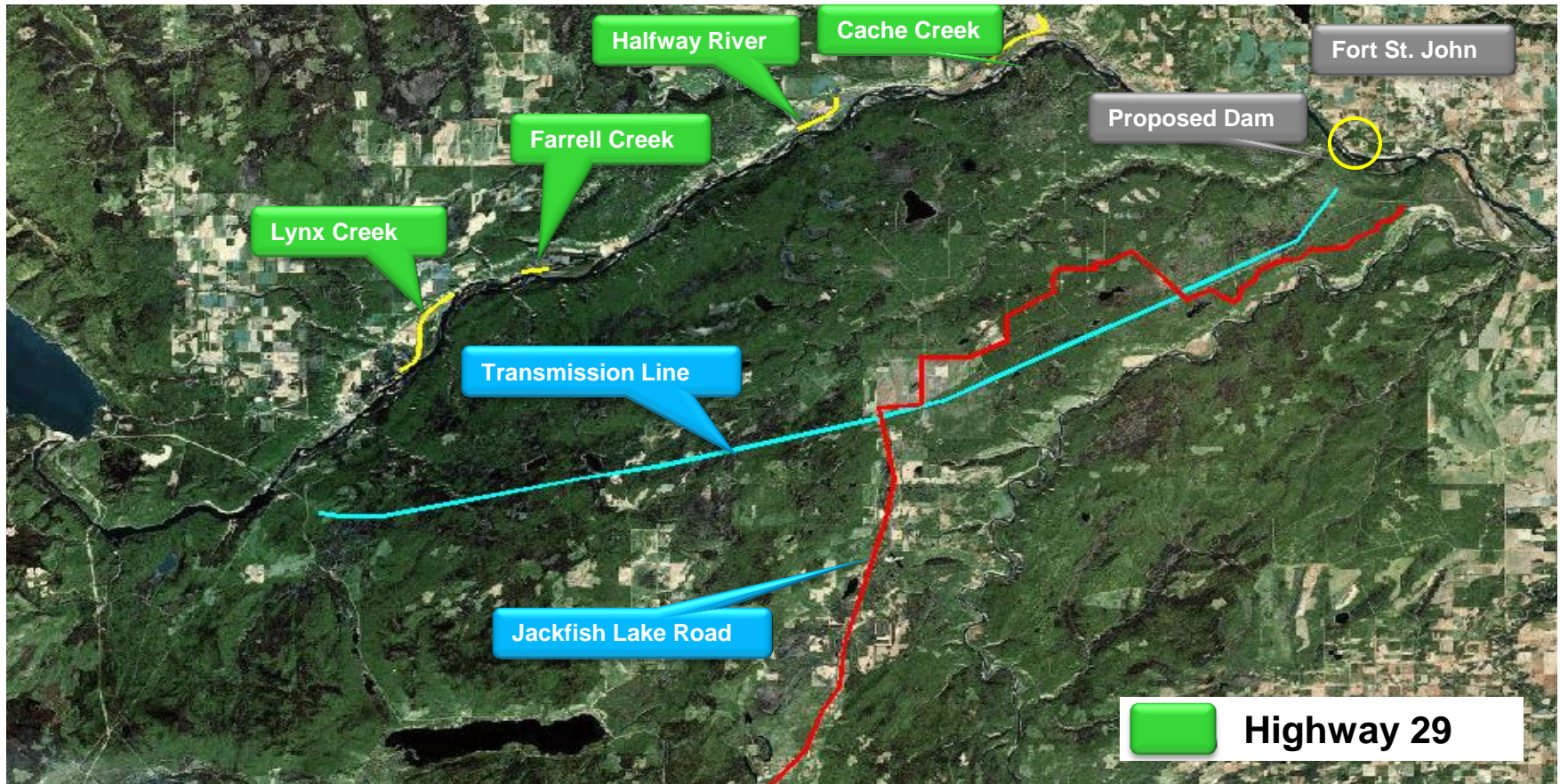


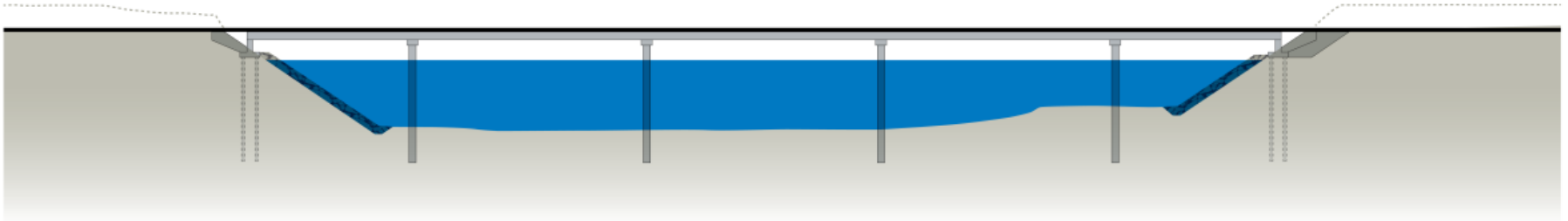
Highway 29 Realignment & Construction Access Roads

