

A decorative graphic consisting of several overlapping, light gray arcs of varying radii, each with a small gray dot at its peak, set against a white background.

Decommissioning BC Hydro's Heber River Dam

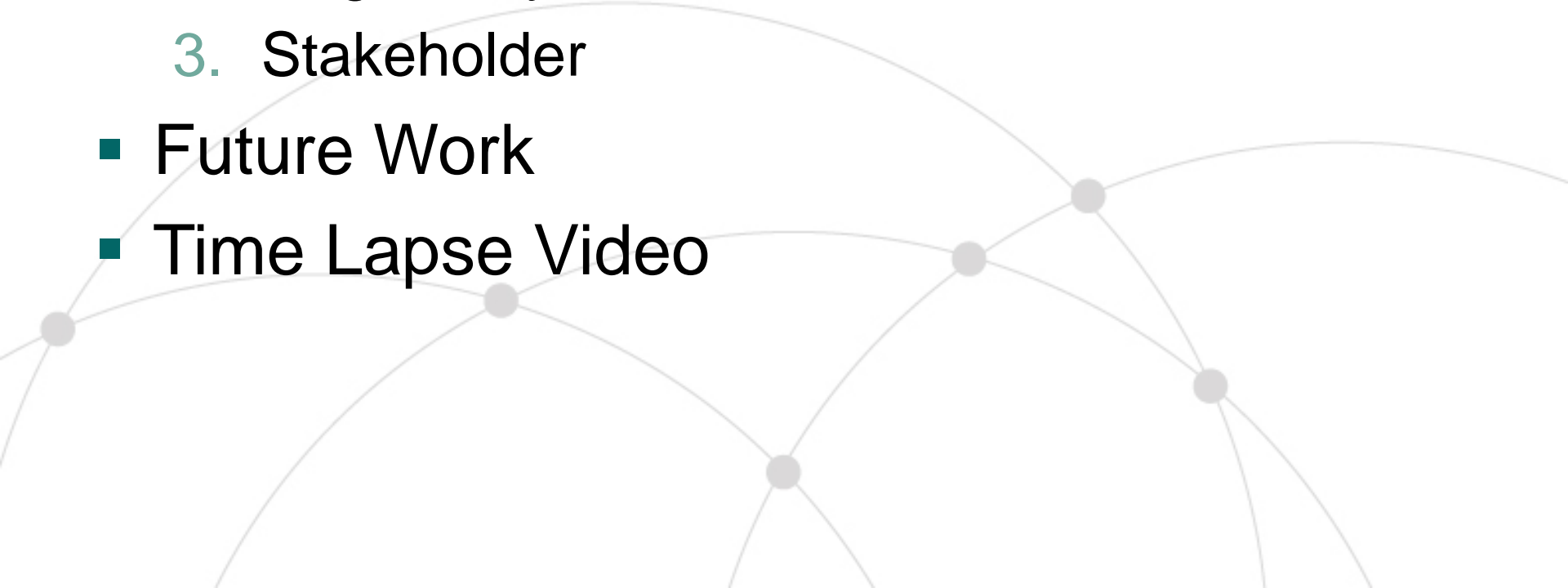
Challenges and Practical Solutions

Presented to: EMA of BC

Presented by: Jeff Schmidt

February 21, 2013

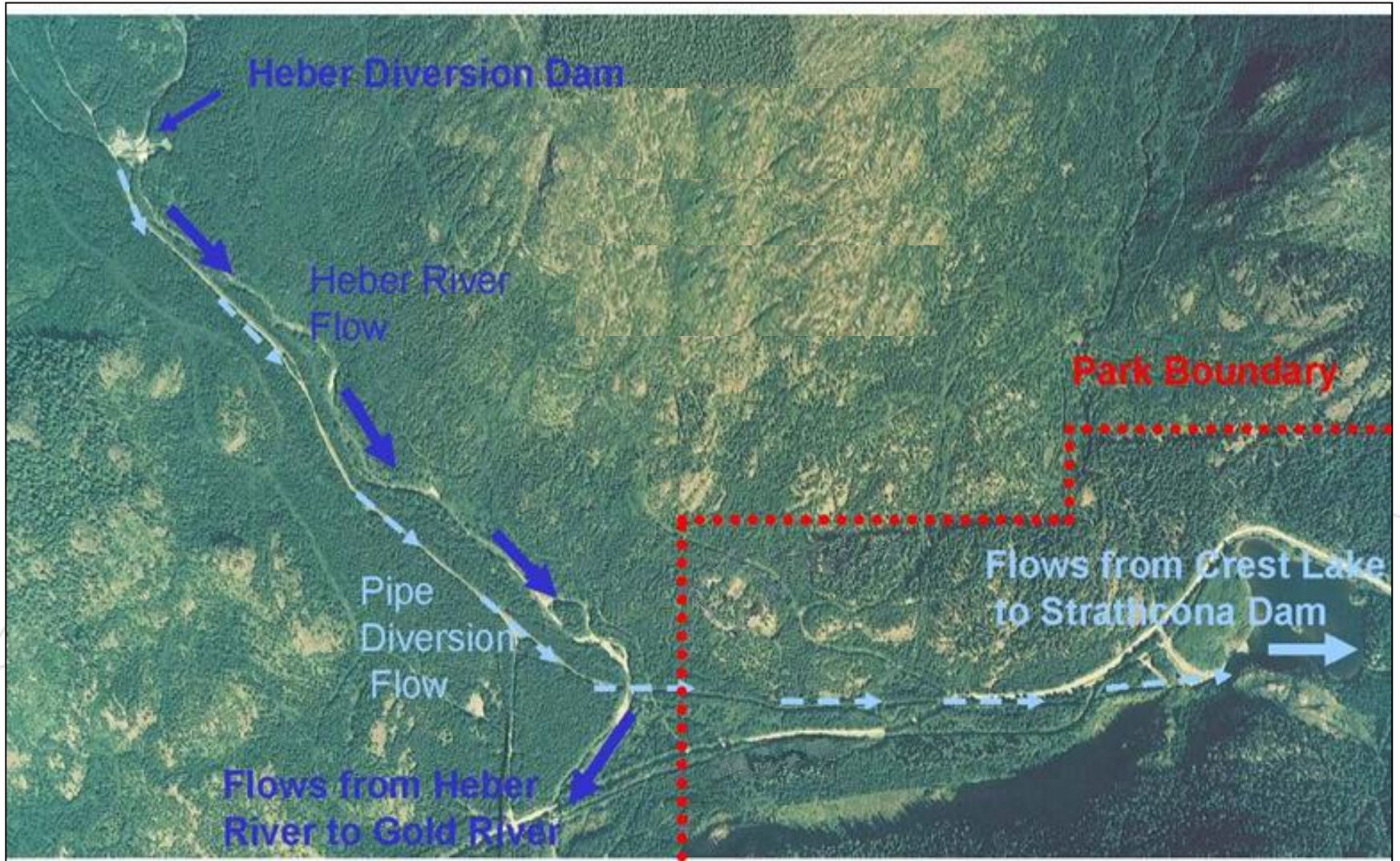
Outline

- Project Background
 - Project Challenges and Solutions
 1. Technical
 2. Regulatory
 3. Stakeholder
 - Future Work
 - Time Lapse Video
- 
- A decorative graphic in the bottom right corner of the slide. It consists of several overlapping, light gray arcs that intersect at various points. At each intersection point, there is a small, solid gray circle. The arcs and circles create a sense of depth and movement, resembling a stylized globe or a network diagram.

Background



Background



Background - Dam



Background - Dam



Background - Dam



Background - Penstock



Background - Penstock




Background - Penstock



Project Objectives

- Remove 3 Instream Structures
 - Heber Diversion Dam
 - Heber River Penstock Crossing
 - Penstock Outlet Structure
- Remove Wood Stave Diversion Penstock
- Safely Dispose Contaminated Materials (soils, creosote treated wood from the dam and penstock)
 - Remediate contamination for intended land use – Wildlands
 - Obtain a standards-based Certificate of Compliance, using the CSAP process
- Site and Channel Restoration
- Return land to Stakeholders

1) Technical Challenges

A decorative graphic consisting of several overlapping, light gray arcs of varying radii. Small gray dots are placed at the intersections of these arcs, creating a network-like pattern. The arcs and dots are positioned below the main text, extending across the width of the slide.


