

Bow River Reservoir Options (BRRO) Phase 2: Feasibility Study

*Meeting with Potentially Directly Affected Property Owners
for Glenbow East and Relocated Ghost Dam Options
Presented on 15 November 2022*

Classification: Public

Ghost Reservoir, looking upstream



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Traditional Lands Acknowledgement

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Glenbow Ranch Provincial Park, looking upstream



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Welcome & Introductions

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Bearspaw Reservoir, looking upstream from near Bearspaw Dam



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Invited to This Meeting

1. Own land that could be impacted by reservoir inundation and/or dam construction:
 - a) Residence (house/cabin)
 - b) Could be intended for development and the whole parcel would be flooded
 - c) Industrial or agricultural infrastructure

2. Representatives of communities that have directly experienced existing reservoir operational effects.

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Morley Option

- Discussions between EPA and Stoney Nakoda First Nations are progressing
- Out of respect for those progressing discussions, this meeting will only speak to Relocated Ghost Dam and Glenbow East options

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Meeting Objectives

- Open the lines of communication with potentially directly affected property owners
- Provide an opportunity for information sharing between potentially directly affected property owners and Alberta Environment and Public Works
- Gain a more in-depth understanding of potentially directly affected property owner concerns
- Discuss potential impacts, challenges and benefits related to the BRRO initiative

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Agenda

- Opening Remarks / Introductions
- Hopes & Concerns
- Project Update
- Dam & Reservoir Operations
- Impacts, Challenges & Benefits
- Wrap-up, Next Steps & Closing Remarks

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Discussion Guidelines

- Respect is the key – be respectful to other participants & staff
- Each person gets a chance to talk
- Speak for yourself – let others speak for themselves
- All points of view are welcome and lively discussion is encouraged
- Respect all opinions – even if you disagree
- The sessions will not be recorded – by staff or participants – so that everyone can speak freely

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Table Introductions

- Name
- Where you live
- What do you enjoy about fall in your area?

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Hopes & Concerns

- What is your greatest hope for the BRRO initiative?
- What is your greatest concern for the BRRO initiative?

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Bow River Reservoir Options (BRRO) Initiative



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Bears paw Reservoir, looking upstream



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**The June 2013
Flood was the
costliest natural
disaster in
Canada's history
to that time**



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Bow River Water Management

Bow River Basin Risks

- Flood
- Drought
- Climate Change Uncertainty

A strategically located **dam and reservoir could store water** during periods of excess flow/floods (spring freshet), thereby **providing flood protection**, and this stored water could be used to **mitigate drought risk and improve river flow management**.

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Integrated Flood Mitigation Approach

- In partnership with municipalities, the Government of Alberta is pursuing an integrated flood mitigation strategy, that relies on:
 - complementary provincial-level (i.e., reservoirs, operating agreements); and
 - municipal-level (i.e., berms, by-laws, building codes) mitigation approaches

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Bow River Reservoir Options (BRRO) Initiative Objectives

- 1) determine if it is in the interest of the province of Alberta to develop a new dam and reservoir project on the Bow River, located upstream of Calgary, for the purpose of flood and drought mitigation; and if so,
- 2) proceed with selection and development of a preferred site.

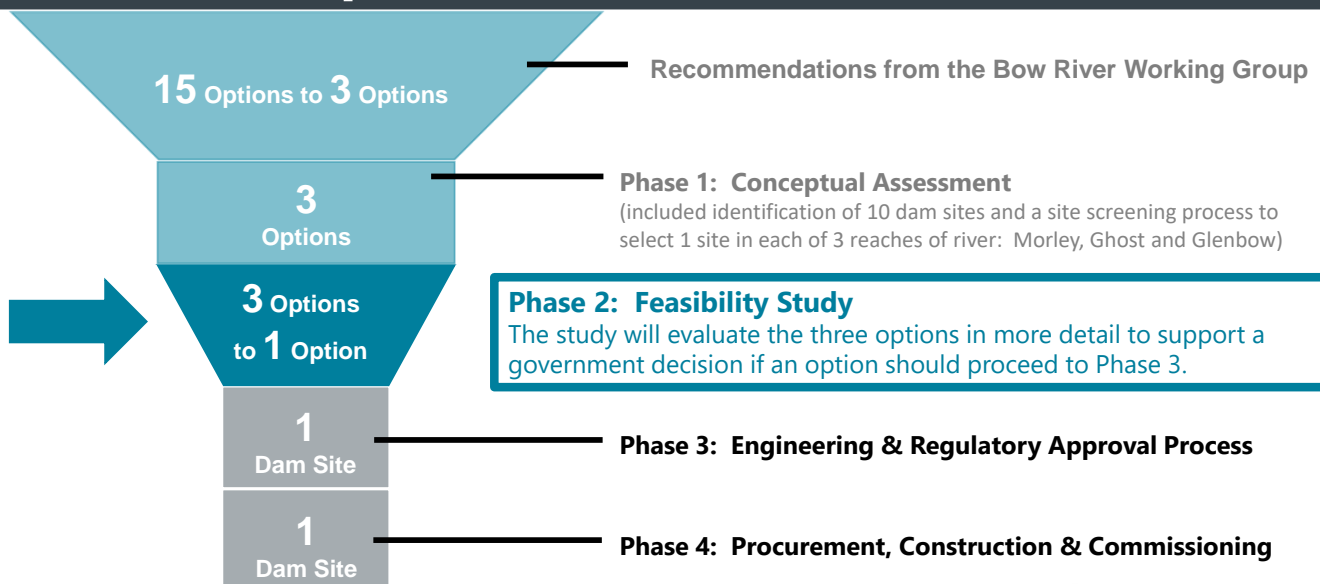
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Option Assessment Process



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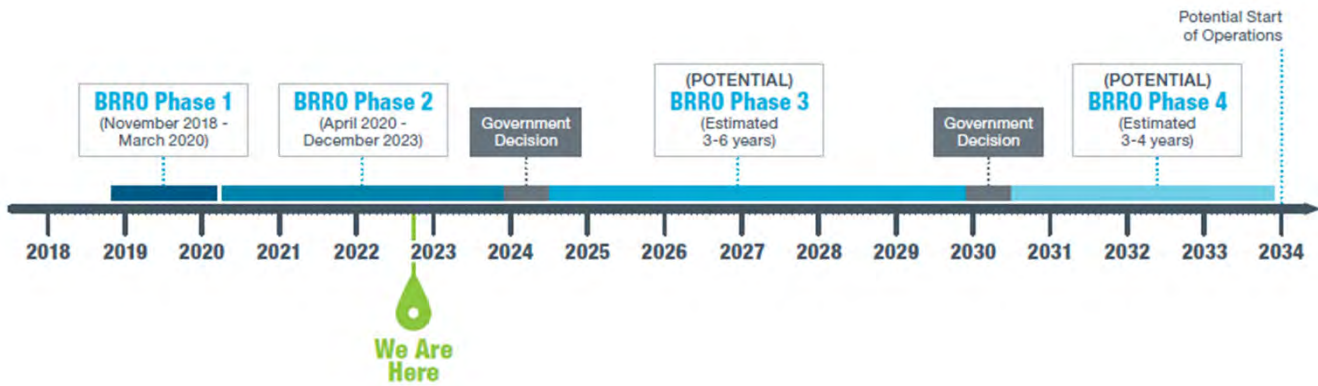
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Findings of each project phase will be reviewed and evaluated to determine next steps, if any.



