A14/SEM/96-002/01/SUB
DISTRIBUTION: General
ORIGINAL: English

AAGE F. TOTTRUP, P. Eng.
P.O. BOX 11210
EDMONTON, ALBERTA
T5J 3K5
TELEPHONE &
FAX (403)432-1919

April 19, 1996

Commission for Environmental Cooperation
393, Rue St-Jacques Ouest, Bureau 200
Montreal, Québec
Canada, H2Y 1N9

Attention: Mr. Greg Block, Director

e-mail
mpaquin@ccemtl.org

Dear Sir:

RE: Submission on enforcement matter under Articles 14 and 15 of the North American Agreement on Enviromental Cooperation

Submitter:	**Aage Tottrup**
Party:	**Canada**
Date:	**March 29, 1996**
Submission No.:	**SEM-96-002**

Further to your letter of March 28, 1996, I append an electronic copy of the above named submission with all producible appendices for incorporation of the material into your public file for the Internet.

Your sincerely,

Aage Tottrup
P. Eng.
Attachments

AAGE F. TOTTRUP, P. Eng.

P.0. BOX 11210
EDMONTON, ALBERTA T5J 3K5
TELEPHONE & FAX (403) 432-1919

March 20, 1996

Commission for Environmental Cooperation
393, Rue St-Jacques Ouest, Bureau 200
Montreal, (Quebec)
Canada, H2Y lN9

Attention: Secretariat

Dear Sir:

RE: Submission on enforcement matters

Please accept this letter and attached documents as a "submission on enforcement matters" pursuant to articles 14 and 15 of the North American Agreement on Environmental cooperation.

I am a professional engineer and resident of the province of Alberta and I am making this submission on my own behalf. My complete mailing address is:

P.O. Box 11210
Edmonton, Alberta T5J 3G5

telephone and fax:

(403) 432-1919.

I am making this submission on the basis that the government of Alberta and the government of Canada have failed to effectively enforce its environmental laws resulting in the

pollution of the wetlands of Alberta thereby causing extensive environmental pollution to the habitat of fish and migratory birds. Attached to the submission as schedule "A" is a summary statement of facts which support my assertion that Alberta and Canada have failed to enforce environmental laws, to the detriment of the Alberta wetlands. Attached as schedule "B" to my submission is a letter dated November 20, 1995 addressed to the Big Lake Environmental Support Society which provides a further account of the facts upon which I rely. Attached and marked schedule "C" to this submission are photographs of the wetlands of Big Lake, Alberta. These photos show the effects of pollution on these wetlands. I have also included as schedule "D" a copy of a report prepared on behalf of Alberta Environment with respect to the environmental problems at Atim Creek, a tributary of Big Lake. The problems identified in that report have not been remedied nor have the recommendations been implemented.

The environmental laws which the government of Alberta and the government of Canada have failed to enforce to protect the wetlands of Alberta, despite knowledge by the government of Alberta of ongoing environmental pollution and degradation, include the following:

1. Fisheries Act, R.S.C, c. F-14, s. 35, 36 and 38;

2. Department of Environment Act, R.S.A. 1980, c. D-19, s.7, 16 and 17;

3. Clean Water Act, R.S.A. 1980, c. C-13, s. 3, 4 and s. 17;

4. Environmental Protection and Enhancement Act, S.A. 1992, c. E13.3, as amended, part 4, division 1 and 2, and part 10;

5. Waste Water and Storm Drainage Regulation, Alberta Regulation 199/93 as amended by Alta. Reg. 249/93.

I, and my solicitors on my behalf, have written numerous letters to Alberta Environmental Protection (previously the Department of the Environment and Alberta Environment) and to the local governments responsible for contamination of Big Lake. Attached as schedule "E" to my submission are copies of some of these letters and the replies which I received. As

these letters indicate, I received no effective response from the provincial government and no enforcement action was taken by Alberta Environmental Protection.

As my letter and requests to the provincial government and the municipal governments were to no avail, I was forced to commence legal action to attempt to recover compensation for environmental damage to my lands, which include wetlands adjacent to Big Lake. Attached as schedule "F" to my submission is a copy of my Statement of Claim. However, this civil action has not resulted in any enforcement activity on the part of Alberta Environmental Protection.

The above information and the schedules to this letter complete my submission. I look forward to your reply.

Yours sincerely,

Mr. Aage Tottrup
P. Eng.

Attachments

cc: The Honourable Mr. Sergio Marchi
Minister of the Environment, Canada

The Honourable Mr. Ty Lund
Minister of Environmental Protection, Alberta

SCHEDULE "A" FOLLOWS:

Alberta Wetlands

Ideal Waterfowl Habitat or Killing Fields?

We know we must protect our wetlands, but we have done a very poor job over the last generation. Alberta passed its first environmental legislation in 1973; since then, the number of ducks and other waterfowl killed annually by polluted water has risen to approach 200,000 killed per year. The polluted water has also killed untold numbers of muskrats, fish, frogs and other aquatic animals. This catastrophic situation has been caused by mismanagement and failure to enforce the Clean Water Act and, more recently, the Environmental Protection and Enhancement Act.

I have written to the Federal Minister of the Environment and to the N.A.F.T.A. Secretariat for the Environment for help in improving this situation: the Federal minister because migratory birds and fisheries are both federal responsibilities and the N.A.F.T.A. Secretariat because it is charged with ensuring that jurisdictions throughout North America enforce their own environmental laws.

Alberta wetlands are (most typically) the grassfields that surround shallow lakes or sloughs, Many of these areas have historically experienced flooding during spring break-up and snowmelt with the floodwaters rapidly receding after the roding. The floodwaters were, in general, unpolluted. The current situation sees flooding occurring throughout spring and summer, with floodwaters often persisting for months. In addition, the water that floods the grassfields is now frequently polluted; the pollution most often takes the form of a total absence of dissolved oxygen and the presence of other substances that will scavenge any oxygen that contacts the floodwater. This anaerobic polluted water suffocates any animal or green plant it surrounds; the resulting dead animal and vegetable matter will also scavenge oxygen as it decays. A secondary effect is that some micro-organisms thrive in these anaerobic conditions; one of these (*Avian Botulism*) is thought to be a major contributor to waterfowl deaths across Alberta.

