requirements of this project, the environmental monitoring component will be provided directly by the Owner in the form of an Owner's Environmental Monitor (OEM). The OEM will be onsite at all times during construction and will have the authority under the DR to direct the Contractor with regards to installing, maintaining and removing temporary environmental procedures and ensuring that appropriate installation and maintenance measures are followed. The OEM will also have the authority to shut down construction, especially during heavy rainfall events, or other events that preclude effective environmental mitigation.
 - .2 The Contractor will therefore NOT be required to hire a separate Environmental Monitor for this project, however, they will still be responsible for purchasing and effectively implementing all the mitigation measures described in these Environmental Procedures under the direction of the OEM.
 - .3 It is imperative that the Contractor understands that the environmental procedures are a cooperative effort between the Contractor, the DR and the OEM. Refer to Section 01 11 00, General Instructions, Clause 1.41.2, Submission of Tender, for additional information.
 - .4 Environmental Procedures shall be a component of the initial contractor orientations for all persons working for the Contractor including sub-contractor's personnel and all daily tailgate meetings.
- 1.6 Wildlife Habitat
- .1 The Contractor will ensure that all staff and all sub-contractors are familiar with the wildlife protection and mitigation requirements and shall receive prior to the start of construction activities wildlife encounter training from a Parks representative in order to develop protocols for dealing with large carnivores (ie., cougars, wolves and bears) encountered within the work site during construction activities. **If large carnivores or their habitat, such as bear dens, are noted in the vicinity of the Project, construction activities may need to stop in the area until appropriate setback buffers can be established or the carnivores vacate the area.**
 - .2 The Environment Canada migratory bird nesting window for the Northern Pacific Rainforest (Pacific Rim National Park) is between March 12th and August 17th inclusive. No tree clearing shall be conducted within this bird nesting window except under the direction of the DR and the OEM. Other construction activities (e.g., removal of slash/log piles, grubbing, etc.) during this window will require a breeding bird activity survey.
 - .3 The Contractor shall include in their schedule 10 days advance notice to the OEM to permit the OEM to coordinate bird activity surveys prior to starting the construction activities in each segment of the work, including for any clearing work. In the event a nest is located, construction activities may be delayed,

- modified or restricted in the vicinity of the nest.
- .4 The Contractor shall not destroy, remove or clear any active bird nests in accordance with the Migratory Bird Convention Act.
 - .5 The Contractor shall conduct all construction activities in a manner that is sensitive to wildlife and wildlife habitat. No feeding, disturbing or harassing of wildlife will occur. If wildlife is encountered, allow birds, mammals, reptiles, and amphibians to passively disperse and contact the OEM for further advice. Do not physically handle wildlife.
 - .6 The Contractor shall notify the OEM and DR of any observations of wildlife or specific wildlife habitats (ie., nests, denning sites, or burrows).
 - .7 Domestic pets (ie., dogs) are not permitted on site.
- 1.7 Watercourses and Wetlands
- .1 No instream or riparian works are permitted unless defined within in the Contract Drawings, and until the OEM confirms that all fish and amphibian isolation and salvage activities have been completed for a specific location. Where construction machinery is required to be used in or near Watercourses, Riparian Areas and Wetlands, machinery operators shall have a minimum of 5 years of direct experience operating machinery in fish bearing Watercourses, Wetlands, Riparian Areas and constructing fish habitat restoration projects.
 - .2 The Contractor shall abide by all conditions of permits obtained from Federal Government environmental agencies and maintain copies of all permits at the construction site office and at each location that any permit is applicable to while construction is active.
 - .3 Unless identified in Table 3 below, all instream or riparian work (39 identified so far) is restricted to the fish timing window of June 15 to September 15, inclusive, in any year.

Table 3 – Adjustments to Fish Timing Window

Culvert & Bridge and Watercourse Identification	Revised Timing Window for All years
10.0 (W11)	August 15 to September 15, inclusive
18.0 (W12)	August 15 to September 15, inclusive
57 (W35)	August 15 to September 15, inclusive
51 (W39)	August 15 to September 15, inclusive
49 (W41)	August 15 to September 15, inclusive
41 (W49)	August 15 to September 15, inclusive
42	August 15 to September 15, inclusive

39a (W52)	August 15 to September 15, inclusive
Bridge 20 (W48, Sandhill Cr)	August 15 to September 15, inclusive
Bridge 19 (W53 Lost Shoe Cr)	August 15 to September 15, inclusive

- .4 The Contractor shall build all Project bridge structures (including bridge approaches, abutments, footings and riprap) outside of the channel and above the high water mark such that no altering the stream bed, channel or bank is required unless detailed otherwise within the contract drawings.
- .5 The Contractor shall retain as much Riparian Area vegetation as possible at each bridge structure, retaining wall, fill slope, and culvert site to prevent erosion and minimize disturbance to fish habitat. Remove only the vegetation required to accommodate the footprint of the bridge, retaining wall, fill slope, or culvert structure. All vegetation or soil disturbances within Riparian Areas shall be stabilized and restored as quickly as possible in consultation with the DR and the OEM.
- .6 The Contractor shall only operate construction equipment within Watercourses, Wetlands and Riparian Areas to the extent necessary to complete the construction works and only under the inspection of the OEM. No fording of Watercourses is allowable.
- 7 The Contractor shall not dump excavated fill, waste material, or debris in any Watercourse, Wetland or Riparian Areas.
- .8 The Contractor shall not skid logs or construction materials across any Watercourse or through any Wetland or Riparian Area.
- .9 The Contractor shall not store construction materials, debris, waste, etc. within 50 metres of any Watercourse or Wetland or in areas where erosion will wash sediment into Watercourses or Wetlands. The Contractor shall not fuel any equipment within 50 metres of any Watercourse, Wetland or Riparian Area.
- .10 The Contractor shall not excavate below the underside of organic material around the edges of Wetlands, without prior approval of the DR, to prevent drainage of the Wetlands.
- .11 Equipment, labour and materials shall not be placed in the Wetlands for construction of the elevated trail. Unless approved otherwise, the elevated trail foundations and deck shall be constructed sequentially span by span with equipment, labour and materials only located on the previously constructed spans. This is required to prevent damage to the sensitive Wetlands below. Work can only proceed with the OEM present. The Contractor should note that some areas of the Wetlands are permanently wet for 12 months of the year and unsuitable for operating equipment, access by labour and storing materials. All environmental protection measures required to undertake work within Wetlands shall be incidental to the works and at the Contractor's expense.
- .12 Cement-based products including grouts and concrete are lethal to fish and many

