

# Big Lake Environment Support Society

# BLESS



Response to the  
**City of St. Albert**

**West Regional Road  
Environmental Impact Assessment**  
dated September 2003

**28 November 2003**

---

## **Table of Contents**

Executive Summary .....	3
Introduction .....	6
Standing .....	6
BLESS' Involvement with the Proposed West Regional Road .....	6
Fish and Fish Habitat .....	7
Wildlife, Migratory Bird Habitat, and Rare and Endangered Species .....	7
Northern Wildlife Corridor .....	9
Surface Water/Hydrology .....	10
Groundwater .....	13
Former Landfill .....	13
Water Quality .....	16
Riel Pond - Storm Water and Road Runoff Management .....	16
Riel Pond - Sediment Contamination.....	18
Deleterious Substances .....	20
Alberta Environment, Groundwater Contamination Investigation .....	20
at the Former Dry Waste Disposal, Riel Drive, St. Albert, Alberta .....	20
Vegetation.....	21
White Spruce Forest .....	21
Rare Bryophytes .....	21
Loss of Woodlands .....	22
Transportation .....	22
Land Use .....	26
Recreation and Aesthetics.....	26
Terrain and Soils .....	28
Public Consultation Requirements .....	31
General Comment .....	31
Chronology.....	31
E-5: Public Opinion Survey .....	32
Cumulative Environmental Effects.....	32
Project Selection (2.2) .....	32
CEA Valued Environmental Components (2.3).....	32
Summary of Residual Impacts Considered (Table 2.2) .....	33
Sewage Lagoons (3.1.2) .....	33
Riel Pond (3.1.3).....	33
Riel Business Park (3.1.4) .....	33
BLESS Facilities (3.1.7) .....	33
Red Willow Park West Master Plan Update (3.2.5).....	34
Groundwater (4.1).....	34
Wetlands .....	34
Appendix A - BLESS Bird Study (2003).....	A-1
Appendix B - Maps and Photos .....	B-1
Appendix C - Road Alignment Alternatives .....	C-1
Appendix D - Alberta Environment Groundwater Contamination Letters .....	D-1

## Executive Summary

Based on the consultant's environmental impact assessment report for the West Regional Road, BLESS finds the currently proposed alignment unacceptable for the following reasons:

### Wildlife

- The alignment will wreak havoc on the eastern edge of Big Lake - the NE lakeshore, outlet of Sturgeon River from the lake, and Riel Pond area. This eastern edge of Big Lake is home to or visited by many at-risk and declining bird species, for example: the Trumpeter Swan, American Bittern, Short-eared Owl, Sprague's Pipit, Black-Crowned Night Heron, and White-winged Scoter.
- This alignment will disturb or destroy the area at the outlet of Sturgeon River that is ice-free first in spring and last in autumn and which is important to waterfowl en route to the arctic and to birds of prey including the Bald Eagle, Northern Harrier and Short-eared Owl
- The lake's northern floodplain functions as a wildlife corridor and is an important source of wildlife populations for the Sturgeon River valley, which is a regionally-important natural area. This area will be destroyed by the introduction of a bermed road through the floodplain.
- As the consultant's EIA report states, this is expected to:
  - significantly reduce the permeability of this corridor for many wildlife species, effectively reducing the existing corridor between Big Lake and the riparian lands along the Sturgeon River to a 6 m wide engineered slope adjacent to a 4 m wide bench supporting a granular recreational trail. The trail component is not expected to sustain much movement.
- This alignment will block the wildlife route between the north shore of Big Lake and the mature spruce woodland to the east, as the consultant states.
- Vehicle-wildlife collisions are likely with this alignment.
- The Riel Drive (previous "Ray Gibbon") alignment would not have these wildlife impacts.

### Fish and Fish Habitat

- Release of toxic materials such as arsenic and hydrocarbons into fish-bearing waters from Riel Pond during construction remains a concern.
- The Riel Drive (previous "Ray Gibbon") alignment would not have this risk.

### Surface Water

- This alignment runs through part of the lake bottom of Big Lake and is not "480 m distant at its closest point" as claimed.
- The large constriction of the Sturgeon River channel at the proposed bridge is likely to have adverse effects during floods.
- It will be impossible to take a canoe or other small boat under the bridge during high water.

- Recently updated Big Lake basin hydrology data indicate that higher water levels than estimated by the consultant can be expected on Big Lake in the future. The effect of this on the stability of the road is a concern.

### **Ground Water**

- A very real potential exists that road construction will enable contaminated leachate, known to reside in the former St. Albert City dump, to find its way into aquifers of the Empress Formation, a major source of groundwater in Northern Alberta.
- Inadequate testing has been carried out to confirm the presence of artesian conditions which the proponent claims will prevent leachate from entering groundwater through bridge pilings.
- Even if artesian conditions can be confirmed through further testing, the proponent does not provide absolute assurance such conditions will prevent aquifers from being contaminated. Given the importance of the major aquifers underlying the proposed alignment, anything less than absolute assurance is unacceptable.
- Alberta Environment has previously requested the City of St. Albert deal with the problem of leachate known to be escaping from the old dump. The proponent has, to date, failed to address that issue.
- Compaction of landfill contents through road construction has the potential to exacerbate the existing problem of leachate migration. The proponent has provided no valid mitigation measures to prevent leachate from migrating into both surface and ground waters.
- The Riel Drive alignment would not disturb the former dump and would avoid the problem of leachate contamination entirely.

### **Water Quality**

- The highway will run directly through Riel Pond. The report on the sediment sampling done on the pond in the winter of 2003 was not mentioned in the EIA report. This report found high arsenic and hydrocarbon levels in the sediment.
- The measures proposed to prevent contaminated sediments from Riel Pond, including arsenic and hydrocarbons, from reaching the watershed during construction are inadequate.
- Riel Pond will be reduced in size and will receive runoff from the highway in addition to the stormwater which it now receives from the industrial park and from a residential area. Its capacity will likely be exceeded at times, resulting in overwhelming of the water-cleaning capacity of the adjacent wetland to the south and ultimately to Big Lake.
- The Sturgeon River near its outlet from Big Lake is very slow-flowing for about a km, with the result that pollutants are not quickly flushed away from this important waterfowl area.
- The movement of leachate from the old dump is a concern as it is a violation of section 36(3) of the Fisheries Act and municipalities are not exempt from prosecution under this act, as shown by the recent prosecution of the City of Moncton (22 Sept. 2003).
- The Riel Drive (previous Ray Gibbon) alignment would avoid these risks and impacts.

## **Vegetation**

- Two species of moss found along the proposed right-of-way are rare in Alberta and will likely be eradicated, as translocating mosses is often unsuccessful, as the consultant states.
- Adverse impact on the woodland known as the “spruce woods” (“white spruce forest”), an isolated mature white spruce forest immediately NE of Big Lake, is unavoidable with this alignment.
- The Riel Drive (previous Ray Gibbon) alignment would avoid impacting this woodland.

## **Land use**

- The EIA greatly underestimates the value to St. Albert residents of the southeastern shore of Big Lake at the outlet of the Sturgeon River, with its observation platform and pedestrian trails in close proximity to the city’s core.
- The viewing platform and surrounding area will be inaccessible during periods of high water such as in the spring.
- The visual impact of the highway will be major and adverse.
- The Riel Drive (previous Ray Gibbon) alignment would preserve this priceless area.

## **Terrain and Soils**

- This alignment, which traverses the old landfill site and part of Riel Pond, has a large degree of uncertainty associated with the underlying materials in this area. Consulting engineers have pointed out that the specific characteristics of the terrain materials and the significant associated environmental risks involved with the old dump site waste materials and the bottom deposit sediments of the sewage lagoon are largely unknown.
- The Riel Drive (previous Ray Gibbon) alignment would avoid this risk.

## **Transportation, Planning and Construction**

- The EIA does not examine alternative alignments but instead aims to replace lost wetlands and fish habitat (the “no net loss” goal); however, the implementation guidelines for the Federal Policy on Wetland Conservation state that alternatives to carrying out the project must be examined as part of assessing environmental effects. These guidelines also state that efforts should be made to avoid adverse effects through project siting.
- The consultants propose to construct a roadway over the landfill and lagoon area by overfilling, compacting the fill and allowing it to settle. Compression of the old sewage lagoon places a risk of pollution on the surrounding wetlands and Sturgeon River.
- A flood on Big Lake could endanger the right-of-way and bridge approaches.
- An alternative alignment recommended by City Plan and adopted by Council in 2000, the Riel Drive (previous Ray Gibbon) alignment, would avoid most of the adverse effects of the West Regional Road identified by the consultant and by BLESS.

## Introduction

### Standing

The Big Lake Environment Support Society (BLESS) was formed in 1991 as a registered non-profit society in Alberta. Its formation filled a gap noted by the Edmonton Metropolitan Regional Planning Commission (EMRPC) in its comprehensive planning report for Big Lake and its surrounding shoreland area, "The Big Lake Plan," in 1989. Since that time, BLESS has acquired status as a credible society, as evidenced by:

- Invitation to join the EMRPC's round tables on the environment
- Receiving the Alberta Emerald Award for Environmental Excellence
- Invitation from the Minister of Alberta Environment to have a representative on the Big Lake Special Places 2000 Local Committee
- Appointment by the Canadian Nature Federation to prepare the Important Bird Area Big Lake Conservation Plan
- Appointment by Alberta Community Development as Steward of the Big Lake Natural Area

### BLESS' Involvement with the Proposed West Regional Road

BLESS' involvement with a proposed highway in the vicinity of the presently proposed West Regional Road alignment began over 12 years ago and can be found on our website, [www.bless.ab.ca](http://www.bless.ab.ca).

- Following St. Albert Council's approval of an alignment of the highway close to Big Lake (known as the "West Boundary Road"), a petition in 1997 of 11,000 names caused the St. Albert Council to cancel that decision and refer the matter to the 2000 Municipal Development Planning process ("City Plan"). BLESS did not conduct this petition but did participate in public presentations to the City Plan.
- The City Plan planners eventually recommended to St. Albert Council a different alignment. This alignment was approved by Council in 2000. At the time it was widely referred to as the "Ray Gibbon Drive alignment"; however, it is referred to in this report as the "Riel Drive alignment" so as not to confuse it with the proposed renaming of the West Regional Road to "Ray Gibbon Drive". This Riel Drive alignment is also sometimes referred to as the "Riel/West Boundary Arterial Road alignment by the City and its consultant.
- With regard to roadway "alternatives", BLESS notes that in July, 2001, ISL Infrastructure Systems Ltd. submitted, at the City's request [in accordance with the City's Municipal Development Plan – City Plan (Bylaw 4/2000), policy 11.4], a full functional study of the feasibility, including costs, and addressing leachate concerns (avoidance) for the "Riel Drive alignment" alternative west river crossing. The ISL report detailed for the City the means for building a four lane arterial standard road (similar to the existing Boudreau Road, on the east side of St. Albert). BLESS has included ISL's executive summary report ["Ray Gibbon Drive Functional Planning Study (Formerly the Riel/West Boundary Arterial)", Executive Summary, July, 2001] in Appendix C of this BLESS submission to DFO.

- In 2001 the present council overturned that decision and hired a consultant to recommend where, within a narrowly drawn geographical corridor similar to the originally proposed West Boundary Road alignment which ran close to the eastern edge of Big Lake, a highway should be placed and to evaluate the environmental impact of such a highway. The present report is BLESS' response to this EIA.

