

DRAFT 2016-10-25

#

Lake Wabamun

South Shore Boat Launch Assessment



Prepared for  **parkland**
county by  **EDA**
Collaborative Inc.

October 2016

Site Considerations

The South Shore Boat Launch is intended to provide a point of entry to the lake for the general public although the main use is anticipated to be generated from south shore cottage owners using the launch for seasonal access. A number of sites were initially considered. That selection was narrowed down to two specific parcels, centrally located on the South shore. Both parcels are currently undeveloped, and are privately owned by TransAlta. Both parcels are somewhat similar in many of their physical attributes which would be expected as they are approximately a kilometer apart. It is considered desirable to access the Boat Launch directly off of Sundance Road. Parcel B allows for direct access off of Sundance Road, while Parcel A will require crossing one or two other parcels to gain access off of Sundance Road, although those parcels are also undeveloped and are part of the holdings of the TransAlta Corporation.

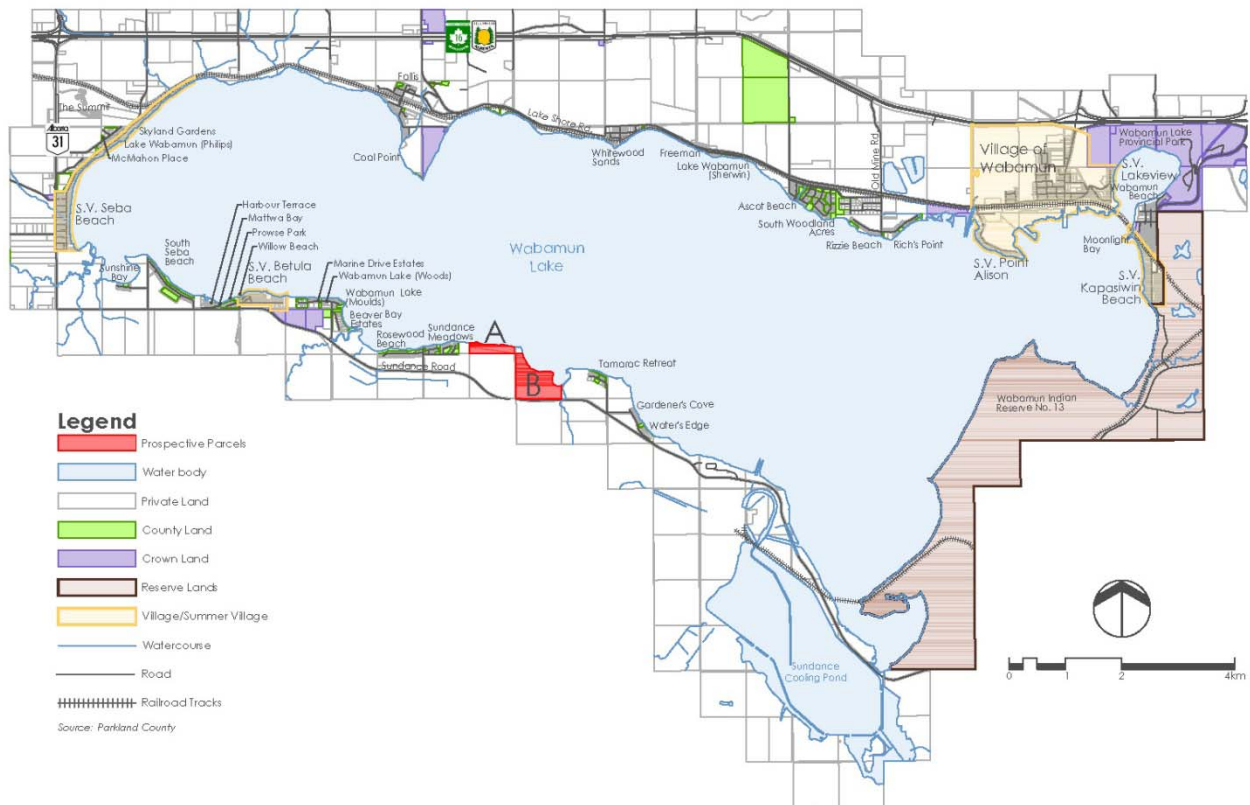


Figure 1: Context Plan

Parcel A

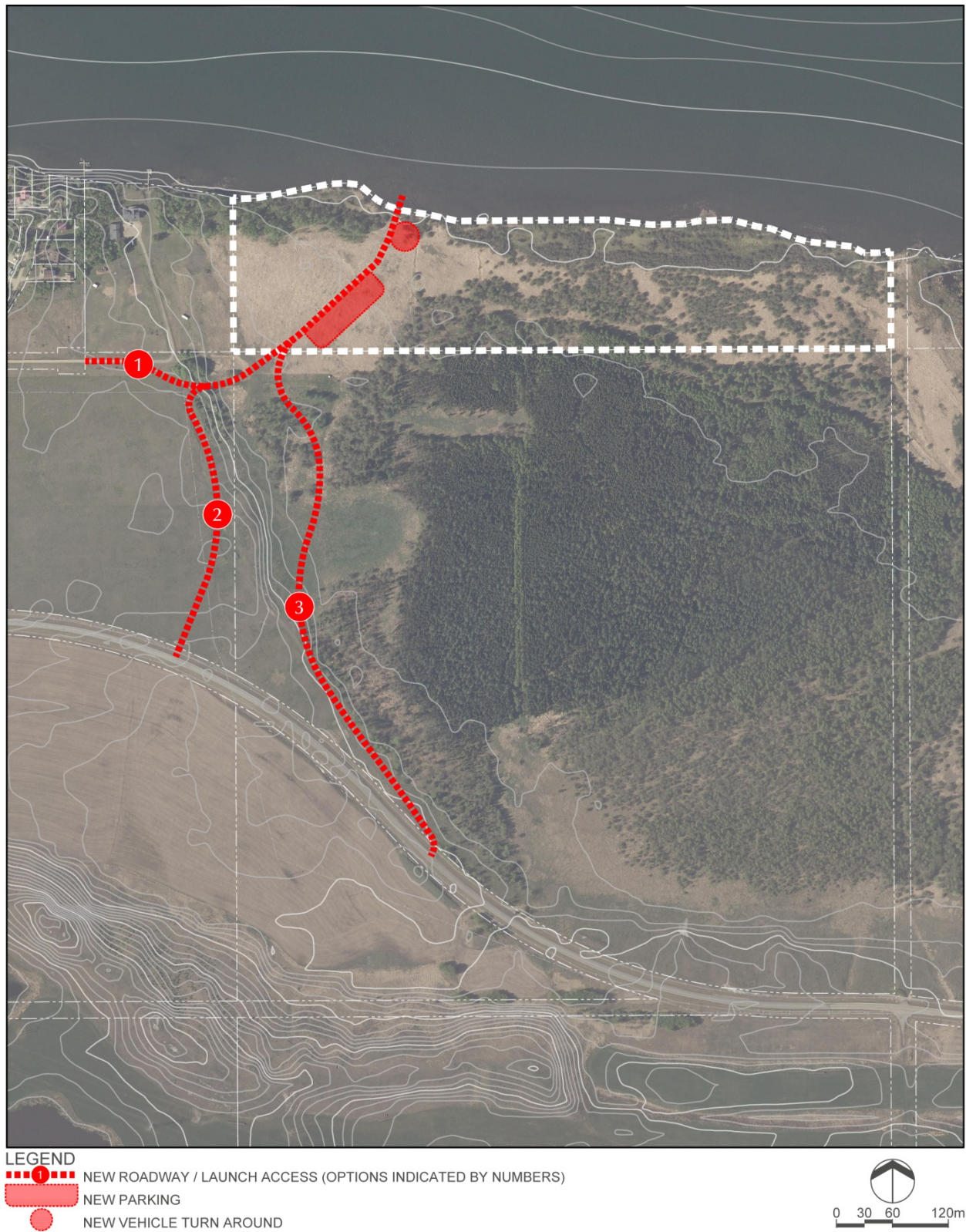


Figure 2: Parcel A Site Plan

Parcel A is located immediately East of the lakefront subdivision of Sundance Meadows. The nearest distance measured from Sundance Road to the lakeshore is approximately 650 metres, which impacts the cost of development in terms of road construction required to access the lake. There is an alternative access opportunity from the west through the Sundance Meadows subdivision on Sundance Avenue which would show a significant potential savings in road construction. There may be however some conflict with the subdivision residents and a large parcel resident just to the east of Sundance Meadows.

