

# Assessment and Remediation Gwawaenuk First Nation, Hopetown, BC

ESAA – RemTech

October 13, 2016

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# SLR

global environmental solutions

# OVERVIEW



- Acknowledgments
- Planning
- Project Details
- Implementation
- Obstacles and Successes
- What we learned

# ACKNOWLEDGEMENTS



- To Gwawaenuk Chief Williams, Bernie Bunnie, Cindy Gullstrom and the Gwawaenuk families for the opportunity to complete this project
- Cari St. Pierre - Project Manager for Gwawaenuk





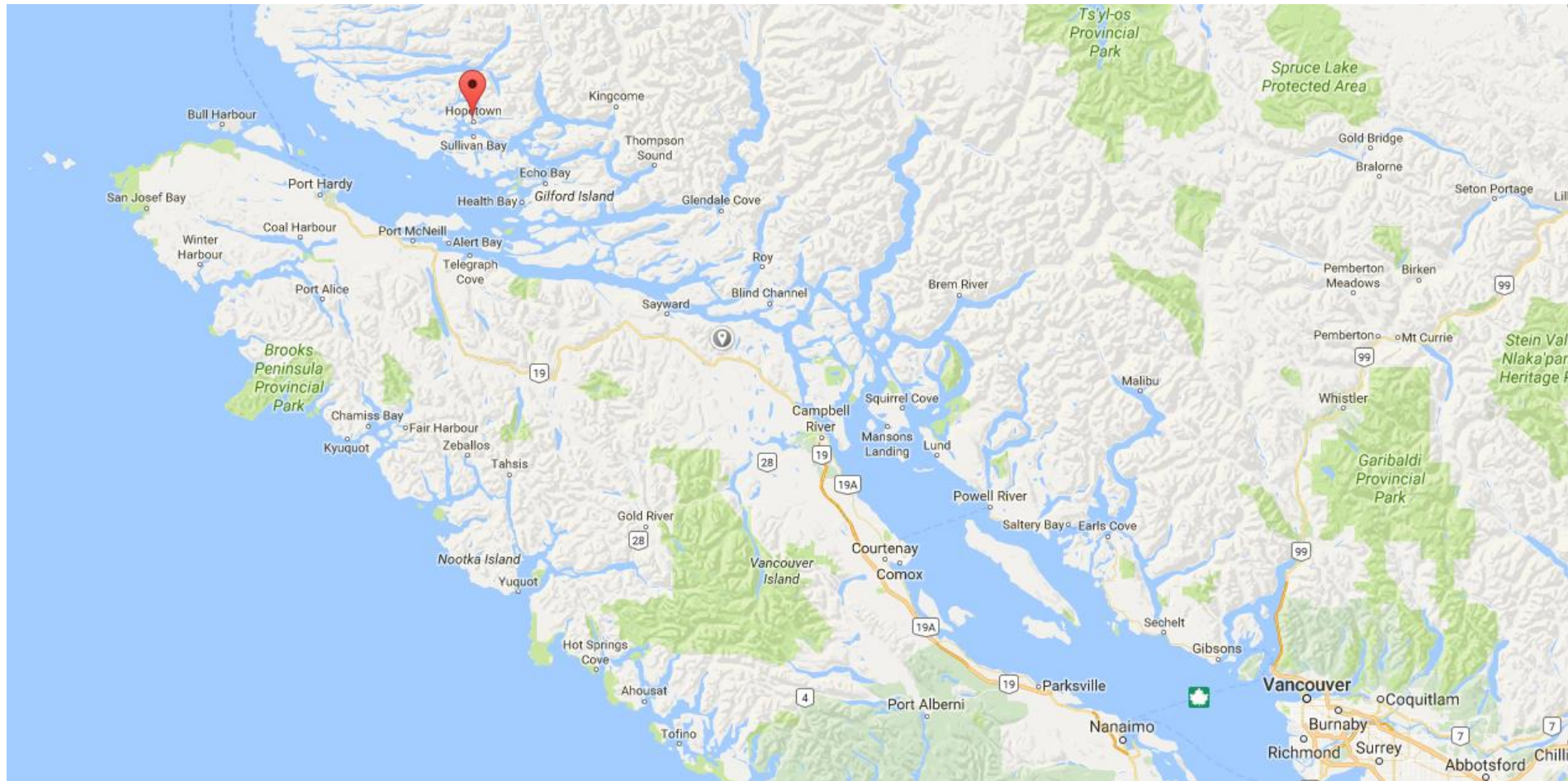
# PLANNING



- **Issue:** known leaking underground storage tanks and surficial contamination related to a generator at a remote First Nation village
- SLR completed an initial soil and groundwater assessment following a Phase I ESA of the diesel fueling and related facilities at Hopetown, BC
- Hopetown, BC is located on Watson Island – where is Watson Island and why is this a concern?