## **Fish and Fish Habitat**

BLESS notes that the proponent acknowledges (page 5-166, Volume I, "Final Report") the loss of approximately 6000 sq. m of fish habitat to bridge piers and bridge abutments.

BLESS is concerned that the proposed mitigation involving moving the existing west Riel Pond dike eastwards, may risk the release of toxic materials, such as arsenic and hydrocarbons into fish bearing waters. The proponent states on page 5-171, Volume I, that "excavation will not involve the release of Riel Pond bottom sediments", but how this assurance will be fulfilled is not adequately described.

Regarding specifically the Terms of Reference, under "Fish and Fish Habitat, Item 7 states:

Describe mitigation to address potential barriers to fish passage during construction resulting from isolation techniques. Should work be done on the floodplain during the closed timing period, a contingency plan outlining mitigation to address potential high water events should be included.

BLESS is concerned that the required "contingency plan" has not been addressed sufficiently by the proponent to assure that "high water events" occurring while major construction is underway, with large quantities of readily erodable loose materials in the floodplain, will not pose a significant risk of environmental harm if flooding interrupts construction of the proposed project at critical times.

BLESS believes that the contingency plan should address flood risk to the project at any time that construction is undertaken within the designated flood fringe and floodway portions of the Big Lake-Sturgeon River hydrologic system, whether within the "closed timing period", or not.

## **Wildlife, Migratory Bird Habitat, and Rare and Endangered Species**

The Environmental Assessment recognizes the importance of Big Lake and its surrounding area as highly significant bird habitat, second to none in Alberta. The consultants admit that there will be an adverse impact on birds using Big Lake. However they give no idea of the magnitude of this impact or the ramifications for the migratory or nesting birds using the road-endangered space consisting of the eastern end of Big Lake, the Sturgeon River outlet from the lake, or Riel Pond and adjacent marsh.

This is a highly important place, used by many declining species (as described in Appendix A Table 3 of the BLESS submission to DFO). Being the first ice-free area in April and the last to freeze in autumn, this area is used by migratory birds en route to the arctic, and others such as the rare Trumpeter Swan, which migrates to its northern nesting sites before most waterbodies are ice-free.

The results of a series of migratory bird observations of these areas in April and May, 2003 (Table 1, Appendix A of BLESS submission to DFO) show that this threatened area is highly productive, diverse habitats for migratory birds. For example, on one day, 28 April 2003, 170 canvasback ducks (*A. valisineria*), a species in decline, were seen on the Sturgeon River in the vicinity of the proposed bridge location. Kestrels (Sparrow Hawks; *Falco sparverius*) and Northern Harriers ((Marsh hawks; *Circus cyaneus*) were regularly observed hunting the shoreline in this same area. An eyewitness account of

Bald Eagles hunting this area amidst thousands of Pintail ducks in April is contained in Appendix A of the BLESS submission to DFO.

Many rare, declining and at-risk bird species use this now-threatened area. These include Trumpeter Swan, Sprague's Pipit, American Bittern, Black-crowned Night Heron, Forster's Tern, Black Tern, Osprey, Bald Eagle, White-winged Scoter, Short-eared Owl, Pied-billed Grebe, and Horned Grebe, American White Pelican. Their status and sightings are described in Table 3 Appendix A of the BLESS submission.

A breeding bird survey conducted in 2003 by biologists hired by the Big Lake Environment Support Society identified Sprague's Pipit (*Anthus spragueii*) as being present at Big Lake. Given that this species is on Environment Canada's COSEWIC list as a threatened species (i.e. likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction) and has been recommended as a "species of special concern" in Alberta, the consultants should conduct further surveys to determine if the bridge and road alignment will have an impact on the small population of this species here.

With regard to Sprague's Pipit, the Species at Risk Public Registry states:

Habitat loss is the primary cause of decline in this species. In particular, approximately 75% of native grasslands on the Canadian prairies have been lost to cultivation, which renders the habitat unsuitable for Sprague's Pipits. Among other factors which may also reduce habitat suitability are: 1) intensive grazing, which removes vegetation and may cause reproductive failure due to disturbance and trampling of nests; 2) haying; 3) fragmentation of habitat; and 4) reduction in fire frequency, which encourages encroachment of woody vegetation.

The Sprague's Pipit, and its nests and eggs, have been protected from hunting and collecting in Canada since the Migratory birds Convention Act was passed in 1917. The species is also protected from disturbance under provincial Wildlife Acts in British Columbia, Alberta, Saskatchewan and Manitoba.

The Short-eared Owl (*Asio flammeus*), which is known to nest along the north shore of Big Lake and hunt in the area of the Sturgeon River near the proposed alignment, is also on Environment Canada's COSEWIC list as a species of special concern. It is particularly sensitive to human activities or natural events. It is listed as a species that "may be at risk" by Alberta Sustainable Resource Development. With regard to this species, ASRD's Species at Risk program website states:

Population unknown. Declines in all prairie provinces and in other parts of North American breeding range. Causes of population decline unknown. Relies on maintenance of edges of larger wetland habitats. Irregular nature of population makes population trend assessments extremely difficult.

The special status of these species was not identified in the EIA, and no mitigation plans for them are given.

Big Lake supplies some bird species with good quality habitat during migration (for example, Tundra Swan) and resting/feeding areas (for example, Franklin's Gull). The proposed road alignment will have a potential major impact on Tundra Swans and Franklin's Gulls through noise disruption, vehicle collisions and bridge collisions. The EIA identifies this impact as potentially major and permanent, but

presents no mitigation plans Nor does it offer plans to offset the fragmentation of habitat or the improved access to sensitive wetlands for people and dogs on the north side of the river.

All of these serious threats would be avoided by selection of the Riel Drive (previously Ray Gibbon) alignment.

### **Northern Wildlife Corridor**

The impact of the West Regional Road on wildlife corridors has not been adequately addressed in the EIA. A primary area of concern in this regard is the effect the road will have in preventing ungulates from moving between the white spruce forest and the shores of Big Lake.

The area in question is home to deer and moose and is considered to be very important wildlife habitat. In Volume I of the EIA, on page 5-100, the Big Lake Natural Area Management Plan (AMEC 2002) is quoted as identifying "...portions of the north and east shores of Big Lake and the Sturgeon River Valley within the wildlife study area as highly important wildlife habitat..."

The proponent admits (on page 5-135 of Volume I) that "On the whole, the introduction of a bermed road through this wide, natural floodplain is expected to significantly reduce the permeability of this corridor for many wildlife species, effectively reducing the existing corridor between Big Lake and the riparian lands along the Sturgeon River to a 6 m wide engineered slope adjacent to a 4 m wide bench supporting a granular recreational trail. The trail component is not expected to sustain much movement. In addition, the road lies across, and will effectively block, the most direct route (shortest overland distance) between the north shore of the lake and the spruce woodland) situated along the north edge of this corridor. For the larger species such as deer and coyote that likely use this more direct route, and may continue to do so at least during the initial years of operation, the road could eventually become a mortality sink, affecting local populations."

Animal mortality through collisions with vehicles is important to consider; however, more important is the loss of ungulate habitat through fragmentation. The proponent implies that mortality will eventually decrease, either after all the deer are killed off through collisions with vehicles or when the entire population finally moves on. The fact that the road will bisect this area and prevent movement means that it effectively destroys the current capacity of the white spruce forest to support deer.

It would be very destructive to regional wildlife populations to render this area untenable for large animals. The proponent admits as much in Volume I of the EIA on page 5-135 with the statement "Considering the important role that Big Lake and shorelands probably play in providing source populations for the Sturgeon River (a regionally-important natural area) and adjacent natural areas, and the estimated high function of the floodplain as a corridor, this reduction in wildlife corridor width is rated as an adverse, major, permanent, predictable impact."

There is little that can be done to mitigate the effect of roads on wildlife and wildlife habitat. A recent study has pointed out "the importance to conservation of avoiding construction of new roads in roadless or sparsely roaded areas..." (see the article from Conservation Biology entitled "Review of Ecological Effects of Roads on Terrestrial and Aquatic Communities" in Appendix C of BLESS submission).

The EIA states (Section 7, Summary Assessment on page 7-40) "The impact of the road on movement in the north floodplain is rated as an adverse, major, permanent, predictable impact." The proponent has downgraded the impact of the road on the wildlife corridor between Big Lake and the white spruce forest (Volume I, page 7-12) to a residual impact of "major to minor", yet no effective mitigation to facilitate

ungulate movement through the corridor has been offered. The residual impact for large animals should remain as a major impact. Because no effective mitigation is suggested, or in fact appears possible, and since viable alternative alignments are available, BLESS insists the WRR not be allowed to fragment and destroy the very important wildlife habitat in the vicinity of the white spruce forest.

The northern floodplain wildlife corridor will no longer exist if the WRR is constructed. All wildlife, whether they are ungulates, porcupine or coyotes, will have to cross the road. This will ensure a continual series of potentially hazardous, even lethal, collisions between deer, moose and vehicles. Collisions between vehicles and moose or deer will eventually kill the occupants of vehicles as well as the animals. Like any road through a natural area the carnage will be a continual drain on the wildlife resources in the area, as scavengers will be attracted to carcasses and will also be involved in vehicle/wildlife collisions. This will be a major, permanent, adverse impact. Simple wildlife crossing signs and small culverts will do little, or nothing, to mitigate this impact. Locating the river crossing to a less natural area would reduce this threat considerably.

## **Surface Water/Hydrology**

BLESS takes great exception to statements in the EIA which have the effect of perpetuating the myth that the West Regional Road lies several hundred of meters from Big Lake.

For example, on page 2-5, EIA, Volume I, it is stated that "... the roadway would roughly parallel the shoreline of Big Lake (480 m distant at the closest point)".

This is incorrect.

Cursory reference to maps and aerial photographs of the area in relation to a plot of the planned road alignment quickly dispels any validity to the claim that the WRR is hundreds of meters from Big Lake.

For example, the 1991 Federal-Provincial "Canada-Alberta Flood Damage Reduction Program" Map ("Flood Information Map, City of St. Albert", in Appendix B, BLESS submission to DFO) clearly shows that a plot of the WRR ROW passes through both the designated flood fringe zone and the floodway zone of Big Lake in the vicinity of a periodically dry bay in the northeast area of Big Lake. The common interpretation of a situation such as this is that the WRR road is proposed to cross through the bed and shore of Big Lake.

The impact of this proposed WRR alignment on Big Lake is also clearly illustrated when the WRR ROW is plotted on vertical aerial photographs (scale 1:5000, identified as number ED9711-167, Line 33E and ED9712-13, Line 34E, in Appendix B, BLESS submission to DFO). These provincial government issued photographs, dated May 05, 1997 (after the spring flood peak of 1997), confirm that a plot of the road alignment can readily be seen to be a "causeway-like" road embankment passing through the northeast part of Big Lake. On this aerial photographic image the proposed road alignment is bordered by the waters of Big Lake on both sides of the road plot, with lake waters lying to the east and to the west of the proposed roadway. That is, the WRR ROW is proposed to be constructed on a portion of the lake bottom of Big Lake, and not located "480 m distant at the closest point" to Big Lake, as incorrectly claimed on page 2-5 of the EIA, Volume I. Historically, the 1997 flood peak was considerably less the 1974 peak flood which would have shown an even larger area of Big Lake water to the east of the proposed WRR alignment. (See "Air Photo of 1974 Flood" in Appendix B of BLESS submission to DFO.)