Highway 29 Realignment

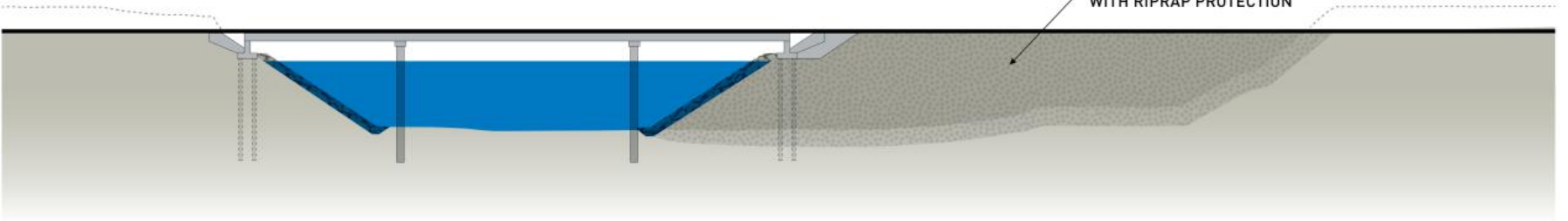


Highway 29 – River & Creek Crossing Options

BRIDGE SPAN ONLY OPTION



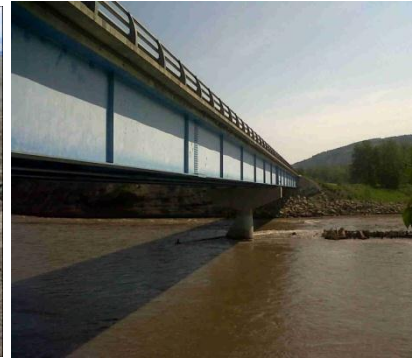
BRIDGE SPAN AND CAUSEWAY OPTION



Example of causeway construction With riprap protection

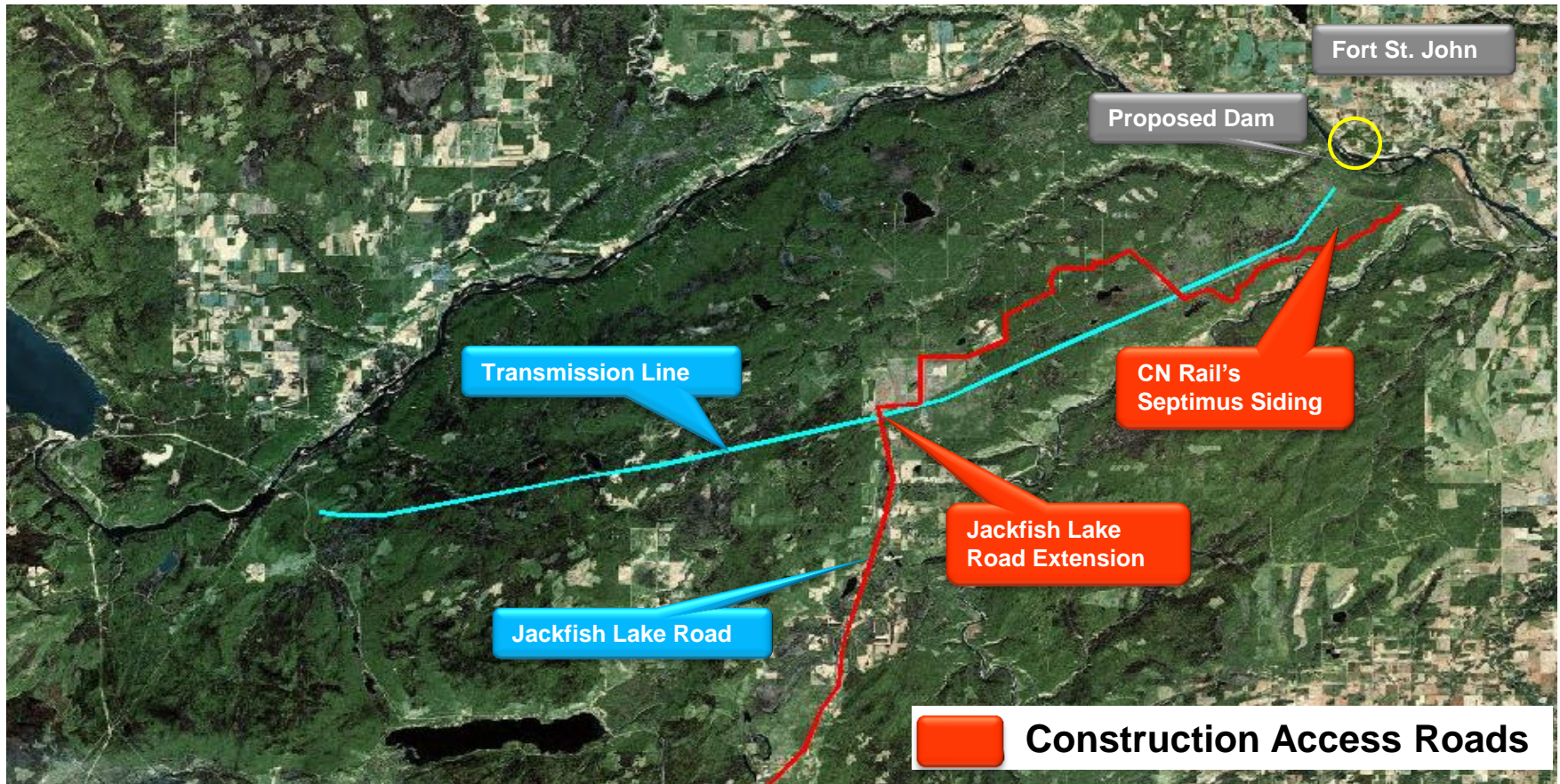


Example of an earthfill causeway and bridge



Existing Halfway River Bridge

Construction Access Roads



Transmission

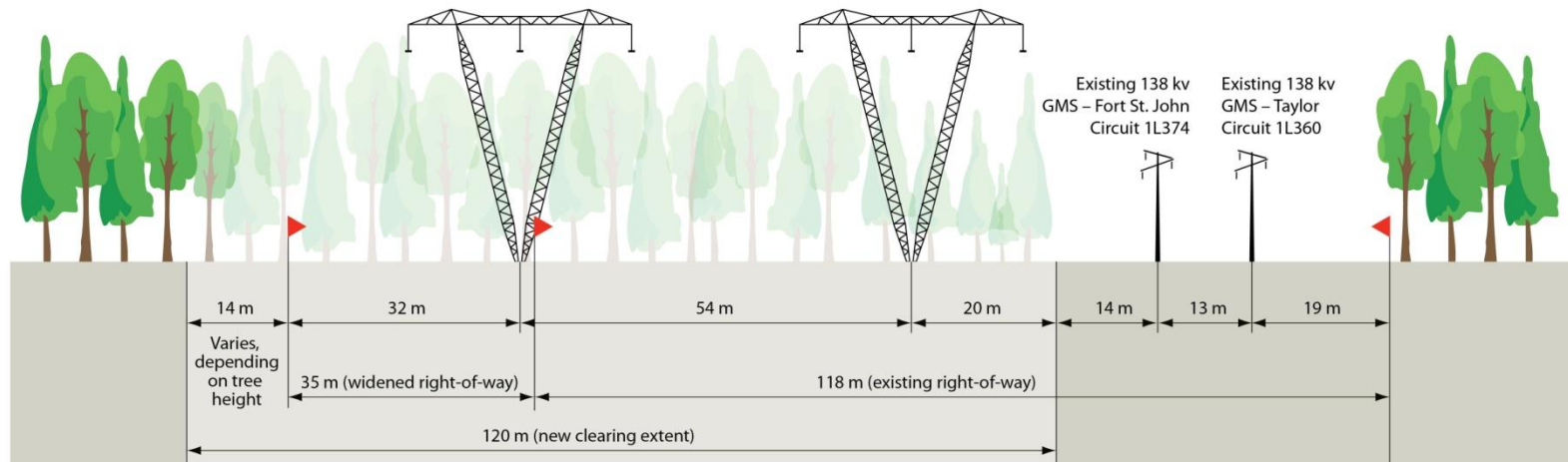
Transmission Line

- Existing transmission right-of-way corridor – Site C to Peace Canyon Substation; two 138 kV lines
- Current Transmission Planning /ROW
 - Three 500-kilovolt (kV) circuits connecting the generating station to the new 500 kV switchyard
 - Two 500 kV Alternating Current lines, approximately 77 km in length, along existing 138 kV right-of-way, connecting the switchyard to Peace Canyon Substation
 - Widening of the right-of-way by approximately 35 metres
 - Access roads



Transmission Right-of-Way Cross Section

View looking east from where 500kv circuits would parallel existing circuits 1L374 and 1L360



Reservoir Slopes

Reservoir Slopes

Historical Approach

- Residential safeline developed in 1978
- BCUC concerns re: land use impacts
- Best practice review - development of impact line approach

Stage 3 Work – Impact Line Approach

Objectives

- Ensure safety
- Maximize land use flexibility
- Minimize land required for the project
- Use international best practices to get better information about impacts of the reservoir

Reservoir Slopes

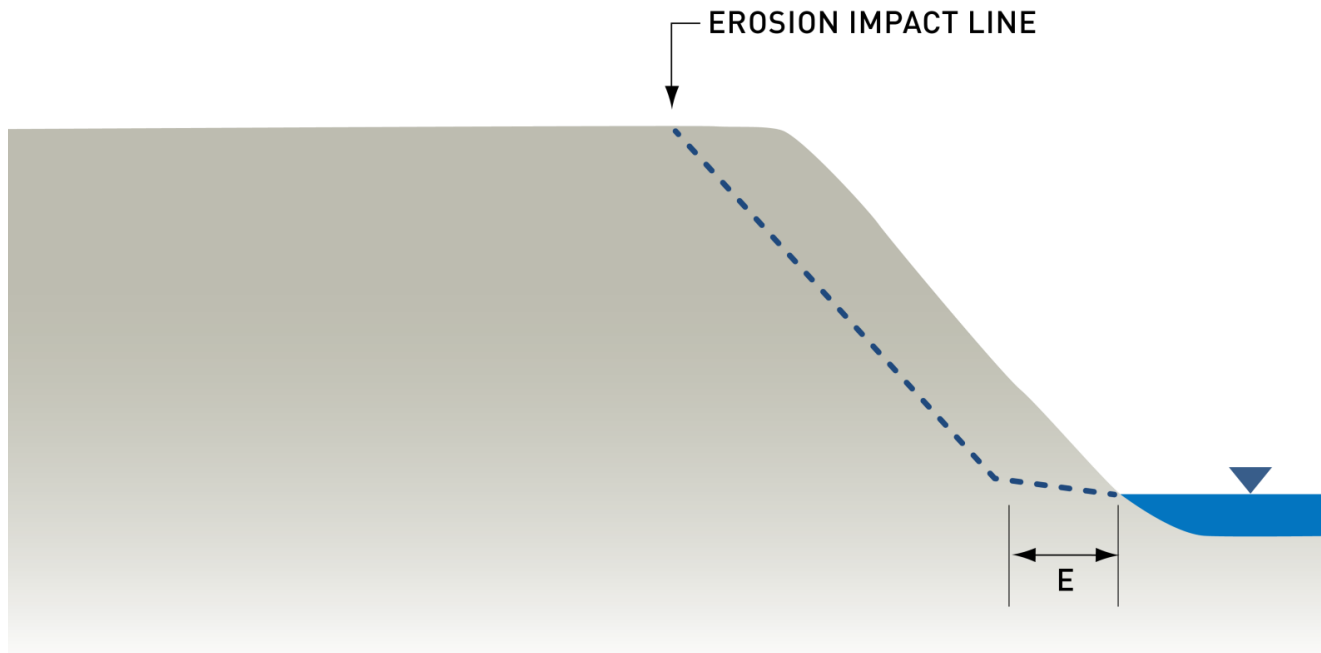
- Predict the geotechnical response of the reservoir shoreline and slopes to operation of the proposed reservoir and future public safety and land use considerations
- Types of Impact Lines
 - Flood Impact Lines
 - Erosion Impact Lines
 - Stability Impact Lines
 - Landslide Generated Wave Impact Lines

