

# BRITISH COLUMBIA HYDRO AND POWER AUTHORITY (BC HYDRO)

# Ruskin – Public Use - Recreation Site & BC Hydro's Industrial Use

MANAGEMENT PLAN FOR APPLICATION LICENCE OF OCCUPATION; CROWN FILE NO.: 2410197; BCH FILE: WP 63 PT. 1

BC HYDRO PROJECT NO.: GZ0002

#### TO:

MINISTRY OF FORESTS, LANDS & NATURAL RESOURCE OPERATIONS Suite 200, 10428 153rd Street Surrey, BC V3R 1E1

#### SUBMITTED BY:

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Signature of Area Manager: (

Lower Mainland Generation John Wou

Date of Signature:



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# Management Plan for Ruskin Public Use Recreation and Industrial Site

# 1.0 Background

#### 1.1 Project Overview

Describe project for which authorization is requested, including construction and/or phased development details:

BC Hydro was issued a Temporary Licence of Occupation 21385 for the Ruskin Dam and Powerhouse Upgrade Project to use the Crown Land as a project laydown area. As the project is reaching completion, BC Hydro would like to apply for a 30 year Licence of Occupation for the following purposes:

- A public use recreation area ("PUMA") including the installation and maintenance of basic recreation amenities, such as vehicle parking, trails, picnic tables and toilets.
- A controlled boat launch provides gated access to Stave River for BC Hydro, DFO and others involved in environmental work on the Lower Stave River.
- A self-rescue bridge linking the Crown upland with an adjacent island that is heavily used by anglers and picnickers. The fishery channel, between the upland and the island has been developed by DFO and other to enhance fish spawning and rearing. Without a self-rescue bridge to link these two sites, the public must negotiate the channel on foot putting themselves at considerable risk during periods of high water conditions. Some River rock has washed away at both ends of the self-rescue bridge and it will be replaced. In addition, diamond mesh screen will be installed on the deck of the bridge to improve traction and safety for those walking on the wooden deck.

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- An industrial Licence (0.40 hectares) to accommodate BC Hydro's Generation Operation need for access and control of the "lower" route to the Ruskin Generating Station. Part of this route is situated on Crown Land and BC Hydro needs to control public access for safety and security reasons. Access will be restricted by fencing and a gate as the areas is within the electrical ground grid. Also located on the Crown Land is a diesel generating building which is used as emergency back-up power for the Ruskin Powerhouse and Dam.
- Public safety boom anchor only the boom across the waterway is covered under ancillary works of the Conditional Water Licence 117533 and 117535. There's no Permit to Occupy Crown Land that covers the anchor installation.

For the Recreational area being 1.54 Hectares, BC Hydro would like to request that a Standard Licence be issued under the BC Hydro Schedule H agreement and we seek a policy variance on pricing due to this area being used to benefit the public.

#### 1.2 Investigative Work

If any preliminary investigative work has been carried out, with or without an investigative authorization, provide details on work completed, incomplete or on-going from previous term.

Activity	Brief Description of Activity	Status (e.g. Complete; Incomplete; Ongoing)	Comments / Milestones

#### 1.3 Confirmation of Safety Plan

Your Project must meet the Occupational Health and Safety (OHS) criteria set out by WorkSafe BC. Does your Project meet these criteria?

Yes: ⊠ No: □

#### **1.4 First Nations Consultation**

Describe any contact you may have had, including the name of the First Nation(s) and representatives contacted.

Kwantlen First Nation (KFN) will be contacted for consultation on the land transfer. Emails and subsequent meetings will be with Tumia Knott – Councillor, Drew Atkins – KFN Land Services, and Chief Marilyn Gabriel.

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#### 2.0 Location

#### 2.1 Description

Provide a general description of the location of the project:

Located approximately 60 km East of Vancouver on the Stave River, in the District of Mission. The Crown Land application area is located on a strip of Crown land lying between the left (East) bank of the Stave River and BC Hydro's Land legally described as PID:013-344-960 Parcel "A" (Plan with fee deposited 7480E) S.E. ¼ Section 10, Township 15, New Westminster District.

#### 2.2 Location Justification

Provide your reasons/justification of the need for this type of project at this location:

The Ruskin Dam and Generating Station was installed in 1930's and the Crown land is immediately south of the Generating Station. Since the Dam was installed, BC Hydro believed that it owned all the surrounding land and for the past 25<sub>+</sub> years, the general public have used the BC Hydro managed recreation site. It's current location provides excellent access for anglers and picnickers.

#### 2.3 Seasonal Expectations of Use

When will the Project require use of the land? Include information on key works during construction phases as well as operations phase. Please reference reduced risk fish windows as required by DFO:

Project Phase (Construction / Operations)	Brief Description of Activity / Works	Season
Operational	Public use of the picnic area will be year round with the entrance road vehicle gate unlocked from 8:00 am until sunset.	The majority of the public use takes place between the May long weekend to the first week in September. Nonpicnic recreational summer use tends to be linked to fishing season.
Operational	Industrial Use	Site will be operational through all season.

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# 3.0 Infrastructure and Improvements

#### 3.1 New Facilities and Infrastructure

Detail any new facilities, infrastructure or processes proposed and any ancillary uses. Provide details of planned construction methods and materials, and construction scheduling.

Facility/Infrastructure/Process	Construction Schedule
PUMA - Overflow gravel parking lot capable of accommodating	Planned opening is
approximately 18 vehicles will be stablished in an area that was cleared	May 2019
and leveled for project construction use.	
All other amenities remain but a number of those will be replaced with	
new products. The two pit toilets and their holding tanks will be replaced	
with new and improved pit toilets. Six picnic tables will be replaced with	
new ones, two of which will be wheel chair accessible. The existing	
concrete picnic table pads will be replaced in the same location but will	
be 12' x 12' to accommodate the new tables. An additional garbage and	
recycle bin will be installed and an existing one located near the DFO boat	
launch will relocated near the DFO boat launch entrance gate. A new	
water line will be installed from the generating station to the PUMA site	
and connected to the existing underground water lines. The four in	
ground water taps will be replaced with new equipment. Water will	
continue to be used for pit toilet and other PUMA maintenance	
requirements. The water taps will be locked and are not available for	
public use. An original 1 meter high fence adjacent to the river side of the	
picnic area will be repaired as required and new signage will replace all	
the old signage that is currently in place.	
Industrial – The area immediately adjacent to the powerhouse has been	
modified with the installation of an Mechanically Stabilized Earth wall ("	
MSE") extending approximately 30 meters along the river bank. This	
installation would be <b>on the BCH/Crown property line</b> . The remaining	
industrial use area will be graded with new gravel and will serve as the	
access point for BC Hydro to the east side access into the Powerhouse. A	
Diesel generating building was installed on the Crown land which is	
critical to Powerhouse operation. It provides emergency back up power for the Ruskin Powerhouse. The industrial area could be used at any time	
by BC Hydro but there will be no public access past the gate and fencing.	
by be right out there will be no public access past the gate and renting.	

#### 3.2 Access

Identify existing and proposed roads used for access and their use by season. Include any proposed connections to public or Forest Service Roads; traffic information including volume of traffic during construction/operation and phase or season that the traffic is expected:

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Access to the PUMA site remains in its current location off Hayward Street, including the vehicle entrance gate. Access to the Industrial area also remains in its current location which is off Hayward Street, through the PUMA site. The industrial area is separated from the PUMA site with fencing and large industrial gates.

Roadway /	Existing /	Existing Road	Road Permittee Information	Traffic Volui	ne	Mitigation of Traffic
Proposed Connection	Proposed	Classification	and Road Use Agreements	Construction Phase	Operations Phase	Effects
Hayward Street	Existing	Currently privately owned but will be transferred to the DOM. Used by the Public.	N/A	N/A	N/A	

#### 3.3 Utility Requirements and Sources

Describe utility requirements and sources; include agreements in place or underway allowing access to utilities:

There are no utilities at the PUMA site.

The industrial site contains a diesel generator, which supplies back-up power for the Ruskin Powerhouse.

#### 3.4 Water Supply

Identify water requirements for construction and operation phases (e.g. surface water and/or groundwater), including sources, location, volume and a general description of infrastructure planned to meet water supply requirements, include any agreements outside of Water Act Authorizations identified above (Section I, Authorizations, Permits or Approvals), such as Municipal water supply.