other aquatic organisms. One litre of concrete wash water or leachate in 1000L of water will kill fish. Raw product or leachate entering a Watercourse will alter water chemistry, making it more basic or alkaline. Environmental mitigation while using concrete materials shall be in compliance with Section 03 30 00 – Cast-in-Place Concrete of the Contract & environmental notes on drawing S-1.2.

- .13 The Contractor, its staff and any sub-consultants and their staff are prohibited from using Project construction access and areas for the purposes of sport angling or harvest.
 - .14 When approved by the OEM & DR & required for vertical trail alignment, some local excavations may be permitted for some sections of elevated trail. In these cases, hand excavation will be required with monitoring by OEM. Allowance must be made to amphibian salvage ahead of excavation/grading works. Where possible, grading should be avoided in wetlands by increasing the clearance below sections of elevated trail, or micro-routing around local elevations.
- 1.8 Fish Isolation and Salvage
- .1 It is anticipated that all culvert work will need to be preceded with fish isolation measures if there is flowing water at the time of construction.
 - .2 The OEM will implement all fish salvage operations including setting up stop nets and actively removing fish from the work area ahead of the construction for any culvert work occurring on site. Fish isolation measures may also need to be applied for other project activities if there is any risk of encroaching into any of the ditches or Watercourses surrounding the project site.
 - .3 The fish isolation effort should begin a minimum of three days prior to instream work occurring, and the Contractor shall notify the DR and the OEM of the schedule no less than ten days prior to work occurring so that fish salvage can be properly coordinated. The Contractor will need to account for the potential of delays or lost days of work to accommodate fish salvage. No additional costs for delays will be considered if the OEM completes the fish isolation work within ten days of notification, however if the Contractor does not commence operations within three days of the fish isolation work being completed, further fish isolation work may need to be undertaken by the OEM and such further work will be at the cost of the Contractor.
 - .4 Flow isolation will be required with all culvert work and any additional Project activities that have the potential to encroach into any of the ditches or Watercourses surrounding the Project site. Costs for flow isolation are not Temporary Environmental Procedures and will be considered incidental to the Work.
 - .5 Flow isolation may involve setting up coffer dams and pumping clean water around the worksite and is the responsibility of the Contractor and will be monitored by the OEM. Flow diversion activities will need to be coordinated with the fish isolation activities, however there will be a clear division of responsibility in that the OEM will perform the fish salvage and the Contractor will perform the flow isolation once the fish salvage is complete. Flow isolation shall be set up by the Contractor. The Contractor shall submit a flow isolation

and in-stream work plan for each project site requiring flow isolation and/or instream work a minimum of ten days prior to work occurring for review by the DR and the OEM. The DR and OEM may request changes to any plan to ensure that proposed methods for establishing flow isolation are satisfactory for each Project site.

- .6 Only clean water shall be diverted directly to downstream aquatic habitat. Sediment-laden water must be first treated through release to well-vegetated location outside the Riparian Area and discharge must be either lined with poly sheeting or directed into a wetland filter bag to prevent erosion and sedimentation.
- .7 Events beyond the Contractors control such as weather that result in areas requiring additional fish salvage work and costs shall not be the responsibility of the Contractor.

1.9 Amphibian
Habitat Protection and
Salvage

- .1 Amphibians and their habitat are widespread within PRNPR and could be present throughout the entire area of the trail, road ditch and bridge works. There are 7 amphibian species that may breed or migrating in the Project area including 3 that are Species At Risk. The timing of amphibian breeding and migrations are known in a broad sense, but the exact onset and ending of each breeding and migratory period varies from year to year and are difficult to predict as they are largely weather dependent. **In the summer months, migrations are triggered by rain events following periods of dry weather.** Pulses of migrating amphibians could come into direct conflict with machinery and crews during trail construction, putting a relatively large proportion of amphibians at risk. Work is restricted to occur between **July 1 and September 15** when weather is forecast to be dry at the locations listed in Table 4 to help safeguard amphibians. **A forecast of rain, or rain will require the Contractor to temporarily shut down in the areas listed in Table 4. The only exception to this timing restriction is the southernmost Amphibian Breeding Habitat and Migration area which extends from the southern boundary of the Park Reserve to approximately H1+400; work in this area will be restricted to July 1 to August 15 to avoid migrating juvenile Northern Red-legged Frogs that are likely to be in the area because of its close proximity to Swan Lake.** All works, including the placement of any barrier, are prohibited in months other than **noted above** for locations listed in Table 4, inclusive in all years. At the discretion and authorization of the DR and OEM, the Contractor may undertake works at other times of the year in some or all of the areas listed in Table 4 if amphibian migration or breeding is not active, however such authorization may be rescinded without advance notice and the Contractor shall stop all work immediately in these areas and remove all equipment and materials. No consideration for additional payment or claims will be considered for rescinding such authorization.
- .2 The Contractor shall include in their schedule time to permit the OEM to conduct amphibian survey and salvage prior to starting the construction in each segment

of the work.