Flood Impact Line

- To be defined by a specified elevation above reservoir full supply level
- Includes allowance for floods, wind and waves
- Includes potential reservoir surcharge caused by spillway operations

Erosion Impact Line

- Predicts erosion and slope retreat over 100 years
- Current work: collection of wind data and refine understanding of shoreline geology

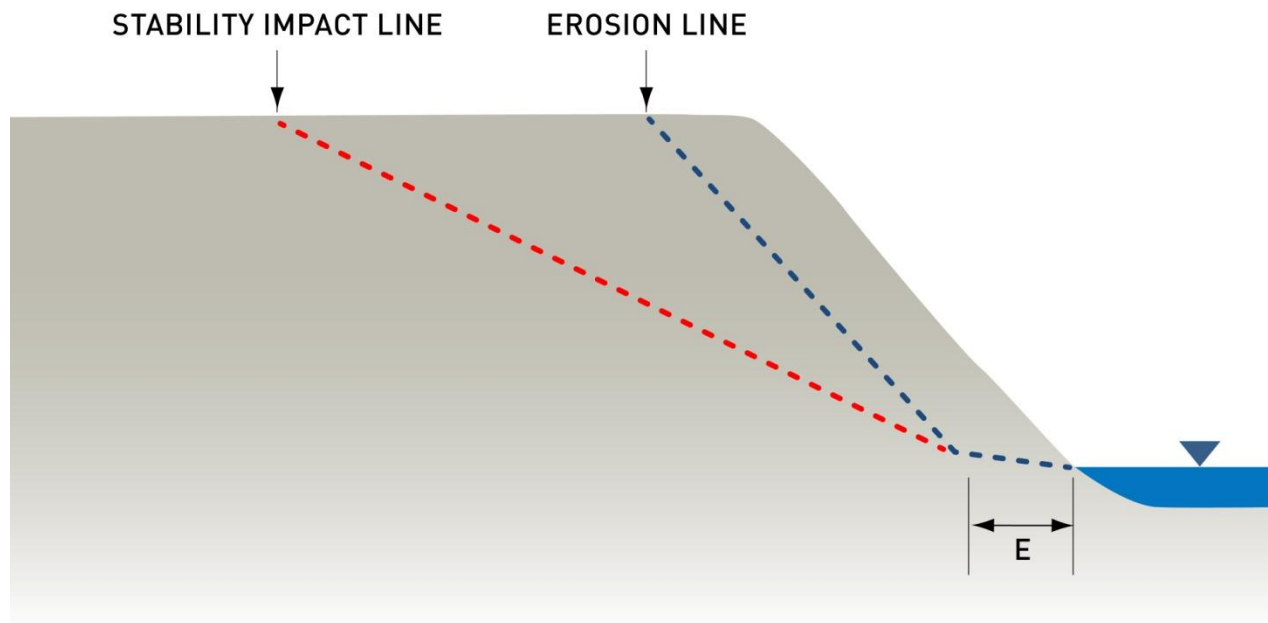


Hudson's Hope Berm

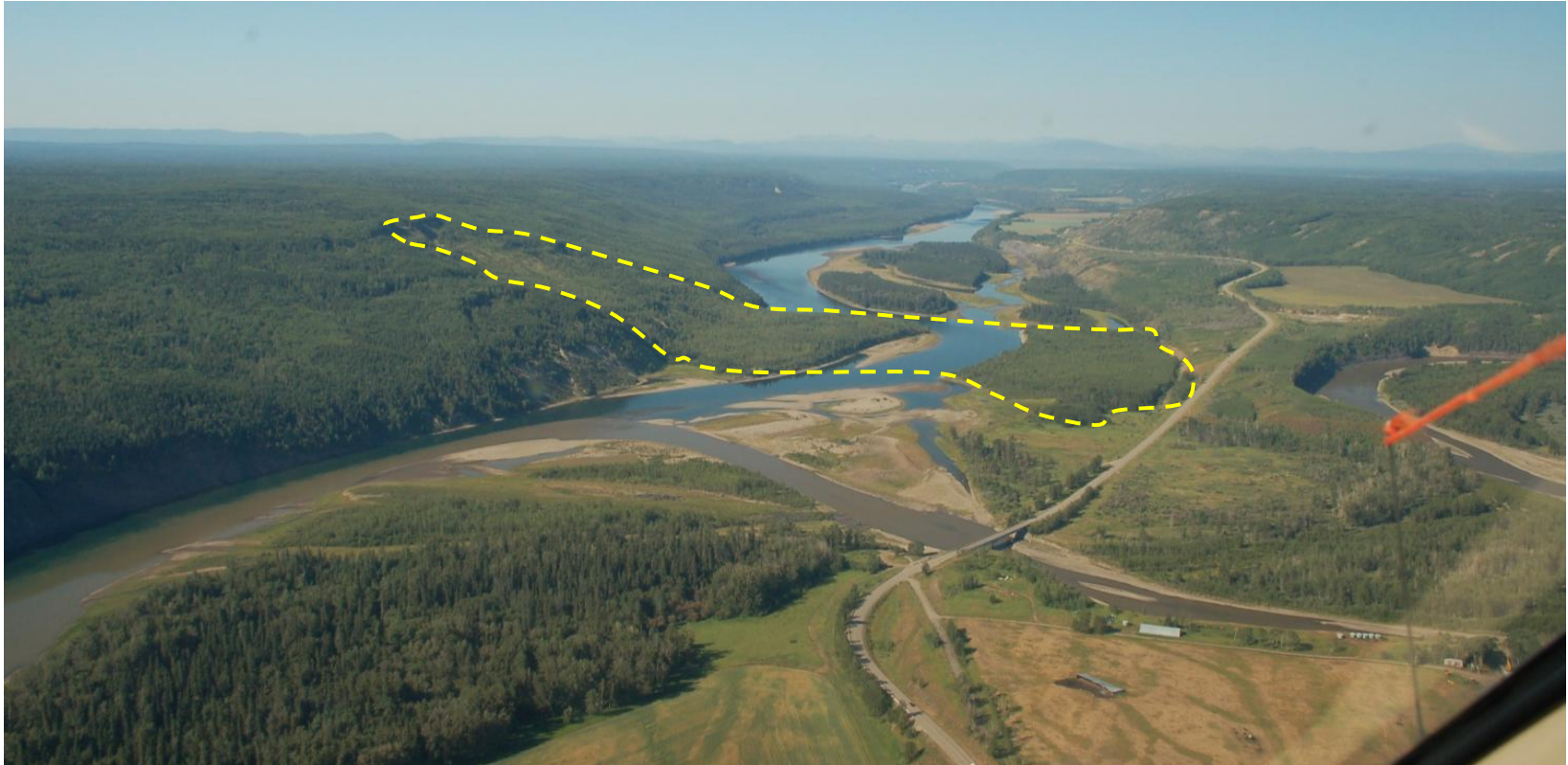


Stability Impact Line

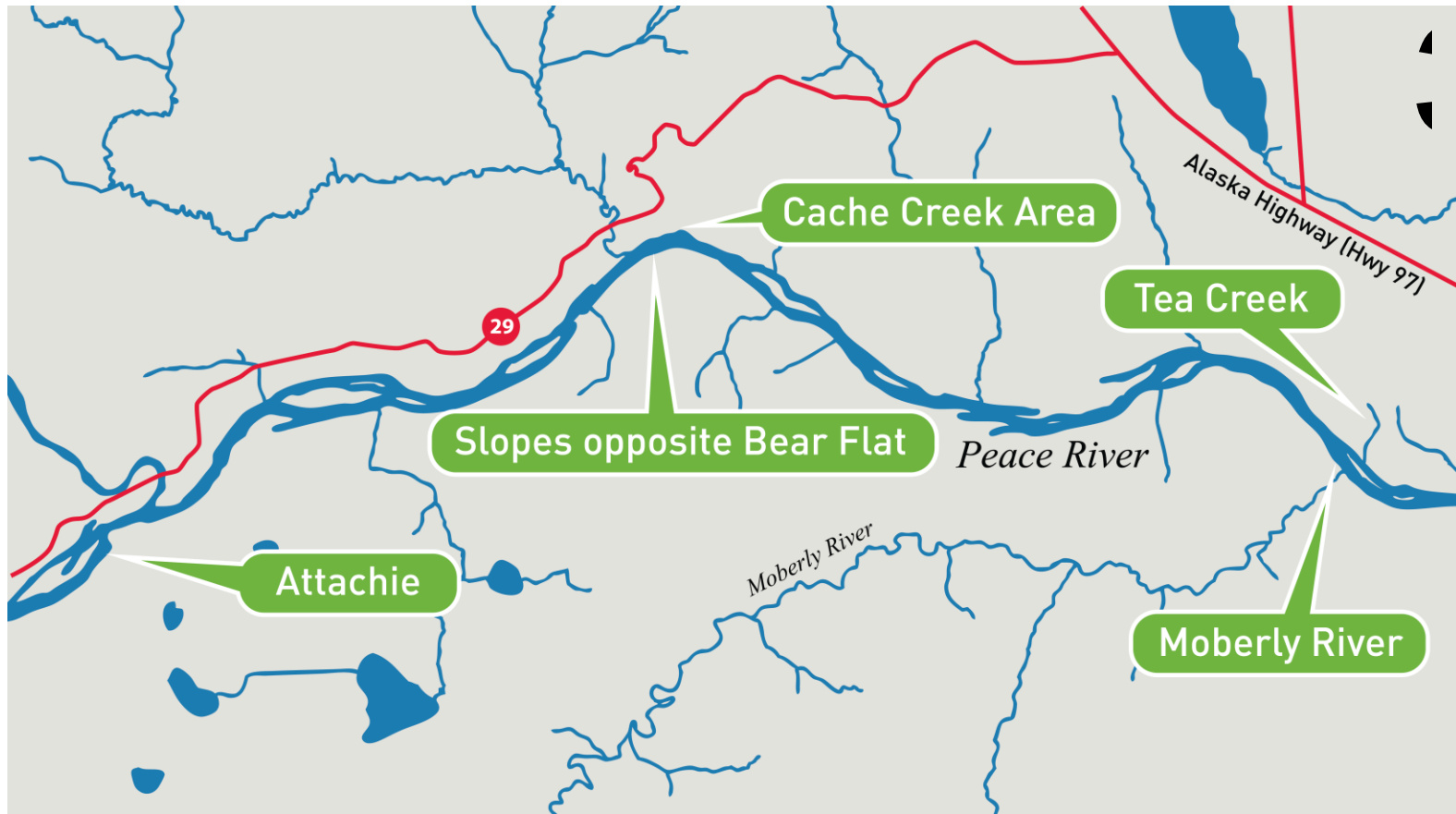
- Beach erosion, plus long term slope retrogression to a stable angle
- Current work: refine understanding of slope geology and ultimate slope angles



1973 Attachie Slide



Study Areas Regarding Potential Landslide Generated Wave



Field Investigation and Risk Assessment

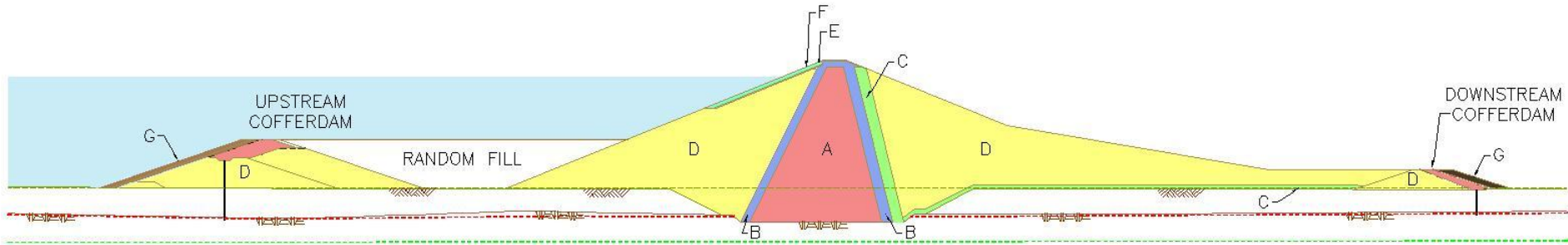
- Require confirmation of surface and subsurface conditions at select areas
 - Geology, groundwater, evidence of prior or ongoing ground movement
 - Access to property to conduct surface mapping, geotechnical drilling, installation of instrumentation
- Stability Analysis & Risk Assessment
 - Site Specific Slope stability modeling (current conditions and with reservoir)
 - Adjustment of location of the stability impact line based on site specific info and analysis
 - Hazard/risk zonation within the stability impact line

Construction Materials

Fill Material Requirements

- Components:
 - Dam
 - Highway 29 Re-alignment
 - Access Roads
 - Hudson's Hope Berm
- Materials:
 - Impervious till
 - Gravel and Aggregate
 - Temporary Rip Rap
 - Permanent Rip Rap

Materials Needed to Construct the Dam



LEGEND

- (A) - IMPERVIOUS MATERIAL
- (C) - FINE GRAVEL
- (E) - FINE ROCK
- (G) - TEMPORARY RIPRAP
- (B) - SAND
- (D) - GRAVEL
- (F) - COARSE ROCK RIPRAP