Project Phase (Construction / Operations)	Water Requirement (e.g. surface water or ground water etc.)	Source / Location	Volume	Infrastructure Description	Agreements
Operation	A new waterline will connect the existing four in ground water taps to the source of water that originates from the Ruskin Powerhouse. This water is	Ruskin Powerho use			BC Hydro holds a diversion water licence 117533

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for PUMA maintenance, not		
for domestic use. The public		
will not have access to the		
water taps.		

#### 3.5 Waste Collection Treatment and Disposal

Identify water requirements for construction and operation phases (e.g. surface water and/or groundwater), including:

Project Phase (Construction / Operations)	Water Requirement (e.g. surface water or ground water etc.)	Source / Location	Volume	Infrastructure Description	Agreements

#### 4.0 Environmental

Describe any significant impacts and proposed mitigation for the following environmental classes:

#### 4.1 Land Impacts

#### 4.1.1 Vegetation Removal

Iς	anv	timber	removal	required?	
ı	uliv	UIIIDCI	I CITIO Vai	i cquii cu i	

Yes: □	No:	$\boxtimes$	Non-planned,	but	а	danger	tree	assessment	will	be	done
throughout the P	UMA 8	ֆ In	ndustrial site ar	ıd ide	ent	tified tre	es wil	ll be address	ed.		
Are any areas of v	/egeta	tio	n to be cleared	, out	sic	le of tim	ber re	emoval?			

#### Yes: ☐ No: ⊠

#### 4.1.2 Soil Disturbance

Will there be any areas of soil disturbance, including clearing, grubbing, excavation and levelling?

Yes: ⊠ No: □

Removal Type	Potential Effects	Proposed Mitigation
PUMA - Levelling of the	Potential runoff	The area is quite level and significant
overflow parking are with	from site	runoff is not anticipated. Runoff will be
road gravel will take place.		directed to vegetated areas to ensure
The pathway running the	Potential	none enters the Stave River.
full length of the picnic	contamination	Environmental monitoring will take place
areas will be topped up.	from oil filled	when working in close proximity to the
Both ends of the self-rescue	equipment.	river for the foot bridge abutment work.

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bridge will have some river rock, that has washed away during the past five years, replaced. The picnic area grassy area will be restored.		All equipment shall be clean and free of excess grease and debris. All equipment will be inspected for leaks prior to working on the site. Spill response procedures will be in place should an incident occur.
Industrial Area – Levelling of the area and placement of gravel	-	-

Is the area to be excavated a Bro	wnfield site or has the	potential to be contaminated?
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Yes: ⊠ No: □

Soil relocation agreements or other certifications may be required. BC Contaminated Site Regulation

The Industrial area and a portion of the public use area have seen industrial use as part of the Ruskin Upgrade Project and there is a low potential for some minor contamination by metals or hydrocarbons. A thorough inspection and soil sampling will be completed to characterize the area once the Contractor has demobilized from the site. If soil removal is required, a relocation agreement will be filed if required.

Is there potential for disturbance of archaeological, paleontological fossils or historical artifacts?

Yes: ⊠ No: □

Additional research and plans may be required. Heritage Conservation Act.

There are known archaeological sites in the Ruskin Project area. The excavation work planned for the crown land is not significant and will occur in areas that have been previously disturbed. In addition to BC Hydro's chance find procedures, an archaeologist will review the site prior to any disturbance and archaeological monitoring will be in place during the excavations.

#### 4.1.3 Riparian Encroachment

Will any works be completed within or adjacent to the riparian zone of any water body?

Yes: ⊠ No: □

Identify all works that may affect the Riparian zone, the impacts, and proposed mitigations:

Work Type Potential Effects		Proposed Mitigation				
PUMA – This area	No significant	Environmental monitoring will take place when				
is adjacent to or	potential effects are	working in close proximity to the river for the foot				
within the riparian	anticipated and no	bridge abutment work.				

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area. The riparian area adjacent to the overflow parking area will not be affected. The grass covered picnic area extends to the top of bank of the river and is within the riparian area. It will be maintained as a landscaped lawn through its operation. The self-rescue bridge crosses a spawning channel (created by DFO) of the lower stave river and work is required to repair the trail approaches.	riparian vegetation removal is required. All work required for the foot bridge will be completed from well above the normal water level.	All equipment shall be clean and free of excess grease and debris. All equipment shall be inspected for leaks prior to working on the site. Spill response procedures will be in place should an incident occur.
Industrial Area – The industrial use portion of the land adjacent to the powerhouse is within the riparian area. There is currently no vegetation in the area so there will be no further vegetation impacts.	There is a potential for contamination for the industrial use area.	BC Hydro's oil and fuel handling procedures will be followed to minimize the potential for spills or contamination. If any spills occur, the affected area will be cleaned and all contaminated materials will be removed.

#### 4.1.4 Pesticides and Herbicides

Will there be any use of pesticides or herbicides during construction, operations and/or maintenance?

Yes: ☐ No: ⊠

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#### 4.1.5 Visual Impacts

Will there be any adverse effects of the projects and any potential adverse effects on sight lines to the project area from surrounding areas likely to be used for scenic viewing by residents or other users?

Yes: ☐ No: ☒

#### 4.1.6 Archaeological Sites

Are there any known or high potential (Arch Procedure) archaeological sites within the project area?

Yes: ⊠ No: □

Identify the sites, any potential impact on them, and any mitigations:

Archaeological Site		Impacts	Proposed Mitigation/Management Plans		
	The area is known for	There is potential	All excavation work will require the		
	archaeological potential	to encounter	presence of an on-site archaeological		
sites. archaeological		archaeological	monitor. Chance find stop work		
	artifacts.		procedures will also be in place for		
			construction.		

Have you conducted an AIA or engaged an archaeologist to assist with your investigations?

Yes: ⊠ No: □

Please include information or reports generated:

There are known archaeological sites in the Ruskin Project area. The excavation work planned for the crown land is not significant and will occur in areas that have been previously disturbed. In addition to BC Hydro's chance find procedures, an archaeologist will review the site prior to any disturbance and archaeological monitoring will be in place during the excavations.

#### 4.1.7 Construction Methods and Materials

Identify the types of construction materials, the methods used, their impacts, and any mitigation:

Construction Material / Method	Potential effects	Mitigations		
PUMA - Excavators will be	No significant potential	Environmental monitoring will take		
used to remove and install	effects are anticipated with	place when working in close		
the two pit toilets and to	this work.	proximity to the river for the foot		
dig a trench that will hold		bridge abutment work.		

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the new waterline				
PUMA - Weed eaters will	No effects anticipated.	No mitigation		
be used to restore the				
grassy picnic areas.				
PUMA - Concrete trucks	No effects anticipated.	No mitigation		
will deliver concrete to 6				
new 12' x 12' concrete				
pads				
PUMA - Fences will be	No effects anticipated.	No mitigation		
repaired with hand tools.				
PUMA - professional tree	Improve public safety will	No mitigation		
removal staff and bucket	result from this activity.			
trucks will remove Danger				
trees.				
PUMA - A crane truck will	No effects anticipated.	No mitigation		
deliver and install the				
concrete pit toilets and				
their holding tanks				
PUMA - At this time a	No effects anticipated	No mitigation		
decision to repave the				
parking lot has not been				
made. However, if it is to				
be repaved, than all				
equipment associated				
with that will be utilized.				
Industrial – Placement of	No effects anticipated.	No Mitigation		
clean gravel fill.				

# **4.2 Atmospheric Impacts**

# 4.2.1 Sound, Odor, Gas or Fuel Emissions

Will the project construction or operation cause any of the following to disturb wildlife or nearby residents:

Sound?	Yes: □	No: ⊠
Odor?	Yes: $\square$	No: ⊠
Gas?	Yes: $\square$	No: ⊠
Fuel Emissions?	Yes: □	No: ⊠

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# 4.3 Water or Land Covered by Water Impacts

4.3.1 Drainage Effects
Will the project result in changes to land drainage?
Yes: □ No: ⊠
4.3.2 Public Access
Will the project result in changes to public access?
Yes: □ No: ⊠
4.3.3 Flood Potential
Will the project result in a potential for flooding?
Yes: □ No: ⊠
4.4 Fish and Wildlife Habitat Impacts
4.4.1 Disturbance to Wildlife and Wildlife Habitat
Will the project result in adverse effects to wildlife or wildlife habitat?
Yes: □ No: ⊠
Will the project (construction or operations phase) occur in and around streams, lakes,
estuarine or marine environments?
Yes: ⊠ No: □
Describe the fish habitation or near the project site include notential impacts of the

Describe the fish habitat on or near the project site, include potential impacts of the Project (e.g. stream crossings, water diversions, etc), including seasonal considerations, and plans to manage/mitigate effects.