The site is partially vegetated but there is a significant area of clearing which suitable is size to accommodate the majority of the proposed development which would minimize the amount of required clearing of upland vegetation. Although there may be variations in the soil conditions at specific locations within the site, the soil condition generally, as mapped within the soil survey of Alberta, is described as organic, Eaglesham soil series, poor draining, PW (pasture and woodland). The site is generally flat sloping gently towards the water at less than 1%, with no apparent low lying pockets holding standing water. The contour information indicates that the proposed parking lot area would be constructed no less than 1 metre above the normal lake level. There is a 6 metre high ridge along the parcel to the south which would impact the grading for the access road if it were to connect to Sundance Road.

The shoreline condition is a silt- rock mix, with some emergent vegetation and with the bathymetry indicating a slightly steeper grade into the lake in comparison with Parcel B.

Potential environmental sensitivities include that of waterfowl nesting and foraging habitat, with the unconfirmed possibility of species such as the Western Grebe which is ranked threatened pursuant to Alberta's Wildlife Act. In addition, there is the potential of rare plant species in the riparian and upland areas, potential impact on important fish habitat, as well as the issue of water quality protection that will need to be maintained during construction.

Adjacent land use to the west is residential and a separation distance of 375 metres to the proposed launch (ramp) location. The Parcel to the west is undeveloped (Parcel B). The orientation of the boat launch at the proposed location will be directly North-South, which may be of concern in terms of wave action although there is an opportunity to create a small breakwater to the west of the launch on a section of shoreline that protrudes out into the lake.