The anaerobic polluted water may come from any of a variety of sources:

agricultural wastes, oil and gas production and processing, sewage and waste treatment, landfills and so forth. Some of these activities are poorly regulated by the Alberta Government and some are essentially unregulated (such as agricultural wastes, since agriculture and agricultural processing are exempt from the Alberta Environmental Protection and Enhancement Act).

The increase in flooding from historical levels is primarily due to development distorting the natural drainage patterns and eliminating storage and buffer capacity, The Alberta Government has had regulations in place requiring any new development to put in sufficient runoff storage capacity to hold peak runoff rates at pre-development levels. These regulations are seldom enforced; waterfowl and waterfowl habitat pay the price for this neglect.

There have been few studies published on the effects this combined flooding and pollution problem is having on wetlands; one of the few was published by Alberta Environment in 1978 and deals with the Atim Creek / Big Lake drainage basin. The report details the polluted nature of the water (both excess "nutrients" and lock of dissolved oxygen) and high levels of flooding that clearly existed even back in the mid 1970's and goes on to predict that further development in the area would lead to increased problems for the wetlands. The report also draws some rather silly conclusions:

1. that farmers were partly to blame for the poor water quality by dragging dead cattle carcasses to the edge of Atim Creek (during a flood which would have necessitated the use of a helicopter to transport the carcasses -- it is much more likely the cattle died shortly after drinking the polluted water of Atim Creek)

2. that paying damages would be less costly than fixing the problem (consider that over the last six years alone, the number of birds, fish, frogs and other wildlife killed in the Atim Creek / Big Lake basin is of the same magnitude as the estimates for the Exxon Valdez disaster, for which Exxon has paid out over $10 billion (U.S.) so far). In any event, there is no record of damages being paid for damage to hay crops, loss of pasture land, death of livestock or death of wildlife.

If Alberta's wetlands are to be useful habitat for waterfowl and other wildlife, what must be done? Two actions are required, one focussing on the

pollution and one on the increased flooding:

1. the sources of pollution that lead to anaerobic conditions in the water reaching the wetlands must be located and stopped and any large amounts of these pollutants that have already reached the environment must be removed

2. sufficient runoff storage capacity must be added to all drainage systems that feed wetlands to restore drainage (and flooding) patterns to pre-development levels.

Implementation of both of these measures simply corrects for ignoring statutes and regulations in the past. Failure to implement these measures will leave Alberta's wetlands as "killing fields" for waterfowl and other wildlife.

A. Tottrup P.Eng.

FIGURE 1 - BIG LAKE HABITAT DEVELOPMENT CONCEPT (MAP)

NOT AVAILABLE

SCHEDULE "B" FOLLOWS:

Aage F. Tottrup, P.Eng.

P.O. BOX 11210
EDMONTON, ALBERTA T5J 3K5
TELEPHONE & FAX
(403) 432-1919

November 20, 1995

Members of B.L.E.S.S.:

I seek the support of your organization in getting Big Lake and its drainage basin restored to its historical role as a vibrant ecosystem providing **internationally** important staging and breeding grounds for waterfowl, spawning and feeding grounds for fish (especially sturgeon), habitat for a variety of mammals and supporting a diverse suite of vegetation.

I have been a landowner at the west end of Big Lake for over 25 years. In the first few years after I acquired my land, I noticed that it was being subjected to increasing amounts of flooding with water that smelled of sewage. The sewage was easily tracked back along Atim Creek to the vicinity of Stony Plain and Spruce Grove. I constructed dikes around my property to protect against this frequent inflow of polluted water; the dike system was never fully completed and did not operate as intended, in part due to levels of flooding that have continued to increase. However, this limited protection has been sufficient to make this area of land at the west end of Big Lake the most productive breeding grounds for ducks and geese in the area (documented by waterfowl census several times in the 1970s and 1980s). Ducks Unlimited is currently offering to pay for improvements and extensions to my dikes and to build similar dikes along the north shore of Big Lake to improve habitat there (see proposal by Ducks Unlimited, included as Exhibit A).

In spite of the obvious benefits of the dikes, the Alberta Provincial Government sued me over the issue of the dikes in the mid-1970s. They lost their case in court repeatedly, with the issue finally put to rest by the Supreme Court of Canada.

Unfortunately, the protection offered by the dikes became less effective as the swings between high water years and low water years became more extreme. Every five years (on average) hundreds of acres of vegetation die off following a flooding event with little or no growback for several years; as this dieback includes reeds and cattails that routinely survive submergence in clean water, the polluted nature of the floodwater is hard to deny. The agricultural value of land saturated with this polluted water is zero. The recreational value of such land is doubtful. Over 500 acres of my land is subject to these catastrophes.

In 1991, flooding was followed by a major outbreak of avian botulism, killing up to 15,000 waterfowl in Big Lake and its surroundings. The polluted water killed the vegetation in the flooded areas and the nature of the pollution was such that in 1992, when the floodwaters receded and the lake level dropped to lower than normal, the residual contamination was sufficient to prevent regrowth of the vegetation (see photograph attached as Exhibit B). The pollution and the lack of a food source led to the death of 10,000 to 15,000 muskrats; uncounted thousands of frogs and fish died at the same time.

Historical records show that thousands of sturgeon used to spawn in Big Lake and Atim Creek with hundreds being caught each year by local farmers. This area was thought to be the spawning grounds for all the sturgeon in the Sturgeon River and for a considerable stretch of the North Saskatchewan River. No sturgeon have been observed in Big Lake or Atim Creek for the last 10 years -- has the pollution in Big Lake and Atim Creek doomed the North Saskatchewan River population of sturgeon?