Project Phase and Environmental Setting	Potential Effects	Proposed Mitigations / Management
The land is immediately adjacent to the lower Stave River and its entire length is adjacent to a sensitive spawning channel.	Significant negative effects to the fish habitat are not anticipated through the development or operation periods.	Environmental monitoring will take place when working in close proximity to the river during the construction phase.  All equipment shall clean and free of excess grease and debris. All equipment shall be inspected for leaks prior to working on the site. Spill response procedures will be in place should an incident occur.

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IS	the	project	(construction	or	operations	phase)	likely	to	increase	erosion	OI
se	dime	ntation?	P								
		Yes: 🗆	No: ⊠								
W	ill the	project	(construction o	r op	erations pha	se) requ	ire wat	er c	liversion?		
		Yes: 🗆	No: ⊠								
W	ill the	project	threaten or end	dang	ger species a	t risk in t	he area	a?			
		Yes: 🗆	No: ⊠								

#### **5.0 Socio-Community**

#### 5.1 Land Use

Describe the current community setting on or near the project area, including the location of non-aboriginal and aboriginal communities or known use areas:

The property is located in within the District of Mission, in a rural neighbourhood near the western boundary of the municipality. There are 10 residences within 500 metres of the property, the majority of which are across the Stave River. Mission's industrial area is located approximately two kilometres from the property.

The District of Mission supports a population of approximately 38,000 residents. Located along the north shore of the Fraser River, its largest employment sectors are business services, retail trade and construction. Major employers are the local school district, Mission Memorial Hospital and Corrections Canada. The municipality is accessed via Highway 7 (Lougheed Highway) and is a 15-minute drive from the Trans-Canada Highway (Highway 1).

The Kwantlen First Nation has two Indian Reserves, which are Langley Indian Reserve 4, which is .80 kilometers from the Project Area, and Langley Indian Reserve 4, which is 2.13 kilometers from the Project Area.

The Crown has issued the following overlapping tenures:

- Statement of Boundary Intent for Hui'qumi'num
- Statement of Boundary Intent for Sto:lo Xwexwilmexw

#### **5.1.1 Land Management Plans and Regional Growth Strategies**

Are there any land and resource management plans, coastal plans, provincial, regional growth strategies or local government plans with zoning, or management policies or use

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restrictions in place that could limit or preclude your proposed use of the land? (Please refer to the Union of BC Municipalities (UBCM) and check the websites of the municipality, regional district or other organization with jurisdiction including your project area.)

Yes: □ No: ⊠

#### **5.2 Socio-Community Conditions**

#### **5.2.1** Adjacent Users or Communities

Is the project likely to restrict public access, or the ability, or the ability of adjacent land owners or tenure holder to access their property or tenures?

No: 

Access for the public has always been limited and Yes: □ controlled in the application area for safety purposes.

#### **5.2.2 Existing Services**

Provide a description any increased demand on fire protection and other health facilities and emergency services arising from your Project, including proposed management or mitigation measures:

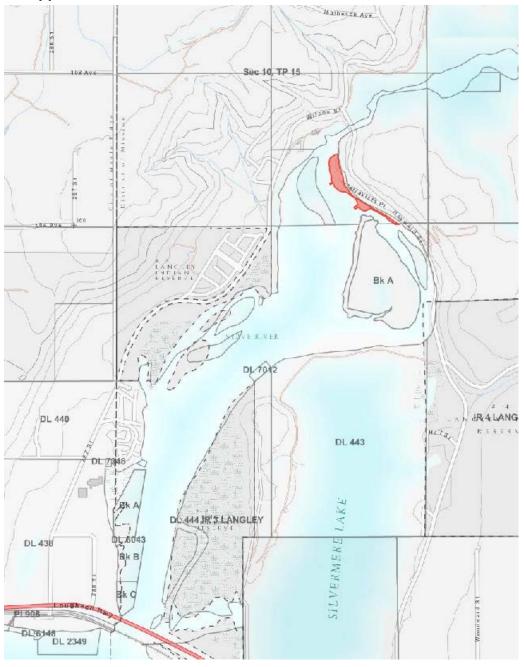
The PUMA will be managed by Hayward PUMA Warden who has an operations manual that describes emergency response to various scenarios throughout the PUMA area.

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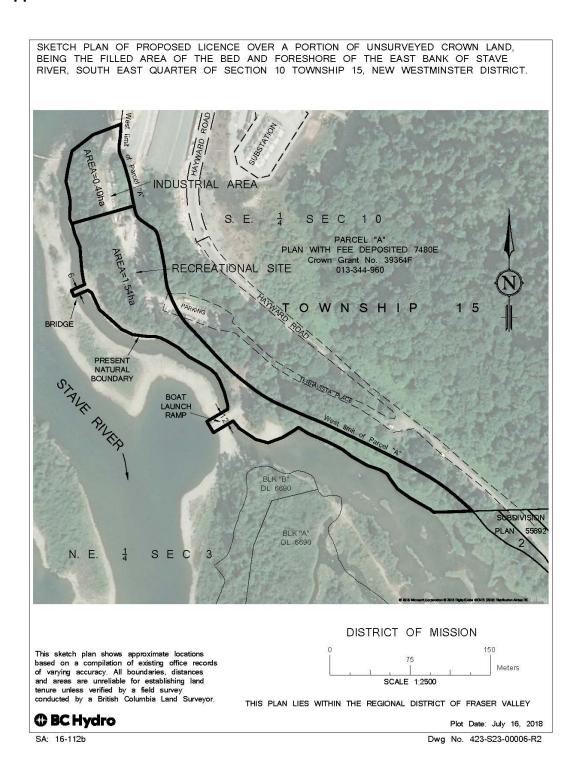


# **Appendix A – Location Plan**





#### Appendix B - Site Plan

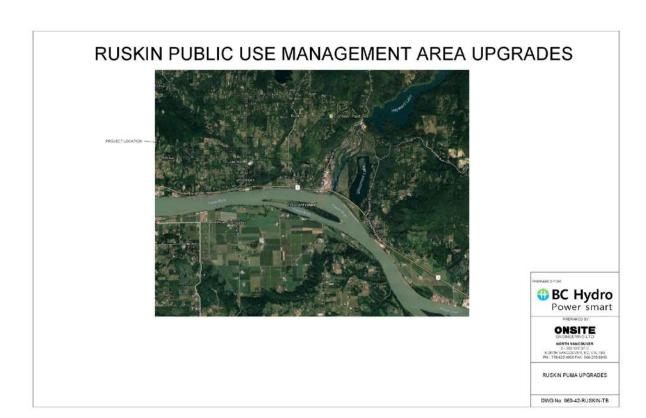


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# **Appendix C – Design Drawings**