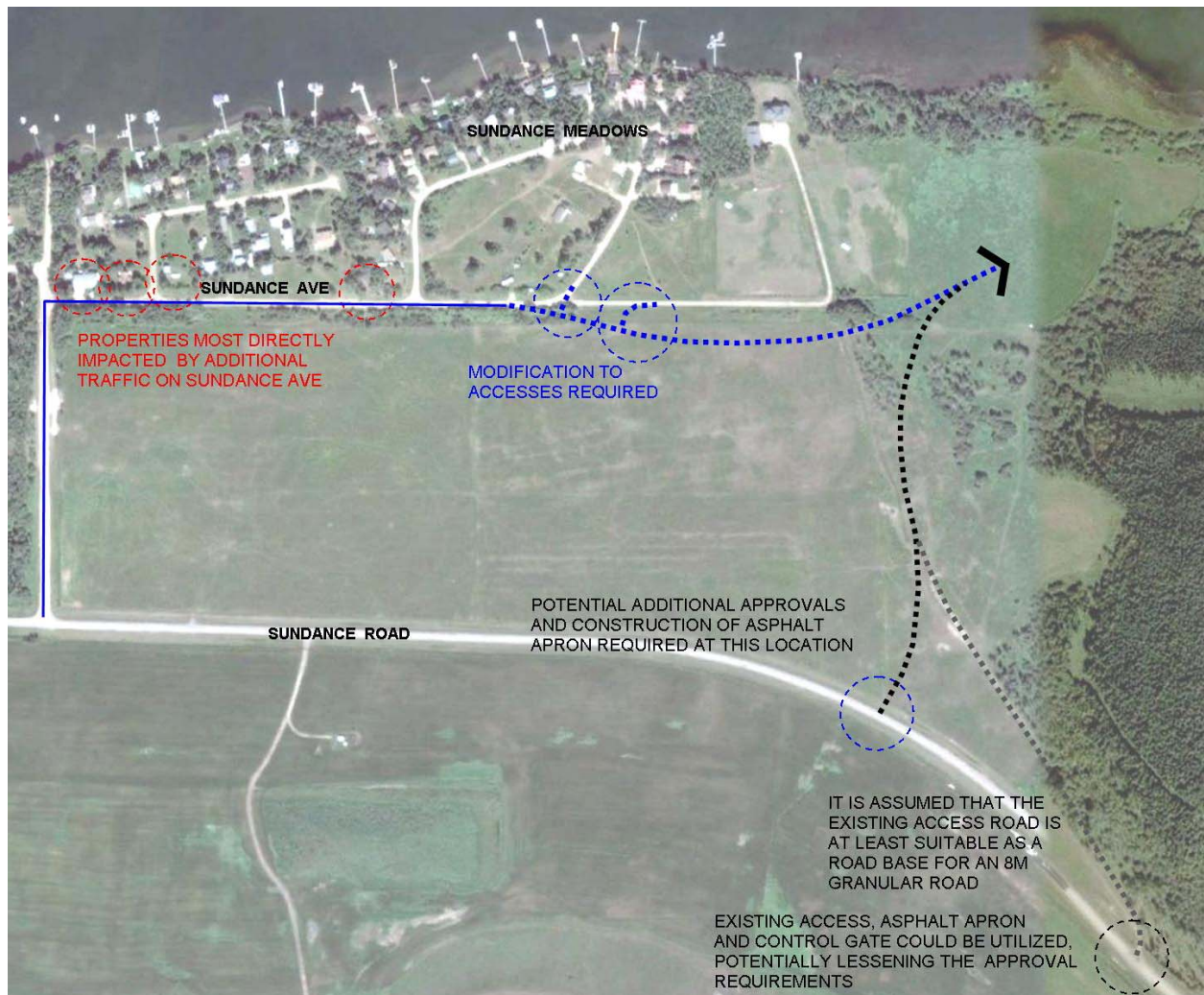


Figure 3: Parcel A Access Considerations

Parcel B



Figure 4: Parcel A Site Plan

Parcel B proposed development location is approximately 800m east of that of Parcel A. The portion of the site being considered for development is partially vegetated but has an area of clearing that would accommodate a large portion of the footprint of the proposed development.

Soils are indicated as being identical to Parcel A, as are the shoreline conditions, although the bathymetry shows a lesser grade into the water than that of Parcel A. The distance from Sundance Road to the shoreline is as close as 300 metres, but to the point of the proposed boat launch is closer to 550 metres. The site is generally flat sloping gently towards the water at less than 1%, the contour information indicating that the proposed parking lot area would be constructed no less than 1 metre above the normal lake level.
































Potential environmental sensitivities are similar to that of Parcel A in terms of the issues of waterfowl nesting and foraging habitat of the Western Grebe or other species, fish habitat, and water quality protection during construction. In Parcel B there is a significant area of relatively undisturbed upland vegetation that will need to be cleared to accommodate access to the boat launch. The bay is a relatively protected area that potentially could provide important waterfowl habitat for species such as red-necked grebe. In addition, there is an unnamed watercourse that would require the confirmation of location and potential for fish habitat if impacted by development.

Adjacent land use to the west is undeveloped (Parcel A). To the east is a private lot with a separation distance of 800 metres from the proposed launch (ramp) location to recognizable development on the private lot. The orientation of the boat launch at the proposed location will one would be entering the water to the Northeast.

Site Evaluation

The two sites have been evaluated on a number of conditions relative to the proposed development, which is that of a granular access road, granular parking area, a concrete boat ramp and associated day-use facilities. The evaluation is graphically represented here in the form of a matrix.

Table 1: Evaluation of Parcel A and Parcel B Relative to the Suitability of the Development of a Boat Launch / Day-Use Facility

LEGEND			
	Conditions are Good - Limited Impact		
	Conditions are Fair - Some Impact or Unknown Condition		
	Conditions are Questionable - Significant Impact		
PARCEL A	PARCEL B	FACTOR	POTENTIAL IMPACT ON DEVELOPMENT
		Current Land Use	process requirements
		Ownership	acquisition requirements
		Elevation	relative to lake levels / fill requirements / flooding
		Slopes	affects the extent of major grading operations
		Soils	stability / suitability for construction
		Hydrology	ground water / water courses
		Vegetation	required clearing costs / environmental impact
		Historical Resources	potential historic / aboriginal resources
		Shoreline Condition	affects the amount of armouring / excavation
		Bathymetry	potential need for dredging / grading in the wet
		Environmental Sensitivity	flora / fauna habitat
		Adjacent Land Use	Proximity to residential / conflicts / noise, traffic
		Distance from Sundance Road	direct affect on length of roadway / costs
		Visibility	ease of policing / security of the developed site

Although both sites may provide for some significant challenges, Parcel A appears to be the more viable choice, based on the evaluation criteria. One of the most notable factors is the vegetation which can for the most part be avoided in Parcel A, eliminating an added construction cost for clearing and grubbing. This may be offset by the length of road that would need to be constructed in Parcel A, but there are added considerations related to both the elevation relative to lake level and the potential environmental issues with the clearing of upland vegetation. The shoreline conditions appear to be similar at both sites although the available bathymetry information indicates a steeper grade into the water at Parcel A, which would translate to a shorter distance to a greater water depth, and therefore better suited for the boat launch. The environmental sensitivity of that sites are similar although Parcel B may be considered slightly greater than that of Parcel A as it relates to the possible disturbance of upland vegetation as well as the potential added sensitivity of the protected bay.