What has gone wrong? In 1978, the Alberta Provincial Government published their "Atim Creek Study" (included as Exhibit C) which contained the results of their studies on the Atim Creek / Big Lake flooding and pollution problems. I only became aware of this report this year; many of the report's findings would have been very helpful in fighting the Provincial Governments's lawsuit which was in progress as the report's field work was being carried out. The Atim Creek Study established that stretches of Atim Creek were so polluted that the dissolved oxygen necessary to support life was totally absent and that the flooding of Atim Creek and Big Lake was likely occurring much more frequently than in the past due to the diversion of several water flows into Atim Creek and the failure to provide the legally required volume of storm run-off retention for developments such as Stony Plain and Spruce Grove.

The conclusions of the government report are also remarkable; through a series of calculations and cost estimates (some of which are in error), the report concludes that it would be better to pay damages than to fix the problem.

The situation has steadily worsened since 1978. Chemical analyses of the water in Big Lake, Atim Creek and Atim Creek's major feeder streams in 1994 all show water that resembles aged sewage. No significant retention pond volume has been added in the Atim Creek Basin even though Spruce Grove and Stony Plain have undergone major expansion. Numerous trailer courts, industrial areas and acreages have also been established in the past twenty years with minimal stormwater retention. The legal requirement for any new development is to include sufficient storm water retention (usually in the form of ponds) to ensure that peak run-off is held at pre-development levels. The effects of ignoring this requirement are wide swings in water level in Big Lake between high water and low water years, more frequent flooding of both Atim Creek and Big Lake, and widespread devastation of vegetation and wildlife when flooding of this polluted water occurs.

This polluted water, devoid of dissolved oxygen, suffocates aquatic and terrestrial plants as they require some oxygen (either dissolved or free) in contact with their roots to live. These dead plants then are capable of consuming even more dissolved oxygen (if there is any) as they decompose. Thus, the aftermath of a flood can last for several years, until the decomposition of the killed vegetation is complete. Wildlife and domestic animals are either killed outright by drinking the polluted water or die from the disease organisms that thrive in anaerobic (lack of oxygen) conditions. It was such a disease (avian botulism) that killed vast numbers of migratory waterfowl in the early 1990's at Big Lake.

Fish, amphibians and aquatic invertebrates do not need a flood to die from the effects of the polluted water; ingestion, breathing and immersion in this polluted water occur continually and cause widespread damage to populations.

Anaerobic conditions also lead to the generation of gases such as hydrogen sulphide that are themselves of concern; the most spectacular releases of these gases at Big Lake occur in winter when they crack the ice and then bubble up through the cracks carrying along foul-smelling muck. The dangers of hydrogen sulphide to humans, animals and vegetation are well known and need not be repeated here.

A further environmental concern from pools of stagnant anaerobic water remaining after flooding 's the excellent habitat they provide for mosquito larvae; mosquito larvae can exist in anaerobic water because they breath air at the water's surface through a breathing tube. The larvae's natural predators cannot survive in such water so the growth of mosquitos is unchecked. Prevailing winds and topography imply that mosquitos from Big Lake will spread throughout the Edmonton region. Mosquitos are usually considered a nuisance that is costly to control, but it should be borne in mind that mosquitos have been known to transmit diseases deadly to both humans and livestock on the Canadian Prairies.

The combined effects of flooding and pollution pose a serious on-going threat to humans, wildlife, domestic animals and vegetation in the Atim Creek Basin and in Big Lake. Conservative estimates suggest that, over the past five years, the number of dead waterfowl and mammals in and around Big Lake exceeds the number killed in the aftermath of the Exxon Valdez oil spill. The number of fish, amphibians and invertebrates killed is impossible to estimate. Exxon has paid out over $10 billion (U.S.) for damages caused by the Exxon Valdez; to the best of my knowledge, those responsible for the pollution and increased flooding in and around Big Lake have paid nothing.

What can be done? The first step is to alert the public so that danger to humans and domestic animals can be minimized. As immediate actions, I want Alberta Environmental Protection to post notices around Big Lake and along Atim Creek warning against letting cattle, horses and other livestock drink the water. Signs should also be posted that the lake and creek water is similar to sewage so that the creek and the lake should not be used for recreational purposes. In winter, access to the lake ice should be restricted because of the danger of sudden ice cracks and poisonous gases (particularly hydrogen sulphide).

The second step is to remedy the pollution and the increased frequency of flooding. Measures which focus on controlling flooding (such as Ducks Unlimited's proposal to build a large number of dykes along Big Lake) are well-intentioned but will not result in a healthy environment for wildlife or people. A much more comprehensive rehabilitation program is required. An immediate interim measure that should be undertaken by Alberta Environmental Protection is to construct a 400 acre retention pond (15 feet deep) to capture the Atim Creek flow and to afford the

opportunity to remove the excess nutrients and reduce the chemical oxygen demand to either Alberta Surface Water Quality Guidelines or Canadian Drinking Water Standards, whichever is stricter for a given contaminant. In addition, nitrate ion should be reduced to Alberta Environmental Protection's own guideline of 1.5 ppm. After reaching these standards, the water could be safely released to Big Lake.

Further, I want Alberta Environmental Protection to get on with stabilizing the water level in Big Lake. All the other large lakes in the drainage basin have had their water levels stabilized by man-made developments. This means that in wet years Big Lake floods to a much greater extent than would have occurred naturally. In dry years, the level of Big Lake drops much more than it would have pre-development (this also concentrates the pollution, making it even more hazardous to health).

I have asked Alberta Environmental Protection to conduct an environmental assessment of the Atim Creek - Big Lake drainage system to find out who the polluters are and to catalogue the effects that the pollution is having. AEP could then force adherence to its own guidelines and regulations and slowly clean up the ecosystem. The department has refused. Private citizens should not have to fund work that AEP should be doing - we do not have the money.

Currently, some legal action has been initiated against Alberta Environmental Protection and its predecessor departments because of their failure to enforce the law, particularly after 1978 when Alberta Environment's own report documented the problem. We are arguing that either the provincial government should have enforced and lived by its own laws or, as was suggested in Alberta Environment's 1978 "Atim Creek Study", damages should be paid. Because of the lack of enforcement of the Clean Water Act, the Water Resources Act and the new Environmental Protection and Enhancement Act, I am also asking NAFTA's environmental agency in Montreal to provide support by forcing the Alberta government to enforce its own laws.