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BRRO Initiative Timeline



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BRRO Phase 2 Feasibility Study Objectives

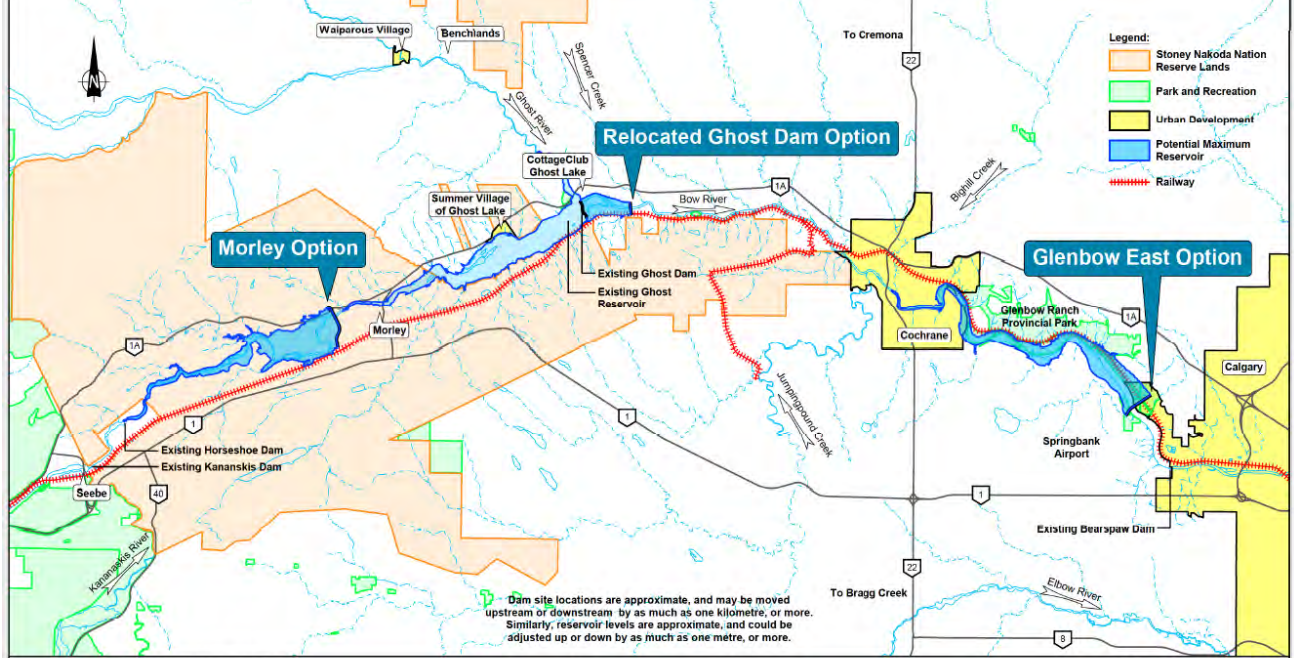
- 1) Confirm technical viability of the three previously identified options:
 - **Morley** option — *discussions between EPA and Stoney Nakoda Nations are progressing*
 - **Relocated Ghost Dam** option
 - **Glenbow East** option
- 2) Evaluate the options to support a government decision if one of the options should proceed to Phase 3, the Engineering & Regulatory Approval Process

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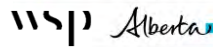
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BOW RIVER RESERVOIR OPTIONS
APRIL 2020

Image from Phase 1
Conceptual Assessment



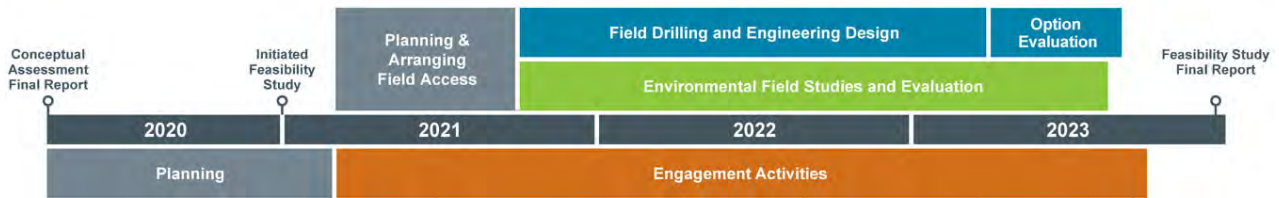
MAP ILLUSTRATING
RESERVOIR OPTIONS

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BRRO Phase 2 Feasibility Study Schedule



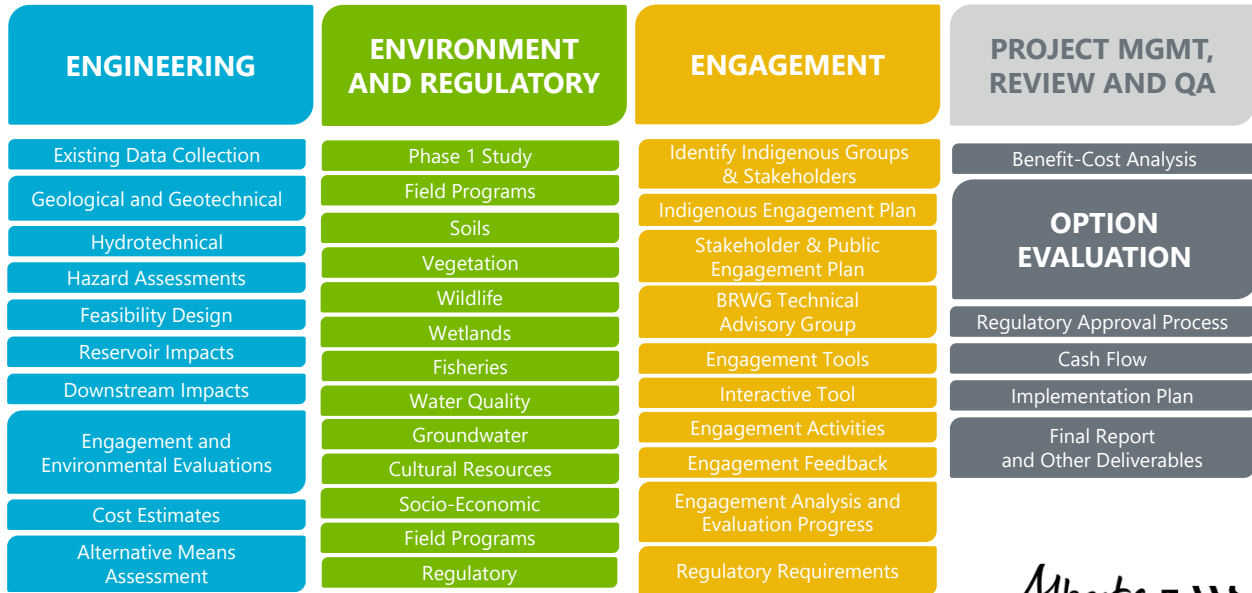
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BRRO Phase 2 Feasibility Study Scope of Work



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Phase 2 Fieldwork Progress

- **Thank You** ... many of you attending today allowed us on your property over the past year so that we could complete engineering and/or environmental fieldwork to support the feasibility study.

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Phase 2 Fieldwork Progress (cont'd)

Engineering fieldwork completed to date:

Component	Glenbow East Option	Relocated Ghost Dam Option
Geological Field Mapping	✓	✓
Geophysical Surveys	✓	✓
Geotechnical Drilling	✓	✓
Bathymetric survey of existing Ghost Reservoir	N/A	✓

Information collected will be documented in data reports and used to inform feasibility level engineering design.

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Phase 2 Fieldwork Progress (cont'd)

Environmental fieldwork completed to date:

Component	Glenbow East Option	Relocated Ghost Dam Option
Winter wildlife tracking	✓	✓
Amphibian surveys	✓	✓
Songbird surveys	✓	✓
Vegetation & wetlands surveys	✓	✓
Historical resources (landform verification on Crown land only)	✓	✓
Phase 1 Environmental Site Assessments	✓	✓

Information collected will be used to complete feasibility level environmental evaluations.