The impact of the west road alignment which the proponent proposes to construct within the boundaries of the defined "bed and shore" of not only the Sturgeon River, but also of Big Lake itself, has been significantly understated in the EIA report.

BLESS particularly questions the proponent's assertion in the EIA that the road and bridge across the Sturgeon River, and the adjacent Big Lake/Sturgeon River floodplain wetlands will have no significant or measurable impact on the dynamics of the hydrology of the Big Lake/Sturgeon River floodplain aquatic environment. For example, on page 5-40, Volume I, the report states: "The expected impact of the presence of the proposed project is, therefore, rated as negligible." [This statement was preceded by the foregoing explanation:

"Alberta Environment, River Engineering Section, indicated that there are no formal guidelines pertaining to back water events (Northwest Hydraulics Consulting 2003). Construction of flood proofed roadway approaches within the flood way and flood fringe are acceptable structures [Alberta Environment 1991."].

BLESS has the following concerns:

1. Contrary to the proponent's assertion that the bridge's, and approach road's, "damming effect" will have "negligible" impact on raising the flood level stage upstream on the Sturgeon and Big Lake system, BLESS insists that this assertion has not been adequately investigated through the hydraulic modeling undertaken to date.

For example, BLESS questions why, at times of floodwater rising, there would not be an appreciable "head" of water or "backwater" caused by the severely constricted floodplain that would be created at the bridge and road location, if the WRR goes ahead.

BLESS is concerned that the hydraulic modelling does not adequately account for hydraulic events (measured in a time span of minutes or hours, or longer) within a flood cycle, separate from the overall conditions that characterize a flood event measured over several weeks, or longer.

For example, under present conditions, floodwaters that accumulate in the Big Lake Basin can propagate that flood "head" into the very wide, unrestricted, floodplain that now characterizes the transition area between Big Lake and the Sturgeon River. This flood capacity zone is much, much wider, by orders of magnitude, than the nominal 50 m wide free flow channel assumed in the hydraulic modelling exercise.

In fact the EIA reveals that the effective channel, especially for the early lower stages of a flood, is much less than the nominal 50 m width assumed in the hydraulic modelling. For example, on page 2-9, EIA "Summary Report", it is revealed that walkways under the bridge will reduce the effective natural channel width (49.6 m) by about 17 m to allow for construction of the proposed walkways on the abutment headslopes.

To quote from page 29: "... construction of the proposed walkways on the abutment headslopes requires constricting the river channel by approximately 8.59 m on either side resulting in a 32.6 m (on a 6 degree skew) design bedwidth."

BLESS understands from this information that at the beginning stages of a flood, the natural 49.6 m. width of the Sturgeon River's channel will be reduced, after the proposed bridge construction, to 32.6 m, for a reduction in effective channel width discharge capacity of 34.3 percent.

BLESS concludes that it is inconceivable that this very large reduction in the cross-section area of the Sturgeon River channel under the proposed bridge will not have a significant effect on the capability of the Sturgeon River to carry the early stages of a rising Big Lake flood downstream through the Sturgeon River system.

Further, at intermediate and higher flood stages, it must be questioned how the formerly much wider and unimpeded natural channel and the floodplain waters that will be forced through the relatively narrow constricted bridge opening would not back up, creating a significant "head" of water, particularly as a flood event accommodates to the new, much altered floodplain geometry, and other changed floodplain parameters caused by the bridge and causeway construction. In the later, "equilibrium", flow stage of a flood, as floodwaters flow under and around the bridge structure, and floodwaters accumulate adjacent to the downstream portions of the road embankment/causeway, then there "may" be less obvious backwater impacts, but that is in the "overall" flood assessment situation. The hydrologic modelling does not appear to account for realistically the actual changed flood effects after bridge construction, in comparison to the natural flow that occurs now. With the present river channel having a width of 49.6 m, what will actually occur with flood behavior when the natural channel is reduced in width by 34 per cent? The hydraulic model does not appear to account adequately for conditions associated with the hydraulic and flow dynamics of a flood event while it is actually occurring, given the greatly altered floodplain parameters that would exist if road causeway and bridge construction were to proceed.

2. It can be expected that the narrowed effective flood and channel flow zone created by the bridge construction, and the 34 per cent reduction in the natural channel width from the present width of 49.6 m, will cause an increased velocity river flow "venturi" effect that would be created under the narrowed bridge opening as the accumulating flood waters seek to escape downstream along the Sturgeon River.

The "venturi" effect of increased flood water discharge velocity could pose a risk for causing substantial scour and erosion of the bed of the Sturgeon River. The river bed materials are very vulnerable to being scoured away as they consist of soft unconsolidated organic sediments. Substantial scour of the bed of the Sturgeon River could put the bridge foundations at risk, and create an unstable bridge and embankment structure that would pose a risk for causing environmental damage. This is particularly an environmental and engineering risk since the EIA, "Summary Report", page 2-9, states that: "Scour protection would not be placed on the headslope or channel bottom".

Also, the "venturi" effect during flood conditions, involving increased flow velocity under the constricted channel below the bridge, will likely pose a navigation hazard for small watercraft on the Sturgeon River, particularly for hand-powered boats attempting to reach Big Lake in the manner that has been traditional going back to the 1800s.

Page 2-9 of the EIA "Summary Report" states, with reference to the proposed bridge, that: "The structure provides approximately 1.0 m of clearance above the highwater level that is generated by 1:100 year flood event."

This reference to the approximate 1 m highwater (HWL) clearance appears to be based on stale dated hydrologic data. For example, Associated Engineering has recently (September 3, 2003) advised the City in a public meeting that in the course of conducting Associated Engineering's current Big Lake basin stormwater and drainage studies ("St. Albert Stormwater Management Regional Master Plan"), that it appears future high water flood events will be on the order of up to 1/3 m higher in elevation than has been recorded historically. Associated Engineering specifically stated (PowerPoint presentation,

September 3, 2003) to City representatives that conclusions from the Big Lake Basin Study to date indicate that there is/are:

"Significant potential for increasing flood levels due to agricultural drainage and acreage development.

Significant increases in base flows resulting from urban development."

Associated Engineering advises that this anticipated greater maximum flood level should prudently be calculated into construction projects impacting the floodplain of the Sturgeon River and Big Lake hydrologic system, and that there is a need to "increase freeboard for future developments".

Given Associated Engineering's recent findings and advice, the statement that the bridge "structure provides approximately 1.0 m. of clearance above the highwater level that is generated by 1:100 year flood event" is probably not valid, especially when looking to the future.

The combination of a restricted channel and increased velocity due to the "venturi" effect, plus the risk of higher future flood stages as anticipated by Associated Engineering's latest advice to "increase freeboard for future developments", could mean that boaters will have less than  $\frac{3}{4}$  m clearance under the bridge.

BLESS concludes that it is unacceptable to contemplate the proposed unwarranted navigation restriction, at certain times, on a major waterway that has been for over a hundred years a free and open navigation channel on the Sturgeon River between the historic community and roots of St. Albert, and its open waterway connection to the historic and natural environments of the provincially designated Big Lake Natural Area.

3. There is a question also that must be more fully considered concerning the impacts of future unanticipated high water flood stages. This is particularly worrisome considering that there is no evidence in the EIA that the proponent has incorporated any of Associated Engineering's advice to "increase freeboard for future developments" (cited in the preceding BLESS item # 2). Higher than anticipated HWL could lead to greater water saturation effects on the unstable materials lying beneath the WRR alignment on the floodplain, or the old nuisance grounds, as well as additional saturation of the roadway berms and roadbed embankments. Increased saturation of materials could lead to problems involving material instability and potential failures which could pose risks for additional environmental impacts on the floodplain of the Sturgeon River and the Big Lake system.

## **Groundwater**

### **Former Landfill**

BLESS believes that the problem of groundwater contamination in the vicinity of the former nuisance grounds has not been adequately addressed by the proponent. There still exists the possibility that contaminated leachate could enter the underlying aquifer (part of the Empress Formation) through bridge pilings. (See Aquifer map from Alberta Research Council files in Appendix B of BLESS submission to DFO.)

An engineering report commissioned by the City of St. Albert (EBA Engineering Consultants Report 0105-96-12615 dated March 1997) voiced a "significant concern" regarding the potential for vertical leachate migration through pilings should a bridge be constructed near the former dump. This report was not included in the proponents EIA submission. BLESS suggests that the proponent be required to provide the March 1997 EBA report in its EIA submission for review by the responsible authority.

Paragraph 14.3 on page 49 of the EBA report states "If piles for the bridge extend into deep sands and gravels, there is potential for downward vertical migration of leachate directly into the thalweg. Even if piles terminate in the clay till, vertical migration would be significantly enhanced. This would provide a pathway through which leachate could reach the regional aquifer beneath the site. Monitoring has shown migration is not now occurring to any significant extent." Thurber expects bridge pilings 35 meters or longer will be required to carry designed bridge foundation loads (Volume III, Appendix D-1, page 42). That depth could very well extend into the underlying aquifer.

This concern for contamination of the underlying aquifer was echoed by Alberta Environment to the City of St. Albert in their letter dated November 19, 1997, (see Appendix D, BLESS submission to DFO, for a copy of the letter) when Tony Epp (P. Geol.) wrote:

"As discussed by EBA, installation of piles as part of the proposed roadway construction could greatly increase the potential for vertical migration of leachate to the underlying aquifer."

There is no doubt that contamination exists in groundwater found within the former landfill. The proponent's EIA report states (Volume I, page 5-15) that leachate was found during testing in all the test wells located within the boundaries of the former landfill. The EIA further indicates (Volume I, page 5-16) that contamination detected in some wells exceeded the 2002 Canadian Drinking Water Quality Guidelines for total dissolved solids, sodium, iron, manganese, chloride and sulphate. Leachates were detected that also contained benzene, toluene and ethylbenzene in concentrations that exceeded the 2002 Alberta Soil and Groundwater Quality Guidelines for Hydrocarbons at Upstream Oil and Gas Facilities, Freshwater Aquatic Life (2002 ASGQ).

There is also no doubt that leachate from the former landfill has affected the quality of groundwater in the area. The proponent's EIA confirms (Volume I, page 5-16) that contaminated groundwater was found beyond the boundaries of the landfill near the river. The EIA (on the same page) also concludes that leachate has impacted groundwater quality outside of the landfill.

The proponent has stated (Volume I, page 5-18) that the most important factor preventing downward movement of leachate into the Empress Formation is the presence of an "upward component of groundwater flow in the vicinity of the bridge crossing." BLESS maintains tests carried out by Thurber do not support that conclusion, and that the concerns voiced in the 1997 EBA report still exist.

Thurber (Volume III, Appendix D-1) bases their hypothesis of artesian conditions near the proposed bridge upon readings from two test wells, TH02-8 and TH02-9. Test well TH02-8 is located on the north bank, across the river from the former landfill site. The existence of artesian conditions on the side of the river opposite the former dump does not necessarily substantiate the existence of artesian conditions on the south side of the river where the contaminated leachate exists.

Test well TH02-9 is situated on the south side of the river, near the proposed bridge abutments, and adjacent to the former landfill that contains contaminated leachate. Readings from TH02-9 could reasonably be expected to provide an indication of artesian conditions near the old dump; however, at least one reading obtained from TH02-9 is invalid. Thurber states (Volume III, Appendix D-1, Page 16) "On May 22, 2003 it was discovered that the monitoring well TH02-9 was plugged by silt at a depth of 20 m. After bailing out water in the well, a water leak was detected at the first pipe joint at approximately 6 m depth. As a result, the water level measured in TH02-9 was not considered accurate."