- .3 The Contractor and OEM shall coordinate their efforts to avoid conflicts with the work and to ensure these requirements are met within a timely manner.
- .4 The Contractor shall provide a minimum of ten working days' notice for each 1 km section of trail and work in each environmentally sensitive area (e.g. each Watercourse, Riparian Area and Wetlands) or Amphibian Breeding Habitat and Migration area
- .5 The Contractor shall make allowances (ie. reduced work speed) during construction activities for the OEM to visually monitor for amphibians **and other wildlife** during the removal of stumps and large woody debris (LWD). This is anticipated to require approximately 10 minutes **on average** per stump or LWD. **This will be required for the entire length of the trail. However, longest durations would be expected in areas noted in Table 4, Dromedary Jumping-slug Critical Habitat and buffer areas, and for large/decaying stumps and LWD. OEM will flag stumps/LWD requiring visually monitoring in advance of construction activities.**
- .6 After an area is cleared of amphibians, the Contractor shall commence work within three days and work diligently to complete the construction activities in a timely manner. Costs of salvage rework will be charged to the Contractor if work is not begun within three days following the completion of amphibian salvage and/or work does not continue at a reasonable rate to complete the work.
- .7 Events beyond the Contractors control such as weather delays that result in areas requiring additional salvage work shall not be charged to the Contractor.
- .8 Construction activities within or near amphibian habitat listed in Table 4 shall be restricted to daylight hours. Artificial lighting shall not be used within or near amphibian habitat listed in Table 4.
- .9 **Large/decaying stumps and LWD should be salvaged and remain on site to the greatest extent possible. If this material needs to be removed for any reason,** the OEM may direct the Contractor to set aside excavated materials from any excavations in areas listed in Table 4 for up to 3 hours prior to moving material to the final disposal location to allow for amphibian **and other wildlife** salvage.

Table 4. Breeding Habitat and Migration Areas - All Work to be Complete in July 1 and September 15 Under Dry Conditions except 0+000 -1+400 which will be complete in July 1 and August 15 Under Dry Conditions

Highway Location	Trail Location & Impact	Feature
21+680 to 21+720 East Side	On fill slope 2 m from road edge, construction will potentially affect ditch pond; concrete barrier along 10 m will impede amphibian movements	NW Salamander Breeding Site in ditch on North side of highway (same side as trail)
21+350 East Side	Immediately adjacent to road edge, ditch pond will be filled to construct trail	NW Salamander Breeding Site in ditch on East side of highway (same side as trail)
20+420 to 20+620 North and South Sides	Set back from road, trail crosses migration path; trail could change hydroperiod of ditch ponds	Amphibian Crossing Zone and NW Salamander and RL Frog Breeding Sites in ditches on both sides of highway
20+300 to 20+030 North and South Sides	Set back from road; trail over wetland area; trail could change hydroperiod of ditch ponds	Wetlands adjacent to trail used by Pacific Treefrogs; NW Salamander and Treefrogs breeding in ditches on both sides of highway
18+210 to 18+250	Immediately adjacent to road edge at W9; ditch to be filled, concrete barrier along road will impede amphibian movements to & away from pond	NW Salamander Breeding Site in ditch on south side of highway (same side as trail)
18+100	Set back from road; pond located adjacent to W10	NW Salamander Breeding Site in ditch on south side of highway (same side as trail). This pond may dry in summer but is flowing and connects to fish habitat in winter.
16+900 to 18+010	Set back from road most of the way, but close to road at 17+70 (W12) retaining wall, and close to road at 17+830 to 17+980, trail crosses migration path; not sure if breeding ditch will be filled	Amphibian Crossing Zone; Pacific Treefrog Breeding site in ditch on north side of highway (opposite side from trail); RL Frogs breed at golf course & airport and cross highway
15+000 to 15+100 South Side	Immediately adjacent to road edge, ditch will be partly filled, hydrology may be altered by extension of culvert W21	NW Salamander Breeding Site on south side of highway (same side as trail) - exceptionally high abundance
11+950 to 11+980 West Side	Close to road, forest side of ditch near W28, wetland area extends beyond this small section toward Greenpoint Rd	NW Salamander Breeding Site on west side of highway (same side as trail)
11+450 to 11+480	Close to road, forest side of ditch, Between Culvert ID 61 and 62, (between W30 and W29); wet area - trail construction could alter hydroperiod at wetland on opposite side of highway	RL Frog & NW Salamander Breeding Sites on both sides of highway (some on same side as trail, most on east side opposite of trail)

PCA

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Trail, Road, and Bridge Works
Pacific Rim National Park Reserve, BC
Project No. PCA #1522