Technical

Challenge	Solution
1. Location and Size of Site	<ul style="list-style-type: none">• Multiple staging locations on and offsite• Barging of Waste and Haz Waste
2. Confluence of Two Rivers	<ul style="list-style-type: none">• Engineered lined diversion channels
3. Wastewater	<ul style="list-style-type: none">• BC MoE discharge approval• On site water treatment
4. Environmentally Sensitive Area	<ul style="list-style-type: none">• Daily environmental monitoring• Multiple fish salvages

Technical





Technical

Challenge	Solution
1. Location and Size of Site	<ul style="list-style-type: none">• Multiple staging locations on and offsite• Barging of Waste and Haz Waste 
2. Confluence of Two Rivers	<ul style="list-style-type: none">• Engineered lined diversion channels
3. Wastewater	<ul style="list-style-type: none">• BC MoE discharge approval• On site water treatment
4. Environmentally Sensitive Area	<ul style="list-style-type: none">• Daily environmental monitoring• Multiple fish salvages

Technical



Technical

Challenge	Solution
1. Location and Size of Site	<ul style="list-style-type: none">• Multiple staging locations on and offsite• Barging of Waste and Haz Waste 
2. Confluence of Two Rivers	<ul style="list-style-type: none">• Engineered lined diversion channels 
3. Wastewater	<ul style="list-style-type: none">• BC MoE discharge approval• On site water treatment
4. Environmentally Sensitive Area	<ul style="list-style-type: none">• Daily environmental monitoring• Multiple fish salvages





Technical



Technical



Technical

Challenge	Solution
1. Location and Size of Site	<ul style="list-style-type: none">• Multiple staging locations on and offsite• Barging of Waste and Haz Waste 
2. Confluence of Two Rivers	<ul style="list-style-type: none">• Engineered lined diversion channels 
3. Wastewater	<ul style="list-style-type: none">• BC MoE discharge approval• On site water treatment 
4. Environmentally Sensitive Area	<ul style="list-style-type: none">• Daily environmental monitoring• Multiple fish salvages 

Technical



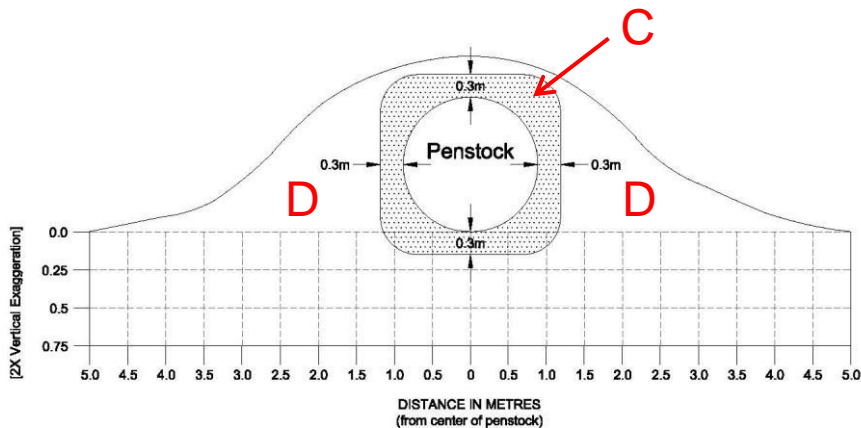
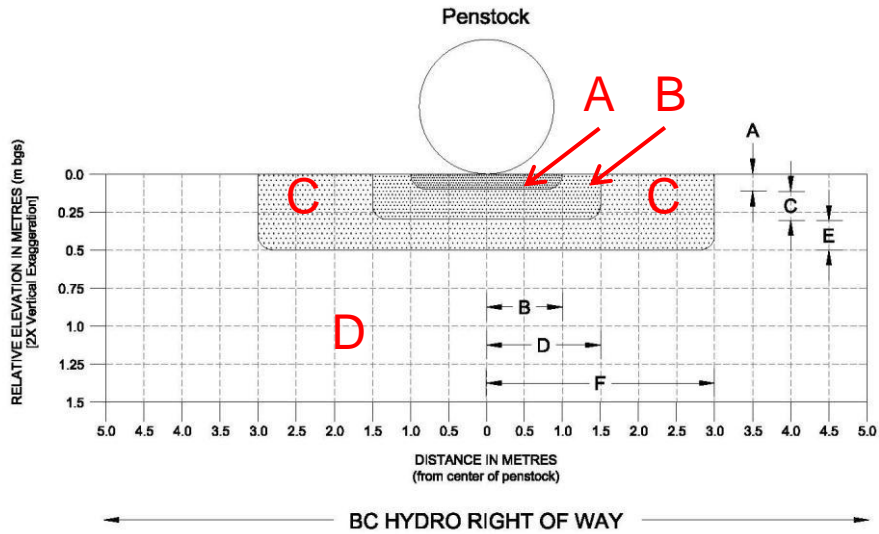
2) Regulatory Challenges

A decorative graphic consisting of several overlapping, light gray arcs of varying radii. Small gray dots are placed at the intersections of these arcs, creating a network-like pattern. The arcs and dots are positioned below the main text, extending across the width of the slide.