Thurber implies artesian conditions are present when measured water levels in the test wells are above ground level. The summary of water level readings (Volume III, Appendix D-1, Page 17, Table 4.1) indicates readings were taken at TH02-8 and TH02-9 on only three occasions, November 29th, 2002, May 15, 2003 and May 26, 2003.

The November 19, 2002 readings indicated the water was below ground level in both test holes, evidence, using Thurber's criteria, that artesian conditions might not have been present on that date. The May 26, 2003 reading on TH02-9 was measured at 0.33 m above ground level; however, because the well was found damaged on May 22, 2003, and by Thurber's admission, that reading cannot be considered accurate. The remaining reading from TH02-9, taken on May 15, 2003, when groundwater levels could reasonably be expected to be high due to spring flood conditions along the river, indicated the water level in TH02-9 was 0.5 m above the ground surface. Even this reading, however, may be questionable as no evidence is provided in the EIA to indicate the date when the water leak in TH02-9 occurred.

There are four places within the EIA, where the proponent bases the presence of artesian conditions, and the contention that contaminated leachate will not migrate, on personal communications with "Borneuf". Despite this, there is no entry for "Borneuf" in the list at section 8.2 entitled "Personal Communication." To cite personal communications without providing any means of identifying specifically who the source might be, and the time/circumstances of the communication, is unacceptable in a document as important as the WRR EIA.

The Empress Formation is a major source of groundwater in northern Alberta. The ramifications are serious should contaminated groundwater from the former St. Albert dump migrate through bridge pilings into the aquifer. The proponent alleges artesian conditions will prevent contaminated groundwater from reaching the Empress Formation. BLESS maintains it is unreasonable to conclude, from only one reading of ground water, that artesian conditions exist at all times.

Further testing is necessary to determine if artesian conditions do in fact exist in the vicinity of the proposed bridge abutments on the south bank of the river near the abandoned dump. Such tests must span the entire year. It is not sufficient to presume, from testing at only one time of the year, and from only one successful hole, that alleged artesian conditions exist year round. Even if artesian conditions are found to exist throughout a given year, there is no assurance they will be present in other years. In a dry year it is quite possible that artesian conditions will not be present to prevent contaminated leachates from migrating through the bridge piles into the Empress Formation. Even if artesian conditions are confirmed after further testing, and it can be conclusively determined that artesian conditions are present at all times, then the strength of the artesian flow must be measured and analyzed to determine if it is sufficient to prevent contaminated substances from reaching the underlying aquifer.

Alberta Environment has been aware of the presence of contaminated leachate in the old St. Albert dump for many years and has previously requested that the City of St. Albert provide a plan to remove the contamination and close the dump properly. [See copies in Appendix D of this BLESS submission, of Alberta Environment's letters involving the City of St. Albert (dated back to January 13, 1993) requesting that the City provide a response to Alberta Environment's leachate containment requirement, for example, citing that "Steps must be taken to contain the leachate and prevent further discharges to the river." (Tony Epp, P. Geol., November 19, 1997).]

BLESS is not aware that the city has ever complied with the Alberta Environment request -- no plans exist for dealing with the long-term effects of the contaminated landfill.

In Volume I of the EIA, on page 5-9, the proponent states "Thurber identified landfill material to consist primarily of dry domestic waste that is likely poorly compacted. They indicate that the weight of the embankment would result in consolidation of landfill waste." To counter settling of the waste materials Thurber recommended five steps to be taken; however, these recommendations are based on the assumption that the material in the dump is dry.

The proponent recognizes there is a leachate. Page 5-20 of Volume I reads "Thurber (2003) indicated that the placement of fill would result in compaction of the landfill material, which may cause leachate to be displaced laterally, away from the road area." On page 5-21 the proponent states "Minimize irrigation of soccer and rugby fields as this practice introduces more water into the landfill, which in turn adds to the volume of leachate produced at the landfill". On page 5-46 of Volume I the proponent confirms that EBA's 1999 investigation concluded leachate from the old dump had reached the river.

Based on these statements it is apparent that the proponent knows the landfill is not dry and that leachate is very likely entering the river through lateral movement. The dump was not engineered to exclude water; there has been no dump closure by the City of St. Albert; it is located too close to a water body for Alberta Environment to license it as a dump; and it contains leachate indicating wet conditions exist. BLESS suspects the engineering measures proposed by Thurber will be inadequate to counter the compression of wet waste materials in the dump, the possible generation of more leachate and the escape of leachate from the dump into the river.

The deposition of leachate into the Sturgeon River, whether an impact has been identified or not, is still a violation of Section 36(3) of the federal Fisheries Act. A very similar situation in Moncton, N.B. cost that city a substantial amount of money in fines, payments to environmental funds, court-ordered remediation measures and on-going monitoring. The lack of mitigation plans to prevent a similar incident from occurring with the proposed WRR is not acceptable.

The proposed WRR alignment presents too many unknowns regarding the possibility of leachate migration. There is too great a potential to irrevocably contaminate a major groundwater resource and the Sturgeon River. The seriousness of these issues raises significant doubt as to the advisability of this project proceeding.

## **Water Quality**

### **Riel Pond - Storm Water and Road Runoff Management**

The EIA (at paragraph 2.4.6 "Drainage Plans", page 2-16, Volume I) states Riel Pond would "continue, in a modified form, to function as a detention pond for existing drainage facilities and would also receive runoff from the WRR". The paragraph goes on to state "The modified facility would be sized to accommodate both drainages, as well as some additional runoff from future urban development, if required." Riel Pond already handles a significant amount of urban and industrial storm water runoff.

Storm water runoff for the Heritage Lakes subdivision currently drains into Riel Pond. The EIA provides no historical data of the average yearly amount of storm water runoff from Heritage Lakes that is currently handled by Riel Pond. Neither has an estimate been made in the EIA of the amount of storm water runoff that may be expected from future urban development.

Some storm water from Riel Business Park also empties into the northeast corner of Riel Pond. The storm water sewer from the business park is notorious for carrying pollutants. For example, on 16 May 2003 paint thinners were dumped into the Riel Business Park storm sewer system. This particular

storm sewer line does not empty westward into Riel Pond, but rather flows northward directly into the Sturgeon River. The thinners would have made their way into the river if it were not for quick action on the part of city cleanup crews.

Almost weekly we read in the local paper of another spill of toxic chemicals in Riel Business Park. Riel Pond is the last chance to detoxify industrial storm runoff before it is released into the environment. The EIA does not provide any historical data or estimates of the amount of storm water from the business park that is handled by Riel Pond in an average year. Nor has the proponent done any testing of stormwater emanating from Riel Business Park to determine the type of additional treatment measures that may be required by the resized pond to enable it to deal with industrial pollutants.

The first paragraph under heading "2.4.5 Drainage Plans" on page 2-12 in Volume I of the EIA states: "Drainage facilities are designed to accommodate a four-lane facility but would also serve a six-lane facility should one ever be constructed." The EIA does not provide estimates of the amount of road runoff Riel Pond would need to handle for any of the various iterations of the WRR.

Judging from the constant flow of water from the current lagoon outlet into the Sturgeon River, even in the winter when ice covers the surface of the pond, Riel Pond, in its current design, would appear to be near capacity as far as its ability to process storm water.

The proponent proposes reducing the size of Riel Pond. Capacity will be lost proportional to the width and depth of fill placed in the pond for the road right of way. As well, the proponent is proposing (at paragraph 5.9.3 "Mitigation" on page 5-170 of Volume I) to move the west dike of Riel Pond inwards (east) so the river channel can be excavated to compensate for lost fish habitat.

Further, the EIA states (second paragraph under 5.7.3.2 "Wetlands" on page 5-86 of Volume I) that the west cell of Riel Pond will be "recontoured to create a mosaic of open-water submergent and emergent marsh communities with some shrubby fringe, which will provide for several functions, including habitat." The diagram of the proposed restructuring (Figure 5-8 on page 5-89 of Volume I) depicts substantial areas of fill to accomplish the envisioned aim of a "constructed storm water wetland". This will again decrease the capacity of the pond. Area wise, the EIA report (second paragraph under 5.4.2.3 "Riel Pond" on page 5-40 of Volume I) proposes reducing the surface of Riel Pond by 27,500 square meters, or 17% of its surface area. No data has been provided in the EIA to enable total loss of volume to be calculated.

Nowhere in the EIA has the proponent provided any evidence to suggest the reduced size of Riel Pond will be able to handle the increased volume of storm water runoff that will be generated. Nor does the proponent identify that there are currently two sources of storm water ingress into Riel Pond – one residential and one industrial.

BLESS is concerned that the pond, as proposed, will be unable to handle the amount of storm water that will be fed into it. The increased throughput may not provide sufficient time for road sediments to settle from the storm water before it feeds into the adjacent wetland. Increased storm water volume and reduced pond capacity may also result in increased turbidity and cause contaminated sediments, currently in the pond, to become re-suspended. Should this occur there is a very high probability the contaminated sediments could find their way into the wetland and ultimately into Big Lake. This is a major concern, not only during construction but when the modified pond is in operation.

There is no doubt the WRR will introduce far more sediment into Riel Pond than is currently the case. The greatest influx will occur in the spring when "road salt" (recognized by federal authorities as being a

toxic substance), and sand washes into the pond. This additional burden will appear at the time when water levels are high and the pond is required to process the largest volume of storm water. The proponent has provided no proposals to mitigate this additional burden. No details of standard storm water treatment techniques and equipment such as "stormceptors" have been proposed.

Throughout the EIA the proponent has alleged the WRR will have a positive impact on storm water treatment in Riel Pond yet no arguments are presented as to precisely how the reworked "two-cell" design will "enhance its water quality improving capabilities" (as stated in Volume I on page 540). BLESS believes that a description of how the redesigned pond will provide better storm water treatment should be provided.

The proponent is proposing to change the current Riel Pond outlet so that storm water drains into the wetland south of Riel Pond rather than into the Sturgeon River. During flood events, the wetlands are backfilled by water from Big Lake. BLESS is concerned that such events would tend to draw any contamination in the marsh towards Big Lake when the flood water recedes.

The proponent has made no attempt to estimate the amount of storm water that will need to be processed by the Riel Pond storm water management facility after the road is operational. Without such estimates, it is extremely risky to assume Riel Pond would, under all operating and weather conditions, always have enough capacity to permit controlled release of storm water. In fact, given the area covered by existing and new sources of storm water that must feed into Riel Pond, it appears highly likely that at some point in time capacity of Riel Pond will be exceeded and an uncontrolled release, either through a breached dike, or over the dike, will occur. This could very well result in severe degradation to the wetlands south of the pond caused by excessive water and contaminated pond sediments.

The wetlands to the south of Riel Pond do not currently function as a storm water management facility. It is expected that the change in status from a natural area to a storm water management facility would result in degradation to the wetland. It is true that the wetlands occasionally suffer from a lack of water in dry years, however, the wetlands are sufficiently well established to cope with this natural phenomenon. In most years, including 2003, water levels are normal and the diverse vegetation thrives. Deliberate alteration of water levels, without first conducting extensive scientific study to determine if the wetlands can survive such alteration, is reckless and could very well do enough harm to destroy existing vegetation in the wetland.