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Table Discussion & Question Period

- After hearing this update, what questions come to mind?
 - Discuss at your table
 - Submit questions

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Dam and Reservoir Operations

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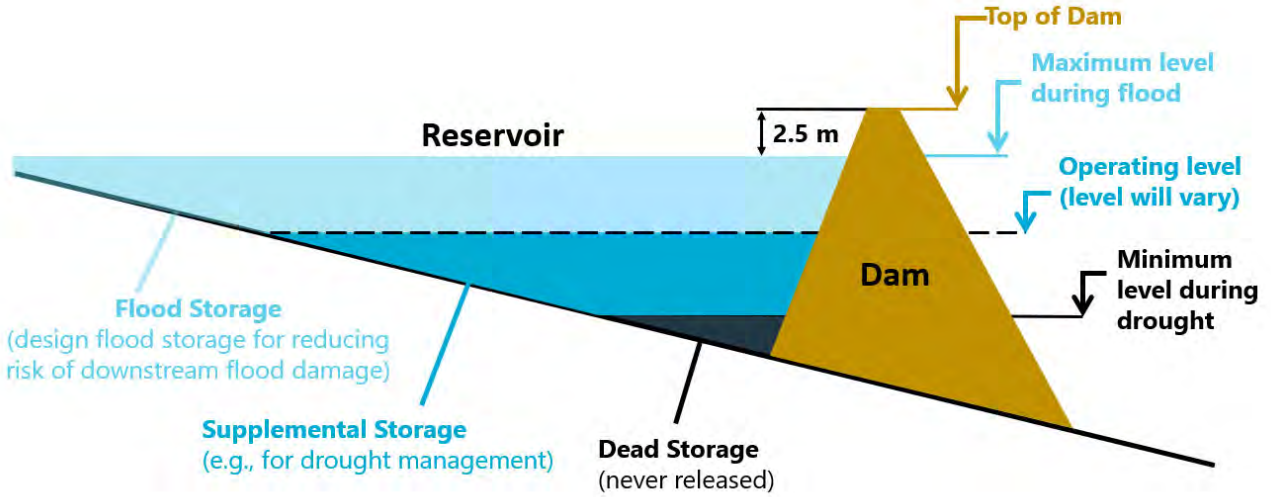
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Ghost Reservoir, looking upstream

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Reservoir Storage Schematic



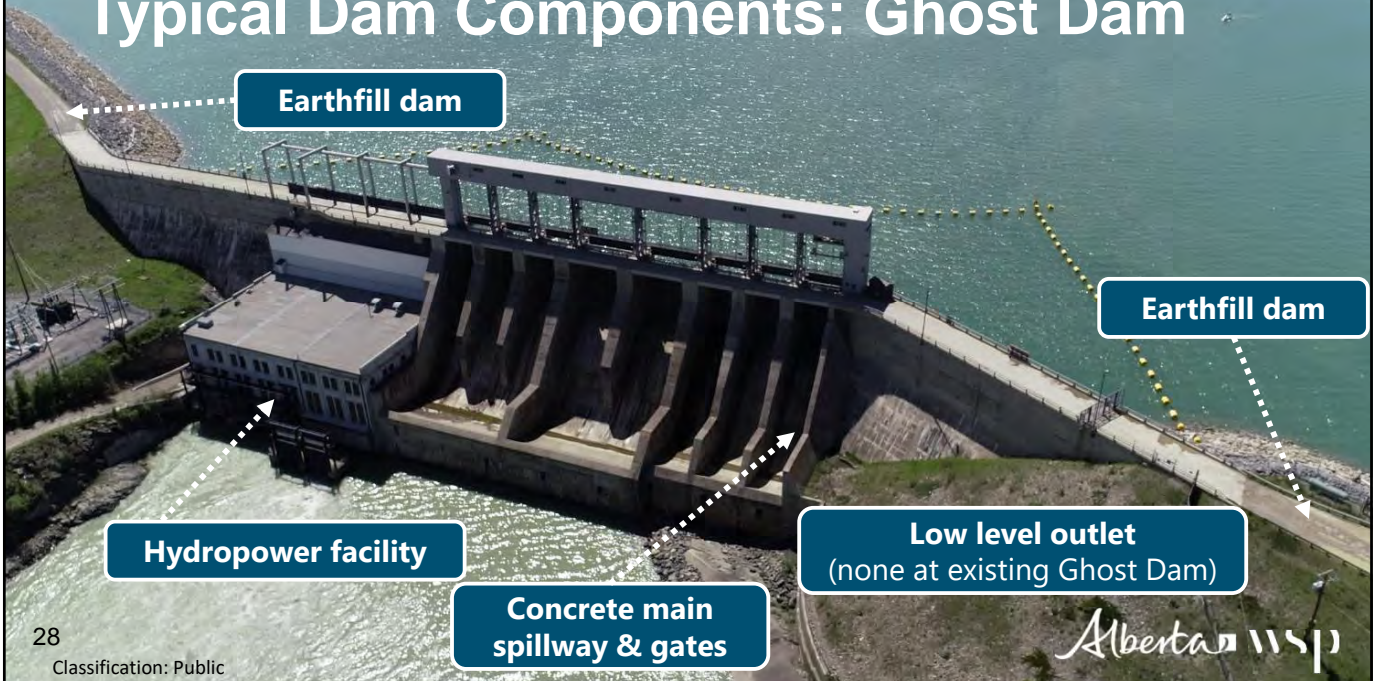
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Typical Dam Components: Ghost Dam