Preferred Site

Phase 1 Development

Phase 1 of development recognizes the immediate need for a boat launch and looks at the construction of a single launch with some associated shoreline armoring, a granular surfaced pull-through parking lot providing for 10 vehicle-boat trailer combination stalls, and an 8m wide granular surfaced access road connecting to Sundance Road. Although a detailed site survey and geotechnical analysis would be required to confirm, it is assumed that the existing grades and soil conditions are such that a significant amount of clay fill will be required to build up the road structure. In addition, site identification signage, way-finding signage and access controls would be provided. All additional development would be deferred to a future stage (or stages) of development.

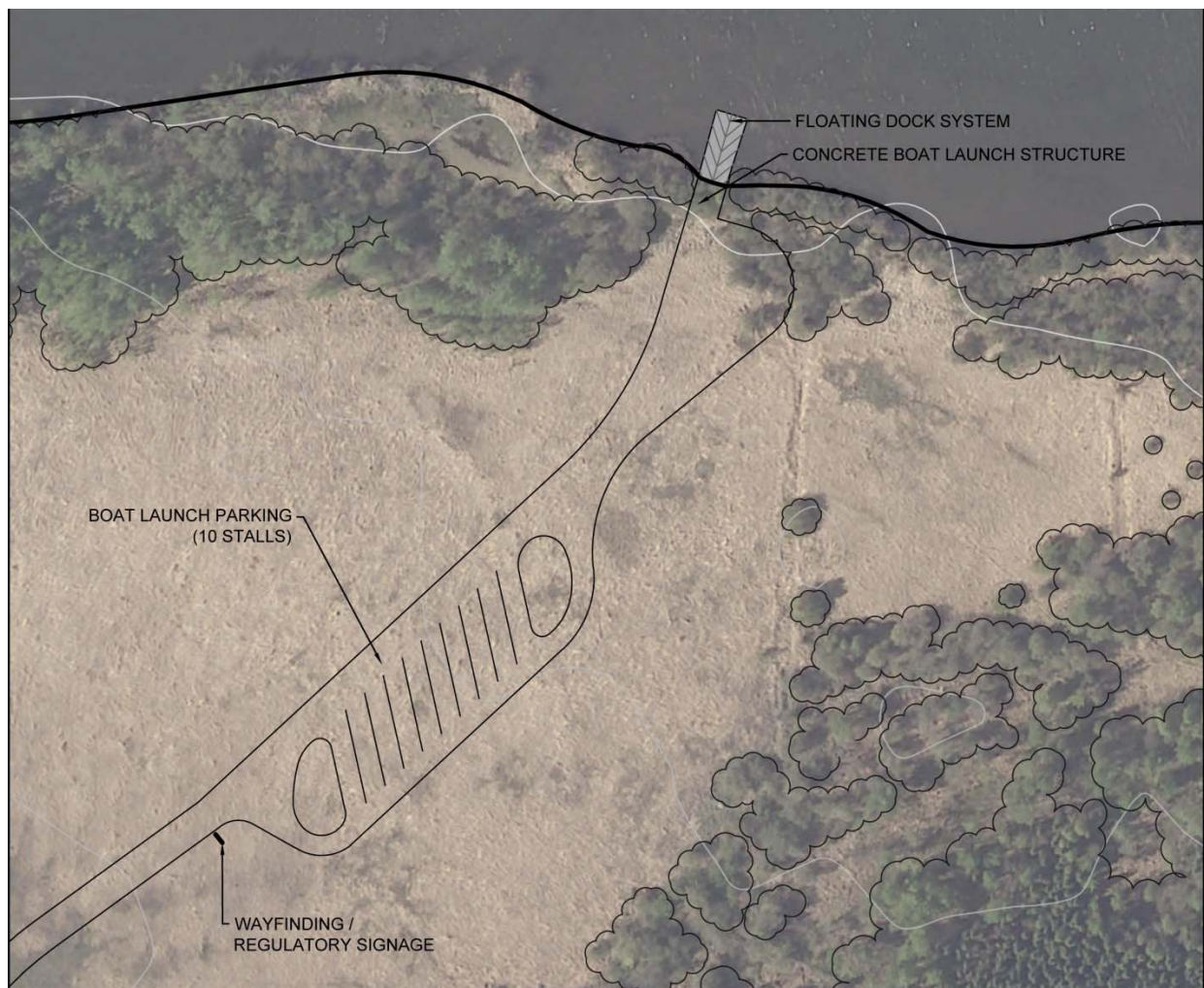


Figure 5: Parcel A Site Plan: Phase One



Phase 2 - Complete Development - Boat Launch / Day-Use Facility

In keeping with the proposed level of development of a boat launch facility as outlined in the Lake Wabumun Boat Launch Study (EDA 2013), the full development scenario includes a number of upgrades that would take the development to the status of a boat launch /day-use facility. Upgrades include expanding the launch to a double launch, added controls in the form of post and rail fencing, the inclusion of a washroom facility and associated pull-in granular parking stalls, a shelter, a short granular trail with some picnic sites, furnishings, and a small tot-lot. All of these proposed upgrades would have to be re-evaluated based on the use seen at the boat launch after the first phase of development. If the user levels warrant even further upgrades, there is provision for an optional element that looks at doubling the pull through parking.