These legal actions will likely be lengthy and the quality of the Big Lake -- Atim Creek ecosystem will degrade further unless public pressure forces extensive remediation efforts.

If the health of Big Lake and Atim Creek are important to you, contact your MLA quickly and forcefully -- protection of the environment is a provincial

responsibility. Further pressure may be applied through your MP as migratory birds and fisheries come under federal responsibility.

Please let me know soon what your position will be in trying to improve a catastrophic situation.

Yours truly,

Aage F. Tottrup, P. Eng.

xc: Property Owners, Big Lake and Atim Creek Basin
The Honourable Sheila Copps, Federal Minister of the Environment
NAFTA Environmental Secretariat

SCHEDULE "C" (PHOTOGRAPHS)

NOT AVAILABLE

SCHEDULE "D" FOLLOWS:

ALBERTA

ENVIRONMENT

ATIM CREEK STUDY

ATIM CREEK STUDY

PREPARED FOR

WATER RESOURCES MANAGEMENT DIVISION

BY

PLANNING DIVISION

JUNE, 1978

J.D. Barton, P. Eng., NSRB-7
North Saskatchewan River Basin Planner
Northern Region

L.J. Hermanutz June 29, 1978
Regional Administration
Water Resources Management Division

ATIM CREEK STUDY

I am pleased to forward herewith the report entitled the "Atim Creek Study". The report has been prepared for two reasons: to document the findings of the study carried out in response to the 1977 petition from landowners in the County of Parkland, and to fill data gaps regarding agricultural flooding which were found in the course of the Sturgeon River Basin Study.

The report concludes that the major flooding area in the basin is centered on the first 10 km. above Big Lake. Multiple causes of flooding were identified, the major cause being unavoidable backflooding from Big Lake. Other contributing factors are urban stormwater, sewage lagoon releases, groundwater introduction to the systems (both natural and pumped) and beaver activity.

The report recommends no major structural alterations for the creek regime and endorses alternatives which would reduce or remove urban stormwater, sewage and groundwater inflows. A beaver control program in cooperation with Alberta Recreation, Parks and Wildlife is recommended.

The report has been prepared by J. Wohl, P. Eng., and L. Lumabi, under my direction. Contributions from M. Ellis, P. Eng., J. Milos, P. Eng., and K. Armstrong, P. Eng., are appreciated.

J.D. Barton, P. Eng.
North Saskatchewan River Basin Planner

Northern Region

TABLE OF CONTENTS

LETTER OF TRANSMITTAL i
TABLE OF CONTENTS ii
LIST OF PLATES iv
ABSTRACT v
INTRODUCTION
Background 1
Study Objectives 2
Scope and Organization 2
Report Format 3
BASIN INVENTORY
Watershed Physiography 4
Water Demands and Concerns 5
Hydrology 7
Channel Hydraulics 8
Water Quality 9
Groundwater 9
Related Studies 11
PROBLEM ANALYSIS
Extent of Agriculural Flooding 13
Rural Runoff 17
Urban Runoff 18
Lagoon Releases 19
Groundwater Introduction 20
Water Quality 21
Groundwater Dewatering 22

ALTERNATIVES

Agricultural Flooding 24

Water Quality 27

Groundwater Dewatering 28

CONCLUSIONS AND RECOMMENDATIONS 30

REFERENCES 34

RELATED CORRESPONDENCE

LIST OF PLATES

Plate No.

1 KEY PLAN - ATIM CREEK STUDY AREA

2 REGIONAL PLAN - THE STURGEON RIVER BASIN AND ATIM CREEK BASIN

3 GENERAL BASIN MAP

4 SURFICIAL GEOLOGY

5 ATIM CREEK PROFILE

6 LAND USE

7 GROUNDWATER YIELDS

8 GROUNDWATER RECHARGE AND DISCHARGE ZONES

9 AIR PHOTO MOSAIC OF IDENTIFIED PROBLEM AREA

ABSTRACT

The Atim Creek Basin Study was initiated in October, 1977 to identify the extent of and solutions to agricultural flooding and water quality concerns. The study compiles information from existing or ongoing reports directly related to the water resource in Atim Creek. Surveys were carried out in 1978 to aid in documenting the agricultural flooding problems. The study concludes that the major problem area in Atim Creek is between Big Lake and the Spruce Grove sewage lagoons. Flooding is caused by a combination of several factors, but primarily backwater effects from Big Lake. Flooding is further aggravated by urban stormwater runoff, sewage lagoon releases and beaver activity. The report recommends no major alterations to the creek regime, and endorses measures which would control urban stormwater runoff, control beaver activity and remove additional nutrient loadings to the system from sewage lagoon releases.

CHAPTER 1
INTRODUCTION

1.1. Background

The Atim Creek drainage basin is located directly west of the City of Edmonton, and centered approximately on the rapidly growing Towns of Stony Plain and Spruce Grove. The drainage boundaries of the system encompass an area of 500 sq. km. the vast majority of which is contained within the County of Parkland. The system rises in Longhurst Lake, 8 km. south of Spruce Grove, and empties into the western end of Big Lake.

Atim Creek lies within the study area of the recently completed Planning Division Study of the Sturgeon River Basin. The original terms of reference for the Sturgeon study did not require the analysis of specific water related problems or demands in the Atim Creek sub-basin; rather it considered only its hydrological contribution in total to the main stem at Big Lake. The extent of the basin in varying perspectives is shown in Plates 1 to 3 inclusive.

Alberta Environment is aware of the increasing concerns over water quality and quantity in the Atim Creek sub-basin, all of which are related in some way to the increasing demands put on the creek by land-use changes and rapidly increasing population.