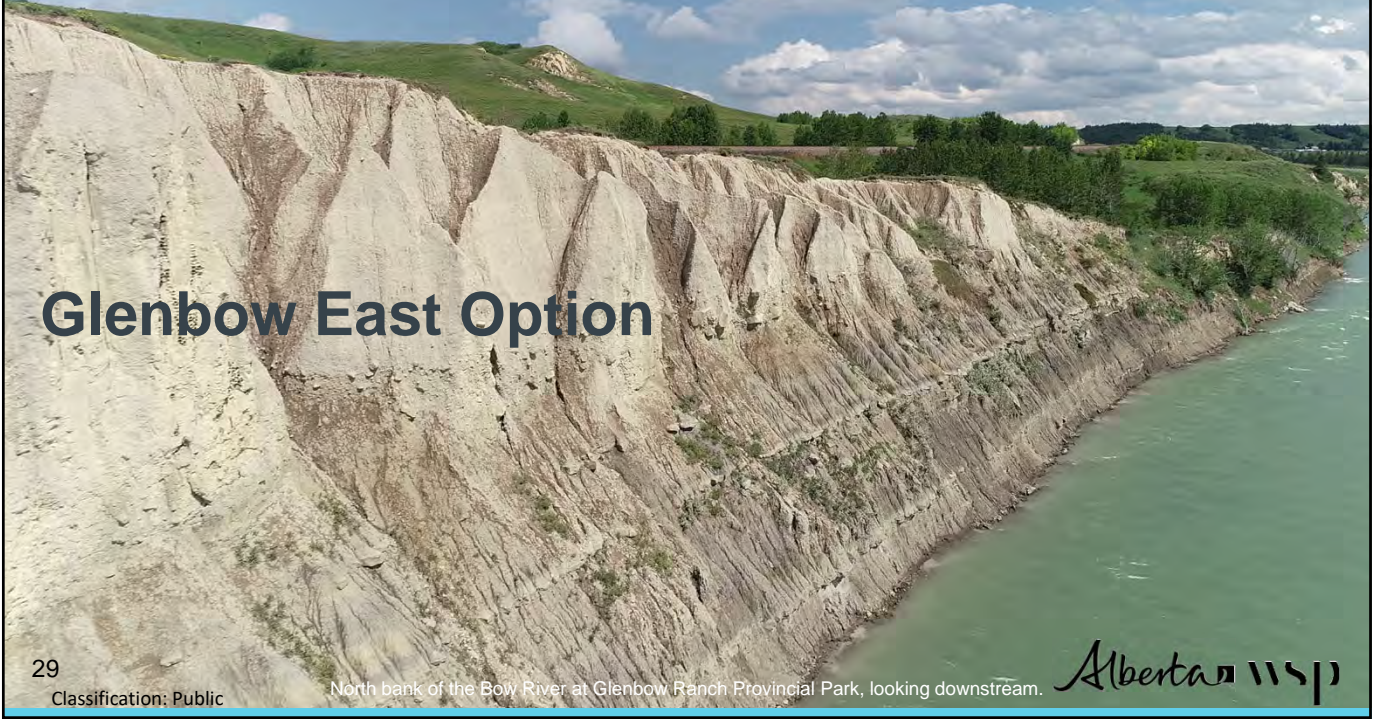


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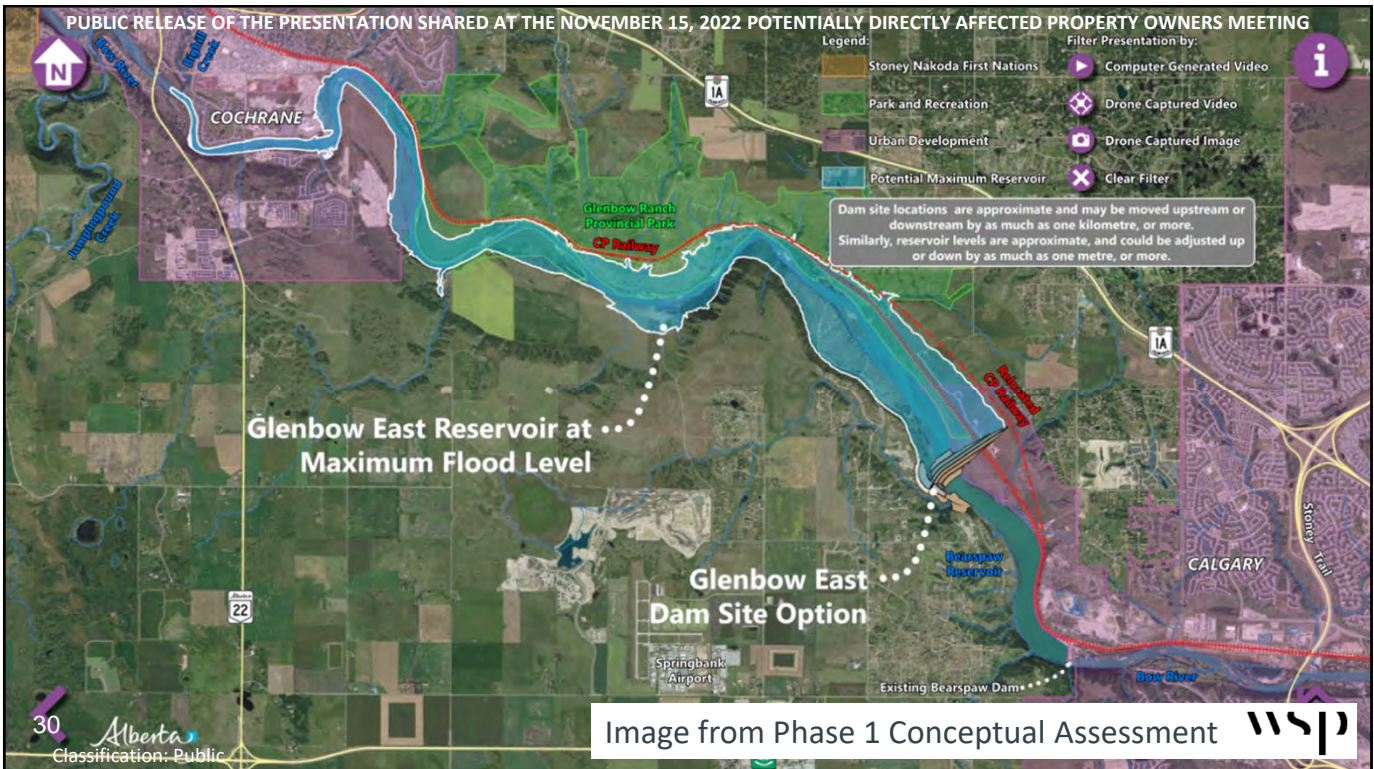
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North bank of the Bow River at Glenbow Ranch Provincial Park, looking downstream.