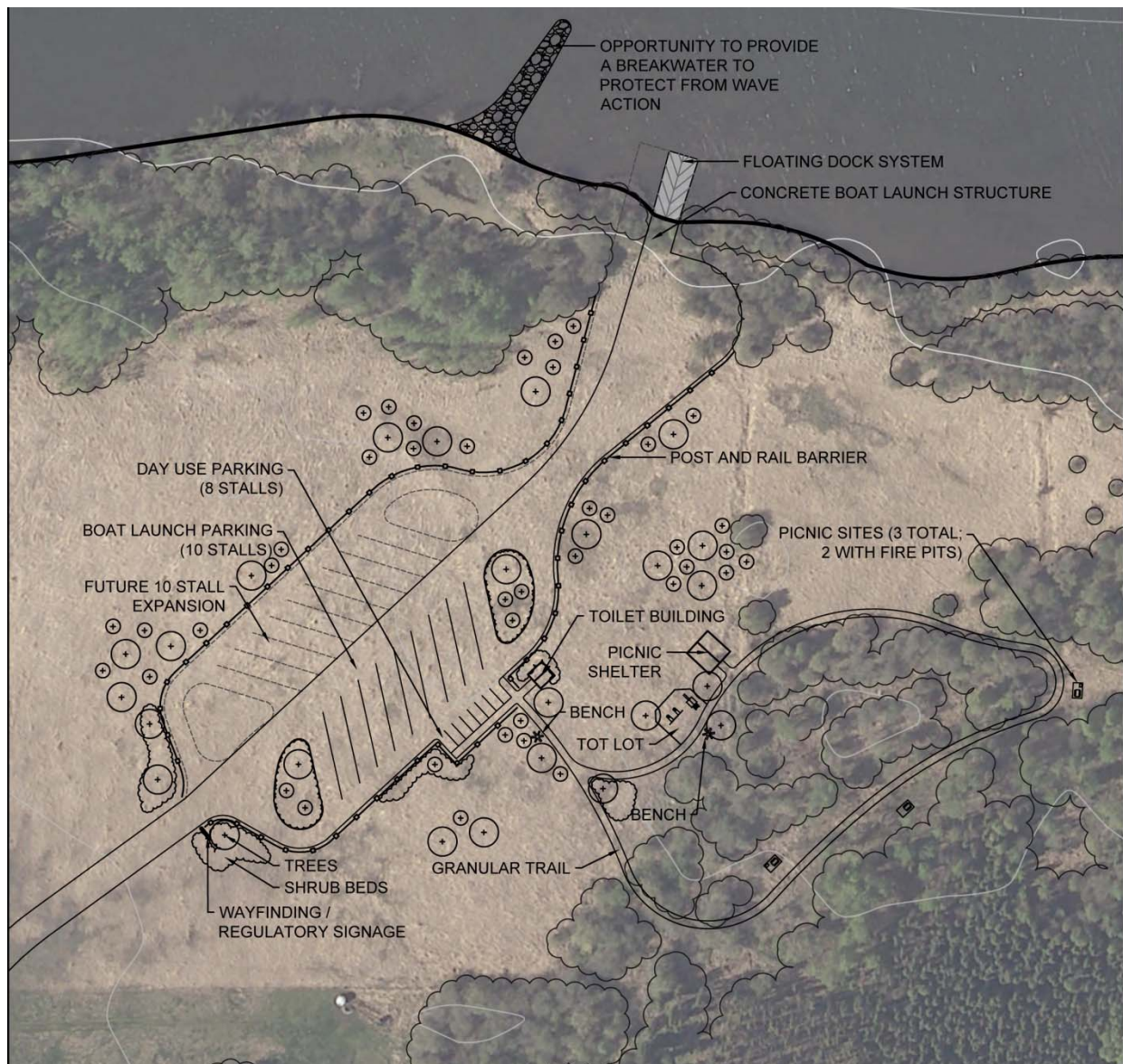


Figure 6: Parcel A Detailed Site Plan: Complete Development



Opinion of Probable Costs

The costs provided herein are Class 3 to 4 Estimates, provided without detailed survey or site condition information and can vary substantially from actual costs based on a number of factors including but not limited to, unforeseen conditions of the site, geotechnical requirements, approval requirements, engineering requirements, and permitting.

Table 2: Boat Launch and Parking - Phase 1 - Minimum Development Excluding Access Road

Item	Description	Quantity	Unit	Unit Rate	Extension
1	CLEARING AND GRUBBING	250	M2	\$5	\$1,250
2	STRIP AND REMOVAL OF ORGANICS (assume 100mm)	617	M3	\$25	\$15,425
3	CLAY FILL (to bring up grade an average of 500mm)	2527	M3	\$30	\$75,810
4	ROUGH GRADING	6179	M2	\$3	\$18,537
5	ROAD BASE PREP - COMPACTION AND FABRIC	5054	M2	\$10	\$50,540
6	GRAVEL ROAD / PARKING LOT SURFACE	4595	M2	\$40	\$183,800
7	CONCRETE BOAT LAUNCH STRUCTURE	1	EACH	\$10,000	\$10,000
8	SHORELINE STABILIZATION - RIP RAP	250	M2	\$30	\$7,500
9	SITE ID SIGNAGE	1	LUMP	\$7,500	\$7,500
10	WAYFINDING / REGULATORY SIGNAGE	1	LUMP	\$4,500	\$4,500
11	ACCESS GATE	1	UNIT	\$2,800	\$2,800
12	REHAB OF DISTURBED AREAS - TOPSOIL AND SEED	1125	M2	\$10	\$11,250
13	ENVIRONMENTAL ASSESS, APPROVALS AND PERMIT	1	LUMP	\$50,000	\$50,000
14	DESIGN, MANAGEMENT AND ENGINEERING FEES	1	LUMP	\$65,000	\$65,000
Subtotal					\$503,912
15% Contingency					\$75,587
TOTAL OPINION OF PROBABLE COST - BOAT LAUNCH AND PARKING					\$579,499