01 35 43

ENVIRONMENTAL PROCEDURES

Page 13 of 20

Highway Location	Trail Location & Impact	Feature
11+200	Deep rut on trail south of Greenpoint Rd; trail breeding pond will be filled; also trail construction could alter hydroperiod at wetland and breeding sites on opposite side of highway	breeding NW Salamander - hatched egg mass found Nov 2018 in rut along trail
10+500	Set back from road; Deep ravine with wetland area and non-fish bearing creek will be crossed by trail, culverts will connect wet areas	Potential breeding habitat for NW Salamander, and moist habitat for all species along trail
10+210 to 10+400 Both Sides	Set back from road except at start where it is on Forest Side of Ditch; trail has deep pools in ruts; trail crosses migration path	RL Frog & NW Salamander Breeding Sites on both sides of highway & Amphibian Crossing Zone
9+530 to 9+920 Both Sides Nav Can	Forest Side of Ditch and between ditch and Nav Can pond; ensure excavating trail does not drain Nav Can pond	RL Frog & NW Salamander Breeding Sites at Nav Can and in ditches on both sides of highway
7+660 to 7+ 700 South Side	Forest Side of Ditch - retaining wall; seems likely ditch will be filled	Northwestern Salamander Breeding Site on south side of highway (same as trail)
6+650 to 6+800	Forest side of Ditch through wetland area , a small portion will be elevated trail; ensure no change to hydroperiods in ditches	NW Salamander Breeding Sites on both sides of highway
5+550 to 5+800	Forest side of ditch and set back from road, Culvert ID 52, especially concerned about area near 5+700, W38; pools formed along trail; ensure trail doesn't alter hydrology where RL Frogs breed in ditch adjacent to trail	Amphibian Crossing Area and RL Frog & NW Salamander Breeding Site on west side of highway, same side as trail
5+370 to 5+470 Both Sides	Forest Side of Ditch through wetland area ; ensure trail doesn't alter hydrology in ditches on each side of highway	NW Salamander Breeding Sites in ditches on both sides of highway
3+200 to 3+300	Set back from road at W50 or W49, trail crosses watercourse	NW Salamander Breeding Site on E side of road, opposite side of trail and there may be breeding in/near watercourse where trail is being built
0+200 to 1+400, especially the southernmost section closest to Swan Lake	Set back from road, crosses migration path and high quality forest habitat	Critical Amphibian Crossing Area near Swan Lake, Work will be restricted to July to mid-August to avoid migrating juvenile Northern Red-legged Frogs that are likely to be in the area because of its close proximity to Swan Lake

Highway Location	Trail Location & Impact	Feature
0+000 to 0+200	Immediately adjacent to highway; trail will fill ditches where amphibians stage before migrating across highway & where larval NW salamanders occur when wet; ensure culvert extensions and trail do not alter hydrology where NW Salamanders breed in ditch ponds on opposite side of highway at 0+120 and 0+190	Most Critical Amphibian Crossing Area nearest Swan Lake and NW Salamander breeding pond on East side of highway Work will be restricted to July to mid-August to avoid migrating juvenile Northern Red-legged Frogs that are likely to be in the area because of its close proximity to Swan Lake

- .10 In addition to any ditch with standing water, several confirmed aquatic breeding sites (ponds) have been identified that fall along the trail alignment. These include: Pond at the NavCanada site (Hwy 9+850 to 9+900); Pond near Incinerator Rock (15+000 to 15+050); Other small, temporary ponds - Ponds by the Bomber trail (20+300), Sedge/wetland pond located adjacent to Culvert 9 (18+100); and Deep rut pond south of Green Point Road (11+200). Contractor will need to work extremely closely with OEM to ensure that these areas are not impacted during construction and that activities do not drain/disturb ponds containing amphibians. **The trail design near the pond at the NavCanada site (Hwy 9+850 to 9+900) and near Incinerator Rock (15+000 to 15+050) have site-specific drawings with detailed mitigation measures.** As noted above, work in the **above noted** areas is restricted to **July 1 and September 15** under dry conditions. OEM may request additional mitigation measures in these areas such as installation of amphibian exclusion fencing, more time for amphibian survey and salvage, and flow isolation.

1.10 Invasive Plant Management

- .1 Invasive plants are known to occur in the area where the construction works will occur and preventative measures are needed to limit their spread.
- .2 All construction vehicles, equipment, machinery, and hand tools shall be inspected and cleaned prior to every entry into the Park, prior to every exit from the Park, and prior to every travel to another section (ie., between each access point) of the Project area while in the Park.
- .3 All construction staff clothing shall be free of soil and vegetation debris prior to entering the Park each work day, prior to exiting the Park each day, and prior to every travel to another section of the Project area while in the Park. Boots shall be washed of all soil materials.
- .4 All construction materials brought into the Park must be free of invasive species. Sources of all materials shall be inspected by the Contractor and OEM and/or DR prior to supply of material to determine if invasive species are present and to formulate a protocol to avoid introducing these into the Park. This may include washing material prior to use, avoiding contaminated areas, constructing clean haul routes, and finding new, clean sources of materials.
- .5 Invasive plant removal shall be conducted in every area where construction

operations have taken place for 2 years on a monthly basis, both during and after construction should invasive plants be identified by the DR, OEM, or PCA staff. See Section 31 93 02 - Invasive Species Control for details.

- 1.11 Precipitation
- .1 The Contractor is notified that, within the geographical area of the work, the precipitation is high, 400 to 500mm per month on average between October and April, with the potential for heavy rainfall events, 50 to 100mm in 24 hours, which can occur at any time of the year.
 - .2 For rainfall events, the OEM and the DR may shut down all work activities. No consideration for additional payment will be considered for rainfall event shut downs. The Contractor shall maintain and repair if necessary all environmental protection measures including Temporary Environmental Procedures and those incidental to construction, in addition to any new Temporary Environmental Procedures as directed by the OEM during shut downs. All environmental protection measures will be inspected by the Contractor and the OEM after each rainfall event of more than 15 mm of rain and in areas prone to flooding or excessive run-off as directed by the OEM. The OEM may direct that additional inspections be conducted where rainfall exceeds 25 mm in any 24-hour period
 - .3 The Contractor shall ensure that the required number and size of mandatory standby equipment and materials specified in Table 2 are readily accessible on-site to deal with construction activities during high precipitation events.
- 1.12 Soil and Sediment Erosion Control
- .1 Temporary Environmental Procedures must be in compliance with Federal legislation and regulations and direction from the OEM where required. Notwithstanding, Contractors shall reference the provincial MOE “Standards and Best Practices for Instream Works (2004)” for best practices for instream sediment and the provincial Ministry of Forests “Best Management Practices Handbook: Hillslope Restoration in BC (Nov 2001)”. These erosion and sediment control procedures are considered incidental to the Work.
 - .2 The Contractor shall create a sediment and erosion control plan for each of the 39 stream crossings and the wetland areas (Project Sites) where environmental protection is incidental to the work and one sediment and erosion control plan outlining procedures for typical trail construction and typical events (eg., heavy rainfall event). These plans shall be submitted a minimum of ten days prior to work occurring for review by the DR and the OEM. The DR and OEM may request changes to any plan to ensure that proposed methods for sediment and erosion control are satisfactory for each Project site. No additional payment shall be made for environmental protection measures that are incidental to the work.
 - .3 The Contractor shall install, maintain and remove all Temporary Environmental Procedures as directed by the OEM and the DR.
 - .4 Temporary Environmental Procedures, where required by the contract or as directed by the DR and OEM, are to be installed prior to starting any construction activities to prevent sediment from entering any waterway, within