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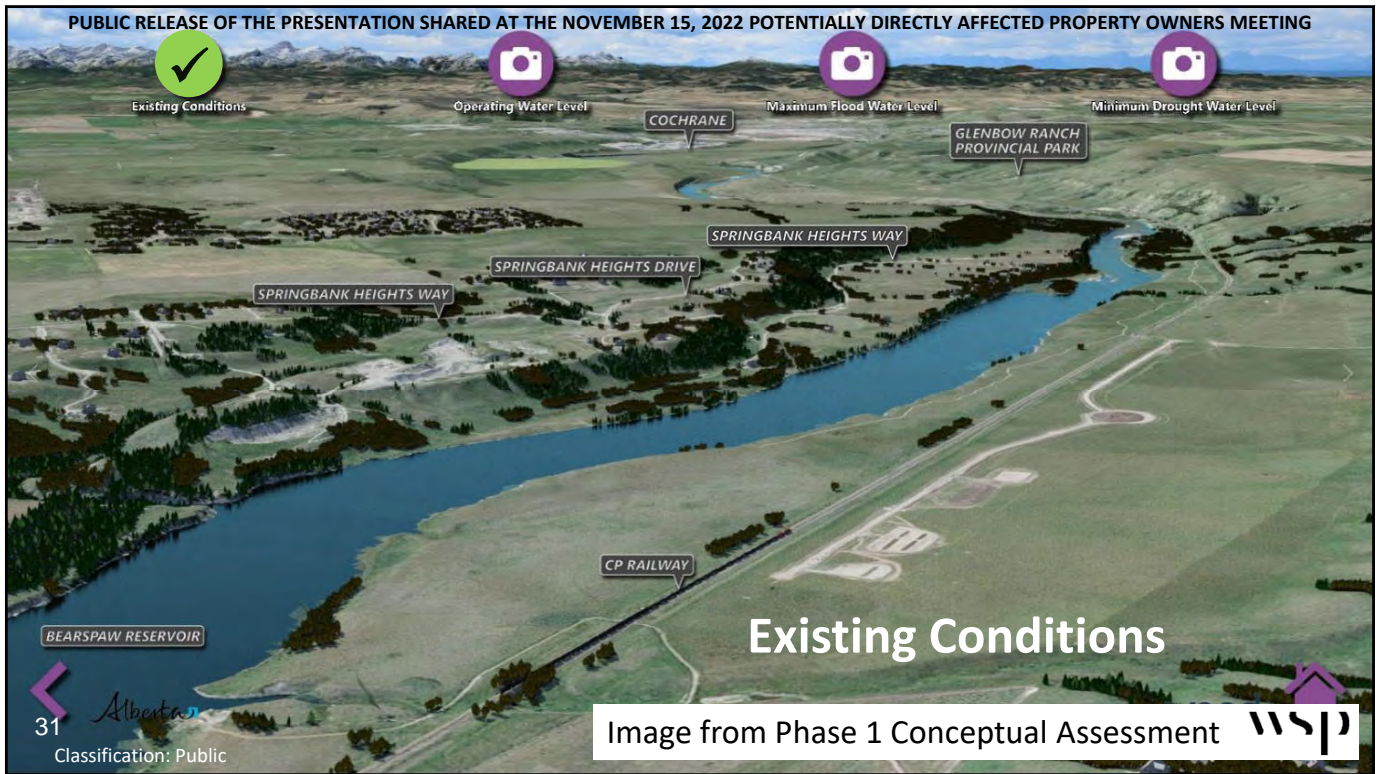
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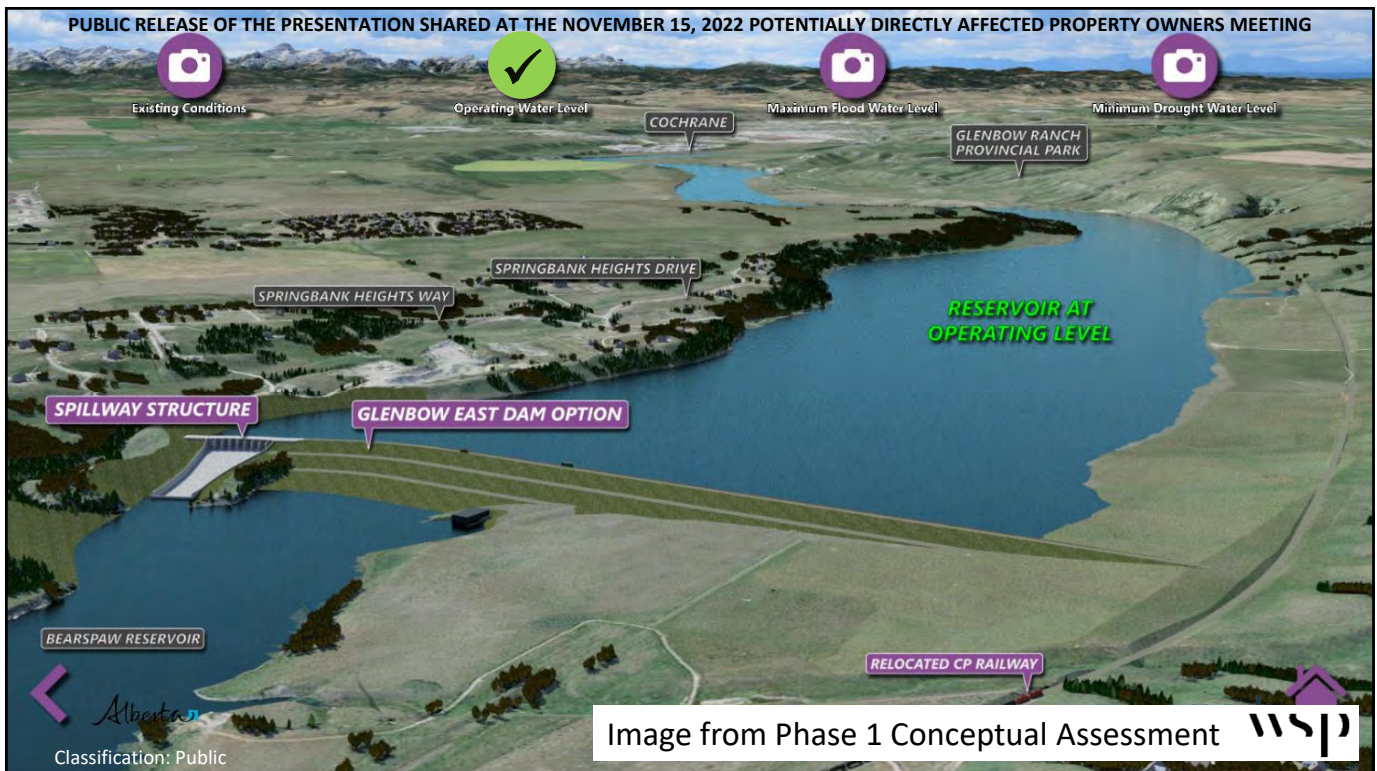
Image from Phase 1 Conceptual Assessment



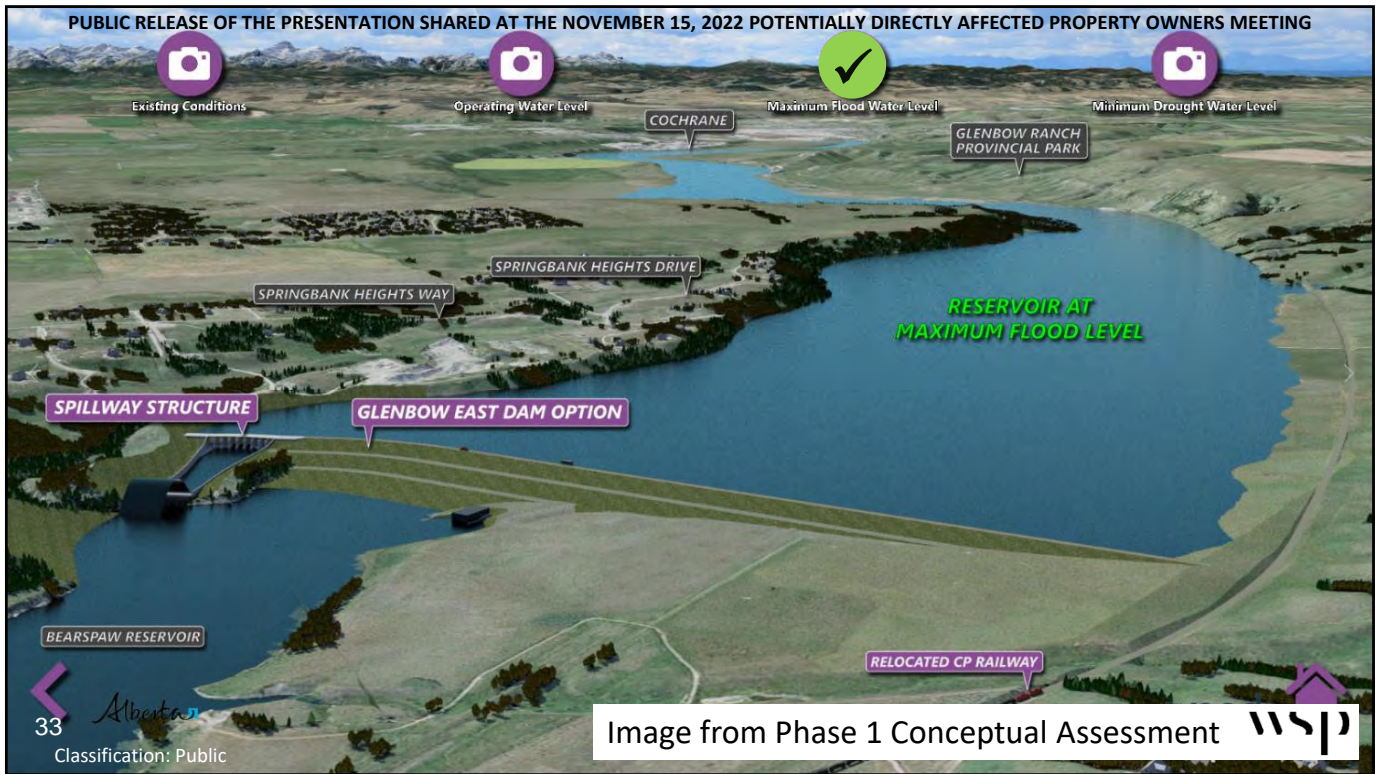
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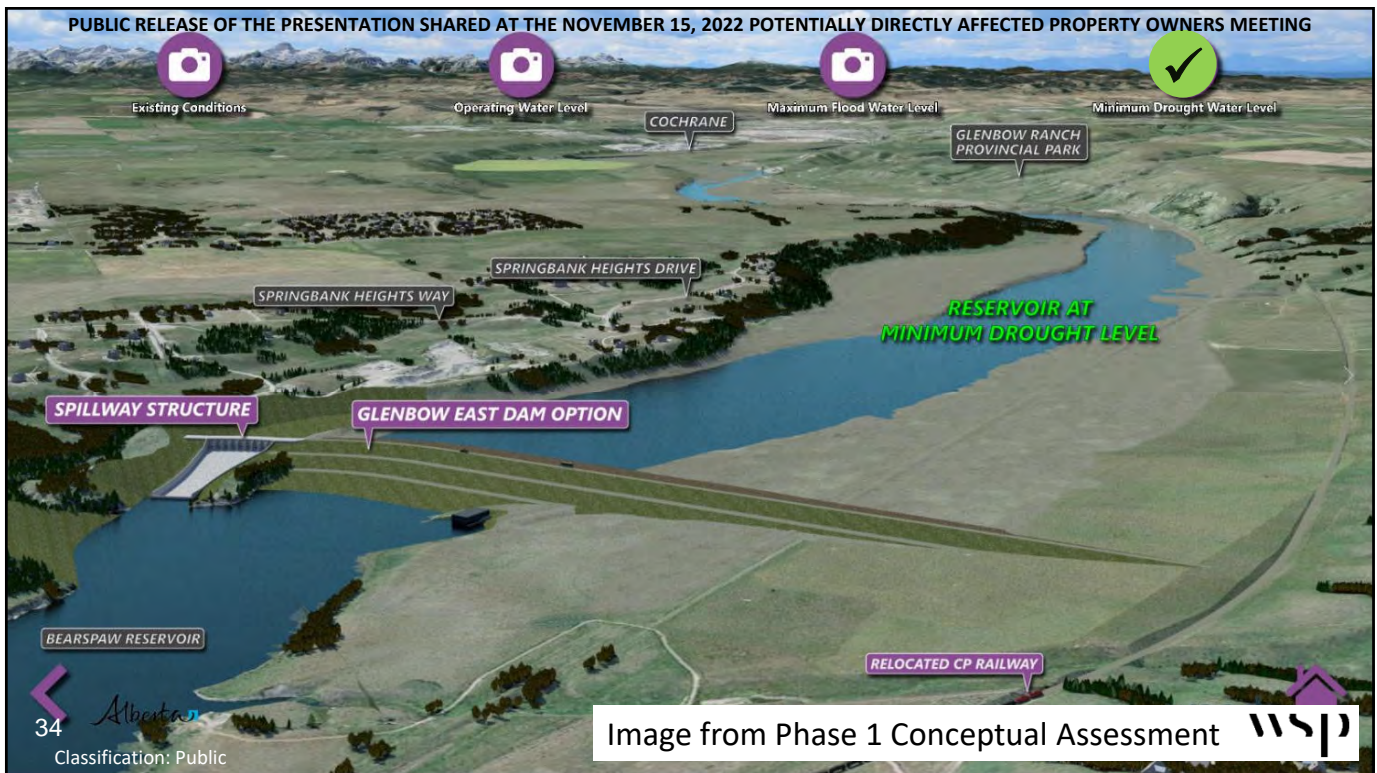
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Relocated Ghost Dam Option