### **Riel Pond - Sediment Contamination**

Under direction from the City of St. Albert, Thurber Environmental Consultants Ltd. took samples of Riel Pond sediment on February 9, 2003. Tests conducted on the sediment samples by Norwest Labs in Edmonton revealed levels of arsenic contamination far in excess of the Canadian Sediment Quality Guidelines for the protection of Aquatic Life set by the Canadian Council of Ministers of the Environment in 2002 (CSEDG 2002 CCME). One sample had arsenic levels more than three times the guideline.

The sediment tests also revealed hydrocarbon levels almost double the Alberta Environment Soil and Water Quality Guidelines for a natural area (Soil contact (Plants and Invertebrates)) (AENV, 2001 SWQ).

Thurber Environmental wrote a report of their findings (Storm Water Lagoon Sediment Sampling, St. Albert, Alberta) that was presented to the City of St. Albert under cover of a letter dated March 4, 2003. The proponent has included neither the sediment sampling report, nor the cover letter in the EIA report

for the road, even though the road will run directly through the storm water lagoon (Riel Pond) that was sampled.

In the March 4, 2003 letter that reported to the City on the sediment quality of Riel Pond, Thurber's senior hydrogeologist assumed contaminated sediments would be removed from Riel Pond prior to constructing the road through it and recommended (at paragraph 4, Discussion) that "soils showing the presence of arsenic in excess of the guidelines be removed and disposed of at an approved landfill." The senior hydrogeologist further recommended that sediments containing hydrocarbon fractions in excess of the guidelines be removed and disposed of at an approved landfill.

BLESS suggests the proponent should include, within Appendix D, Technical Studies, Volume III of the WRR EIA report, the Thurber Environmental Consultants Ltd. 2003 Storm Water Lagoon Sediment Sampling report, and the accompanying letter (File: 14-139-3 dated March 4, 2003) under which the report was submitted to the City of St. Albert.

In Volume III, Appendix D-1, Page 38 of the EIA, Thurber proposes, as the first option for embankment construction across Riel Pond, that temporary coffer dams be built, the water be pumped out, and that weak soil and contaminated sediment be excavated from the base of the embankment. While they also provide two other options for construction across the pond, Thurber states (at Page 39, paragraph 7.3.2 Pond Sediment) that "Further discussion with Alberta Environment would be required to determine if it is acceptable to leave the sediment in place."

The proponent has indicated in the EIA that the western dike will be replaced through infilling. No indication is given of the construction methods to be employed to remove the existing dike and make way for the widened river channel. BLESS believes there is a potential for contaminated pond sediments to be released into the river when the existing western dike is removed.

Insufficient information has been provided in the EIA to determine if existing dikes on the south, east and north sides of the pond will remain in place once the constructed wetland is finished. Should existing dikes be removed, a very high potential would exist for contaminated pond sediments to be released into the wetlands and onto public thoroughfares and existing sports fields during construction.

BLESS believes the mitigation measures being proposed to prevent contaminated sediments from reaching the watershed are inadequate. There is insufficient detail on the construction methodology and in the plans for reconfiguring the pond to enable any degree of assurance that the watershed will be unaffected by contaminated storm water lagoon sediments. There are no effective contingency plans for dealing with a large influx of water should such occur (through a heavy rainfall for example) while construction is ongoing. Simply ceasing work during rain events, as the proponent proposes, will not prevent contaminated sediments from washing into the watershed should the pond fill to capacity.

In the first paragraph on page 5-54, the proponent admits contaminated sediments could find their way into the wetlands and the river when fill is placed in the lagoon. The proponent rates the impact of that happening as being adverse, minor and short term. BLESS is of the opinion that this impact would in fact be major and long term. Once arsenic is released to the wetlands, it would be extremely difficult if not impossible to remove it. The toxic poison would adversely affect the health of human beings and wildlife coming into contact with it well into the future.

The full extent of sediment contamination in Riel Pond is currently unknown. A more comprehensive sediment sampling and testing program is required in every part of the lagoon to identify all potential

contaminants and every location where contamination may be present. A serious, comprehensive investigation into the requirement to remove contaminated sediments is warranted.

As the appointed stewards of the Big Lake Natural Area, BLESS insists that all necessary measures be undertaken to ensure that arsenic, hydrocarbons and other contaminants in the Riel Pond sediments never find their way into the watershed. The risk of contaminated sediments being distributed throughout the wetlands and into the watershed is serious enough that it warrants denying permission to run the WRR through Riel Pond. Mitigation of this potential release of contaminants can be managed by selecting an alternative route that does not go through Riel Pond.

## **Deleterious Substances**

### **Alberta Environment, Groundwater Contamination Investigation at the Former Dry Waste Disposal, Riel Drive, St. Albert, Alberta**

Since 1993, Alberta Environment has been involved in a series of discussions with the City of St. Albert about conducting groundwater monitoring tests around all of the old “former dry waste disposal areas” formed from the City’s sewage lagoons. Letters exist dating from 1992 to 1999 that outline the general problems with the dumps and with leachates. In the letters Alberta Environment reviews the 1993 EBA engineering report on leachates and requests that the City institute a regular groundwater monitoring program and provide a remedial action plan to deal with the problem of leachate in the former dump. Copies of the letters are included at Appendix D.

From an Alberta Environmental Protection internal letter: “Based on the finding outlined in the above report (EBA Engineering report), the former St. Albert dry waste landfill is poorly located. The following summarizes the non-compliance characteristics for this particular site:

- The landfill location does not meet the distance requirements (300 m) from a natural area that permanently contains water such as a river, lake or a creek, under section #37c(i) and c(ii) of the Waste Control Regulations.
- The landfill leachate does not meet the Performance Standards Criteria for a class II Landfill for Chloride, Sodium and Sulfates as outline in the Code of Practice for Landfills under Section 11 (Table 1).
- In addition, instead of being a dry landfill as stated by the city, household refuse was found within the landfill. As this refuse produces leachate that is migrating into the Sturgeon River, AEP should not accept or consider the dilution factor as a solution to the leachate problem as stated in the report. Because the St-Albert landfill is known to produce leachate, it cannot be considered as a dry landfill but as a sanitary landfill and should as a minimum, be considered as a class II landfill and comply with all of the regulations associated with this classification.

Recommendations:

Based on the above information, the City of St. Albert should be required to reclaim the landfill so as to meet as a minimum:

- (a) The requirements specified in the Waste Control Regulations.

(b) The standards and requirements set out in the Code of Practice for Landfills.” (Epp, T., 1997a)

In November of 1997 Tony Epp, Alberta Environmental Protection sent a letter to the City of St. Albert requesting that a groundwater monitoring program be initiated around the former dump for his review and approval. (Epp, T. 1997b). Apparently this never happened for in February of 1999 Mr. Epp sent another letter to the City of St. Albert stating:

When we met in November, 1997 to discuss groundwater issues surrounding the former dry waste site, the City of St. Albert agreed to prepare a proposal for further investigation of the contamination identified by EBA Engineering Consultants reports.

To date such a proposal has not been submitted. Please provide the required proposal on or before April 30th, 1999. If you have completed additional work (investigation, monitoring etc.) please provide that information for me to review.(Epp, T., 1999).

Based on what BLESS knows of the history of the site, we suspect that this work was never completed. This should be included by the proponents of this alignment due to the many factors involved with the “former dry waste” areas and this proposed alignment.

It would be highly prudent of the proponents of this alignment to consider the above documentation and the situation that the City of Moncton, N.B. was in with respect to a violation of the federal Fisheries Act from a very similar situation. The letters from Mr. Epp could easily be construed to show that the City of St. Albert does not have a “due diligence” defence with regards to the contamination of the Sturgeon River should leachate from the “former dry waste” areas continue or increase with this proposed alignment.

## **Vegetation**

### **White Spruce Forest**

The White Spruce Forest is under considerable stress as has been identified by BLESS through the breeding bird survey. The diversity of bird life in the woods is considerably less than it should be if it were not so isolated. Continuing to impact this mature stand of spruce will only ensure that its ecological integrity is reduced to the point of meaninglessness. The proponent’s response to this concern is that the impact from their development will be minor in comparison to housing planned for the area. Being the lesser of other potential evils does not mitigate the effect the road will have upon the forest.

### **Rare Bryophytes**

Within the WRR right of way, the proponent identifies *Leskea polycarpa*, a species of bryophyte (moss) not typically found in Alberta. This is also the only known population of *L. polycarpa* in the area, it is given the designation S1 by Alberta Renewable Resources, indicating that it is rare in Alberta. They admit that the impact will be major, adverse, and likely permanent as translocating bryophytes is often unsuccessful (Summary Report, Pg. 3-39). *L. polycarpa* appears to be a species from Europe and eastern North America, however, the known distribution of this moss does not include Alberta according to the Missouri Botanical Garden database and the New York Botanical Garden database. The proponent intimates that this species will likely be lost from the Spruce Woods due to the construction of this alignment.

Another moss, *Warnstorfia fluitans*, is also not recorded as occurring in Alberta by the Missouri Botanical Garden database and the New York Botanical Garden database.

Mitigation measures for these losses are inadequate, the proponents assume that the transplantation efforts will likely fail, meaning that the current alignment will eradicate the known location of at least two rare mosses in Alberta.

## **Loss of Woodlands**

In Volume I of the EIA, on page 5-68, the proponent has identified the small linear forest near 137 Avenue as being unique, with a diversity of vegetation not found elsewhere within the alignment right of way. Unique areas of vegetation must be preserved so they may be studied in detail to determine their contribution to the ecology of a region. No effort has been made by the proponent to mitigate the loss of this unique stand of forest.

Overall, the proponent indicates (in Volume I on Page 5-81) that 1.1 ha of woodlands and shelterbelt will be lost because of road construction. No mitigation for this loss of woodlands has been suggested. One has only to travel local rural roads to come to the realization that natural wooded areas are disappearing at an alarming rate around rapidly expanding urban centres. Projects such as the WRR must not be allowed to destroy what little remains of the diverse vegetation that was once prevalent throughout the region.

## **Transportation**

Transportation and construction are identified in the correspondence and terms of reference for this project. We wish, first of all to address the matter of the proposed road in the context of planning. Almost every municipality in Alberta has had to cope with the need to build a bypass. However, it is not just a question of whether or not a bypass is timely but more importantly, whether the location is the correct one.

Is the location the best for the long term benefit of the municipality and the region? Does the location conflict with environmental concerns and is it in a location that avoids the potential of environmental damage and excessive cost?

Several views abound as to just what it is that St. Albert plans to build. To our friends to the north the mayor has said that it is an expressway, and his consultants have testified that an expressway is a high speed limited access roadway. When speaking to local residents, the mayor calls it an arterial. Arterials are not high-speed limited access roadways. The consultants now call it the West Regional Road but still describe it as an expressway.

It is our view that the West Regional Road is really a local arterial, not a regional road. The most northerly terminal is Villeneuve Road. From there, traffic that wants to proceed north will have to jog over to the St. Albert Road and join it at a congested corner before making a left turn northward. At Meadowview Drive it also jogs over to Hogan Road before heading north with yet another jog to the city western boundary.

The question is if it really doesn't look or sound like a regional road and isn't a true bypass, then why is the city building a local arterial out on a flood plain subject to high cost and the potential of serious environmental disturbance? BLESS submits that all feasible alternatives must be considered before DFO can approve this application.

The consultants noted in the Environmental Impact Assessment Summary Report that they have endeavored to conform to the Federal Policy on Wetland Conservation as required in the original Terms of Reference for the EIA.