Information is sparse with respect to the water resource in the Atim Creek system, however, the following factors are known: Atim Creek exhibits the poorest water quality in the Sturgeon system: the main channel is small, ill-defined in some reaches, obstructed by beaver dams and debris in others and is subject to frequent flooding; changing land use patterns in the basin are causing changes in the hydrologic characteristics of Atim Creek; urban storm runoff and sewage lagoon releases have been

blamed for some flooding problems in the basin; there has been considerable urban growth in recent years and there is a potential for further substantial increases; groundwater is being discharged into the surface water system both by natural means, and by pumping.

1.2 Study Objectives

In recognition of these concerns, and in response to a request by the County of Parkland for an examination of agricultural flooding problems, this study has been undertaken.

The objectives of the study are to: document the extent of agricultural flooding in the system; assess the hydraulic and hydrologic characteristics of the system including the effect of constant groundwater pumping; determine the relative contribution of Stony Plain and Spruce Grove lagoon releases to poor downstream water quality and finally to recommend remedial action to identified problems, within the scope of the Sturgeon River Basin Study.

1.3 Scope and Organization

The activities and scope of analysis in the Atim Creek Study are designed to supplement the broader Sturgeon River Basin Study.

Existing information has been extracted from studies either completed or underway. These studies include the: Spruce Grove Master Drainage Plan (draft); Stony Plain Drainage Study; Regional Utilities Study (currently ongoing); Hydrogeology of the Sturgeon River Basin (Interim Report); and Regional Growth Studies.

Additional data gathering has been confined to surveys along Atim Creek above Big Lake, and along tributaries below Stony Plain and Spruce Grove. The surveys were done in sufficient detail to estimate the extent of floodplains and estimate channel capacities.

The study has been co-ordinated under the direction of the North Saskatchewan River Basin Planner.

1.4 Report Format

This report is divided into five parts, the second of which is a basin inventory to acquaint the reader with basic geographic and demographic infomation related to the basin, other related studies and the state of knowledge with respect to technical information for the surface and groundwater regime. The following problem analysis phase correlates the available technical knowledge with the history and nature of problems in the basin to better define the cause of the problems. The fourth section outlines a range of water management alternatives for resolving the identified concerns, their degree of effectiveness and associated implications. Finally, in Chapter 5, the report outlines the Divisions conclusions and recommendations.

CHAPTER 2

BASIN INVENTORY

2.1 Watershed Physiography

Surface topography and soil characteristics of the Atim Creek watershed were formed by glacial action some 10,000 years ago. Scouring and deposition in western headwater areas is evidenced by irregular knob and kettle topography, unsorted till soils and numerous small lakes and blind drainage areas. The eastern portion of the basin was covered by glacial Lake Edmonton where glacial outwash deposits formed a delta in stratified layers of silt and clay. Plate 4 shows the surficial geology of Atim Creek basin and the effects of glaciation.

From its origin at Longhurst Lake, the main stem of Atim Creek is joined by many smaller streams as it flows north-easterly through a distance of 31 kilometers to empty into Big Lake. For descriptive purposes, Atim Creek is divided into three approximately equal length segments designated as Reaches 18A, 18B and 18C on Plate 3 (Atim Creek is designated Reach 18 in the Interim Report - Sturgeon River Basin Study). These three reaches are shown in profile on Plate 5 to have distinctly different slope characteristics. Where reaches 18A and 18C at the lower and upper thirds of the system are quite flat, the gradient of middle reach 18B is steep, averaging 4.5 meters per kilometer. About 75% of the total vertical drop of 60 meters along Atim Creek occurs in Reach 18B.

Reach 18A, from adjacent to the Spruce Grove sewage lagoons to Big Lake, is situated on the Beverly Channel, a major groundwater flow system which was the preglacial North Saskatchewan River valley.

2.2 Water Demands and Concerns

A major longstanding concern, expressed more recently by a 1977 petition by seventeen landowners, is frequent flooding near the mouth of Atim Creek, in Reach 18A. The petition cited 600 acres subject to flooding. Landowners in this area have suggested that increased watershed development has increased runoff to their land. They are also concerned that constant pumping of groundwater at a rate of less than 0.1 m^3/sec. into the Atim Creek system to protect residential sewer lines in Stony Plain is aggravating their problem.

One water quality complaint in the lower reaches of Atim Creek is documented in September, 1976, where a residue was left on the land after inundation.

The populations of the Towns of Spruce Grove and Stony Plain were 6,800 and 2,700 respectively in the 1976 census. Growth projections from the Edmonton Regional Growth Studies conducted by the Edmonton Regional Planning Commission vary from rapid growth to 19,000 at Spruce Grove and 10,000 at Stony Plain by the year 1995, to more conservative estimates of 12,000 and 8,000 respectively by the year 2020.

Whatever the growth rate, both Towns will require additional future water supply and sewage treatment. Present supply is from the City of Edmonton via the Parkland Water Line.

The sewage lagoon at Spruce Grove adjacent to the upper end of floodplain Reach 18A is adequate for a population of about 10,000, and has a capacity of 1,048,000 m^3. Normal operating procedures are to release effluent at an

average rate of 0.3 cms for a period of about six weeks during fall. The Stony Plain lagoons have a population capacity of about 6,000, with detention storage of 629,000 m^3. Normal operating procedure is to discharge at an average rate of about 0.3 cms for a period of about three weeks during spring runoff.

Stormwater management is a problem at both Towns. At Stony Plain, urban runoff combines with rural flow contributions in stream courses passing through the Towns to create flooding both in the Town and downstream.. Rural flooding is also experienced below the Spruce Grove stormwater outfalls. Both Towns are developing master drainage plans to create retention storage and channel works in conjunction with conditions attached to development in contributing watersheds. Design criteria is to restrict stormwater outflow from the Towns to a rate equivalent to an undeveloped (agricultural) runoff rate for 1:25 year runoff conditions.