Table 3: Access Road – Option 1

Item	Description	Quantity	Unit	Unit Rate	Extension
1	CLEARING AND GRUBBING	75	M2	\$5	\$375
2	STRIP AND REMOVAL OF ORGANICS (assume 100mm)	421	M3	\$25	\$10,525
3	CLAY FILL (to bring up grade an average of 300mm)	752	M3	\$35	\$26,320
4	ROUGH GRADING	4218	M2	\$3	\$12,654
5	ROAD BASE PREP	2508	M2	\$10	\$25,080
6	GRAVEL ROAD SURFACE	2280	M2	\$40	\$91,200
7	ASPHALT APRON OFF HIGHWAY	40	M2	\$50	\$2,000
8	REHAB OF DISTURBED AREAS - TOPSOIL AND SEED	1710	M2	\$10	\$17,100
Subtotal					\$168,154
15% Contingency					\$25,223
TOTAL OPINION OF PROBABLE COST - ACCESS ROAD - OPTION 1					\$193,377

Table 4: Access Road – Option 2 (Preferred)

Item	Description	Quantity	Unit	Unit Rate	Extension
1	CLEARING AND GRUBBING	75	M2	\$5	\$375
2	STRIP AND REMOVAL OF ORGANICS (assume 100mm)	719	M3	\$25	\$17,975
3	CLAY FILL (to bring up grade an average of 300mm)	1282	M3	\$35	\$44,870
4	ROUGH GRADING	7192	M2	\$3	\$21,576
5	ROAD BASE PREP	4276	M2	\$10	\$42,760
6	GRAVEL ROAD SURFACE	3888	M2	\$40	\$155,520
7	ASPHALT APRON OFF HIGHWAY	40	M2	\$50	\$2,000
8	REHAB OF DISTURBED AREAS - TOPSOIL AND SEED	2916	M2	\$10	\$29,160
Subtotal					\$285,076
15% Contingency					\$42,761
TOTAL OPINION OF PROBABLE COST - ACCESS ROAD - OPTION 2					\$327,837

Table 5: Access Road – Option 3

Item	Description	Quantity	Unit	Unit Rate	Extension
1	CLEARING AND GRUBBING	250	M2	\$5	\$1,250
2	STRIP AND REMOVAL OF ORGANICS (assume 100mm)	651	M3	\$25	\$16,275
3	CLAY FILL (to bring up grade an average of 300mm)	1161	M3	\$35	\$40,635
4	ROUGH GRADING	6512	M2	\$3	\$19,536
5	ROAD BASE PREP	3872	M2	\$10	\$38,720
6	GRAVEL ROAD SURFACE	5680	M2	\$40	\$227,200
7	REHAB OF DISTURBED AREAS - TOPSOIL AND SEED	2640	M2	\$10	\$26,400
Subtotal					\$343,616
15% Contingency					\$51,542
TOTAL OPINION OF PROBABLE COST - ACCESS ROAD - OPTION 3					\$395,158

Table 6: Boat Launch with Access Road Option 2 - Full Amenities (Phase 1 and 2)

Item	Description	Quantity	Unit	Unit Rate	Extension
1	CLEARING AND GRUBBING	325	M2	\$5	\$1,625
2	STRIP AND REMOVAL OF ORGANICS (assume 100mm)	1337	M3	\$25	\$33,425
3	CLAY FILL	3809	M3	\$35	\$133,315
4	ROUGH GRADING	1408	M2	\$3	\$4,224
5	ROAD BASE PREP - COMPACTION AND FABRIC	14087	M2	\$10	\$140,870
6	GRAVEL ROAD / PARKING LOT SURFACE	9133	M2	\$40	\$365,320
7	CONCRETE BOAT LAUNCH STRUCTURES	2	EACH	\$12,000	\$24,000
8	FLOATING DOCK SYSTEM	20	LM	\$2,500	\$50,000
9	SHORELINE STABILIZATION - RIP RAP	250	M2	\$30	\$7,500
10	GRANULAR TRAIL	400	LM	\$50	\$20,000
11	TOILET BUILDING	1	LUMP	\$30,000	\$30,000
12	WATER TANK OR WELL	1	LUMP	\$15,000	\$15,000
13	PICNIC TABLES ON CONCRETE PADS	3	EACH	\$2,500	\$7,500
14	WASTE BINS ON CONCRETE PADS	2	EACH	\$2,200	\$4,400
15	PICNIC SHELTER	1	EACH	\$40,000	\$40,000
16	FIRE PITS	2	EACH	\$1,800	\$3,600
17	BENCHES	2	EACH	\$1,200	\$2,400
18	TOT LOT	1	LUMP	\$50,000	\$50,000
19	BARRIER POST AND RAIL	320	LM	\$75	\$24,000
20	ACCESS GATE	1	UNIT	\$2,800	\$2,800
21	SITE ID SIGNAGE	1	LUMP	\$7,500	\$7,500
22	WAYFINDING / REGULATORY SIGNAGE	1	LUMP	\$4,500	\$4,500
23	REHAB OF DISTURBED AREAS - TOPSOIL AND SEED	4041	M2	\$10	\$40,410
24	SHRUB BED PREP	350	M2	\$30	\$10,500
25	LARGE TREES - CALIPER STOCK	25	EACH	\$400	\$10,000
26	SMALL TREES - NATURALIZATION	40	EACH	\$150	\$6,000
27	SHRUBS	100	EACH	\$45	\$4,500
28	ENVIRONMENTAL ASSESS, APPROVALS AND PERMIT	1	LUMP	\$50,000	\$50,000
29	DESIGN, MANAGEMENT AND ENGINEERING FEES	1	LUMP	\$65,000	\$65,000
				Subtotal	\$1,158,389
				15% Contingency	\$173,758
TOTAL ESTIMATED COST MAGNITUDE - BOAT LAUNCH AND PARKING					\$1,332,147