the vicinity of the construction site.

- 1.13 Drainage and Wastewater Discharge .1 The Contractor shall provide temporary drainage as necessary to keep excavations and site free from water. The Contractor shall submit a dewatering plan for each project site where dewatering is incidental to the work a minimum of ten days prior to work occurring for review by the DR and the OEM. The DR and OEM may request changes to any plan to ensure that proposed methods for dewatering are satisfactory for each Project site. No additional payment shall be made for dewatering that is incidental to the work.
- .2 The Contractor shall not discharge water containing suspended materials into Watercourses, Riparian Areas, Wetlands, amphibian habitat, sanitary sewer or drainage systems.
- 1.14 Pollution Control .1 The Contractor shall prevent any deleterious and objectionable materials from entering streams, rivers, Wetlands, water bodies or Watercourses that would result in damage to aquatic and Riparian Areas. Hazardous or toxic products shall be stored no closer than 100 metres to any surface water.
- .2 The Contractor shall prevent blowing dust and debris by providing dust suppression for on-site work. Water is the only allowable dust suppression measure. -
- .3 The Contractor shall provide industry standard spill kits, to the satisfaction of the DR and OEM, at all work sites refueling, lubrication and repair locations that are capable of containing 110% of the largest potential spill and shall be maintained in good working order on the construction site. All mobile equipment shall carry a smaller spill kit at all times. The Contractor and site staff shall be informed of the location of the spill response kit(s) and be trained in its use.
- .4 The Contractor shall take timely and effective actions to stop, contain and clean-up all spills until the spill site is deemed to be remediated and safe to re-enter by the DR. The Owner, OEM and DR shall be notified immediately of any spill.
- .5 In the event of a spill, the Contractor shall prioritize the clean-up and all other work shall be stopped, where appropriate, and Contractor personnel shall be devoted to spill containment and clean up.
- .6 The costs involved in a spill incident (control, wildlife salvage, clean up, disposal of contaminants, and site remediation to pre-spill conditions), shall be the responsibility of the Contractor. The site will be inspected to ensure completion to the pre-spill condition to the satisfaction of the DR.
- 1.15 Equipment, Maintenance, Fueling and Operation .1 The Contractor shall ensure that equipment and machinery are in good operating condition, clean (power washed), free of leaks, excess oil, and grease. Ensure that all equipment is inspected daily for fluid/fuel leaks and maintained in good working condition.
- .2 Hydraulic machinery shall use environmentally sensitive hydraulic fluids that are

non-toxic to aquatic life and that are readily or inherently biodegradable.

- .3 Equipment fueling sites will be identified by the Contractor to the satisfaction of the DR. On site storage of fuel shall not be allowed in any area other than those areas approved by the DR.
 - .4 Mobile fuel containers (ie., slip tanks, small fuel carboys) shall remain in the service vehicle at all times. Where fuel or other fluid containers are out of the service vehicle for use, all containers must be situated on drip trays and returned to the service vehicle immediately following use.
 - .5 The Contractor shall not refuel or service equipment within 50m of any watercourse, riparian area, wetland, or surface water drainage.
 - .6 Equipment used on the Project shall be fueled with E10, and low sulphur diesel fuels where available, and shall conform to local emission requirements. The Contractor is to ensure that unnecessary idling of the vehicles is avoided.
 - .7 Oil changes, lubricant changes, greasing and machinery repairs shall be performed at only those locations satisfactory to the DR. Waste lubrication product (e.g. oil filters, used containers, used oil, etc.) shall be secured in spill-proof containers and properly recycled or disposed of at an approved facility. No waste petroleum, lubricant products or related materials are to be discarded, buried or disposed of in borrow pits, turnouts, picnic areas, viewpoints, etc. or anywhere within the work area.
 - .8 Fuel containers and lubricant products shall be stored only in secure locations to the satisfaction of the DR. Fuel tanks or other potential deleterious substance containers shall be secured to ensure they are tamperproof and cannot be drained by vandals when left overnight. Alternatively, the Contractor may hire a security person employed to prevent vandalism.
- 1.16 Operation of Equipment
- .1 Equipment movements shall be restricted to the “footprint” of the construction area, generally within the 5.2 m cleared width of the trail unless otherwise noted in the Contract Drawings or approved by the DR.
 - .2 When, in the opinion of the DR, negligence on the part of the Contractor results in damage or destruction of vegetation, natural hydrology (e.g., altering direction or rate of flow, ponding, etc.) or other environmental or aesthetic features beyond the designated work area, the Contractor shall be responsible for all costs to complete restoration work including the replacement of trees, shrubs, topsoil, grass, etc. to the satisfaction of the DR.
 - .3 The Contractor shall restrict vehicle movements to the work limits.
 - .4 Within the elevated trail (boardwalk) sections, equipment is confined to working from the completed sections of the elevated trail.