Regulatory


Challenge	Solution
1. Confirmatory sampling according to TG #1	<ul style="list-style-type: none">Proposed alternative sampling protocol that combined lab and field screening samples
2. Elevated Copper Concentrations in Site Soils	<ul style="list-style-type: none">Using statistics and desktop study, background release for Copper
3. High Risk Site	<ul style="list-style-type: none">Extension by MoE from 90 days to 150 days to complete remediation
4. Short Fisheries Window (July 15 th to August 30 th)	<ul style="list-style-type: none">Demonstrated to DFO that mitigation measure were to be taken to reduce impact during remediationNew window June 15th to Sept 21st

Regulatory





- Typical Contamination for Removal
- A = Hazardous Waste
- B = Waste Soils
- C = Industrial Waste
- D = Wildland Standards





Regulatory

Challenge	Solution
1. Confirmatory sampling according to TG #1	<ul style="list-style-type: none">Proposed alternative sampling protocol that combined lab and field screening samples 
2. Elevated Copper Concentrations in Site Soils	<ul style="list-style-type: none">Using statistics and desktop study, background release for Copper
3. High Risk Site	<ul style="list-style-type: none">Extension by MoE from 90 days to 150 days to complete remediation
4. Short Fisheries Window (July 15 th to August 30 th)	<ul style="list-style-type: none">Demonstrated to MFLNRO that mitigation measure were to be taken to reduce impact during remediationNew window June 15th to Sept 21st

Regulatory

Challenge	Solution
1. Confirmatory sampling according to TG #1	<ul style="list-style-type: none">Proposed alternative sampling protocol that combined lab and field screening samples 
2. Elevated Copper Concentrations in Site Soils	<ul style="list-style-type: none">Using statistics and desktop study, background release for Copper 
3. High Risk Site	<ul style="list-style-type: none">Extension by MoE from 90 days to 150 days to complete remediation
4. Short Fisheries Window (July 15 th to August 30 th)	<ul style="list-style-type: none">Demonstrated to DFO that mitigation measure were to be taken to reduce impact during remediationNew window June 15th to Sept 21st

Regulatory

Challenge	Solution
1. Confirmatory sampling according to TG #1	<ul style="list-style-type: none">Proposed alternative sampling protocol that combined lab and field screening samples 
2. Elevated Copper Concentrations in Site Soils	<ul style="list-style-type: none">Using statistics and desktop study, background release for Copper 
3. High Risk Site	<ul style="list-style-type: none">Extension by MoE from 90 days to 150 days to complete remediation 
4. Short Fisheries Window (July 15 th to August 30 th)	<ul style="list-style-type: none">Demonstrated to DFO that mitigation measure were to be taken to reduce impact during remediationNew window June 15th to Sept 21st 