Total amount of material needed = 13,900,000 m³

Gravel and sand materials

On-site sources

Impervious material
Permanent riprap
Temporary riprap

Off-site sources

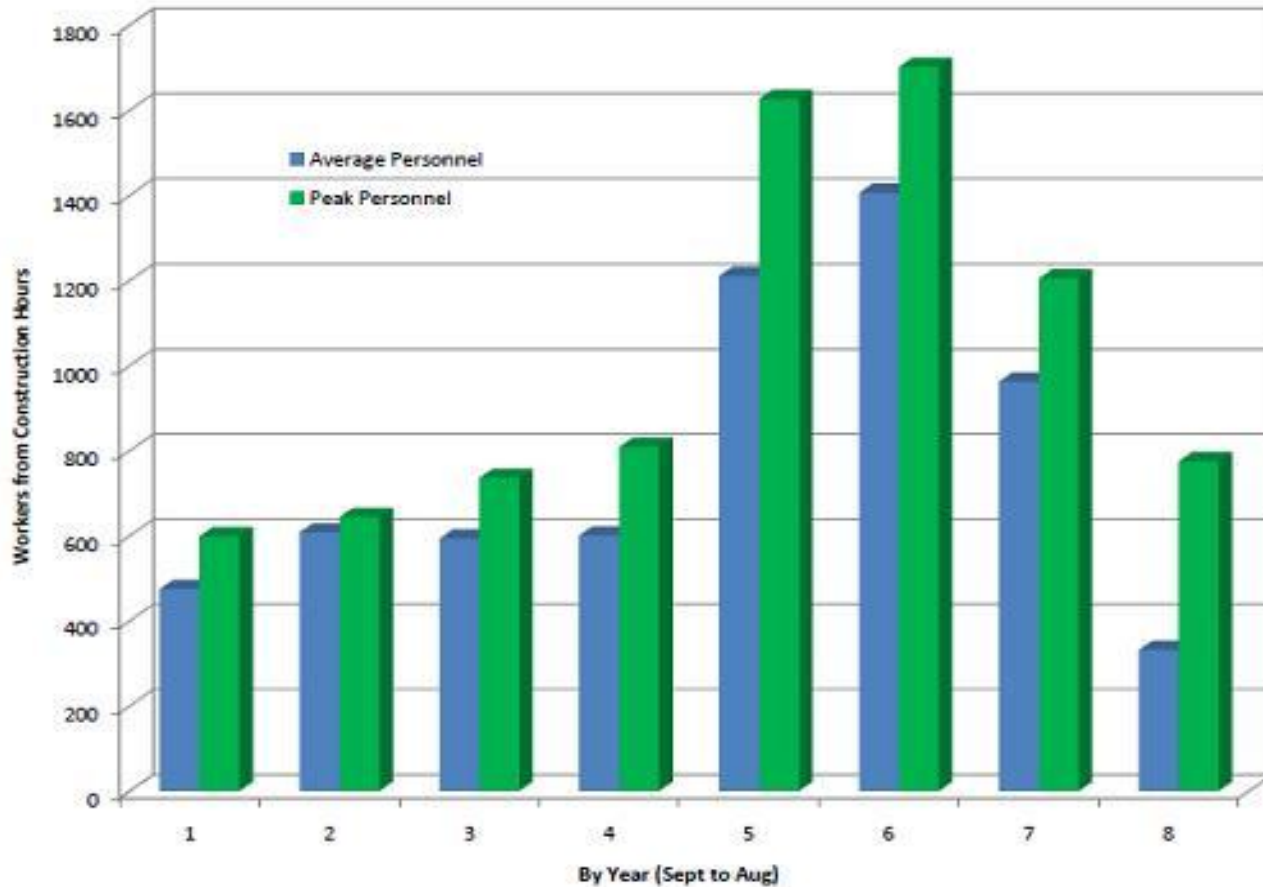
Reservoir Preparation and Clearing

Reservoir Preparation and Clearing

- Clearing for constructions sites, and preparing reservoir for flooding
- Reservoir Preparation considerations also include:
 - realignment of segments of Highway 29
 - reservoir impact line management (e.g. shoreline erosion and stability)
 - reservoir and shoreline property management (property and infrastructure)
 - potential contaminated site management
 - water management during river diversion and reservoir filling
 - construction of a berm for shoreline protection at Hudson's Hope
 - development of recreation and environmental mitigation sites

Workforce Requirements and Worker Housing

Site C - Clean Energy Project Construction Phase Dam Site - Worker Requirements



Worker Housing

The plan is being developed in consultation with communities

- Dam site construction camps
 - north bank
 - south bank
- Regional camps
 - Highway 29
 - Jackfish Lake Road
- Local in-community housing
- Scenarios for local resident / employment

Socio-Economic & Environmental Setting

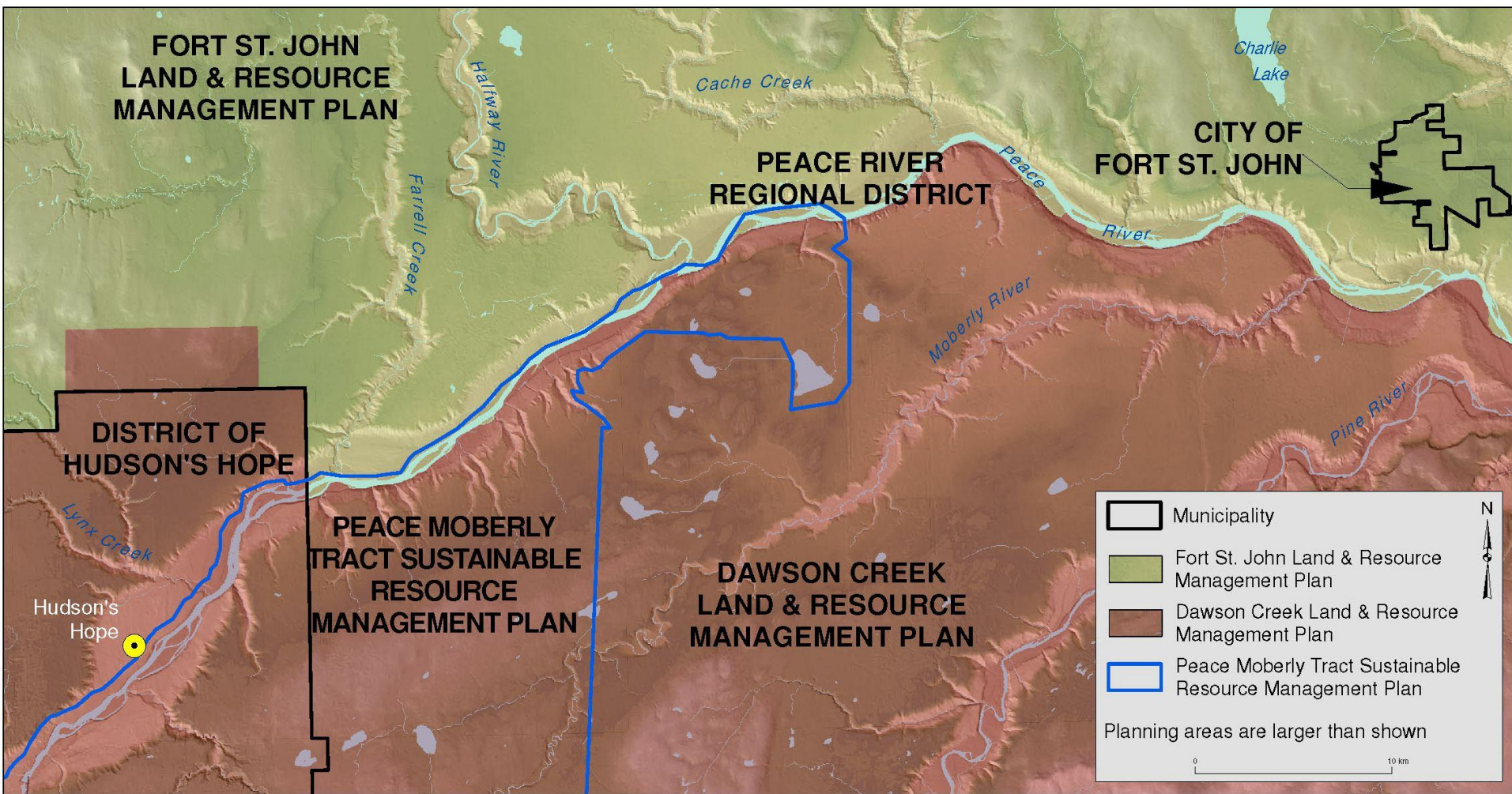
Socio-Economic & Environmental Setting

- Socio-Economic Setting
- Aboriginal Communities
- Land and Resource Use
- Human Health
- Heritage Resources
- Environmental (physical, aquatic, terrestrial)

Social and Economic Setting

Social and Economic Setting

- Social and Community – nearby communities:
 - Regional population of 63,000
- Economy:
 - Cyclical natural resource driven economy
 - Low unemployment rate (active economy)
 - Infrastructure and Services
- Transportation:
 - Developed urban service areas, and remote rural residential



Social and Economic Setting

Key Issues and Related Study Areas:

- Workforce during construction
- Economic and employment
- Government finances
- Transportation
- Direct impacts on infrastructure

Aboriginal Community Assessments

Focus on Communities in vicinity of the Project

Key Issues to be identified through Community-Specific Studies, may include:

- Traditional Land Use
- Social Setting
- Economic Setting, employment, business
- Community Housing and Infrastructure
- Health and Healthy Living

Land and Resource Use Setting

- Fort St. John and Dawson Creek land use planning area, Peace Moberly Tract
- Private land use (e.g. residential, commercial, agricultural)
- North bank dominated by private land uses, agricultural, rural residential
- South bank dominated by crown land uses



*Peace River at Halfway River,
looking upstream*

Land and Resource Use

Key Issues and Related Study Areas:

- General – baseline data collection to identify potential project interactions
- Forestry
- Oil, Gas and Energy
- Minerals
- Aggregate
- Hunting and Fishing
- Trapping and Guide Outfitting
- Outdoor Recreation

Land and Resource Use (cont'd)

Agricultural soil capability mapping:

- Updated agricultural capability maps
- Field inspections throughout reservoir area
- Review capability mapping in broader project area

Agricultural Resource Use:

- Interviews with farmers and ranchers (up to 19 farm operations in vicinity of project)



Completing a field inspection – a shovel test for agricultural soil sampling

Human Health

Potential Human Health Topics:

- Healthy Living: Workforce
- Healthy Living: Public considerations
- Air Quality, Noise & Vibration
- Methyl Mercury
- Electro Magnetic Fields

Heritage

Heritage Setting:

- Paleontological eras
- Archaeological evidence of ~10,000 years of human occupation
- Historic - fur trade (1793 – 1820's), farming settlements 1900's to current

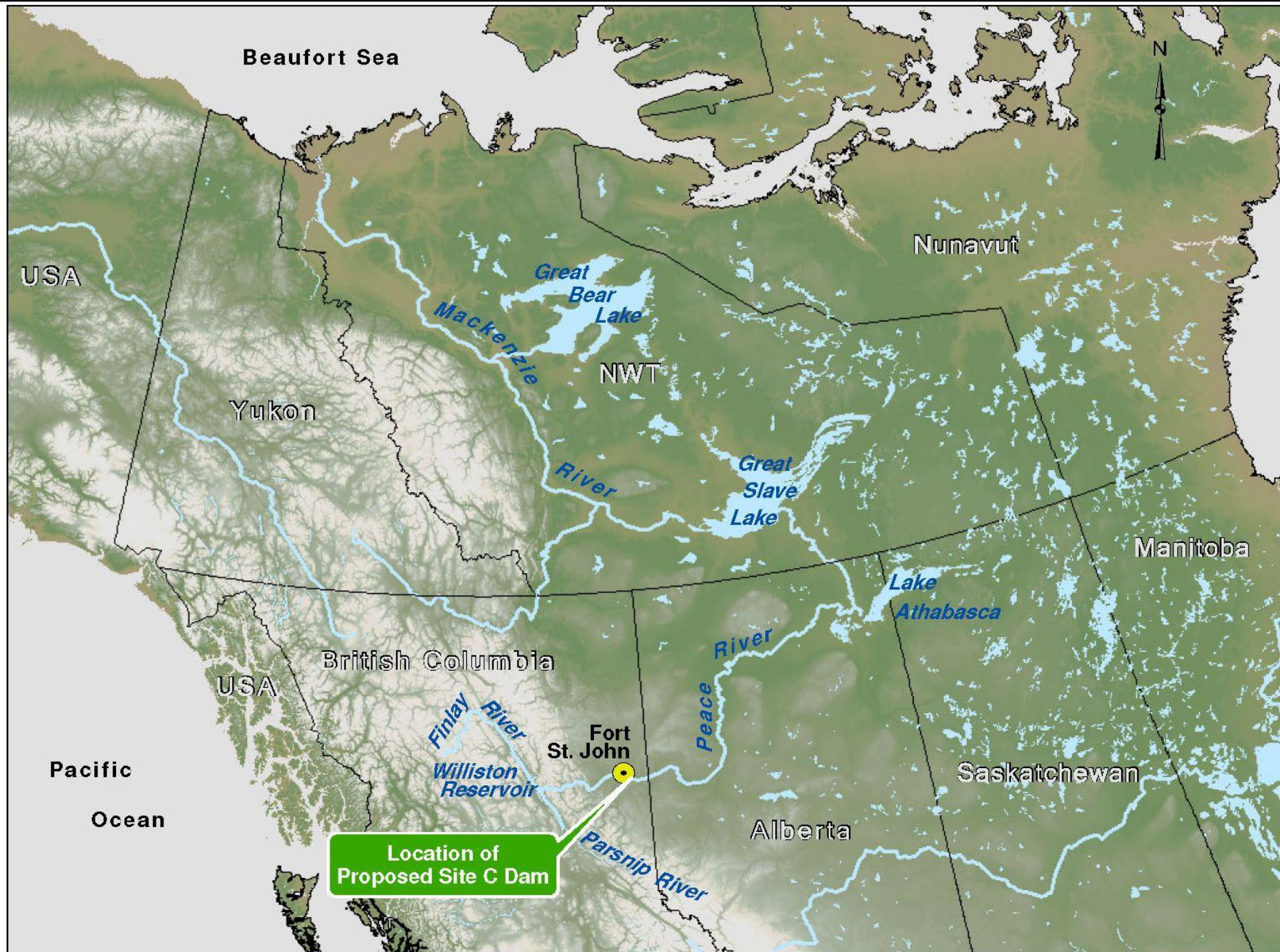
Key Issues and Related Study Areas:

- Inventory for archaeological sites
- Inventory for historic sites
- Field reconnaissance for paleontological potential



Ammonite fossil found along the Peace River, August 2011

Physical, Aquatic and Terrestrial Environment



Physical Environment – Water

Current Setting:

- Mainstem and downstream conditions in project area influenced by upstream flow regulation, existing water licenses
- Groundwater - domestic, agricultural, and industrial

Key Issues and Related Study Areas:

- Water quantity
- Water quality
- Groundwater conditions
- Ice Regime
- Water Management



Physical Environment – Land

Current Setting:

- Flow regulation has occurred for many decades and river is or has adjusted to changes

Key Issues and Related Study Areas:

- River morphology
- Sediment transport
- Contaminated Sites



Physical Environment - Atmosphere

Current Setting:

- Continental climate - seasonal Arctic (Cold) and western (moist, warm)
- Distinct valley bottom microclimate

Key Issues and Related Study Areas:

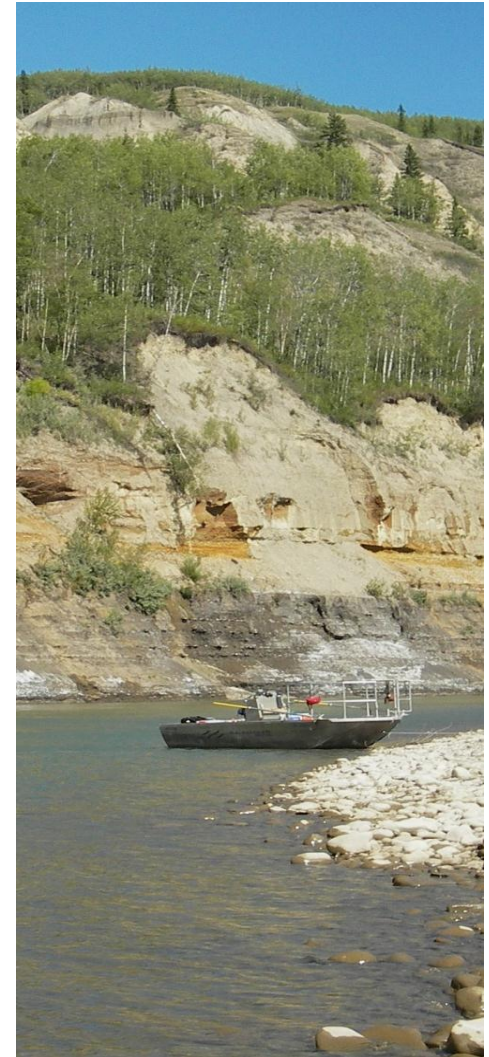
- Micro-climate change due to reservoir
- GHG Emissions
- Air Quality
- Noise and Vibration



Fish and Aquatics

Current Setting

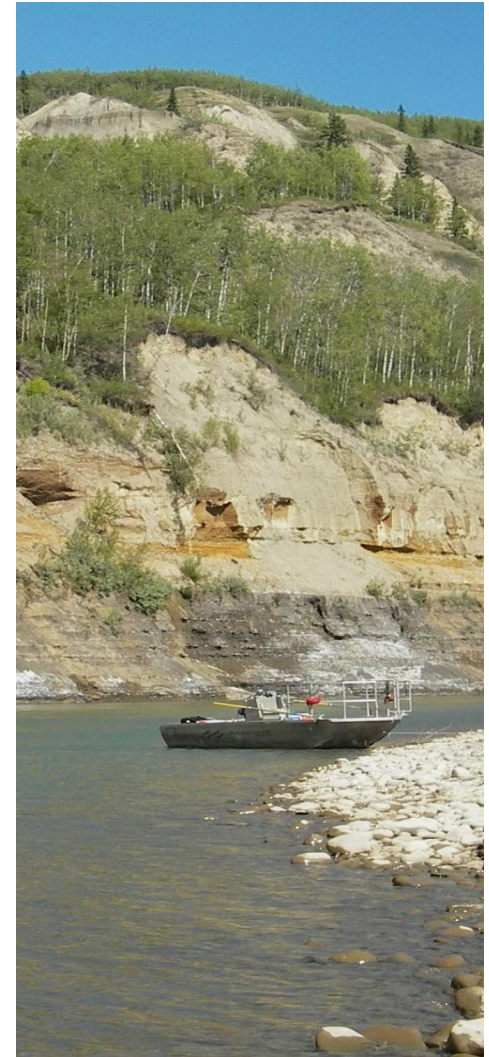
- Diverse resident fish community
- 31 species resident species
- Spatial distribution of fish follows habitat conditions