The Federal Policy on Wetland Conservation promotes wetland conservation. This policy states that it is to be used and referred to by federal agencies and that impacts and intrusions into wetlands must be avoided. One would expect that the policy should guide every aspect of the planning process for this project, which traverses over 1 kilometer of wetland, a river, an old dumpsite and an old sewage lagoon on a former wetland.

While this policy sets out as a major goal a 'no net loss' policy, it doesn't stop there. It is accompanied by an Implementation Guide which makes it clear that the "no net loss" goal may be applied when there are no other feasible alternatives. But in situations such as the West Regional Road, feasible alternatives exist.

On page 16 of the implementation guide, the recommended approach to wetlands under pressure for development and/or loss is a sequence of assessing alternatives:

Mitigation of adverse effects on wetlands should be initially considered in Step 2 'Assess the environmental effects.' At this step, all feasible alternatives to carrying out the project are assessed. Efforts should be made here to avoid adverse effects through project siting or design.

The policy document points out that compensation cannot be used to reduce the significance of adverse effects in sensitive areas of wetlands and therefore only avoidance should be considered.

The policy goes on to state that the Responsible Authority; in this case the Department of Fisheries and Oceans, "must not take any action that enables the project to proceed if the project is likely to cause significant adverse environmental effects that cannot be justified".

BLESS submits that there is a lack of any real assessment of any feasible alternatives in the EIA report and also a lack of justification for this omission.

The first feasible alternative is the Riel Drive (Ray Gibbon Drive) alignment which is briefly identified as Network option 101 Riel/West Boundary Arterial (vol II, App B); an alignment that crosses farm land on the north side of the Sturgeon River and crosses the river adjacent to and connecting with Riel Drive.

As mentioned in the Introduction to our submission, the selection of this alignment came about through the direction of a 1997 petition signed by 11,000 St. Albert citizens. The petition was worded as follows:

On April 23, 1997, St. Albert City Council voted 43 to approve the West By-pass alignment which would result in a road being constructed across the Sturgeon River and through the wetlands adjacent to Big Lake.

This area should be protected in its current natural state because it is valuable to the environmental health of Big Lake/Red Willow Park and the quality of life of the residents of St. Albert.

Therefore, we the citizens of St. Albert who have signed below, request the City of St. Albert to develop and implement a plan which investigates OTHER transportation alternatives to the West Bypass and incorporates citizen participation.

City Council referred this petition to the public committee established to review the Municipal Development Plan as required by provincial legislation. The review, called City Plan, created by this public committee reviewed all the options and resolved that the Ray Gibbon Drive option was the best alternative.

The Riel Drive alignment resolved the major environmental challenge by avoiding the wetland, the old civic garbage dump and the sewage lagoon. This river crossing would be bridged from farm land on the north side of the Sturgeon to Riel Drive on the south. It provided a good connection between northwest St. Albert to the Riel Drive business district, the playing fields and the rodeo grounds adjacent to Riel Drive. It also provided reasonable access to Edmonton via 184 and 170 Streets with the object of connecting with Anthony Henday in the future. This plan was recommended by City Plan and adopted by Council.

When the new council was elected in the fall of 2001, one of their first actions was to reject the Ray Gibbon Drive option and approve the old Western Bypass.

Riel Drive alignment (previous Ray Gibbon), in our view, is still the best alternative for a west river crossing.

If the current city council wants to promote the regional bypass concept, then we have to look at other alternatives. The major alternative is the proposed Eastern Bypass. It was proposed in the early 1970's as the most practical long-term solution for a St. Albert bypass. It would be much shorter than a western bypass and not as critical in terms of the environment. The first stage could easily connect with Campbell Road, an underutilized four lane divided roadway that connects with 156 Street and the Trail.

The City of Edmonton plans to begin construction next year of a major overpass at the junction of 156 Street and the Yellowhead giving a great opportunity for dispersal of traffic.

The St. Albert East Arterial is incorporated in the Sturgeon Valley Area Structure Plan, the St. Albert Municipal Development Plan, the Sturgeon County and St. Albert Intermunicipal Development Plan. St. Albert Bylaw 2003, passed by the current council on 3 February 2003, approved the incorporation of the St. Albert East Arterial in the amendment to the Municipal Development Plan which included the arterial in the Future Land Use Policy map and the City Transportation Network.

The consultants' EIA states that such an option as the East Arterial may conflict with the Sturgeon Valley Area Structure Plan (Vol II Appendix B). It is difficult to see how it could conflict with the Sturgeon Valley ASP since it is already in the ASP.

In addition to the critical risks of building on the wetlands, there is also a question of conflict with other city policies and the Municipal Government Act. (MGA).

Recently, the City presented the Red Willow Park Update and we note that in the management guidelines for the area in question that the Plan states that "The City should adopt a policy to prohibit filling of the flood fringe areas. These areas are valuable for natural wetland process and habitats and are the land base for Red Willow Park and clearly protected under the Environment Reserve provisions of the Municipal Government Act (Section 664)"

BLESS also wishes to raise some serious questions regarding the proposed method of construction. The City's consultant's report some alarming results of drilling tests with respect to the bearing strength

of the materials. These tests were carried out for the roadbed, the river bridge site and the sewage lagoon.

For example, standpipes were installed at the north bridge abutment, the north approach fill area and the south abutment. Artesian flowing conditions were recorded in both north and south areas. When one reads the results of the test drilling for the bridges, it is even more alarming. The tests down to 46 meters resulted in a mix of sediments all above bedrock. (a sequence of weak and compressible clay, silt and sand extending to a depth of approximately 28 m on the north side and 23m on the south side)

The consultants recommend driving piles down 35 meters. With a weak mix below the surface and artesian flowing conditions we have to wonder how many piles will have to be pounded in to secure good foundations... and at what cost. We would assume that artesian conditions combined with a weak sedimentary mixture would equate to reduced bearing strength of the subsurface materials.

BLESS also raises the serious concern about the possible transfer of leachate into the aquifers that lie below the surface. Three major aquifers join just below the area where the bridge is aligned. The main aquifer extends many kilometers to the northeast and several towns and villages tap into this aquifer for water.

The test drilling in the former landfill site confirms that it is not the "dry landfill" containing only dry construction material. Many older citizens have vivid recollections of the type of garbage that went into that uncontrolled dump site. Drums of old oil and other noxious material, oil cans, fertilizer bags, weed killer containers, old engines, electronic waste, light ballast, bulbs, tubing and so on. So it was no surprise when we read the latest tests that those people had good memories. The tests show found metal, styrofoam, electrical wiring, plastic crates, mop yarn, plastic, siding materials and other sundry items you would expect to find in this old uncontrolled dump.

The dump was originally one of the three original sewage lagoons, none of which were properly lined; there was not plan for decommissioning the lagoons; no plan for lining the lagoon pond area when it was changed from sewage lagoon to an uncontrolled dump and, despite a demand to do so from the Provincial Government, no approved plan was used to close the dumps and fill them.

The consultants propose to construct a roadway over this area by overfilling, compacting the fill and allowing it to settle. Yet despite the recent 4-year drought, the subsurface was found to be wet and they propose to fill with a "very wet high plastic clay" from a borrow pit.

Vertical wick drains are to be installed to allow dissipation of the water pressure in the fill. However, it is unclear how long this will take even under the best weather conditions. Some of their calculations are alarming. For example, the top of the fill might consolidate in 90 days depending on how many wicks are installed. At the bottom, though, it could take up to 730 days to reach 80% dissipation.

According to the report more wicks could be installed to speed up the process. To create a stable roadbed, they plan to install or insert a geogrid or strong woven geotextile under the road embankment to provide base reinforcement.

We have just gone through four years of drought. What happens to the right of way and bridge approaches if we have a flood on Big Lake. That entire area was under water on at least three occasions during the past 30 years. It could happen again.

One final construction matter we wish to address concerns Riel Pond; the old sewage lagoon. Test results show that it contains, amongst other pollutants, arsenic exceeding guideline levels. This cannot be overcome by simply filling on top of the sediment and letting it settle for several months. There is also another recommendation contained in the report. It proposes that the sediments beneath the footprint of the fill be removed. It's not clear what they intend to do with the discarded sediments. Without further details it is difficult to understand how they will cope with this problem.

BLESS observes that the consultants appear to have proposed two possible construction techniques in dealing with Riel Pond. For one, they propose placing fill directly in the pond to build the roadbed to accommodate a six lane expressway and surcharging the fill (in effect, overfilling) to compact the material. On the other hand, elsewhere in the EIA, they also appear to propose that the sediments beneath the footprint of the road be removed. BLESS submits that this ambiguity needs to be resolved. A clear plan should be developed for alteration of Riel Pond to accommodate the road construction.

The compression of the old sewage lagoon places a risk on the surrounding wetlands and the Sturgeon River. The tests carried out on this old lagoon are insufficient to really determine what lies beneath the surface. The lagoon is fed by two storm fall outlets; one from a residential subdivision and the other from an industrial area. Observations have concluded that following a rain the outfall line from the residential subdivision are relatively clear, the composition of the outfall line from the industrial area (Riel Industrial Park) carries pollution. The industrial park has hundreds of small businesses including plastic manufacturing, auto body, paint shops, auto repairs along with large trucking operations. These businesses along with the many industrial trucks create and bring in tons of residue which end up in this storm sewer line and finally into the lagoon.

BLESS submits that the Cumulative Effects Assessment and the Environmental Protection Plan is negligent in that it made the arbitrary decision to exclude the abandoned landfills in their CEA study. (See Vol IV page 2-1). They also determined, without detailed explanation, that the roadway "would not adversely effect groundwater quality". (Vol IV p2-2) BLESS submits that the studies carried out by the consultants demonstrate the serious risk of disturbing the landfill.

BLESS submits that building a roadway across this wetland, the river, the old garbage dump and the former sewage lagoon is a challenge of high risk and high cost that should not be taken.

## **Land Use**

### **Recreation and Aesthetics**

The value to residents of the eastern shore of Big Lake at the outlet of the Sturgeon River, with its picnic shelter, observation platform and pedestrian trails leading to the platform, is greatly underestimated by the proponents of the WRR alignment. The area is a recreational facility widely used by St. Albert citizens. Many residents walk along the trails in the evenings and congregate at the observation platform to watch spectacular sunsets over Big Lake and to observe waterfowl, shorebirds and other waterbirds, and birds of prey. .. It is a very common reaction by people at the viewing platform to marvel at the serenity and quietude of the place.

BLESS maintains that proposed WRR alignment will have a major, adverse, permanent impact on peoples' enjoyment of the area. The road consultants state that each person's reactions to noise is subjective. While that may be, BLESS maintains that noise is a recognized contributing factor to human stress; if occasional relief from noise is not attained, personal stress levels rise. A quiet natural setting in such close proximity to a city is a highly valuable asset that will become ever more valuable

in the future. To quote a letter to the editor in the St. Albert Gazette: "future generations may thank us for preseving natural areas; no one will congratulate us for building more roads.' (G. Pounder, Nov. 5, 2003).

There are two trails that residents use to gain access to the viewing platform. One is the trail on the south dike of Riel Pond. The consultants propose closing this trail in order to mitigate the disturbance to waterfowl caused by noise from the traffic on the proposed highway (Vol I p. 5-151). Presumably, the additional noise produced from vehicular traffic in close proximity to the pond will be offset by preventing pedestrians from using the dike trail. It is an extreme stretch of logic to contend that the disturbance from foot traffic amounts to anywhere near the disturbance cause by 5,000 to 25,000 vehicles per day, including trucks, travelling at 70 km/h. The disturbance caused by that many motorized vehicles cannot possibly be mitigated by eliminating foot traffic.