Note: It would be approximately \$160,000 to expand the pull-thru parking

Appendix A: Soils Map

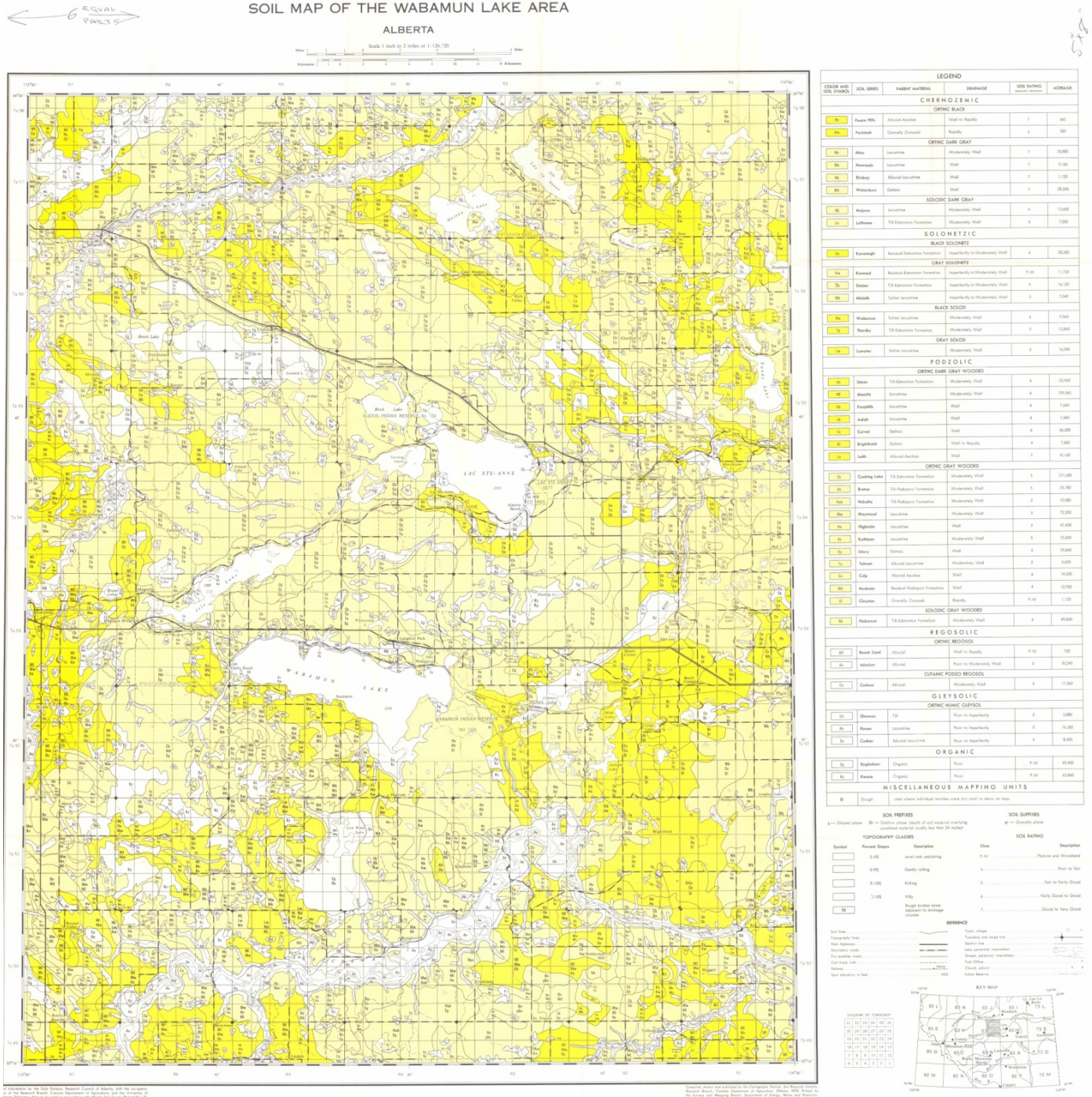


Figure 7: Soils Map of the Wabamun Lake Area

Source: http://www.agric.gov.ab.ca/soil/survey-reports/ab24/ab24_map1.jpg Accessed October 2016

Appendix B: Environmental Overview



SPENCER ENVIRONMENTAL
M A N A G E M E N T S E R V I C E S L T D.

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Phone (780) 429-2108 Fax (780) 429-2127

Ted Muller AALA, FCSLA, ASLA
Principal
EDA Collaborative Inc.
10212 - 111 Street
Edmonton, AB T5K 1K9

25 October 2016
EP 716

Dear Mr. Muller:

Re: Proposed South Wabamun Boat Launch Environmental Sensitivity Overview

Introduction

As requested, this letter provides a high-level overview of potential environmental sensitivities and environmental permitting requirements for the identified two potential boat launch parcels on the south side of Wabamun Lake, east of Sundance Meadows. Parcel A is a narrow, rectangular parcel extending along the lake's shoreline in an east/west direction and Parcel B is the eastern and largest parcel located immediately north of Sundance Road.