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| 1.17 Fire Prevention and Control | .1 | A fire extinguisher shall be carried and available for use on every piece of construction equipment and in every Contractor vehicle. |
| | .2 | Construction equipment shall be operated in a manner and with all original manufacturers' safety devices to prevent ignition of flammable materials in the area. |
| | .3 | In case of fire, the Contractor or worker shall take immediate action to extinguish the fire provided it is safe to do so. The DR shall be notified of any fire immediately as well as the applicable Provincial and Federal Authorities and the local municipal Fire Department. Basic instruction and phone numbers will be provided on-site by the Contractor and will be discussed in the Project start-up meeting. |
| | .4 | Fires or burning of waste materials is not permitted. |
| | .5 | Smoking within the construction area is not permitted. |
| | .6 | The Contractor shall obey all Parks Canada Fire Restrictions in effect throughout the duration of the contract. |
| | | |
| 1.18 Waste Materials Storage and Removal | .1 | The Contractor and workers shall dispose of hazardous wastes in conformance with the applicable federal and provincial regulations. |
| | .2 | All wastes originating from construction, trade, hazardous and domestic sources, shall not be mixed, but will be kept separate. |
| | .3 | Do not pile waste that is to be removed in those areas listed in Clause 1.9.1 – Table 4 as they will rapidly become inhabited by amphibians and other wildlife. |
| | .4 | All food wastes shall be deposited in bear-proof containers and removed daily. |
| | .5 | Construction, trade, hazardous waste and domestic waste materials shall be contained and removed and disposed of at an appropriate off-site waste landfill. |
| | .6 | A concerted effort shall be made by the Contractor and workers to reduce, reuse and recycle materials where possible. |
| | .7 | Sanitary facilities, such as portable container toilets, shall be provided by the Contractor and maintained in a clean condition. |
| | | |
| 1.19 Wastewater Discharge Criteria | .1 | When possible, it is preferred to isolate the work area from any flowing water and divert the clean water around the worksite so that no silt-laden or wash water is generated. |
| | .2 | Wash water and sediment-laden discharge water will be released onto the ground at a location that is outside Wetlands, Watercourses and Riparian Areas and only with the approval of the OEM. |
| | .3 | Any water discharged, water used for dust control, or rainfall runoff from the Project area that flows into the environment (e.g., waterbody, Watercourse, Wetland, drain, ditch, or ground) must comply with BC Working Water Quality Guidelines and the BC Approved Water Quality Guidelines. The OEM is responsible for conducting all water quality sampling and analysis to determine |

- its chemical composition. Contractor will be responsible for any corrective action deemed necessary by OEM.
- .4 Water contaminated in the placing of cement and curing of concrete (see Section 03 30 00 – Cast-in-place concrete, of this specification) shall be contained and removed from the site to an approved disposal facility.
- 1.20 Environment Protection Supplies
- .1 The Contractor shall supply, transport, install and maintain all equipment and supplies relating to erosion, sediment and drainage controls necessary to complete the Work as directed by the OEM, the DR.
- .2 The Contractor shall provide an inventory of environmental protection supplies, listed in Tables 1 and 2, prior to mobilization and in each weekly report to be submitted to the DR.
- 1.21 Access Points
1. The Contractor shall be responsible for access points required to construct the Works as identified on the Contract Drawings. Access points requested by the Contractor that are not identified on the Contract Drawings shall be considered and approved at the sole discretion of the DR. Environmental protection measures at access points are not considered temporary environmental procedures and all costs for environmental protection at access points are incidental to the Work.
2. The Contractor shall submit a detailed design plan for each access point to the DR for review and approval not less than thirty (30) days in advance of construction of each access point. As access points have the potential to remain active for the duration of the contract, each access point design shall incorporate culverts as detailed on the Contract Drawings and permanent environmental procedures that ensure that no sediment is allowed to enter any ditch, water flow in the ditches is maintained including periods of high flows during high precipitation months, water quality in ditch flows is maintained, and designs shall not create any obstruction to fish passage in the ditches.
3. Prior to the completion of the contract, temporary access points shall be surveyed by OEM for amphibians and salvaged if found. The Contractor shall then completely remove the access point complete the environmental restoration to the satisfaction of the DR and the OEM in accordance with Section 31 14 13 - Trail Work, Soil Stripping, Stockpiling and Respreading and other applicable sections. The DR shall notify the Contractor if the Owner requests that any access point be left in place at the completion of the contract.

PART 2 –
PRODUCTS

- 2.1 Material
- .1 Erosion Control Blanket (ECB):
Refer to Section 31 32 19 – Geotextiles, Clause 2.1.8 – Erosion Control Blanket.

- .2 Light Duty Silt Fence Barrier:
 - .1 Refer to Section 31 32 19 – Geotextiles, Clause 2.1.9 – Light Duty Silt Fence Barrier.

- .3 Heavy Duty Silt Fence Barrier:
 - .1 Refer to Section 31 32 19 – Geotextiles, Clause 2.1.10 – Heavy Duty Silt Fence Barrier.