Public Use Area



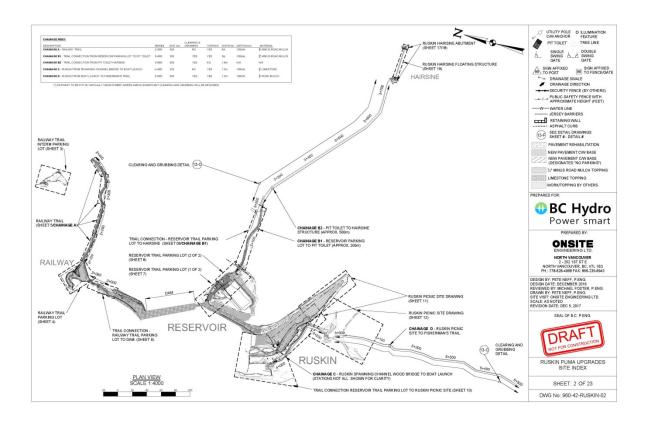
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GENERAL NOTES	WOOD	SHEET INDEX			
<ol> <li>ALL DESIGN, CONSTRUCTION EFFORTS AND PLACEMENT OF INFRASTRUCTURE TO CONFORM TO BC HYDRO USER REQUIREMENTS</li> </ol>	<ol> <li>ALL WOOD TO BE FIR AND TO BE TREATED AS PER: "MINISTRY OF FORESTS, LANDS AND NATURAL RESOURCES OPERATIONS (FUNR) - PRESSURE TREATED WOOD STANDARD FOR</li> </ol>	COVER SHEET SHEET 1	SPECIFICATIO	nie	O UTILITY POLE O ILLUMINATION FEATURE
2. ALL WORK TO CONFORM AND ADHERE TO WORKSAFE BC REGULATIONS	TIMBER DECK BRIDGE COMPONENTS" OR APPROVED EQUAL TO THE SATISFACTION OF BCH.	SHEET 2	SITE INDEX	NO.	PITTOILET TREE LINE
3. ALL DIMENSION ARE IN METERS, BUT SOME REFERENCES HAVE USED IMPERIAL		SHEET 3		L INTERIM PARKING LOT	SINGLE , DOUBLE
DESIGNATION	UTILITIES INFRASTRUCTURE	SHEET 4		L PARKING LOT	A SWING A SWING
<ol> <li>ALL CONSTRUCTION IS TO BE COMPLETED TO THE SATISFACTION OF THE BCH.</li> </ol>	WATER	SHEET 6	RAILWAY TRAI	L	GATE GATE
5. THIS DRAWING SET IS TO BE USED IN CONJUNCTION WITH MMCD VOLUME II PLATINUM	<ol> <li>ALL WATER SERVICING TO ADHERE TO BC BUILDING AND PLUMBING CODE.</li> </ol>	SHEET 6	TRAIL CONNECTION - RAILWAY TRAIL TO DAM		SIGN AFFIXED SIGN AFFIXED
EDITION FOR CONSTRUCTION DETAILS	SANITARY	SHEET 7		RAIL PARKING LOT (1 OF 2)	99 TO POST 99 TO FENCE/GATE
<ol><li>ALL DRAWING DISCREPANCIES ARE TO BE ARE TO BE REPORTED TO THE BCH.</li></ol>	<ol> <li>PIT TOILET VAULTS THAT ARE TO BE DISPOSED SHALL BE DONE SO IN ACCORDANCE WITH APPLICABLE GOVERNMENT HEALTH REGULATIONS</li> </ol>	SHEET 8		RAIL PARKING LOT (2 OF 2)	DRAINAGE SWALE
<ol> <li>ALL FIELD CHANGES TO CHANGES TO BE APPROVED BY BCH.</li> </ol>	THE SEPTIC FIELD IN THE RUSKIN PICNIC AREA IS OUT OF SCOPE OF THIS PROJECT	SHEET 9		CTION - RESERVOIR TRAIL PARKING LOT TO HAIRSINE	DRAINAGE DIRECTION
<ol> <li>NOTIFY BC HYDRO PRIOR TO CONSTRUCTION COMMENCEMENT AND COORDINATE ALL REQUIRED INSPECTIONS SUPERVISION AND TESTING</li> </ol>		SHEET 10 SHEET 11		CTION - RESERVOIR TRAIL PARKING LOT TO RUSKIN IC SITE AND MAIN PARKING LOT	SECURITY FENCE (BY OTHERS)
DEPENDING ON TIME OF CONSTRUCTION ACCESS TO CROSS THE DAM MAY NOT BE	STORM	SHEET 12		LAUNCH & BEACH AREA	PUBLIC SAFETY FENCE WITH APPROXIMATE HEIGHT (FEET)
DEPENDING ON TIME OF CONSTRUCTION ACCESS TO CROSS THE DAM MAT NOT BE     AVAILABLE	<ol> <li>ALL EXISTING STORM INFRASTRUCTURE SHOULD BE CLEANED AND THOROUGHLY CHECKED FOR FUNCTIONALITY. SHOULD EXISTING STORM INFRASTRUCTURE BE</li> </ol>	SHEET 13		MAYS AND UTILITIES	—W—WATER LINE
10. ALL SURPLUS MATERIAL OR INFRASTRUCTURE SHALL BE DISPOSED OF BY CONTRACTOR IN	COMPROMISED, ALERT ENGINEER IMMEDIATELY.	SHEET 14	GATES AND FE		JERSEY BARRIERS
AN APPROVED MANNER AND ACCORDING TO ALL APPLICABLE REGULATIONS	<ol> <li>SWALES TO BE CONSTRUCTED WITH 2:1 SLOPES WITH DEPTH AS IS PRACTICAL FOR THE</li> </ol>	SHEET 15	ENTRANCE SIG	gN .	RETAINING WALL
	LOCATION	SHEET 16	INFORMATION		ASPHALT CURB
RE-USE OF EXISTING INFRASTRUCTURE	EARTHWORKS & RETAINING WALLS	SHEET 17		T - ABUTMENT (PLAN AND SECTIONS)	CEE DETAIL DRAWINGS
THE PROJECT WILL ENTAIL REMOVAL OF INFRASTRUCTURE AND PARK ASSETS THAT HAVE	<ol> <li>THE TRAIL CONNECTION FROM RESERVOIR PARKING LOT TO RUSKIN PICNIC SITE(CHAINAGE E/DRAWING 10) WILL NEED TO BE PUT IN PLACE, COMPLETE WITH</li> </ol>	SHEET 18		T - ABUTMENT DETAILS	(13-F) SHEET # - DETAIL #
SIGNIFICANT LIFE REMAINING. ALL EFFORTS SHOULD BE TAKEN TO RE-USE INFRASTRUCTURE ELSEWHERE IN THE PROJECT WHERE POSSIBLE. NEW INFRASTRUCTURE MAY NEED TO BE	DESIGNATED BASE STRUCTURE, PRIOR TO PLACEMENT OF LIMESTONE.	SHEET 19 SHEET 20	RETAINING WA	WLL .	PAVEMENT REHABILITATION
PURCHASED WHERE EXISTING INFRASTRUCTURE IS INADEQUATE. ALL REMAINING		SHEET 20 SHEET 21	SIGNAGE		LA MANU
INFRASTRUCTURE WITH REMAINING LIFE SHOULD BE DELIVERED TO THE HAYWARD LOT FOR STORAGE IF DIRECTED BY BCH. NOTES REGARDING THIS TYPE OF INFRASTRUCTURE IS NOTED.	CLEARING AND GRUBBING, TOPPING, LANDSCAPING	SHEET 22	SIGNAGE		NEW PAVEMENT CAW BASE
BELOW:	THE TERMS "CLEARING AND GRUBBING", "TOPPING" & "LANDSCAPING" HAVE DISTINCT	SHEET 23		T - FLOATING WALKWAY - SPECIFICATIONS	NEW PAVEMENT CAV BASE (DESIGNATED 'NO PAR KING')
<ol> <li>JERSEY BARRIERS (FROM RAILWAY INTERIM PARKING LOT)</li> </ol>	MEANINGS WITH RESPECT TO SCOPE REQUIRED THROUGHOUT THE PROJECT. THEY ARE	APPENDIX A	PIT TOILETS		
2. LOCK BLOCKS - (FROM RAILWAY TRAIL PARKING LOT)	DESCRIBED BELOW:				%" MINUS ROAD MULCH TOPPING
3. WOOD GUARDRAILS - (FROM RAILWAY TRAIL PARKING LOT)	1 - CLEARING AND GRUBBING:	DETAIL INDEX			LIMESTONE TOPPING
4. FENCING - FENCING TO BE REMOVED IS TO BE SET ASIDE AND CHECKED FOR RE-USABILITY.	THIS TASK ENTAILS REMOVING OVERGROWTH. A DETAIL WITH MORE DESCRIPTION (13-C) OF PARAMETERS OF WORK HAS BEEN PROVIDED. THE CHAINAGES THAT REQUIRE CLEARING AND	SHEET 13 SHEET 13	DETAIL A DETAIL B	PAVEMENT STRUCTURE PATHWAY STRUCTURE	WORK/TOPPING BY OTHERS.
FENCING THAT CAN BE RE-USED WILL BE USED WHERE APPLICABLE IN OTHER PARTS OF	GRUBBING ARE NOTED IN THE CHAINAGE INDEX CHART.	SHEET 13	DETAILC	CLEARING AND GRUBBING DETAIL	
THE PROJECT. ALL HEIGHTS OF EXISTING PUBLIC SAFETY FENCE ARE DEEMED TO BE SIMILAR IN NATURE OF CONSTRUCTION AND CAN BE CUT TO SUIT NEW PURPOSES	ADDITIONAL CLEARING IS REQUIRED ADIACENT TO FENCING - SEE NOTES IN "FENCING"	SHEET 13	DETAIL E	STEEL BRACKET DETAIL	PREPARED FOR:
5. STEEL POSTS - WHERE STEEL POST SIGNS ARE DESIGNATED "TO BE REMOVED". THEY WILL	BELOW.	SHEET 13	DETAIL F	WATER SERVICE TRENCH DETAIL	M DC I I value
BE CHECKED FOR RE-USABILITY. POSTS IN GOOD CONDITION WILL BE REUSED AS NOTED	2 - TOPPING	SHEET 13 SHEET 13	DETAIL G	SIGN/STEEL POST DETAIL	BC Hydro
IN THE DRAWINGS, OR WITH APPROVAL FROM THE ENGINEER. EXTRA POSTS SHALL BE DELIVERED TO THE HAYWARD YARD. IF THE POSTS ARE DAMAGED, THEY ARE TO BE	SECTIONS OF EXISTING TRAIL WITHIN THE PROJECT REQUIRE NEW TOPPINGS. TOPPINGS ARE	SHEET 14	DETAILJ	MAINTENANCE MAN GATE	
REMOVED AND DISPOSED OF. ALL POST HOLES SHALL BE FILLED AND GRADE	THE ADDITION OF APPROPRIATE TRAIL SURFACE MATERIAL AS NOTED BELOW. THEY ARE TO BE PLACED EVENLY OVER THE AREA SHOWN AND AT THE DEPTH AND WIDTH DENOTED.	SHEET 14	DETAIL K	BICYCLE CHICANE	Power smart
RE-ESTABLISHED	TOPPING WORK TO OCCUR AFTER CLEARING AND GRUBBING WORK.	SHEET 14 SHEET 14	DETAIL L	SINGLE SWING GATE	
ASPHALT	THE CHAINAGES THAT REQUIRE TOPPING ARE NOTED IN THE CHAINAGE INDEX CHART.	SHEET 14 SHEET 15	DETAIL M	DOUBLE SIVING GATE ENTRANCE SIGN	PREPARED BY:
<ol> <li>NEW ASPHALT TO BE UPPER COURSE#1 AS PER MMCD STANDARDS</li> </ol>	TRAIL TOPPING - EXISTING GROUND TO BE USED SHALL BE CLEARED OF ALL BRANCHES, TREES AND DEBRIS	SHEET 15	DETAIL O	METAL BASE FOR ENTRANCE SIGN	ONSITE
<ol><li>ASPHALT WORK IS TO INCLUDE STALL AND NO PARKING PAINTING AS NOTED</li></ol>	3 - LANDSCAPING	SHEET 16	DETAIL P	POST AND CHAIN DELINEATION	ENGINEERING LTD.
<ol> <li>APPROVAL OF PROPOSED PARKING LOT LINE PAINTING TO BE APPROVED BY BCH</li> </ol>	FOR THIS PROJECT, THE TERM LANDSCAPING WILL ENTAIL SCOPE THAT REFLECTS THE MORE	SHEET 16 SHEET 16	DETAIL Q	DOUBLE WIDE INFO KIOSK SINGLE WIDE INFO KIOSK	
STEEL	TRADITIONAL MEANING OF LANDSCAPING.	SHEET 16	DETAIL S	KIOSK DIAGONAL STRUT DETAIL	NORTH VANCOUVER 2 - 252 1ST ST E
ALL STEEL TO BE 350W STEEL		SHEET 16	DETAIL T	DOUBLE WIDE KIOSK BRACKET	NORTH VANCOUVER, BC, V7L 1B3
2. ALL STEEL TO HOT DIP GALVANIZED	PARK ASSETS	SHEET 16	DETAIL U	SINGLE WIDE KIOSK TOP BRACKET	PH.: 778-628-4968 FAX: 866-235-6943
<ol> <li>ALL WELDING SHALL BE 6mm FILLET WELDS U.N.O.</li> </ol>	ENTRANCE SIGNS/INFORMATION KIOSKS	SHEET 16 SHEET 17	DETAIL V	SINGLE WIDE KIOSK BOTTOM BRACKET PLAN VIEW HAIRSINE CROSSING	DESIGN BY: PETE NEFF, P.ENG.
<ol> <li>COMPLETE ALL WELDS IN ACCORDANCE WITH CSA W59.</li> </ol>	1. AN ENTRANCE SIGN DETAIL HAS BEEN PROVIDED.	SHEET 17	DETAIL H1	HAIRSINE ABUTMENT PLAN VIEW	DESIGN DATE: DECEMBER 2016
<ol> <li>FABRICATOR TO BE CERTIFIED FOR DIVISION 1 OR 2 IN ACCORDANCE WITH CSA W47.1</li> </ol>	2. BC HYDRO WILL PROVIDE ALL SIGNS TO BE INSTALLED ON INFORMATION KIOSKS	SHEET 17	DETAIL H3	HAIRSINE ABUTMENT SECTION VIEW	REVIEWED BY: MICHAEL FOSTER, P.ENG. DRAWN BY: PETE NEFF, P.ENG.
<ol> <li>FIELD WELDING BY COMPANY CERTIFIED TO CSA W47.1 DIVISION 1,2 OR 3</li> </ol>	ACCESS GATES	SHEET 17	DETAIL H4	HAIRSINE ABUTMENT SECTION VIEW	SITE VISIT: ONSITE ENGINEERING LTD.
CONCRETE	1. GATES SHALL BE PAINTED WITH COMMERCIAL GRADE, WEATHER RESISTANT YELLOW	SHEET 18 SHEET 18	DETAIL H5 DETAIL H6	HAIRSINE RAMP ATTACHMENT HAIRSINE RAMP ATTACHMENT	SCALE: AS NOTED REVISION DATE: DEC 5, 2017
<ol> <li>THE CONTRACTOR SHALL FURNISH THE ENGINEER WITH CONCRETE CYLINDER TEST REPORTS AND REBAR SPEC SHEETS FOR ALL REINFORCED CONCRETE. TAKE THREE TEST</li> </ol>	PAINT DESIGNATED FOR METAL	SHEET 18	DETAIL H7	HAIRSINE BRACKET DETAIL	1121101011 01112. 020 0, 2017
CYLINDERS FOR EVERY 75 CU. METERS OR LESS OF CONCRETE POURED. MINIMUM ONE	FENCING	SHEET 18	DETAIL HB	HAIRSINE ABUTMENT DETAIL	SEAL OF B.C. P.ENG.
SET OF THREE CYLINDERS FOR EACH POUR.	1. ALL PUBLIC SAFETY FENCING TO REMAIN THAT IS LOCATED WITHIN THE PROJECT AREA IS	SHEET 19	DETAIL W1AV2	RETAINING WALL	
<ol> <li>ALL CONCRETE SHALL BE CONSOLIDATED WITH THE USE OF INTERNAL, MECHANICAL VIBRATORS.</li> </ol>	TO BE REPAIRED TO AS NEW CONDITION.  2. OVERGROWTH & GROUND COVER MUST BE REMOVED IN AREAS ADJACENT TO FENCING	SHEET 19	DETAIL X/Y/Z	RETAINING WALL SECTION	CODAET
3. CONCRETE COVER REQUIREMENTS:	(APPROX. 1m EACH SIDE) AND PARKING LOTS AS IDENTIFIED ON THE DRAWINGS AND				IDKALI
75mm (3") CAST AGAINST OR PERMANENTLY EXPOSED TO SOIL	DIRECTED BY BCH.				NOT FOR CONSTRUCTION
50mm (2") EXPOSED TO WEATHER OR SOIL	METAL SIGN				NOT FOR COM
4. CONCRETE SHALL HAVE A MAXIMUM AGGREGATE SIZE OF 20mm (☐") DIAMETER	<ol> <li>BCH TO PROVIDE METAL SIGNS</li> </ol>				
	<ol> <li>SIGNS ON FENCE TO BE WILL BE SECURELY MOUNTED ON INSIDE OF FENCE WITH TAMPERPROOF FASTENING AT ALL FOUR CORNERS. SIGNS TO BE PLACED AT APPROX.</li> </ol>				RUSKIN PUMA UPGRADES
5. SLUMP SHALL BE LIMITED TO 65mm	TAMPERPROOF FASTENING AT ALL FOUR CORNERS. SIGNS TO BE PLACED AT APPROX.  Wide OF FENCE HEIGHT.				SPECIFICATIONS
<ol><li>ALL CEMENT SHALL BE TYPE 10. MINIMUM CEMENT CONTENT TO BE 335 kg/m3.</li></ol>	<ol> <li>SIGNS ON POSTS WILL BE SECURELY MOUNTED WITH TAMPERPROOF AT 6'0" HEIGHT. ALL</li> </ol>				100000000000000000000000000000000000000
<ol> <li>MINIMUM COMPRESSIVE STRENGTH OF CONCRETE AT 28 DAYS = 32MPa</li> </ol>	SIGN HEIGHT TO BE APPROVED BY BCH.				OUEET, 4 OF 20
8. CONCRETE SHALL BE ENTRAINED WITH AIR CONTENT OF 6% +/- 1%	SIGN HEIGHT TO BE APPROVED BY BCH. GARBAGE/RECYCLING				SHEET: 1 OF 23
	SIGN HEIGHT TO BE APPROVED BY BCH.				SHEET: 1 OF 23 DWG No: 960-42-RUSKIN-01