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Bow River downstream of Ghost Dam, looking downstream



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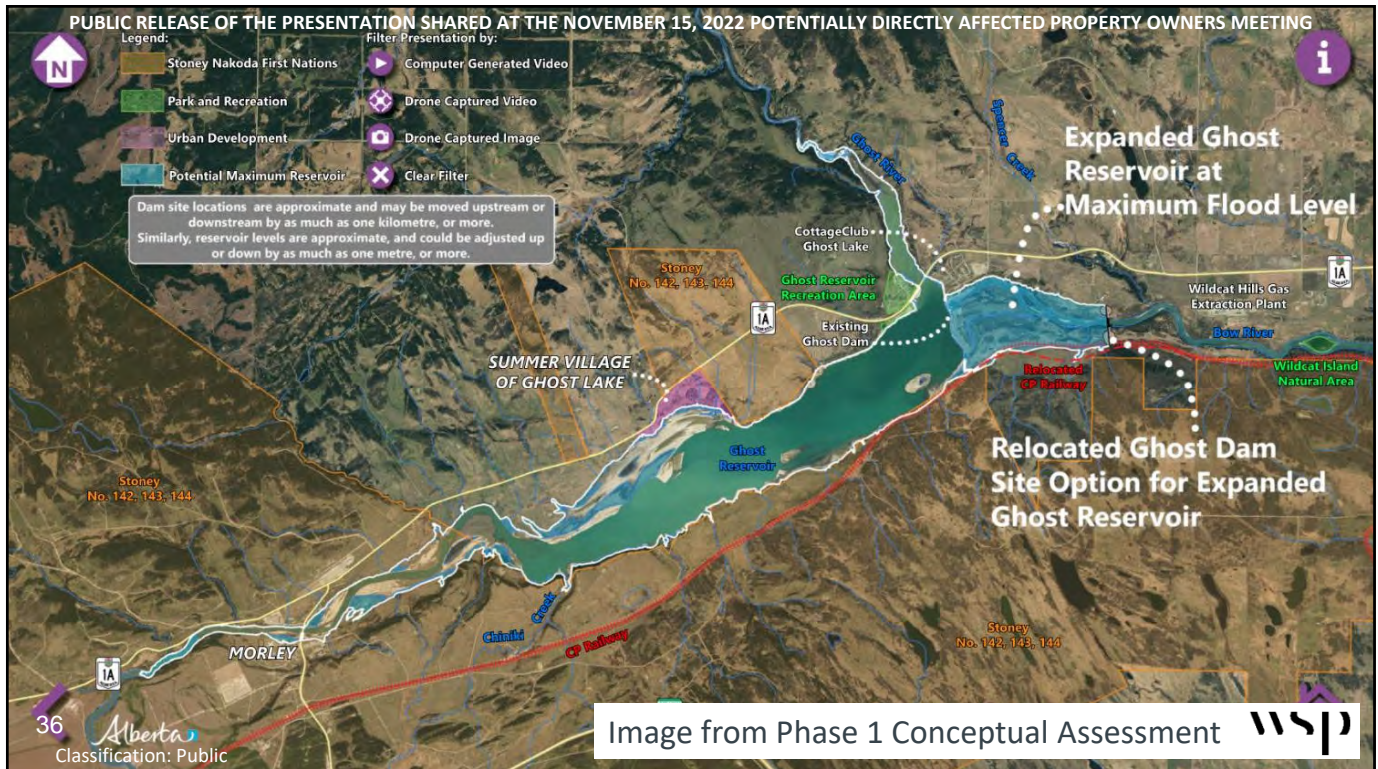
Legend:

- Stoney Nakoda First Nations
- Park and Recreation
- Urban Development
- Potential Maximum Reservoir

Filter Presentation by:

- Computer Generated Video
- Drone Captured Video
- Drone Captured Image
- Clear Filter

Dam site locations are approximate and may be moved upstream or downstream by as much as one kilometre, or more. Similarly, reservoir levels are approximate, and could be adjusted up or down by as much as one metre, or more.