We have made the following assumptions in support of this analysis: 1) Construction of the boat launch would include a concrete slab ramp or similar resulting in a permanent footprint below the ordinary high water mark; and 2) new vehicle and trailer access and parking would be required in support of the proposed new boat launch.

Parkland County Environmental Conservation Master Plan – Phase 1

Wabamun Lake has been identified by Parkland County as an Environmentally Sensitive Area (ESA) in the Parkland County Environmental Conservation Master Plan – Phase 1 (2014), which includes a 100 m wide riparian zone planning buffer around the lake. While formal policies to support the County's conservation master plan are currently under development, the master plan document does describe lakeshore and lakefront development objectives and best management practices in Section 4.7. Those BMP's include the following:

- Prohibit clearing and sand dumping in riparian and shoreline areas of all lake ESA's.
- Require additional environmental assessments (i.e., use of Riparian Setback Matrix model, biophysical impacts assessments, etc.) for proposed developments within 100 metres of lakes and lake ESAs. Negative environmental assessments would require significant development alterations or would be disallowed from future development.

Potential Environmental Sensitivities

Based on aerial photo analysis and a review of background information available for Wabamun Lake, the following are potential environmental sensitivities associated with construction and operation of a proposed boat launch at either of the identified parcels:

- Western grebe – ranked as Threatened pursuant to Alberta’s Wildlife Act this species is highly sensitive to human disturbance; while a known nesting colony is located along the north shore of the lake, these birds also utilize other areas of the lake for foraging, brood rearing, etc. It is unknown whether they use the protected bay area, which also appears to have emergent vegetation, adjacent to Parcel B for foraging or other life requirements.
- Waterfowl nesting and foraging habitat: similar to the western grebe comment above, it is unknown whether the protected bay adjacent to Parcel B provides important waterfowl habitat, including for another colonial nesting species, the red-necked grebe. The bay is a relatively protected area and appears to have emergent vegetation. Emergent vegetation also appears to occur along the shoreline of Parcel A, which could also provide important waterfowl habitat.
- Rare plants – it is unknown whether rare plant species occur in the upland, riparian and wetland areas potentially impacted by clearing for access and boat launch construction.
- Upland vegetation: there is potential that a large area of relatively undisturbed upland vegetation may need to be cleared to accommodate access to a boat launch in Parcel B compared to minimal required upland vegetation clearing expected in Parcel A.
- Wetland(s): aerial photograph analysis suggests there may be a wetland area (e.g., peatland) in the vegetated area immediately south of Parcel A. Impacting wetland areas could adversely affect amphibians (e.g., Canadian toad – provincially ranked as May Be At Risk) and other wetland-dependent species, including rare plants.
- Fisheries: Wabamun Lake provides important fish habitat for a variety of fish species including lake whitefish and northern pike.
- Unnamed watercourse on Parcel B: confirm presence/absence and potential for fish habitat in impact area, once known.
- Water quality: lake water quality needs to be maintained during construction and operation of the proposed boat launch to protect aquatic resources including fish.

Potential Environmental Permitting Requirements

Permitting requirements for a proposed boat launch on either Parcel A or B would include the following:

Federal

- *Navigation Protection Act (NPA)* – conduct self-assessment pursuant to the Minor Works Order. Works meeting the assessment criteria of the Minor Works Order are classed as “designated works” under the NPA. The project may proceed without a Notice to the Minister as long as the project complies with the legal requirements outlined in the Minor Works Order. If project not deemed a “Minor Works”, then need to submit a Notice to the Minister.
- *Fisheries Act* – Fisheries and Oceans Canada (DFO) review required if works conducted below high water mark. That includes a permanent increase in footprint below the high water mark and temporary or permanent fill placed below the high water mark.
 - Would require site-specific fish habitat field work, a report completed by a Qualified Aquatic Environmental Specialist (QAES) and submission of a Request for Review to DFO to determine if an Application for Authorization is required.
 - If an Application for Authorization is required then a letter of credit for offsetting and Aboriginal consultation would be required.

Provincial

- *Public Lands Act* – Department License of Occupation (DLO) for permanent works below the ordinary high water mark.
 - Application process includes several steps including:
 - First Nations/Metis Settlements Consultation Submissions (FNC)

- Plan Confirmation Service Submission (PCS) – technical submission of a disposition sketch.
- Environmental Field Report (EFR) - The EFR is a standardized word application form that requires technical and environmental information pertaining to the project. This includes basic location information, anticipated construction dates, information on vegetation, wildlife and special status species.
- DLO Application submission
- *Public Lands Act* – Temporary Field Authorization (TFA) for temporary works below the ordinary high water mark. Pending confirmation from the regional permitting officer, this application may require a supporting fisheries QAES report (as noted above for the *Fisheries Act*).
- *Water Act* – Water Act approval will be required for shore line/waterbody modification below the ordinary high water mark. Alberta Environment and Parks (AEP) may require public notification comprising a newspaper ad or similar followed by a public comment period. The Water Act and DLO approvals must be in place prior to initiating project construction.

County

- Requirements for some level of environmental assessment (e.g., a biophysical assessment) consistent with the Wabamun ESA to be confirmed by the County.

The information provided in this letter can be refined once more project- and site-specific information becomes available. Please contact us if you have questions or comments.

Sincerely,

**Spencer Environmental
Management Services Ltd.**




Andra Bismanis, M.Sc., P.Biol.
Environmental Scientist