Water resource factors are major considerations of the Department, the Edmonton Regional Planning Commission and local authorities in assessing the increasing volume of subdivision and development proposals for the Atim Creek basin. Water supply and sewage treatment must meet provincial standards. In recognition of existing downstream flooding concerns on Atim Creek and the Sturgeon River, subdivision and development approval in the basin is made conditional on provision of stormwater retention systems to maintain pre-development runoff rates. Current subdivision in the basin is shown on Plate 6.

The guidelines for the development of these systems is contained in the Alberta Environment "Objectives for Stormwater Management". The mechanisms for assuring the utilization of the guidelines from a Departmental standpoint are derived from; permits to construct and licenses to operate under the

Clean Water Act, the Water Resources Act, Subdivision and Transfers Act, Land Surface Conservation and Reclamation Act, Recommended Standards for Water Supply and Sewerage and associated Regulations under these Acts.

2.3 Hydrology

The Towns of Spruce Grove and Stony Plain have incorporated headwater hydrological analysis within their stormwater management investigations. Emphasis in this study was placed on documenting hydrology in Reaches 18A and 18B to examine flooding and its possible relationship with lagoon releases.

Flow data on Atim Creek is extremely limited, especially for flood flows. Peak annual flows for 1975, 1976, 1977 and 1978 were recorded at 5.1, 2.3, 0.7 and 1.0 cubic meters per second (cms) near the mouth of Atim Creek. Peak flood flow measurements of 34 cms and 40 cms were taken in 1968 and 1970 respectively. These values are only rough estimates of actual flow in Atim Creek, as there was probable backwater interference due to Big Lake levels.

As shown from the following derived flow-frequency distribution, peak flows recorded in the four year period from 1975 to 1978, each have a return probability of less than 1:2 years. Tabulated peak flows are related to the uppermost end of floodplain reach 18A, adjacent to the Spruce Grove lagoons, as this location is upstream of the influence of Big Lake levels.

RETURN PERIOD IN YEARS	MAXIMUM MEAN ANNUAL FLOW IN CMS
1 in 2	10.8
1 in 5	24.1
1 in 10	34.0
1 in 20	45.3
1 in 50	53.8

1 in 100	63.7

These values assume natural watershed conditions, and aggregate all headwater stream influences to the downstream floodplain. Peak annual flow occurs in spring runoff in the majority of cases. About 25% of the total drainage area of 400 square kilometers upstream of this hydrological station does not contribute to stream flow on Atim Creek, due to blind drainage systems and headwater lakes capture. An additional 85 square kilometer area drains directly into floodplain Reach 18A downstream of the cited hydrological station.

2.4 Channel Hydraulics

Detailed channel profile and cross-sectional surveys were conducted in the lower reaches of Atim Creek to determine existing flow carrying capacity at bankful conditions. Results of the survey indicate an extremely flat streambed gradient for 7 kilometers between Big Lake and Atim Lake.

The channel can only pass 0.3 to 0.6 cms within its banks before overbanking and flooding will occur. Flows of this magnitude can be expected every year. The compounding influence of flooding in Reach 18A due to Big Lake is described in a later section.

Between Atim Lake and the hydrological station at the upper end of reach 18A, slope is slightly increased and bankful capacity is in the order of 0.6 to 1.7 cfs. In the lower segments of Reach 18B, channel slope begins to increase in an upstream direction, and bankful channel capacity 5 kilometers upstream of the Spruce Grove lagoon is estimated at 11 cms.

2.5 Water Quality

Water Quality of the Atim Creek system has not been studied in detail. Sporadic data exists for the Sturgeon system for the years 1971 to 1974. As part of the Sturgeon River Study, a one year monitoring program was conducted by Alberta Environment at twelve sites in the Sturgeon system from July, 1975 to July, 1976. Two of these sites were located in the Atim Creek Basin, one site was located below the Stony Plain sewage lagoons; the other above Big Lake.

Three parameters which are generally indicative of organic loadings to a system are phosphates (PO_4) biochemical oxygen demands (BOD) and dissolved oxygen levels (DO). Dissolved oxygen levels were below the desired five miligrams per litre in about fifteen percent of the samples taken out of Atim Creek during the sampling from August, 1975 to July, 1976 at the site above Big Lake. Dissolved oxygen levels in the spring of 1976 approached zero in this vicinity. BOD levels and PO_4 levels exceeded the objectives outlined in the Surface Water Quality Objectives report by Alberta Environment in both 1975 and 1976.

Spruce Grove and Stony Plain have stormwater collection systems, but no monitoring of quality or quantity of the reduced charges has been done.

2.6 Groundwater

A number of interesting groundwater features are found in the Atim Creek Basin. All information is based on the report entitled, *"Sturgeon River Basin Study - Hydrogeology"* which constitutes Appendix 5 of the Sturgeon River Basin Study Interim Report. Generally, groundwater quantities are in great abundance in the Atim Creek basin, although varying in quality depending on geographic

location and depth of the aquifer being tapped. Plate 7 shows, in a regional picture, the twenty year apparent yields for

wells throughout the basin. The apparent yields are based on pump testing to predict a safe yield over some specified period. In terms of quantity, wells of 1-5 imperial gallons per minute are capable of supplying small communities, while areas yielding in excessive of 25 imperial gallons per minute, such as is seen in the extensive area which overlays the preglacial Beverly Valley, can supply villages or towns.

Viewing the Atim Basin from the perspective of its relationship with the Sturgeon Basin and surrounding regions, it is shown on Plate 8 that substantial parts of the Atim Creek Basin are areas of probable intermediate to regional discharge zones. The water table is high in parts of the basin, and has caused particular problems with respect to sewer systems in expanding subdivisions in the Town of Stony Plain. Interim measures to lower the water table in Stony Plain by groundwater pumping have been in effect since the spring of 1976. These measures, carried out under an interim license issued by Alberta Environment to the Town, have required essentially continuous pumping of about 0.05-0.063 cms (800-1,000 gpm) since the spring of 1976. The rate of pumping has recently stabilized near 0.054 cms (850 gpm).

Another interesting groundwater feature in the basin is the occurance of flowing wells. These wells, or springs, which augment the surface water flows are common in the lower central regions of the basin and are also shown on Plate 8.