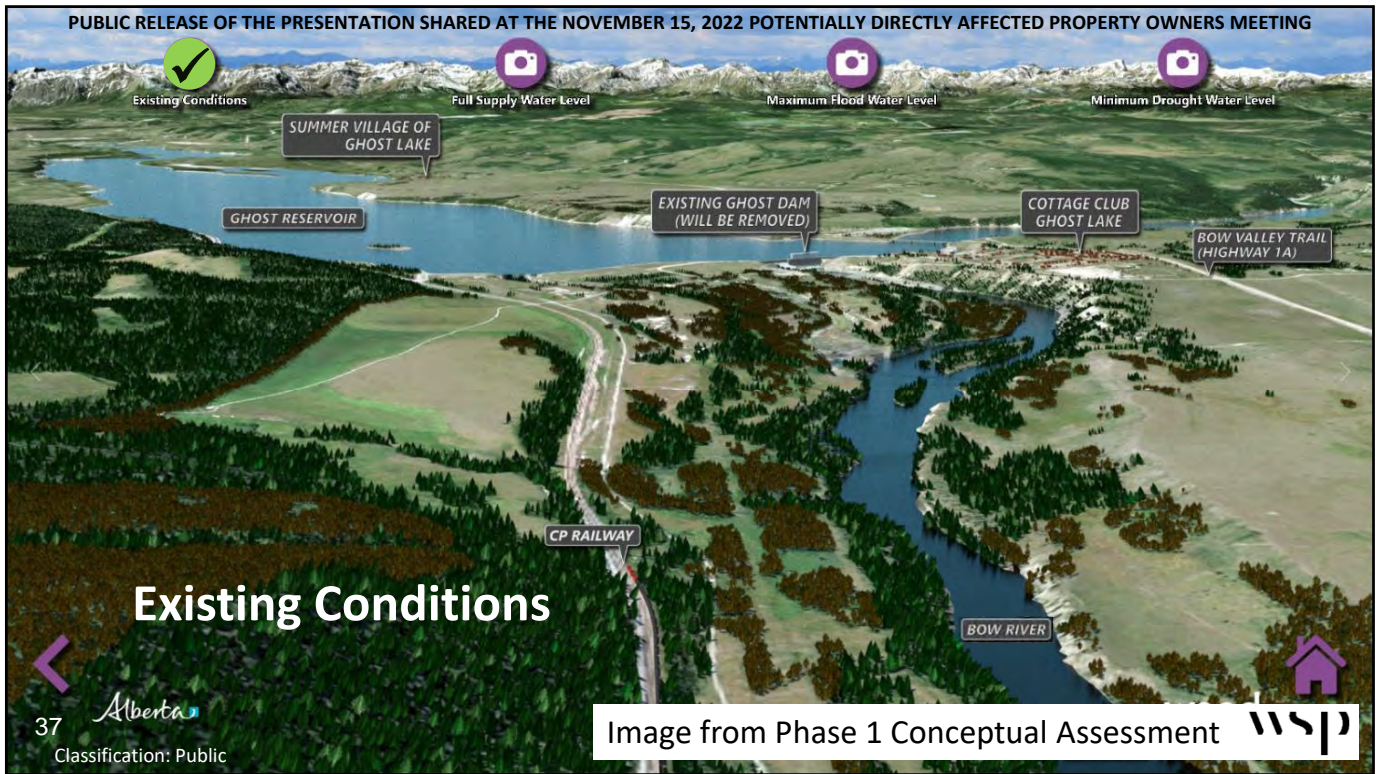
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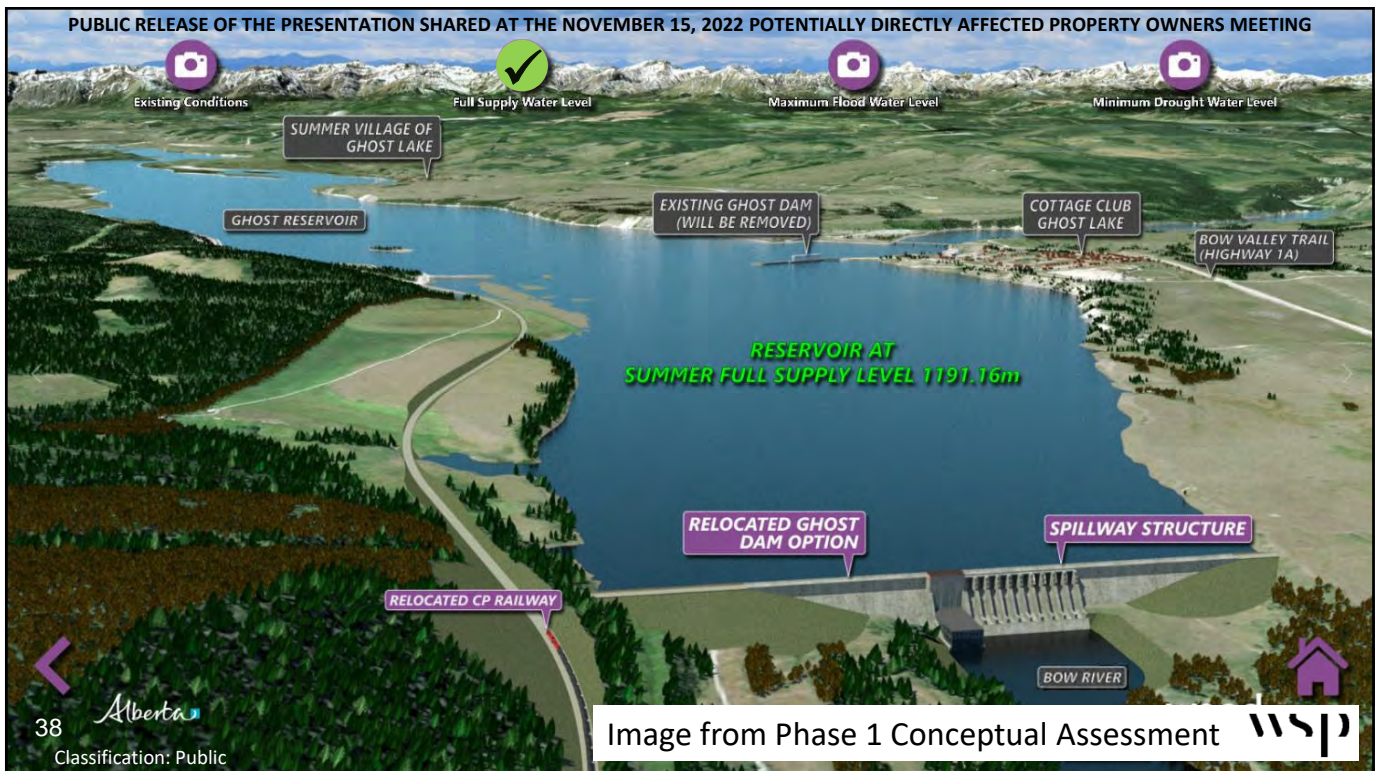
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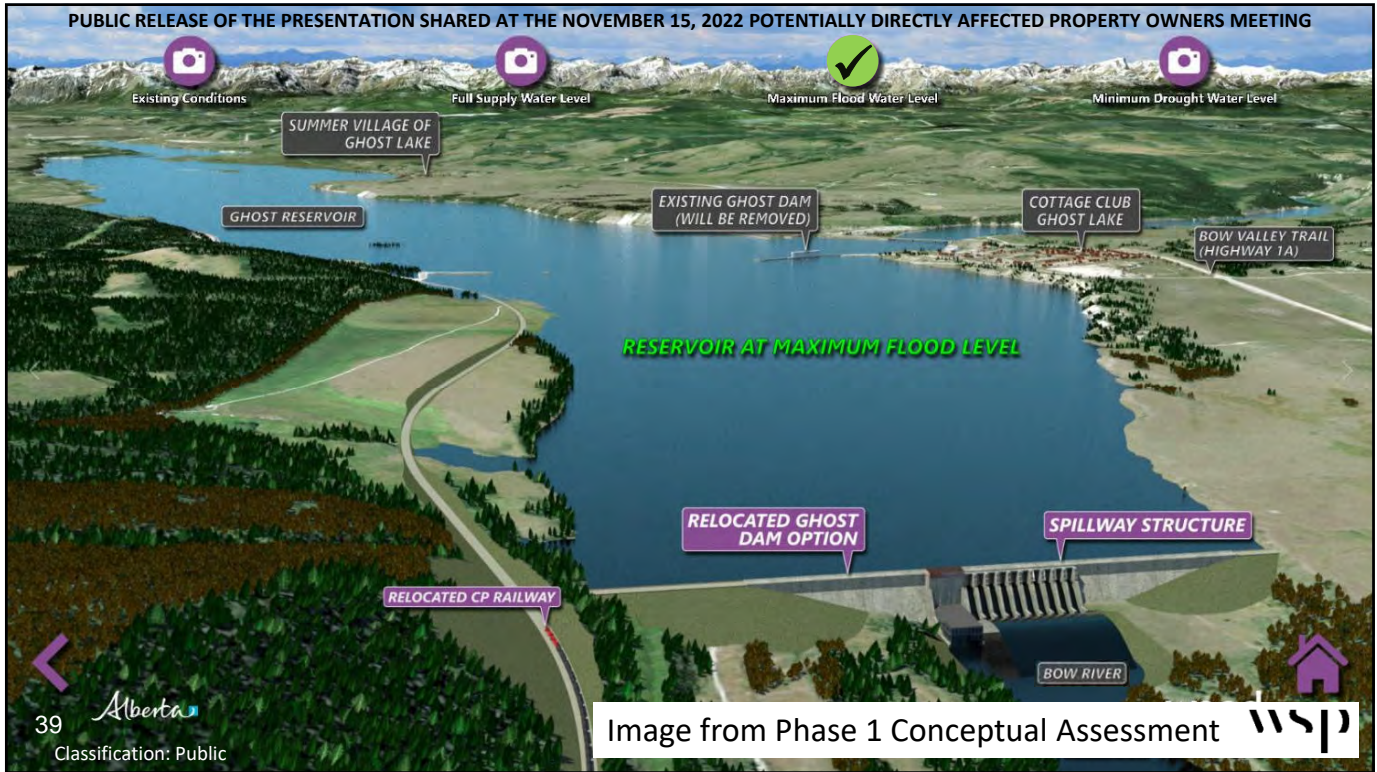
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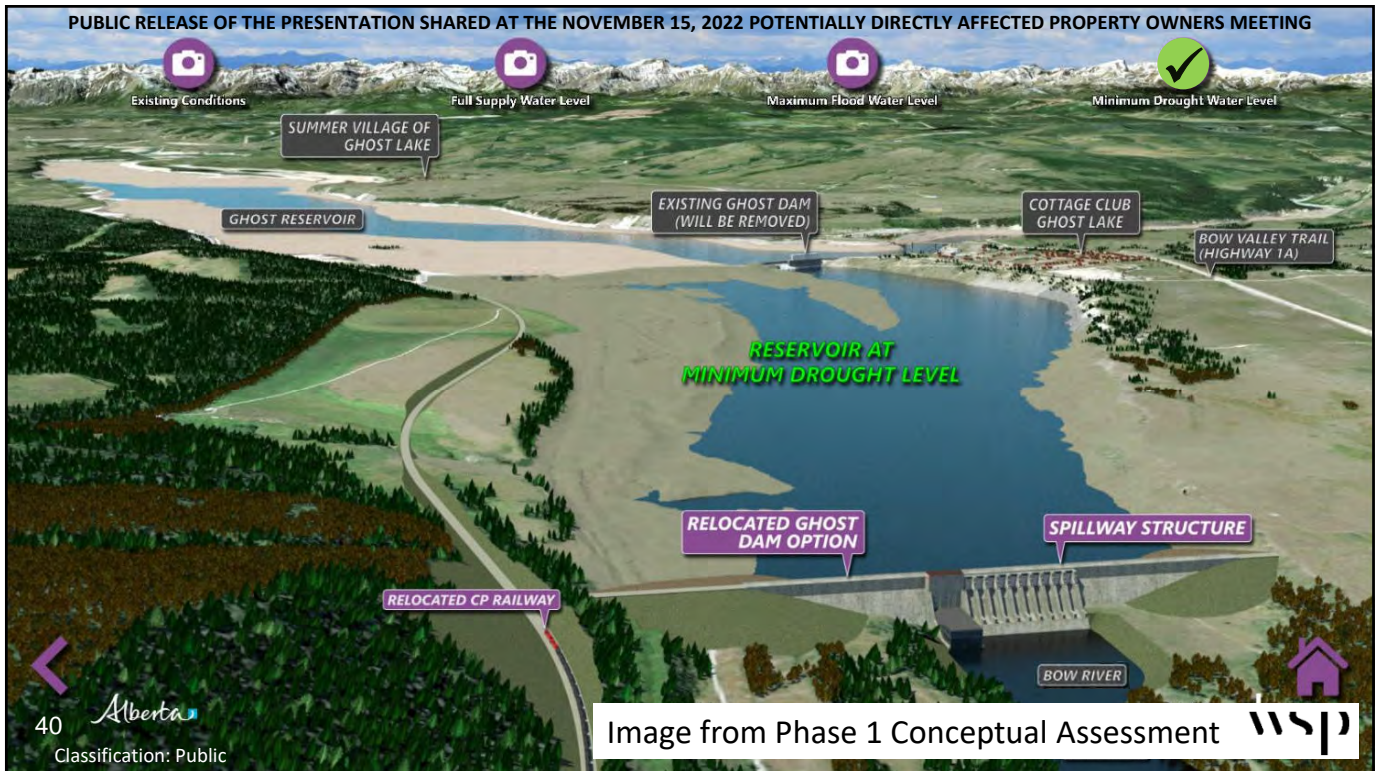
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Table Discussion & Question Period