Fish and Aquatics

Key Issues and Related Study Areas:

- Fish habitat
- Fish populations
- Fish movement
- Aquatic Productivity
- Fish Passage
- Mercury



Wildlife and Vegetation

Current Setting:

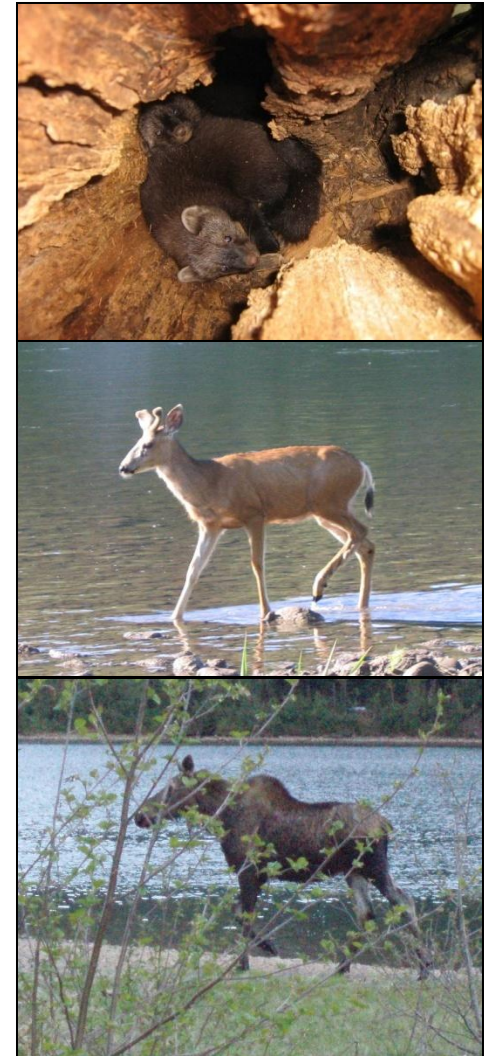
- Abundant and diverse wildlife populations
- Peace River Basin eco-region, Peace Lowlands (PEL) eco-section
- Biogeoclimatic zone: “Boreal White and Black Spruce “
- Valley bottom landscape modified by agricultural land use and upstream river regulation
- Ungulate winter range, high diversity of song birds



Wildlife

Key Issues and Related Study Areas:

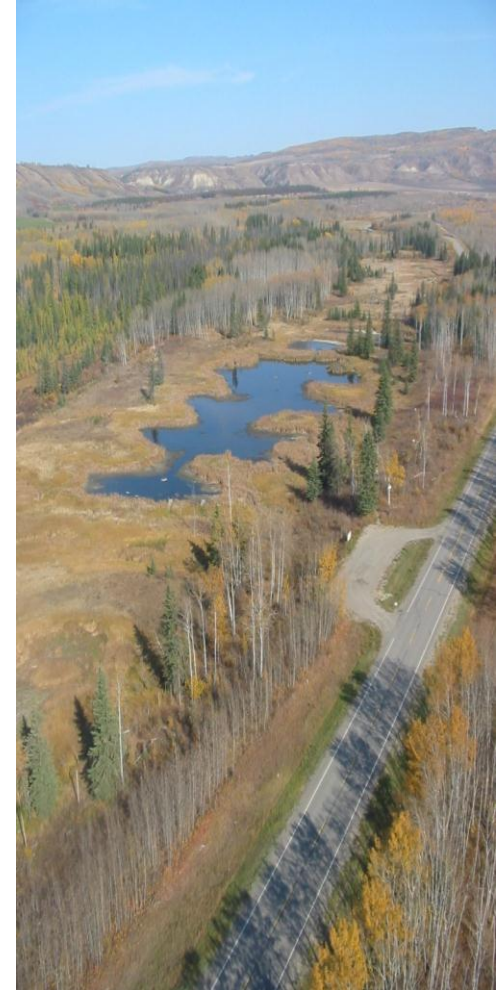
- Habitat
- Populations
- Habitat Use
- Migrations



Vegetation

Key Issues and Related Study Areas:

- Vegetation Community assessment
- Rare plant communities
- Invasive plant surveys
- Rare ecosystem features

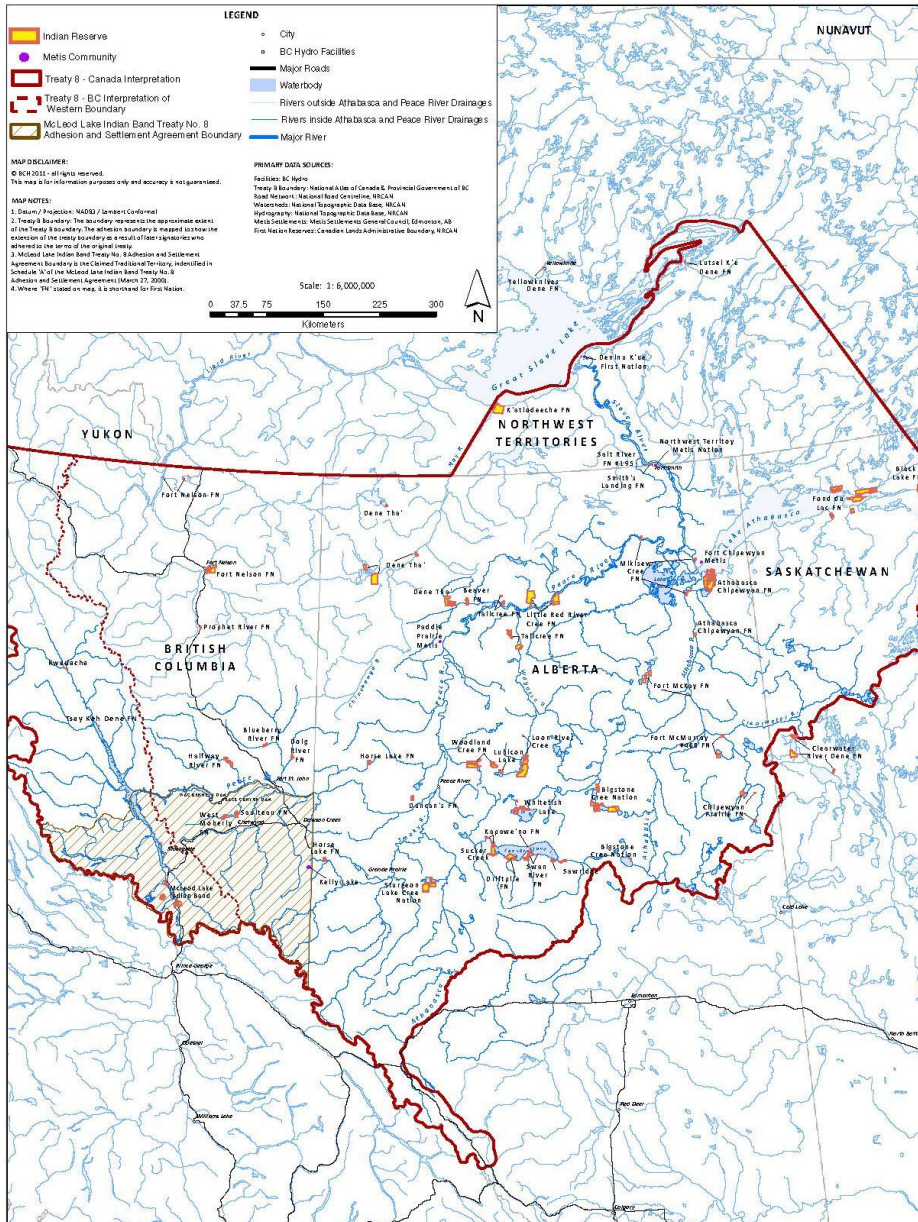


Consultation & Engagement

Aboriginal Groups
Public, Stakeholder and Property Owners
Government Agencies

Consultation and Engagement - Aboriginal

- Project lies within Treaty 8 territory
- Engagement ongoing with 51 Aboriginal groups
- Consultation with Aboriginal groups in the project area and downstream from the Project
- Project information provided to Treaty 8 First Nations located outside of the Peace or Slave River watersheds
- Objective of consultation: identify potential impacts of the project on section 35(1) rights and communities and work with Aboriginal groups to identify strategies to avoid, prevent, or mitigate impacts