This trail provides access for residents to observe waterfowl in the wetlands adjacent to Riel Pond. Because observers remain on the trail, the impact to waterfowl nesting or using open water in the marsh is negligible. Closing the trail will accomplish nothing other than alienation of residents who partake in this extremely low-impact (with respect to waterfowl) recreational activity.

The EIA misrepresents the residual impacts of closing this trail. In Volume IV, p.2-7 under "Land Use", closure of the trail south of Riel Pond is listed as having residual impact characteristics of "adverse, minor, permanent, predictable." A minor impact is defined as one that "does not alter existing or future recreational pursuits at established facilities or well used areas (vol I p.3-13). A major impact is defined as one that "alters existing or future recreational pursuits at established facilities or well-used areas."

The foot trail in question has been used by St. Albert residents for as long as Riel Pond has been in existence. Its closure will most assuredly alter existing and future recreational pursuits and will be a major, not minor, impact.

Posting a sign informing people of the loss of the trail is not a mitigation measure.

The other access route to the observation platform is the trail along the west dike of Riel Pond from the north. The proposed alignment will severely affect the latter access route. The only pedestrian road crossing provided from the north would be a footpath under the proposed bridge. Figure 2-4 (Vol I p.2-11) shows the proposed footpath as being at 651.25 m. and indicates a high water level of 653.18 m. Thus during high water levels, which occur in the spring when many people use the platform to observe migratory birds, the only route of access will be under almost two meters of water. Residents will effectively be denied access until water levels subside. This constitutes a reduction in access to existing recreational facilities that would have a major impact on a large number of residents who currently enjoy the area.

The alignment will also cut off Big Lake as the western end of the Red Willow Park system. The city's own City Plan and Red Willow Park Master Plan identified this area as a great opportunity to create a truly wonderful terminus to the park system.

The Riel Drive alignment would not have this highly unfortunate impact.

For many people, the visual impact of the proposed West Regional Road alignment will be major, permanent, and adverse. The view of the Big Lake Natural Area from the shelter to the lake, and from the viewing platform to the spruce woods to the north are a visual delight. Few such undisturbed vistas remain in the St. Albert area.

The Riel Drive alignment would not have this impact.

The proponent has indicated that road noise at the BLESS shelter would have an adverse, major, and permanent impact at intermediate traffic volumes (vo. I p. 6-27). Mitigation measures proposed are to "consider renovating/modifying the shelter to provide for noise attenuation" (vol 1 p. 6-35). The BLESS shelter has been specifically designed to provide an open panorama of the landscape and unobstructed views for birders.

Roadway noise is expected to have a major, adverse, permanent and predictable impact on soccer play at ultimate road development. "(vol I. p. 6-19). BLESS agrees that the increased noise levels immediately adjacent to the soccer and rugby fields will reduce the appeal of the area for players and spectators alike.

BLESS takes issue with the comment on p. 2-4 of Vol IV, that impacts to individuals are expected to wane or be resolved as a result of urbanization. This is a very subjective comment, not based on fact. The people of the region have come to enjoy the tranquility of this area. And to suggest that they will simply "get used to it" is utter nonsense.

The Riel Drive alignment would have much less of an auditory impact.

## **Terrain and Soils**

The EIA depends heavily for baseline engineering/environmental information on the Thurber Report on the "West Regional Road Over Sturgeon River - Geotechnical and Environmental Investigation", September 12, 2003, in "West Regional Road - Environmental Impact Assessment - Final Report - Volume III: Appendix D - Technical Studies".

However, the Thurber report is best characterized as being extremely "cautionary" in its conclusions and recommendations in the context of the large degree of "uncertainty" involved in the largely unknown specific characteristics of the terrain materials and the significant associated environmental risks involved with the former nuisance grounds waste materials, and the bottom deposit sediments of the one remaining sewage lagoon.

For example, many uncertainties are cautioned by Thurber on page 37 of Vol. III –

The pond bottom is underlain by soft sediment which is generally less than 300 mm. thick, underlain by firm to stiff, high plastic clay. Typically, the soft sediments would be removed from beneath the footprint of the embankment fill.

However, the sediment is known to be contaminated (arsenic exceeding guideline levels) and disposal of the contaminated soil would require special handling. In addition, other non-geotechnical issues may dictate whether the storm water pond can be completely drained or not.

It is understood that consideration is being given to partially draining to [sic — "the"?] pond and constructing the embankment across the pond, through water depth possibly in the range of 0.6 to 1.5 m. deep, if technically possible.

And, page 39 of Vol. III --

Further discussion with Alberta Environment would be required to determine if it is acceptable to leave the sediment in place.

These comments are succinctly stated in Thurber's "Executive Summary", page ii, with the quotation: "For the section of the roadway alignment over the former landfill site, it is preferable from a geotechnical point of view to leave the landfill waste and organic soils in place.

BLESS considers that this statement appears to be in direct contradiction to the "guidance" that Thurber provided in their March 4, 2003, report which Thurber notes on p. 2 was "reported directly to the City in March 2003".

BLESS notes that Thurber's March 4, 2003 report to the City [which is not included in this EIA report (September 2003)] entitled "Storm Water Lagoon Sediment Sampling, St. Albert, Alberta" stated clearly that for several reasons (not the least being that arsenic levels in the pond sediments exceed safety guidelines) any proposed road construction should be preceded by removal of the contaminated sediments, and transportation of the sediments to a disposal site at a properly approved landfill.

As specifically stated in the Thurber report dated March 4, 2003, (signed by N. Fernuik, P. Biol., P. Eng., Review Principal, and copied to D. Borneuf, P. Geol.) , in part 4, "Discussion":

As the West Arterial Road foot print overlaps with two of the test hole locations where Arsenic (As) exceeds the guideline and as the bottom sediments will be most likely removed prior to the construction of the road it is recommended that the soils showing the presence of As in excess of the guidelines be removed and disposed of at an approved landfill.

For the one sediment sample location (TH03-E) showing the presence of hydrocarbon fractions F3 and F4 that exceed the guidelines it is also recommended that when the lagoon is emptied, bottom sediment be removed at this location and disposed of at an approved landfill.

In order to dispose of the contaminated lagoon sediments identified during this sediment sampling program it will be necessary to evaluate the extent of the soil contamination due to arsenic and F3 and F4.

Depending on the landfill used for disposal of the sediments, additional chemical analyses may be required by the landfill operator prior to disposal.

BLESS notes that an earlier report sent to the City by EBA Engineering Consultants Ltd., dated March 22, 2000, also recommended removal of "nuisance grounds" waste material if a major road was proposed for construction over a portion of the old "nuisance grounds".

Page 2 of the EBA report to the City states:

"A route that passed over the nuisance grounds would have to address several geotechnical issues, however. The household garbage and uncontrolled fill would provide unsuitable support for the roadway, most likely requiring a cut and fill program to prepare the route."

“As noted above, a WBR [West Boundary Road] route along Riel Drive and extending straight north to a river crossing would appear to have little potential to affect groundwater quality at the former dry waste site and nuisance grounds.”

“A WBR crossing the nuisance grounds” ... [would have ] “a requirement to excavate significant quantities of household waste from the nuisance grounds. The excavation would have to be carried out using appropriate health and safety measures, and the waste would then require disposal in a sanitary landfill.”

And, on page 3, under the heading “Route D”, EBA states “... Excavation and landfill disposal of household waste and uncontrolled fill would be required, however. Lack of long-term stability due to poor ground conditions may be of concern.”

The EBA Engineering Consultants Ltd. report is included in Appendix C of this BLESS submission to DFO.

BLESS believes that the September 2003 Thurber report included in the September 2003 EIA produces findings that directly contradicts findings in the EBA's March 2000 report to the City, and also Thurber's previous expert opinion stated to the City in the March 2003 Thurber report.

Further uncertainty is expressed on page 47 of the EIA, Vol. III –

Although the embankment height is only up to 3 m high in the landfill site, it will be constructed on landfill waste which overlies weak deposits of peat, organic clay, soft clay and marl. The strength perimeters of these various deposits are not well known.

And, although the Thurber report is repeatedly marked by many cautionary statements of geophysical uncertainty involving terrain conditions and engineering "soil" conditions, there is a huge "proviso" included at the end of the Thurber report, after page 64.

Following page 64 of the Thurber report, under "the title, "Statement of General Condition", BLESS believes that the content of Item 9 bears special attention, especially in the context and the precedents set in the recent case (September 2003) of the successful prosecution of charges laid by Environment Canada against the City of Moncton for contravening the federal Fisheries Act in regard to the release of garbage dump leachate into Johnathan Creek and the Petitcodiac River, in New Brunswick.

Item #9 at the end of the Thurber report states, with respect to Thurber's corporate position regarding restriction of liability:

"Independent Judgments of Client"

The information, interpretations and conclusions in the report are based on our interpretation of conditions revealed through limited investigation conducted within a defined scope of services. We cannot accept responsibility for independent conclusions, interpretations, interpolations and/or decisions of the Client, or others who may come into possession of the Report, or any part thereof, which may be based on information contained in the Report. This restriction of liability includes decisions made to either purchase or sell land.

This statement of "restriction of liability" which Thurber places prominently at the end of their report is extremely important. The conclusions which Thurber draws through "limited

investigation" conducted "within a defined scope of services" (especially for the high risk environment created by the proposed road construction disturbance on top of the former nuisance ground waste deposits, and the contaminated sediments of the sewage lagoon) should be used most warily by decision makers, and only after the exercising of the "precautionary principle" to the highest degree possible.

BLESS considers that this caution applies to all who may become involved in the repercussions of the proponent's EIA, including: municipal elected officials, municipal administrators, contracted professional consultants, the public, and regulatory authorities at all levels.

BLESS understands the Thurber consultants to basically be saying: "buyer beware". The report reader/user is being put on notice that Thurber does not consider that it can be held responsible for any consequences, or negative outcomes, that arise from the use of their information by others who may base their decisions on certain contents contained in the Thurber report.

## **Public Consultation Requirements**

### **General Comment**

(1) We wish to record the strongest possible protest of the manner in which these so-called public consultations were carried out. For example, there were no public meetings where the consultants could be questioned about their findings and recommendations; and,

(2) The Consultants refused to provide our organization with test results and other data in the latter stages of their consultation process.

We ask that DFO review Communique #1 from the consultants report to the City with respect to public communications. This communique submitted to and approved by St. Albert City Council on August 19, 2002, set the policy for the West Regional Road public process.

On page 7 of this report the policy regarding the public process was approved as follows:

#5 "Public involvement in mitigation strategies"

BLESS protested this mitigation policy from the very beginning, but it was not altered. We submit that the public consultation portion of the process was seriously flawed by this policy.

### **Chronology**

We confirm that the meetings as recorded took place. However, we wish to draw attention to the fact that the April 14, 2003 meeting was not satisfactory from our point of view. We submitted a detailed agenda in response to a request from the consultants, yet they refused to discuss certain issues or provide us with specific information. In addition, their minutes incorrectly stated that one of the purposes of the meeting was to discuss "mitigation strategies", a matter which was not on the BLESS agenda. We asked in writing that the minutes be corrected, but this request was not met.