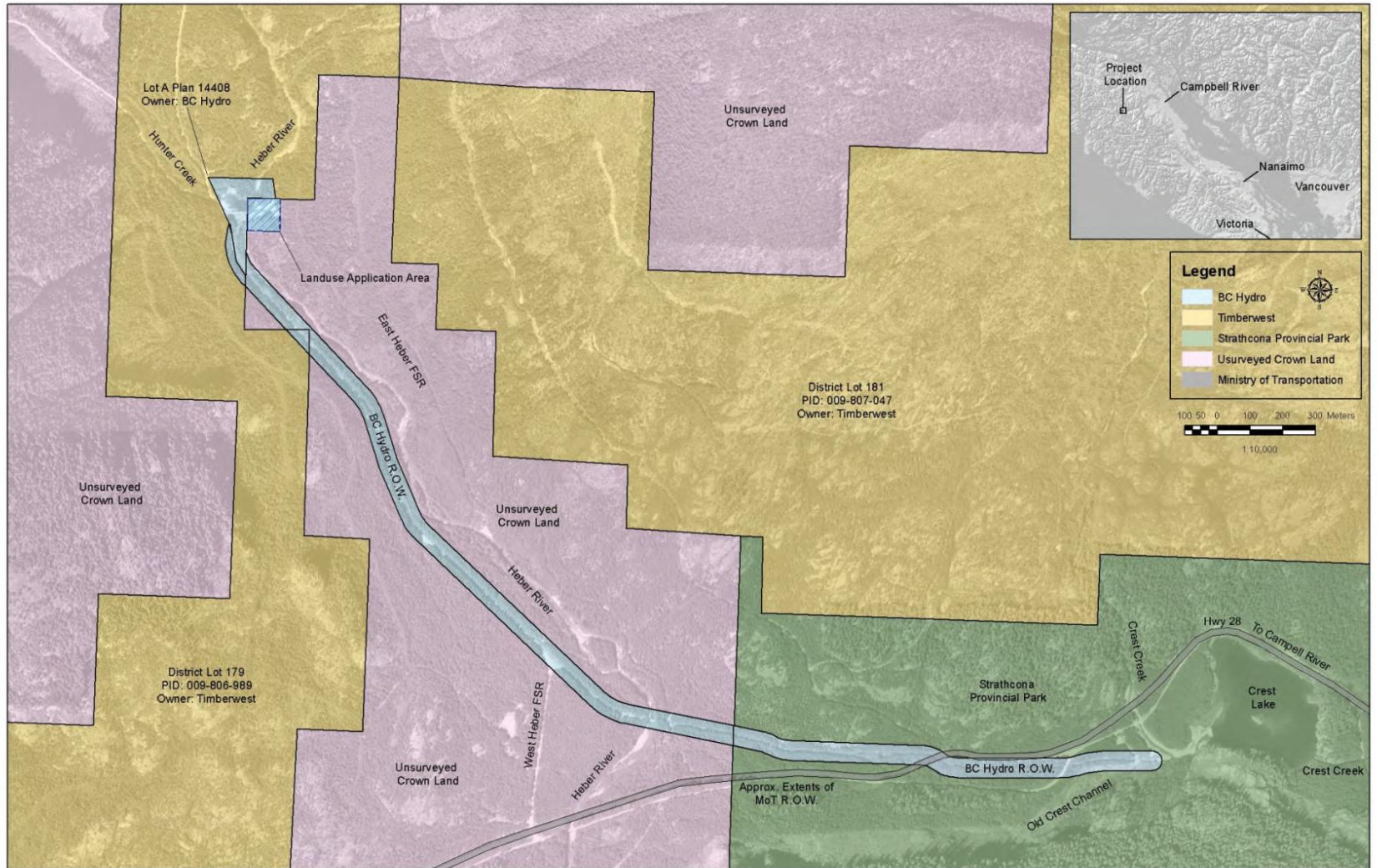
3) Stakeholder Challenges

A decorative graphic at the bottom of the slide consists of several overlapping, light gray arcs that create a series of interconnected, rounded shapes. Small gray dots are placed at the points where these arcs intersect, forming a network-like pattern.


Stakeholder

Challenge	Solution
1. Site crosses 5 different properties each with separate owners	<ul style="list-style-type: none">• 5 separate standards based certificates (some non-contiguous)
2. Multiple stakeholders – landowners, regulators, first nations, community	<ul style="list-style-type: none">• Meetings – pre and post remediation
3. Stakeholder turnover and transitions	<ul style="list-style-type: none">• Documentation and communication




Stakeholder



Stakeholder

Challenge	Solution
1. Site crosses 5 different properties each with separate owners	<ul style="list-style-type: none">• 5 separate standards based certificates (some non-contiguous) 
2. Multiple stakeholders – landowners, regulators, first nations, community	<ul style="list-style-type: none">• Meetings – pre and post remediation• Communication
3. Stakeholder turnover and transitions	<ul style="list-style-type: none">• Documentation and communication

Stakeholder

Challenge	Solution
1. Site crosses 5 different properties each with separate owners	<ul style="list-style-type: none">• 5 separate standards based certificates (some non-contiguous) 
2. Multiple stakeholders – landowners, regulators, first nations, community	<ul style="list-style-type: none">• Meetings – pre and post remediation• Communication 
3. Stakeholder turnover and transitions	<ul style="list-style-type: none">• Documentation and communication 

Future Work

- Certificate of Compliance Applications
- Planting of native vegetation and ongoing monitoring
- Returning the land to Stakeholders



BC hydro 

FOR GENERATIONS

Thanks



Jeff Schmidt, P.Eng.

jschmidt@hemmera.com

604-669-0424