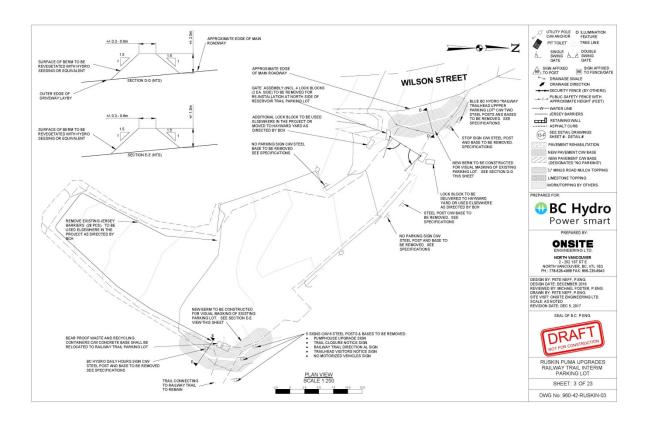
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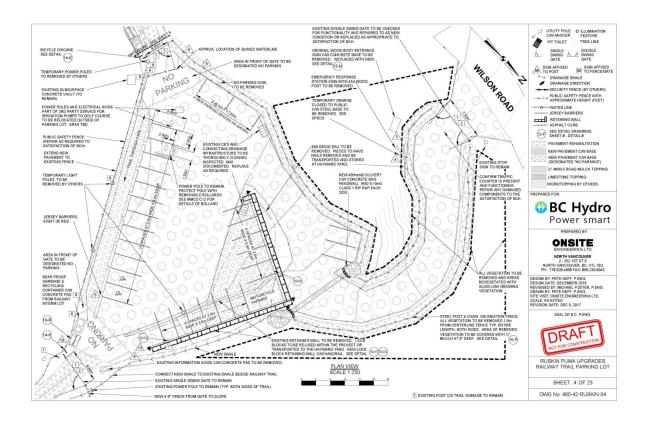
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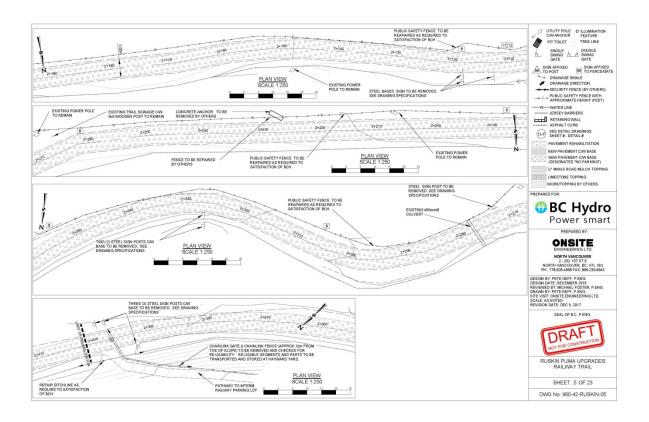
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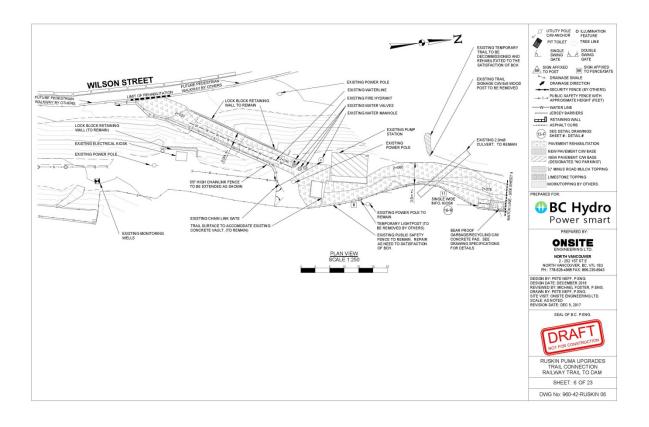
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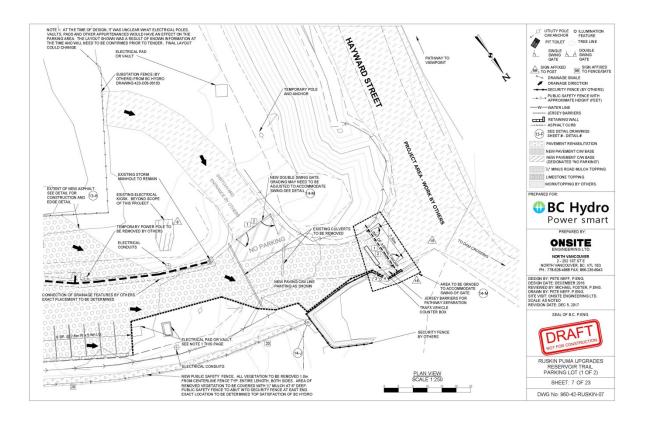
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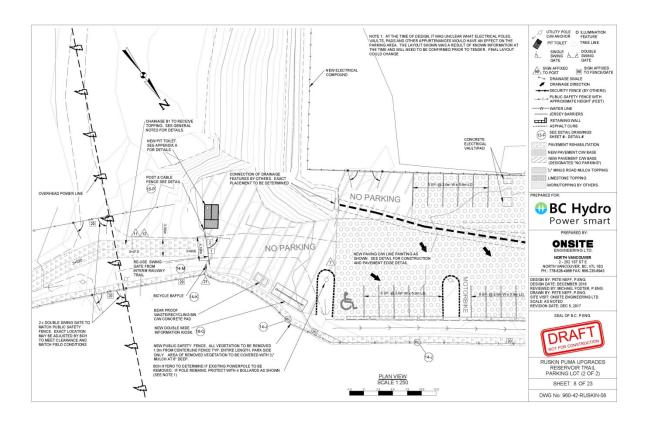