Following the April 14th meeting BLESS appeared before City Council to complain about the lack of information and cooperation from the consultants and sought a meeting with the city manager. This meeting took place several weeks later and on that occasion, it was deemed by the City Administration that they, along with the consultants, had almost completed the EIA and we could wait for that.

We conclude by stating that the April 14th meeting was nonproductive as far as BLESS was concerned and that from that date until the distribution of the EIA response by the City in October of 2003, no information was provided to BLESS.

We submit that the "public consultation" process was not carried out as expected by a major stakeholder group such as BLESS.

We also submit that the general public had no opportunity to attend a 'public meeting' that would afford a member of the public an opportunity to directly question the consultants or administration.

### **E-5: Public Opinion Survey**

BLESS submits that the public opinion survey was seriously flawed because it was carried out in August of 2002 and that the public had no idea just where the road alignment was to be placed. Much debate was going on but the city failed to place any signage at the river crossing.

BLESS also submits that most people (52%) were only "somewhat familiar" with the roadway and approximately 26% were not at all familiar. The west road was identified by 53% of respondents as the most important issue facing St. Albert City Council but that cannot be interpreted to mean that they were in favour of the road.

It is easy to conclude that a great many people felt it was an issue as a result of the October 2001 civic election but little information was published that CORRECTLY showed the proposed alignment.

BLESS submits that the entire study should be ignored.

### **Cumulative Environmental Effects**

Following is the BLESS response to Volume IV of the Environmental Impact Assessment entitled Cumulative Effects Assessment (CEA) and Environmental Protection Plan for the West Regional Road. Comments have been made against paragraphs in the CEA, paragraph numbers are included to enable the reader to cross-refer to the proponent's text.

#### **Project Selection (2.2)**

The consultants' report states that "Although the abandoned landfills described in the EIA are located within the CEA study area, they were not selected for consideration in the CEA." The consultants incorrectly conclude that the roadway "would not adversely affect ground water quality".

Notwithstanding BLESS's concern about insufficient testing, the consultant does maintain that there is a high level of artesian flowing conditions. If we accept the consultants findings regarding high artesian flows, then the argument can be made that the old dump site material is at risk of being displaced when the fill is placed on the surface and compressed.

The consultants recommend placing fill up to seven meters high with additional fill on top of the seven meters to compact the fill over the approaches to the bridge. BLESS argues that this would disturb the landfill and risk contaminants from the old uncontrolled town dump entering the groundwater.

#### **CEA Valued Environmental Components (2.3)**

The consultant report states that impacts to individuals were not considered because these impacts are expected to wane or be resolved as a result of urbanization. BLESS submits that these impacts must

be considered and that the road will have a dramatic effect on individual enjoyment of the area. Individuals who currently walk along the river and enjoy the tranquility of the area will be denied this pleasure. In addition, those using the playing fields adjacent to this major roadway will be severely impacted since the roadway crosses a corner of the playing fields.

BLESS submits that it would be difficult if not impossible to mitigate the cumulative effects of the roadway on individuals either on the walkways along the river or at the playing fields.

### **Summary of Residual Impacts Considered (Table 2.2)**

The report states that the interruption of surface water flows to Big Lake, north of Sturgeon River ranges from "negligible to adverse, minor, permanent and predictable." (vol 1V -page 2.5)

BLESS submits that the roadway, across over one kilometer of wetland will create a dam in the wetland and that the effect will be major and severe. No mitigation steps are outlined.

BLESS submits that the same applies to the migratory waterfowl and songbirds; wildlife movements in the area and the several waterfowl species that inhabit the area during the year.

### **Sewage Lagoons (3.1.2)**

The report fails to clearly provide detailed construction history of the former sewage lagoons. BLESS submits that the old sewage lagoons were not properly lined; that there was no plan of closure and no steps were taken to ensure the containment of contaminants. The report fails to state the risk to disturbing these land fill sites.

### **Riel Pond (3.1.3)**

The report fails to describe the source of the storm sewer outfall lines that bring storm water into the pond. It fails to report that the facility was closed to the public because of pollution in the spring of 2003. It fails to offer any remedial action such as storm water treatment or catchment facilities to remove material and pollutants from Riel Business Park.

### **Riel Business Park (3.1.4)**

This is really an industrial park which houses auto repair and service industries, plastic manufacturing, auto body, radiator shops and a truck storage area. Trucks are known to deposit oil, grease, and dirt on the road and parking surface of the park which flow into the storm sewer system and eventually into Riel Pond. The failure to mention this important factor and the failure to offer any mitigation is a major shortcoming of the report.

### **BLESS Facilities (3.1.7)**

The report correctly describes the two major BLESS facilities along the Sturgeon River, but fails to point out that the pathway between the two facilities will be severed by the proposed roadway. The roadway will have a major detrimental affect on the use and enjoyment of these facilities.

The proponent has indicated (Volume I, page 6-27) that road noise at the BLESS shelter would have an adverse, major, permanent impact at intermediate traffic volumes. Mitigation measures proposed (Volume I, Table 64, page 6-35) to produce a residual impact of negligible, minor, permanent are "Consider renovating/modifying BLESS shelter to provide for noise attenuation." To "consider" carrying out mitigation is far removed from actually carrying out the mitigation. The BLESS shelter has been

specifically designed to provide an open panorama of the landscape and unobstructed views for birders. To enclose the shelter in any way to mitigate the effect of traffic noise would defeat the shelter's purpose. BLESS maintains the proponent's half-hearted proposal to mitigate this major impact on the BLESS shelter is ineffective and not acceptable.

### **Red Willow Park West Master Plan Update (3.2.5)**

The proposed roadway is in conflict of a major recommendation of this new Master Plan Update (see page 63 park management guidelines) which states. " The City should adopt a policy to prohibit filling of the flood fringe areas. These areas are valuable for natural wetland process and habitats and are the land base for Red Willow Park". The report does not state how this conflict can be resolved by building a major roadway through this sensitive wetland.

### **Groundwater (4.1)**

BLESS finds the statement with respect to groundwater very confusing and misleading. They state that impacts are "thought" to be minor to major. BLESS finds that to state such a range without qualification is confusing. To go on to say that urban development is again "thought" to have potential to alter shallow groundwater flows without being specific is misleading. The report also states that overall effect on Big Lake or the Sturgeon River cannot be accurately determined, however, given that the lake receives discharge from deep groundwater (again without supporting documentation) to be misleading. Even the conclusion with respect to the range of cumulative effect to range from minor to major and permanent or likely to be is confusing. BLESS submits that this section of the report should be referred back to the consultants for detailed comment and clarification.

### **Wetlands**

Wetlands are of vital importance in the control and storage of water and for the recharge and discharge of groundwater. Wetlands store water and slow the rate of runoff after the spring melt or major rainstorms therefore reducing the risk of flooding, soil erosion and downstream sedimentation.

Wetlands improve water quality through the incorporation of nutrients and chemical residues into wetland vegetation.

Wetlands, wetland fringe areas and surrounding lands provide important habitat for a large variety of plant and animal species. Some 45 species of waterfowl, 81 species of other birds, mammals such as beaver, mink, muskrat, moose and deer make use of wetlands for all or part of their life cycle.

Wetlands also provide food in many forms to support fish populations and pike use wetland for spawning. The wetlands of Big Lake are particularly important for maintaining migratory waterfowl populations.

The value of wetlands is not widely understood or appreciated by many Albertans. Loss of wetlands in Alberta has been significant. Agricultural development, drought, urban expansion, oil and gas exploration along with transportation development have contributed to wetland loss and degradation. During a 1993 review of public opinion of wetlands by the Provincial Government's Water Resources Commission, it became clear that there had to be better understanding and recognition of the value of wetlands.

Many participants in the study felt that wetland loss should be stopped and the remaining wetlands be protected. Participants also asked for improved wetland management and immediate implementation

of a wetland management policy (see Wetland Management in the Settled Area of Alberta -1993). An interim policy was developed following the study.

Policy Goal: "The goal of the Government of Alberta is to sustain the social, economic and environmental benefits that a functioning wetlands provide, now and in the future."

BLESS submits that the Wetland Policy of the government of Alberta should be considered in the application by the City of St. Albert to build a roadway through the wetland adjacent to Big Lake. BLESS also submits that mitigation cannot be used to sustain the viability of the Big Lake and Sturgeon River wetland especially in this case where a feasible alternative is available.

Transportation corridors have already contributed to the loss of wetlands in this area through direct loss and through alteration of natural drainage patterns. Roadways proponents should be required to address all feasible alternatives and avoid wetlands. Mitigation through reclamation and substituting other lands is not an acceptable solution.

Pollution and degradation of the wetlands area which is part of and adjacent to Big Lake and the Sturgeon River system is of great concern. The possibility of leachate from old uncontrolled dumping grounds entering the Sturgeon River should be of prime concern to all government agencies. Water quality will be impaired and the biological processes of the wetland may be destroyed if pollution is allowed to enter the river system.

Big Lake, called the "Lake of Clear Waters" by the native population of the area a century ago, has barely survived a 60-year bombardment of sewage and waste disposal. Lake and river banks which once hosted huge stands of spruce forests suffered extensive land and river bank clearing. Federal agriculture policies in the early 1960's further contributed to the degradation of the fringe lands close to the lake and river. Crop insurance programs actually encouraged farmers to clear marginal land, not farm it and claim an acreage payment.

The wetlands were placed on further stress by municipalities which not only ran raw sewage into the system, but when this was banned, still allowed storm sewers to flow directly into the system. Several golf courses have been developed in the wetlands and upland areas causing fertilizer to leach into the system. Levels of phosphates and nitrogen in Big Lake have grown to alarming proportions over the past 30 years creating periodic algae blooms.

All these factors have placed great stress on a lake that is one of a kind in Western Canada. Big Lake and the mouth of the Sturgeon River near St. Albert is not only a good waterfowl production area but is much more important as a staging area and migration stop in both spring and fall. A roadway in this sensitive area would have an extremely high detrimental effect on the waterfowl.

The federal government has a great deal of power to prevent a road being built through this wetland. Federal Wetland Policy, in our view, prohibits the use of this valued wetland for a roadway. The Migratory Birds Convention Act passed in 1917 gives the federal government power over the wetlands as a habitat for migratory birds. The Fisheries Act also enables the federal government to deal with the protection of fish populations and their habitat. Fish bearing waters are broadly defined and would include Big Lake and Sturgeon River and the wetland spawning grounds. Source food for fish is also found in the wetland and would be damaged by the long roadway through the wetland.

BLESS submits that in matters such as those affecting the migratory birds, wildlife, the fish in inter-provincial water such as the North Saskatchewan River system, then the federal government through

its agencies must use their legislative powers in the national interest and disallow the application of St. Albert to build a road through this valued wetland.

### **Wetlands - Sources Used**

The case for the Wetlands; Big Lake, Alberta - Chantell Bevan Dec 4, 1996  
Wetland Management in the Settled Area of Alberta - Alberta Water Resources Commission  
Big Lake - A Special Place.  
Recommendations for an integrated land use plan at Big Lake, Alberta - D Surrendi  
(Canadian Wildlife Service.)  
Edmonton Regional Planning Commission - Report on Big Lake Recreation Plan.  
1991 Alberta/Canada Flood Agreement--Big Lake, Sturgeon River/St. Albert.  
Edmonton Regional Metropolitan Planning Commission - Big Lake Plan  
City of St. Albert General Plan of 1977- adoption of Eastern Bypass.