- What questions do you still have about dam and reservoir operations?
 - Discuss at your table
 - Submit questions

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Impacts, Challenges and Benefits

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Ghost River, looking southwest towards Ghost Reservoir

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Glenbow East Option – Key Impacts and Challenges

ENGINEERING

- Requires relocation of the CP railway
- Within footprint of existing Bearspaw Dam reservoir
- City of Calgary water intakes are located within Bearspaw Reservoir
- CP Rail slope stability

ENVIRONMENT

- Glenbow Ranch Provincial Park impacts
- Bearspaw Legacy Park impacts
- City of Calgary’s Haskayne Park impacts
- The Great Trail (formerly Trans Canada Trail) impacts

PEOPLE

- **Impacts homes in Springbank Heights community**
- **Future Cochrane developments will be constrained by reservoir size**

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Relocated Ghost Dam Option – Key Impacts and Challenges

ENGINEERING

- Requires relocation of the CP railway
- Requires decommissioning of existing Ghost Dam
- CottageClub Ghost Lake development slope stability assessment

ENVIRONMENT

- Respect the traditional lands of Stoney Nakoda Nations
 - Along south side
 - Upstream constraint
- Potential Ghost Reservoir Recreation Area impacts

PEOPLE

- **Impacts homes between existing and new dam site**
- **Potential impacts to two communities:**
 - **Summer Village of Ghost Lake; and**
 - **CottageClub Ghost Lake ... and to existing Ghost Reservoir recreational use**

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Potential Key Benefits

- Recap from earlier
 - Water management (flood & drought), and river flow
 - Climate change resilience
 - Future Bow River basin population growth resilience
 - Recreational opportunities

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Table Discussion & Question Period

- Given where we are in the feasibility study, what questions do you still have about impacts, challenges and benefits?
 - Discuss at your table
 - Submit questions

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Hopes and Concerns Re-visited



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West side of Bears paw Reservoir, just upstream of Bears paw Dam

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Staying Engaged



Initiative website (interactive tool, Phase 1 final report, etc.):

<https://www.alberta.ca/bow-river-reservoir-options.aspx>



Telephone: 310-3773 (toll free)



E-mail: aep.bowbasin@gov.ab.ca



Sign up for the eNewsletter on the initiative website

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