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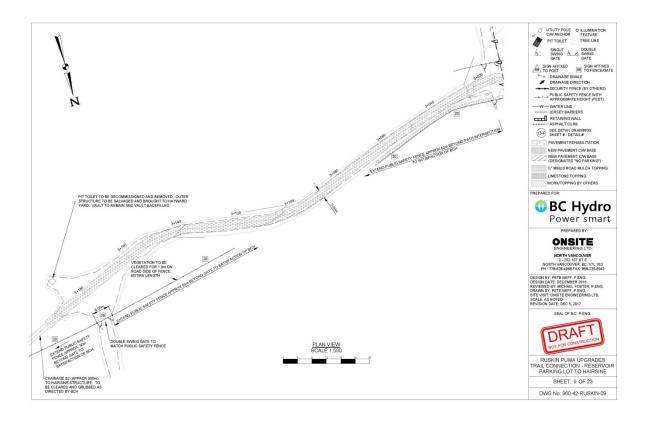




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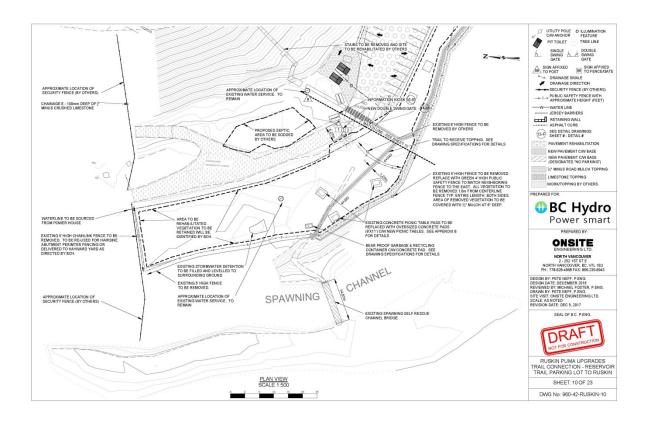
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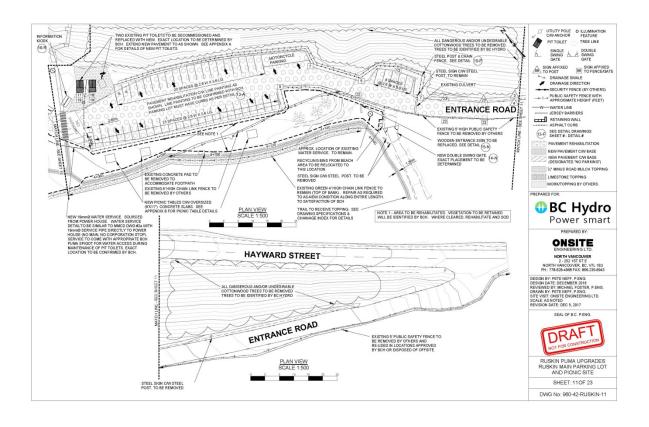
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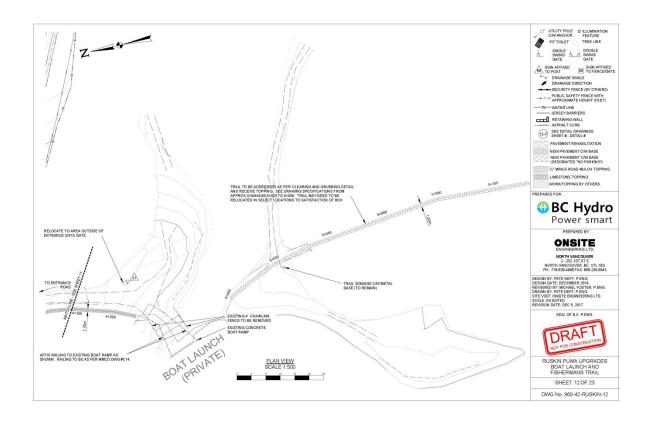
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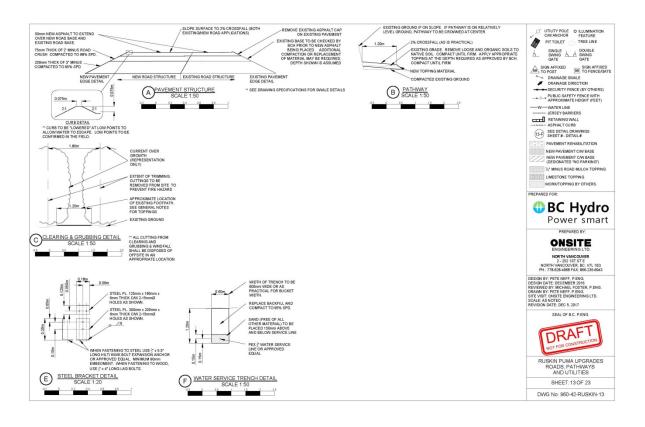
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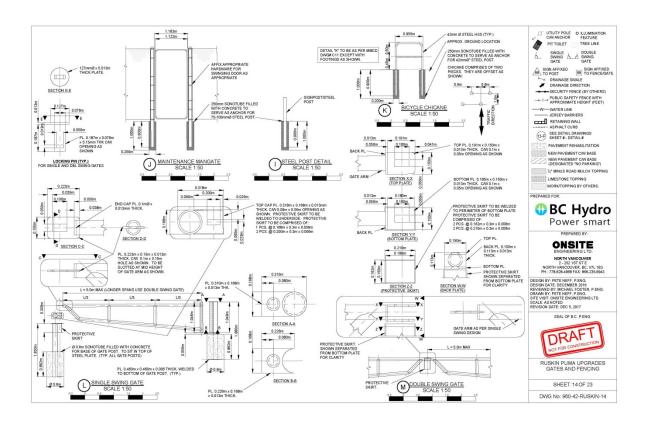
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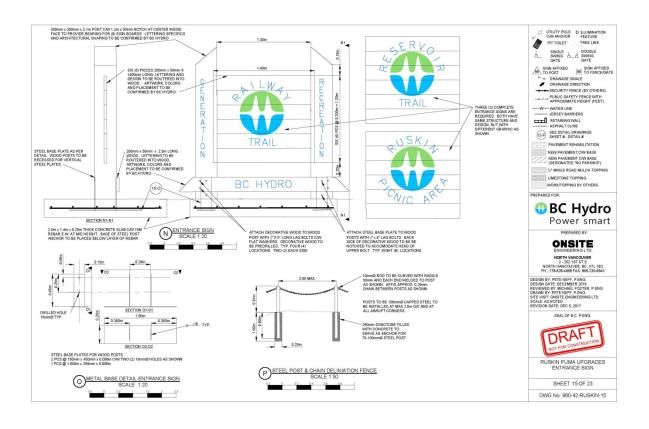
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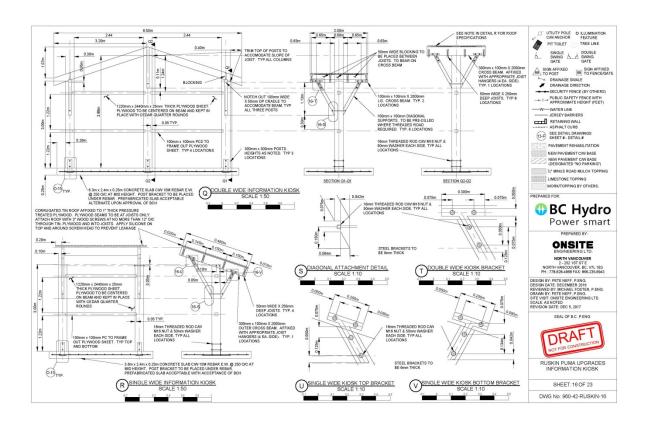
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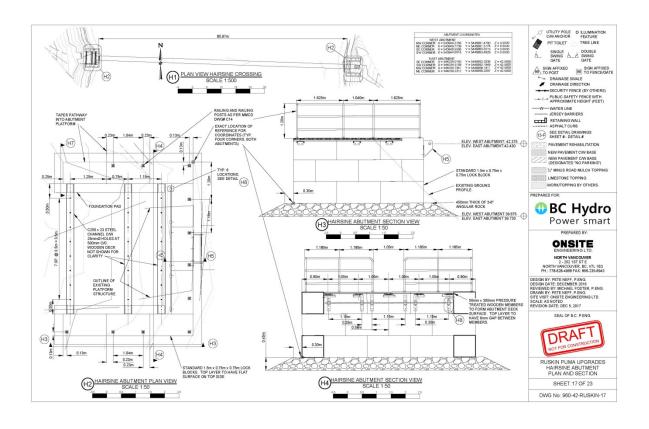
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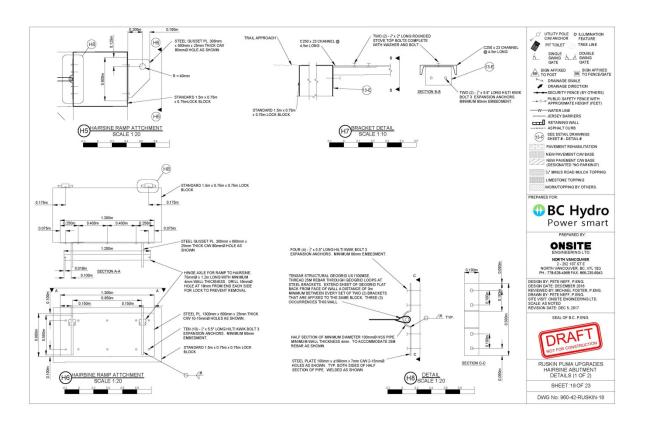
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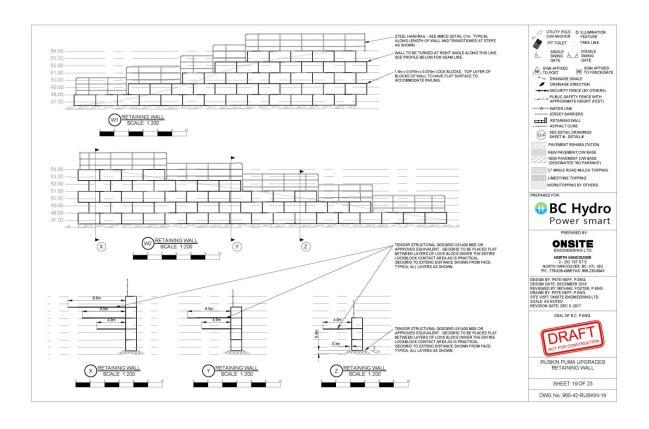
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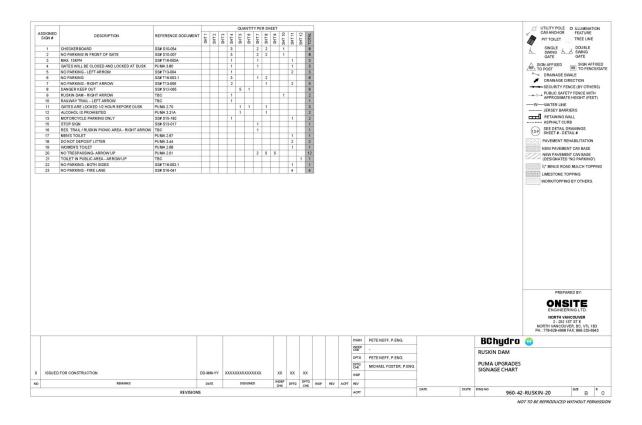
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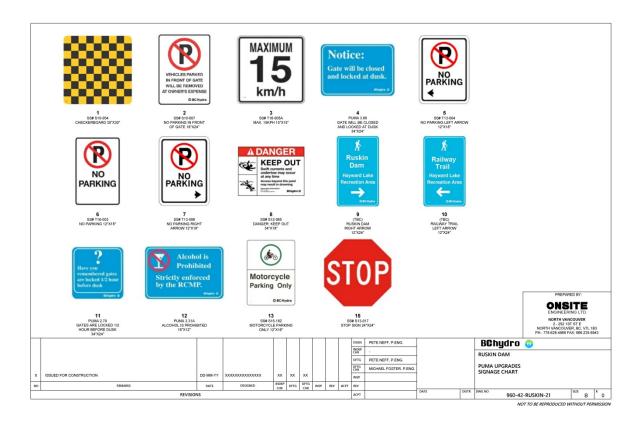
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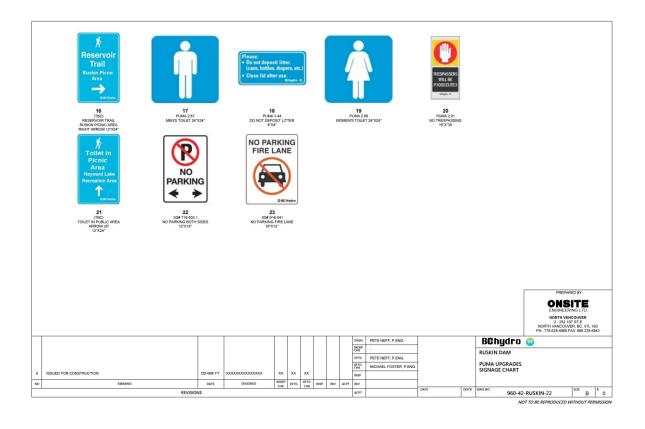
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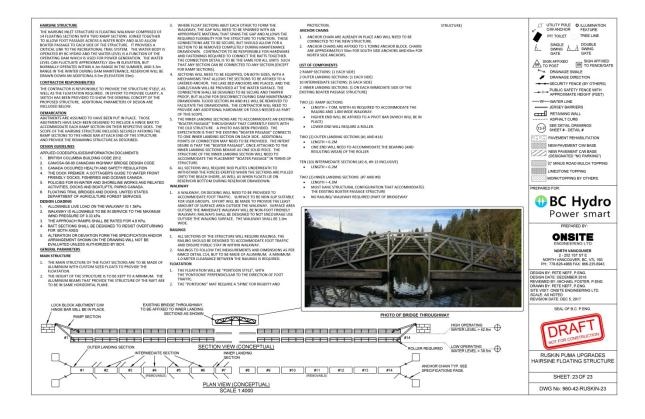
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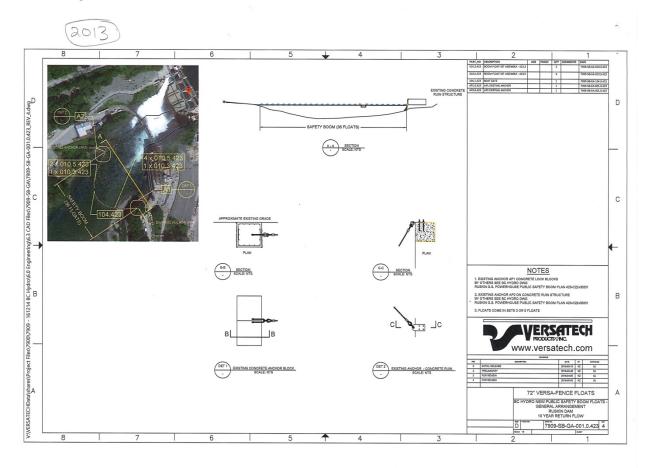