PART 3 –
EXECUTION

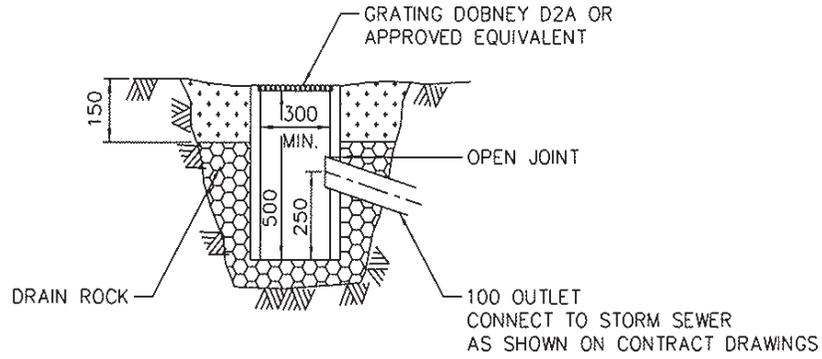
- 3.1 Installation of Erosion Control Blankets .1 Refer to Section 31 32 19 – Geotextiles, Clause 3.3 – Installation of Erosion Control Blanket.

- 3.2 Installation of Light Duty Silt Fence Barrier .1 Refer to Section 31 32 19 – Geotextiles, Clause 3.3 – Installation of Light Duty Silt Fence Barrier.

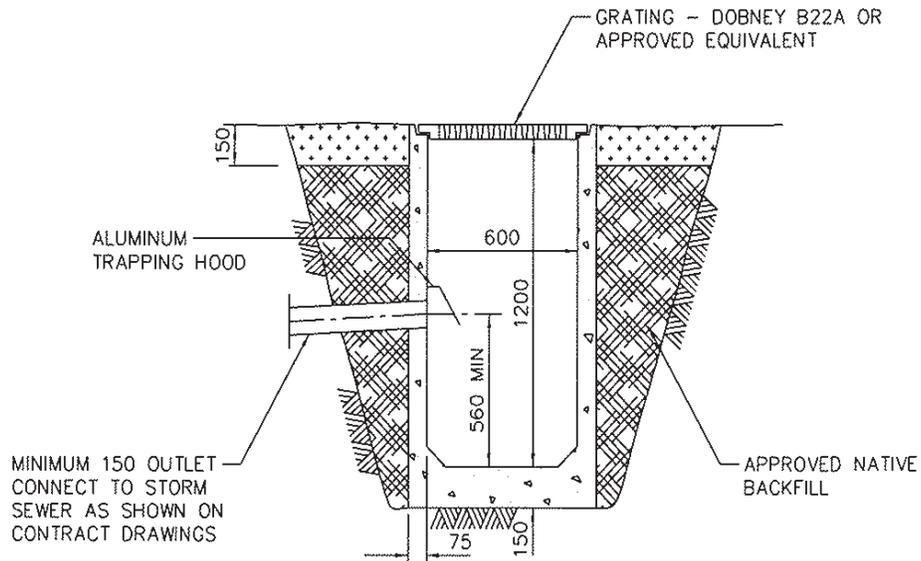
- 3.3 Installation of Heavy Duty Silt Fence Barrier .1 Refer to Section 31 32 19 – Geotextiles, Clause 3.4 – Installation of Heavy Duty Silt Fence Barrier.

- 3.4 Maintenance .1 Items installed as a part of the Temporary Environmental Procedures shall be inspected by the Contractor on a weekly basis, during each significant rainfall event, or as directed by the OEM or DR and make repairs to the installations to bring them to a ‘like new’ condition.
 - .2 Those items installed as a part of the Temporary Environmental Procedures that require regular cleaning shall be cleaned at intervals as directed by the OEM or DR.
 - .3 Items installed as Temporary Environmental Procedures shall be removed upon completion of the project or as directed by the OEM or DR. Obtain approval of OEM prior to removal.

END OF SECTION



TYPE 1



TYPE 2

NOTE: 1. REFER TO CONTRACT DRAWINGS, SECTION 33 44 01 FOR DETAILED SPECIFICATIONS.

NOT TO SCALE

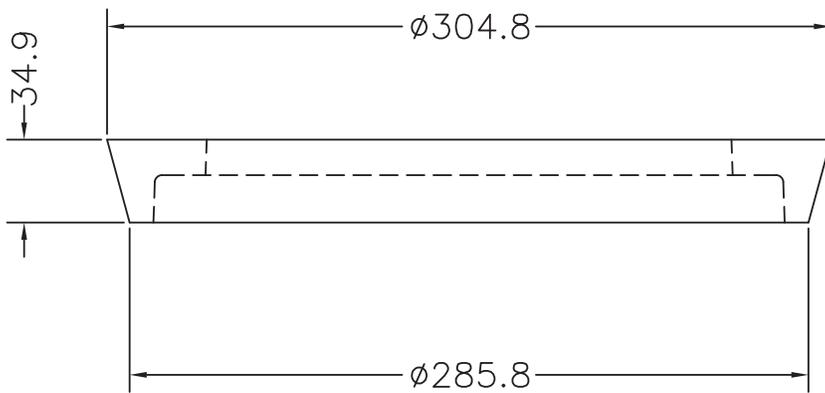
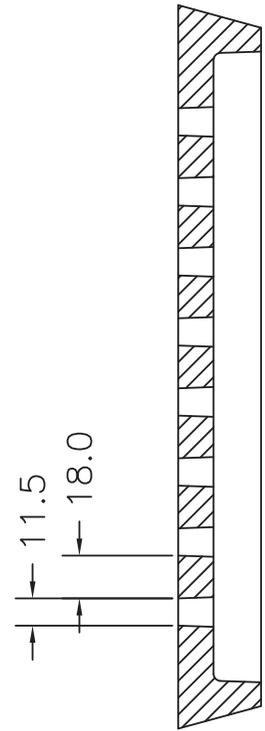
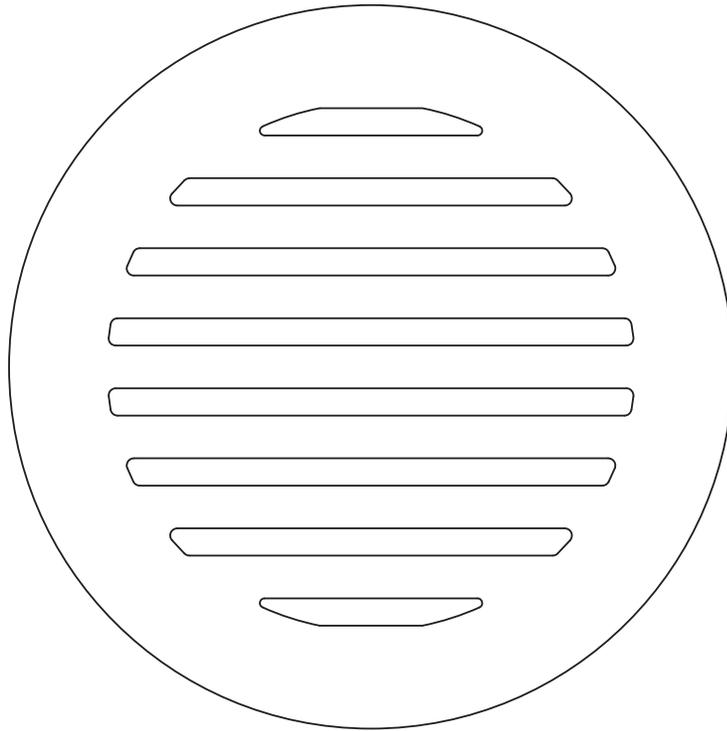
2008