# PLANNING







# PLANNING













# PLANNING



- The village is located on a shell midden with multiple metres of shells and artifacts from human habitation
- The shell midden has known archaeological importance from over 3,000 years of near continuous human habitation
- Two rounds of Phase II ESA work were conducted to complete a Remedial Plan











# PROJECT DETAILS



- Remedial Plan - addressed both technical requirements and implementation issues
- Two rounds of Community meetings were held to discuss the plan, potential outcomes, risks, concerns, various options
- Define project success – community, archaeology, environmental
- Outcome was the development of protocols related to likely occurrences that would impact the project



# COMMUNITY PLANNING/MEETINGS



# PROJECT DETAILS



- Soil, groundwater and sediment impacts were found and the project required the removal of  $\sim 1,600 \text{ m}^3$  of soil and  $\sim 6,000$  litres of impacted water
- Soil impacts included petroleum hydrocarbons, PAHs, and metals above CCME RL Guidelines to greater than 3 metres below grade
- Sediment samples exceeded CCME Guidelines for metals
- Groundwater samples exceeded the dissolved metals applicable CCME Guidelines



NOTES

LEGEND

CONDEMNED DWELLING

BOREHOLE LOCATION COMPLETED AS A MONITORING WELL

EXISTING COMMUNITY WATER WELL

SEDIMENT SAMPLE LOCATION

SOIL SAMPLE LOCATION

SURFACE WATER SAMPLE LOCATION

TEST PIT

EXCAVATION BASE

CONCENTRATIONS LESS THAN OR EQUAL TO APPLICABLE CME/CSR STANDARDS

CONCENTRATIONS GREATER THAN APPLICABLE CME/CSR STANDARDS

UTILITIES AND SYMBOLS

POWER POLE

TAP

WATER VALVE

DRAIN

U/G ELECTRICAL

U/G FUEL LINE

U/G SANITARY SEWER

U/G CONTROL CABLE

U/G PROPANE LINE

U/G WATER LINE

U/G WATER LINE (ABANDONED, GALVANIZED)

UNKNOWN

GWAWAENUK FIRST NATION  
HOPETOWN #10A  
WATSON ISLAND, BC

Report

Drawing

ESTIMATED AREA OF EXCAVATION

Date: November 25, 2009

Scale: AS SHOWN

Drawing No.: 1

File Name: 201-468364-01-05

Project No.: 201-08364-00

SLR

THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. ACTUAL LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.





# PROJECT DETAILS



- Post excavation work included the completion of a Human Health and Ecological Risk Assessment
- Post remedial monitoring and sampling
- DFO approvals for creek and foreshore work
- Development of Protocols – unknown archaeological and other concerns

# PROJECT DETAILS



- Other areas of Hopetown required changes to support the site works:
  - building demolition,
  - barge loading area,
  - equipment laydown area,
  - foreshore improvements to support equipment movement.
- Underwater hazards – two islands in front of Hopetown



# IMPLEMENTATION



- Contractors and staff stayed on two live aboard barges for the duration of the work
- Gwawaenuk coordinators, archeologists, contractors, and consultants coordinated efforts over ~5 weeks to complete the work – mainly September/October
- Excavated material was sorted for archeological artifacts prior to stockpiling for off site disposal
- Follow up work was conducted over multiple months

































# OBSTACLES AND SUCCESSES



- Developed protocols, set expectations early, re-enforced with all parties, monitor and report progress daily
- H&S and staffing – coordination of staff/contractors was a significant portion of the work
- Weather delays, capacity of barges, loading/unloading with tides
- Archaeological findings – cultural remains were respected
- What could go wrong?



# PORT HARDY FLOODED



# PORT HARDY FLOODED



# WHAT WE LEARNED



- Planning and communication – early, often, check-ins with all relevant parties
- Have options for completing work
- Back up plans for communication (intermittent internet availability)
- Confirm expectations past the monitoring period – long term goals for remedial work
- Expect some delays due to complexity, location, weather, tides, equipment capacity



# WHAT WE LEARNED



- Planning and Coordination resulted in a successfully completed remediation and improved outcomes for the community
- Communication – open, timely and effective
- Work as a team – everyone wins together – focus on solutions!