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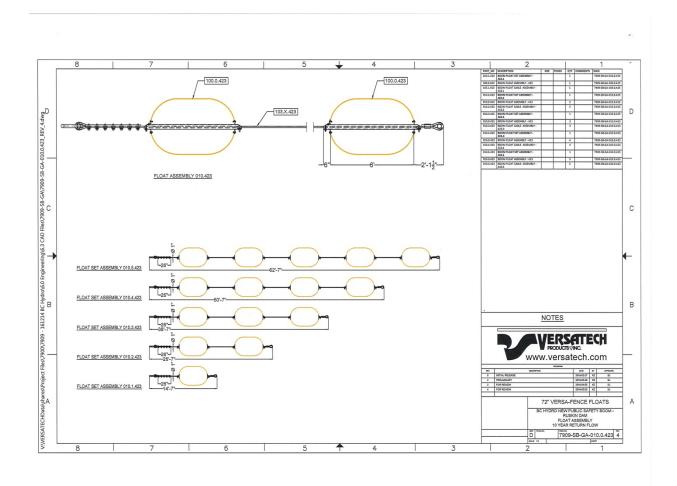


#### **Boom Design**



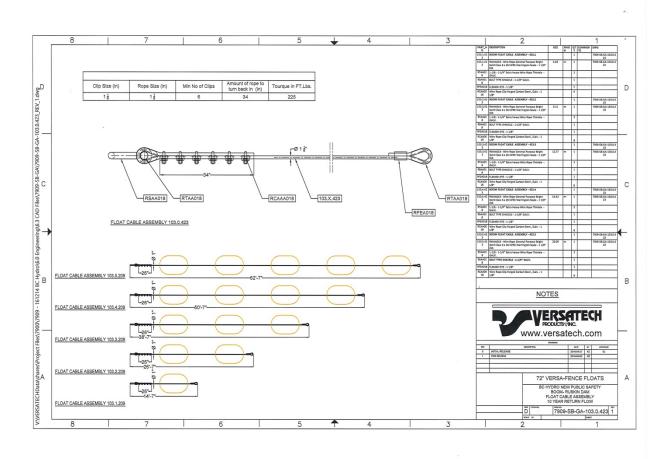
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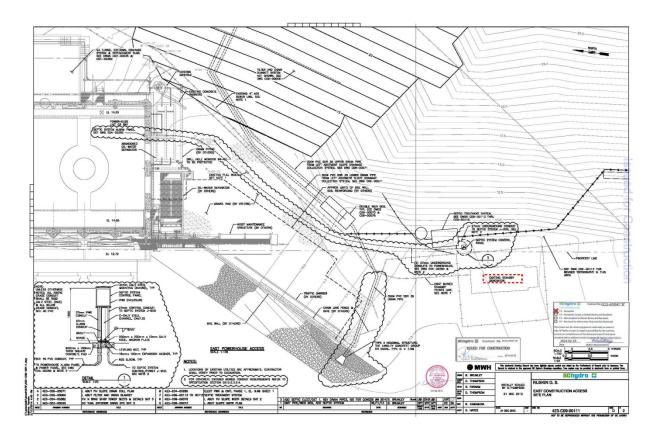




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#### **Industrial Area**



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