2.7 Related Studies

Two major studies relate directly to the Atim Creek watershed, both studies rake recommendations directly affecting the water resource.

The Interim Report - Sturgeon River Basin Study included, relying on existing data at the time, an overview of the Atim basin in its relation to the Sturgeon system. Recommendations from the Sturgeon study generally affecting Atim Creek are:

(i) "...that future developments in the basin that would increase the natural runoff rate be required to develop offsetting facilities, such as on-site detention ponds to maintain a runoff rate equivalent to the undisturbed or agricultural runoff rate".

(ii) "...that the government consider in detail the development of a comprehensive agricultural floodplain management policy to include a specific set of options to Sturgeon River floodplain farmers..."

(iii) "...that existing municipal effluent sources to the Sturgeon system not be expanded and that no new sources be permitted..."

(iv) "...that there is no technical feasible solution to onstream agricultural flooding in the Sturgeon basin. Localized channelization in the more susceptible floodprone areas such as...the Sturgeon River below St. Albert...would be costly, create erosion problems and translate the problem downstream to other reaches".

Another major study affecting the Atim Creek area is the Regional Utilities Study under the direction of the Municipal Engineering Branch, Pollution

Control Division. The study is due for release in early to mid 1978 and will draw conclusions relating to:

(i) the economic aspects of utilizing local supplies of excess groundwater at the Town of Stony Plain versus the importation of municipal supplies from Edmonton via the Parkland Water Line

(ii) the feasibility of connecting the Towns of Stony Plain and Spruce Grove to a regional sewage disposal line.

CHAPTER 3

3. PROBLEM ANALYSIS

3.1 Extent of Agricultural Flooding

The extent of agricultural flooding on Atim Creek has been analyzed for two events with widely separated frequencies of occurrence. The flood which occurred in the spring of 1965 is the only flood for which air photo coverage is available.

Peak flow rates which were measured throughout the Sturgeon Basin in the spring of 1965 were comparatively common events. Taking Riviere Qui Barre as an example, the sub-basin on which the Atim Creek hydrology is based by means of analogy, it is found that the 1965 peak flow could be expected to occur on the average once every three years. It is assumed therefore, that the peak flow rate on Atim Creek in 1965 was also a 1 in 3 year event. The total flooded area in the spring of 1965 is measured from aerial photographs as about 780 acres. An analysis of the agricultural land use in the flood prone areas reveals that approximately 50% of land is used for the production of native hay and for pasture, with the remaining land being unproductive. It is assumed therefore, that approximately 400 acres of native hay were affected in the spring of 1965.

For comparison, the area covered by a 1 in 100 year flood event was calculated using estimated water surface profiles in conjunction with survey cross sections. It is found that the total area is approximately 1,050 acres. Referring to the hydrology of the system, this means that for an approximate four-fold increase in flows, there is a corresponding 35% increase in the flooded area.

The average annual flood in the Atim basin is assumed to cover about 700 acres. This would correspond to a little over a 1:2 year event. Half of this area, of 350 acres of native hay/pasture land could be considered productive in low water years. Drawing on the economic analysis in the Sturgeon study, productivity on such land was estimated at $43.75 per acre. Extending this unit price, and adding an assumed ten percent to update the numbers from 1977, yields an average annual loss of $16,800. The present value of such an average loss over the next 25 year period is estimated at about $280,000. This present value calculation is arrived at using assumptions identical to those employed in the Sturgeon study.

The causes of flooding on Atim Creek are complex in that a number of contributing factors are involved. Firstly, throughout much of Reach 18A, the banks of the creek are elevated above the surrounding floodplain. This is a naturally occurring phenomenon which results from repeated overbanking over many years. Once overbanking begins, velocities in a stream drop dramatically. Suspended silt and clay immediately settle out as the water fans out across the floodplain, with the majority of the deposition occurring directly adjacent to the streamcourse. This creates drainage problems behind the stream banks as water is trapped for prolonged periods, either left to evaporate, or flow parallel to (and outside) the streambanks to the lower end of the floodplain. Breaching these raised banks would result in more frequent flooding.

Overbanking on Reach 18A is a result of factors from both upstream and down. The extent and source of flooding frequently depends upon the time of year. To a large degree, flooding on Atim Creek is a result of the interaction with Big Lake. Figure 1 illustrates in profile the relationship between Reach 18A

FIGURE 1 - LONGITUDINAL SECTION OF ATIM CREEK
THROUGH REACH 18 A (N.T.S.)

NOT AVAILABLE ON DISK

and Big Lake. The figure shows clearly that flooding in Reach 18A is highly dependent on Big Lake Levels and, in fact, lake level stages which occur as frequently as once in every five years cause the lake to backflood to the west through the vast majority of Reach 18A.

Using the 1965 spring flood as an example, the causes of flooding have been further broken down as shown on plate 9 . The plate outlines the area flooded in the spring of 1965, and also differentiates the area which would have been flooded by a horizontal projection of the Big Lake levels if there were no flow in Atim Creek. This reveals that of the 780 acres flooded, 340 of the acres can be directly related to levels in Big Lake. In other terms, over 40% of the flooded area constituted a westerly extension of Big Lake. The remaining flooding can be attributed to upstream sources. In the spring of 1975, Big Lake elevations reached 651.08 m. This is equivalent to slightly less than levels which might be obtained on the average once every two years. In subsequent years, up to the present time, levels have been considerably lower than this level. Flooding complaints persist throughout this period however, indicating that the source of flooding is from upstream in Atim Creek.

A further complication to the flooding problem in Reach 18A is the periodic construction of beaver dams. Reach 18B of Atim Creek is heavily forested adjacent to the stream and is high quality beaver habitat.* A single beaver is capable of moving several miles up or down such a creek and can maintain as many as seven or eight dams.** Given the extreme lack of gradient in Reach 18A, a single dam can create extensive flooding.