LAWN DRAINS

DRAWING NUMBER:

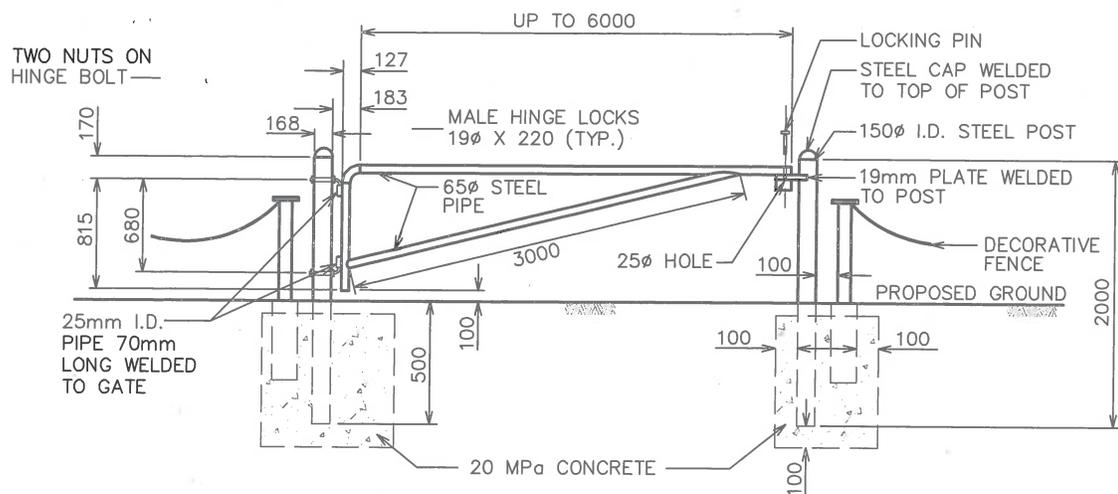
S12

PLAN

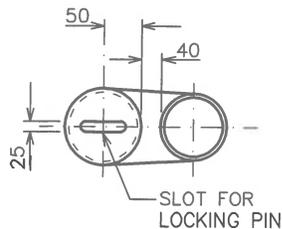


APPROX. WEIGHT
6 KG

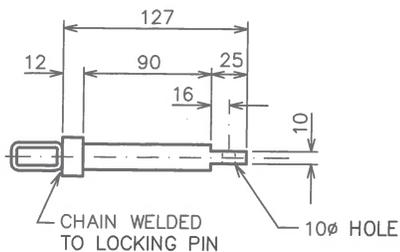
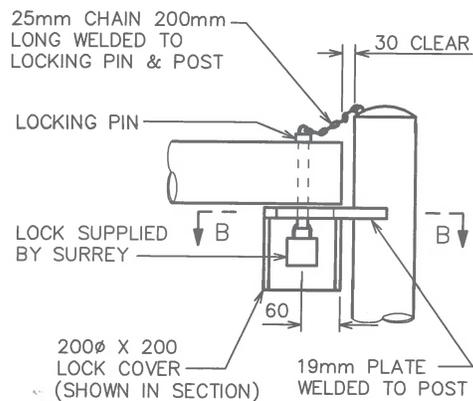
	DOBNEY FOUNDRY LTD. SURREY B.C.
RATING-HWY LOAD	
GRATE	NO. D-2



GATE DETAILS



SECTION B-B



SIDE VIEW



END VIEW

GATE LOCKING PIN DETAIL

NOTES:

1. ALL GATE COMPONENTS TO HAVE PRIME COAT AND TWO COATS OF WHITE ENAMEL PAINT.
2. ALL STEEL TO BE A MINIMUM OF A36 GRADE.

3		All Dimensions Shown In Millimetres, Unless Otherwise Noted
2		
1	JANUARY 2016	
	Revision Date	JAIME BOAN Approved
		Title
		SWING GATE DETAILS
		Approved By :
SUPPLEMENTARY STANDARD DRAWINGS		 G.M. Engineering
		DRAWING NUMBER
		SSD-R.36
		JANUARY 2016