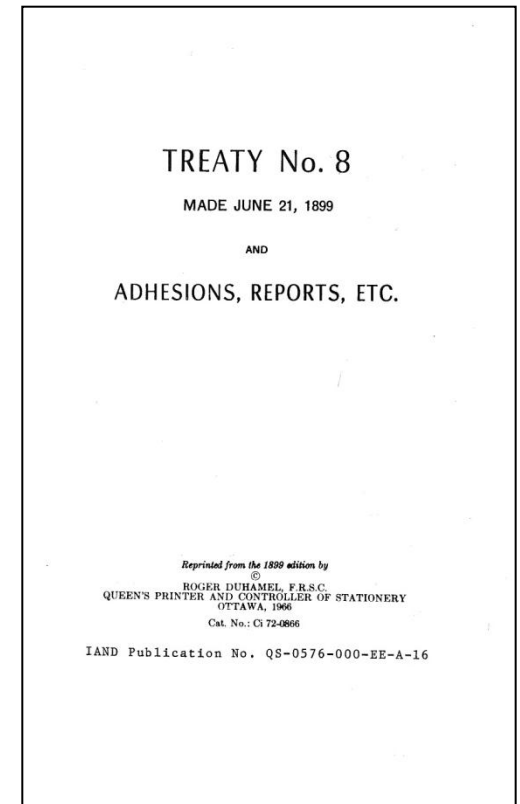


Consultation Agreements

- Under negotiation or concluded with First Nations located in and downstream of the project area and with two First Nations located at the north end of the Williston Reservoir
- Set out the agreed-upon funding, principles, processes and scope for Stage 3 consultations
- 8 agreements have been concluded, representing 11 First Nations
- Consultation topics may include:
 - Key project components
 - Development of the Draft Environmental Impact Statement (EIS) Guidelines
 - Ongoing baseline studies
 - Alternative site assessments
 - Development of the Environmental Impact Statement (EIS)

Traditional Studies

- BC Hydro has entered into a number of Traditional Land Use Study (TLUS) agreements with First Nations to carry out studies, to enable data sharing and to set out confidentiality
- TLUS data, where available, will be considered in effects assessment
- First Nations Opportunities Strategy has been developed with a focus on trades training, and procurement opportunities



Issues Identified during Stage 2:

- Potential impacts on section 35(1) rights and cultural and heritage resources
- Historic grievances
- Cumulative effects
- Short- and long-term employment and economic opportunities
- Effects on wildlife, fish, water quality and quantity
- Access to traditional hunting areas
- Energy conservation strategies, alternative energy sources
- Effect on existing infrastructure and local communities

Public and Stakeholder Consultation: Objectives

- To consult meaningfully with the public, stakeholders and property owners on impacts, benefits and features of the Site C project, consistent with BC Hydro's commitment to consultation
- To consider input – in combination with technical, environmental and economic analysis
- To keep communities, stakeholders and the public informed about the project and the many opportunities for public involvement

Stage 2: Consultation and Technical Review

- Three rounds of consultation
- Nearly 1,000 participants in each round
- 121 stakeholder meetings and open houses
- Consultation topics included:
 - Impact lines
 - Highway 29
 - Reservoir preparation
 - Energy resource options, and more
- Community Relations:
 - Consultation offices
 - Presentations, updates

CONTACT THE SITE C CLEAN ENERGY PROJECT


Your Name: _____

Date: _____


Your Comment or Inquiry: _____

Reply required: yes no

Your email and/or telephone#: _____



SITE C
CLEAN
ENERGY PROJECT



BC Hydro
FOR GENERATIONS

Stage 2 Consultation: Key Themes

- Consultation Summary Reports, all public meeting notes, available online
- Consideration Memos document consideration of input
- Key themes:
 - Avoiding or mitigating local impacts
 - Potential effects to air quality, water and agricultural land
 - Energy conservation and other alternatives to Site C including other renewable electricity sources (e.g., wind, solar, biomass and geothermal)
 - Potential benefits such as jobs, skills training, upgrades to local and regional infrastructure

Stage 3 Consultation

- Environmental Assessment Public Comment Periods (led by regulators)
- Additional BC Hydro-led consultations will include:
 - Regional and Local Government Liaison
 - Property Owner Consultation & Liaison
 - Local Area Consultations, i.e. Hudson's Hope Berm Options Fall 2011
 - Preliminary Design Consultation, 2012
 - Highway 29
 - Recreation
 - Reservoir preparation
 - Worker Housing
 - Construction Access Roads
 - Agriculture



Opportunities for Input

- Range of consultation methods will be used:
 - Community Consultation Offices
 - Website
 - Public enquiries
 - Stakeholder meetings
 - Open houses
 - Print and online feedback forms
 - Written submissions
- For more info:
www.bchydro.com/sitec



Regional and Local Government Engagement

- Regional and Local Government Liaison Committee
 - Committee, chaired by BC Hydro Executive Vice President, with representation from region's mayors and regional district directors
- Local Government Technical Engagement
 - Individual, staff-level committees with each regional, local government
 - Capacity funding provided
- Updates to councils




PEACE RIVER REGIONAL DISTRICT

Ongoing Public Notification

- Monthly Field Studies Summary
- Field Studies Information Sheet
- Study updates
- Project updates
- Media relations

Available at:

- www.bchydro.com/sitec
- Community Consultation Offices - Hudson's Hope and Fort St. John
- Hudson's Hope Bulletin

SITE  CLEAN ENERGY PROJECT

MONTHLY FIELD STUDIES SUMMARY

September 2011

The Site C Clean Energy Project (Site C) is now in Stage 3, the environmental and regulatory review phase, which will include an independent environmental assessment. Stage 3 work includes conducting environmental and engineering field studies on and around the Peace River between the Williston Reservoir and the Alberta border.

An overview of studies that will be taking place in September 2011 is below. Additional study activities may occur; notice of these studies will be posted at www.bchydro.com/sitec.

Overview
Socio-Economic Studies
• Socio-Economic Assessment
• Agricultural Assessment Study
• Heritage Study Program
• Reservoir Clearing Plan Investigations
Fish and Aquatic Studies
• Peace, Moberly and Halfway River Fish Movement
• Peace, Moberly and Halfway River Fish Inventories
• Peace River Aquatic Productivity and Modeling Study
Wildlife Studies
• Beaver Study
• Small Mammal Study
• Habitat and Mapping Ground Surveys
• Fisher Study Program
• Mule Deer, Moose and Elk Study Program
• Garter Snake Hibernaculus Study
Vegetation Assessment
• Rare Plants Study
Physical Environment Studies
• Geomorphology, Bathymetry and Sediment Transport Studies
• Climate and Air Quality Monitoring
Engineering Investigations
• Dam Site Investigations
• Reservoir Shorelines and Highway 29 Investigations
• Highway 29 Surveys
• Construction Access Roads

BC Hydro will require the use of helicopters for some engineering and environment field studies this summer. Some field studies may require access to public and private land. BC Hydro will obtain permission before accessing private property and will notify property owners who may be directly impacted by helicopters. Ongoing regular BC Hydro work, in addition to the Site C field study activities outlined here, may be taking place on the Peace River and tributaries. This work is related to BC Hydro's Peace River water license requirements program or other operations work.



Field study updates are available at www.bchydro.com/sitec and in the Community Consultation offices in Fort St. John and Hudson's Hope.

For further information, please contact:
 Kate O'Neill, Community Relations
 Office: 250-785-3415 Cell: 250-793-5416

PO Box 2218
 Vancouver BC V6B 3W2
 Tel/Fax: 1 877 217 5777
info@bchydro.com
bchydro.com/sitec

Community Consultation Offices:
 9945 100th Avenue
 Fort St. John BC V1J 1Y5
 Tel: 250 785 3420

Pearlax Centre
 10801 Dudley Street
 Hudson's Hope BC V0C 1V0

Next Steps

Next Steps

- Review and evaluate Draft BC Canada Agreement for EA process
- Prepare and file draft Environmental Impact Statement (EIS) Guidelines

www.bchydro.com/sitec