---

* Appendix II - Interim Report - Sturgeon River Basin Study

** Verbal communication with Alberta Fish and Wildlife

Thus, having identified the extent of flooding and the degree to which flooding can partially be attributed to Big Lake and localized channel obstructions, attention is now focused on the sources of flood waters from upstream.

3.1.1 Rural Runoff

The magnitude of spring flows at various points in Atim Creek is dealt with in a previous section. The magnitude of the I in 2 year flow adjacent to the Spruce Grove lagoons is estimated at 11 cms. The Technical Services Division of Alberta Environment provides this based on a regional analysis and points out that such predictions are affected by unknown upstream affects, including bridges, culverts, etc. Further, the predictions do not include an allowance for the introduction of urban stormwater or sewage lagoon releases from the Towns of Spruce Grove and Stony Plain. Nevertheless, the hydrology estimates provide. an order of magnitude for comparison. Clearly, a channel capacity of 0.3 to 0.6 cms., in comparison with predicted 1:2 year runoff of nearly 20 to 40 times the channel capacity, means spring flooding on an annual basis.

An analysis of the expected summer flows in this region 1 conducted as part of the Regional Utilities Study predicts that *"generally, basins having even 259 square kilometers (1OO square miles) of effective area* (such as Atim Creek above Spruce Grove) *cannot normally be expected to produce more than a few cubic feet per second over a period of at least 7 days during the months May to September....during the subsequent months channels are relatively*

slow to react to rainfall events, much of the flow likely being absorbed as soil moisture and depression storage." However, a "few cubic feet per second" in Reach 18A can constitute bankful conditions, and frequently, in conjunction with beaver activity, causes the more damaging late summer flooding.

3.1.2 Urban Runoff

Other than agricultural runoff, Atim Creek also receives stormwater input from the towns of Spruce Grove and Stony Plain. Spruce Grove discharges stormwater at two locations into the main stem and a tributary of Dog Creek, which joins with Atim Creek immediately below the town of Spruce Grove lagoons. Stormwater modeling carried out by consultants for the Town indicates that for the current case of uncontrolled urban runoff from the Town, the effect is to increase the extent of flooding from a 1 in 25 year event, to closely approximate the extent the 1 in 100 year event, if the runoff had been from the contributing area left in the natural state. In other words, a runoff event that occurred on the average of once every 100 years before land-use changes associated with the building of the Town will now occur on the average of once every 25 years.

The effect of storms of a smaller magnitude is not analyzed. However, clearly the change in runoff characteristics from the developed areas in the Town have been pronounced effect on increased runoff from summer storms. The report also states that the present capacity of Dog Creek approximates a 1 in 5 year flow which would occur under natural runoff conditions. Considering the increased rates of flow for the developed condition, this suggests

very frequent overbanking of Dog Creek with the corresponding inflow to Atim Creek, as a result of relatively small summer storms.

Stony Plain discharges stormwater runoff into four tributaries of Atim Creek, all of which run through the Town at some point. While the hydrologic analysis outlined in the report is under review, possibly subject to extensive revision, it indicates that the effect of the Town's development on runoff is to increase the rates of 12-46% depending on the tributary. In either case, controlled or uncontrolled from in and about the Town, the rates of flow exceed the existing culvert and channel capacities below the Town.

3.1.3 Lagoon Releases

Atim Creek, or its direct tributaries, receive releases from two major sewage lagoons at Spruce Grove and Stony Plain. A new smaller lagoon at Parkland Village north of the Town of Spruce Grove has not yet carried out an annual discharge.

Spruce Grove lagoon has a capacity of about 1.05 million cubic meters. Taking recent discharges as examples, the lagoon discharges for over about 6 weeks, yielding an average discharge of about 0.28 cms. As a result of new operational guidelines associated with lagoon expansion, Spruce Grove releases have been conducted in the fall of 1976 and 1977, typically September and October, and always before November to reduce the threat of channel icing.

Stony Plain lagoon has a capacity of about 0.63 million cubic meters releasing typically over a 3 week spring period for an average outflow of in the order of 0.34 cms. The lagoon releases are timed to coincide with, and be

diluted by, the normal spring runoff. In a year such as 1978, where runoff was unusually low in both rate and volume, peaking at about 0.70 cms. below Spruce Grove, the releases formed a significant portion of the flow in the creek.

3.1.4 Groundwater Introduction

The remaining identifiable input to flows in the creek are groundwater inflows. These are both naturally occurring and pumped from the eastern area of the Town of Stony Plain at about 0.06 to 0.09 cms. Attempts to quantify the natural groundwater inflows to the creek would be a major and expensive study in itself since no data exists in this regard.

3.2 Water Quality

Insufficient data exists to assess the predominant contributing sources of loadings which result in the poor quality in the system. The most easily identifiable point sources of loading are the Stony Plain and Spruce Grove sewage lagoons. The Atim Creek sub-basin is the only system in the Sturgeon system receiving sewage effluent. However, the Atim Creek system is the only sub-basin which also receives substantial amounts of urban storm run-off.

The Atim Creek basin is extensively cleared for agricultural purposes. Up to 50% of the lands adjacent to the stream course in Reach 18A and 18B are used for native hay and pasture. A routine helicopter inspection of the creek in April, 1978 revealed pasture areas open to the water and in several areas, cattle carcasses in the floodplain, some as close as 10 meters from the creek. Alberta Agricultural, District Agriculturists from Stony Plain are not aware of the number or causes of cattle deaths in the area at the time of writing, however the sightings have been brought to their attention.

Failure to remove cattle carcasses from the banks of a stream bed could be considered in violation of the Cleanwater Act, Section 9, which, in brief terms says that no person shall place or allow to be placed in the water or on the banks of any stream course, a substance deleterious to wildlife, livestock, domestic animals or fish.

Routine sampling by Alberta Environment of the lagoon effluent releases indicates that the effluent quality from both systems has been excellent. The effluent quality in general compares with that obtainable from conventional mechanical secondary treatment plants as operated by the four major cities

in the Province. In fact, the lagoon effluent quality in both cases compares quite favorably with typical storm run-off quality.

The Department has only received one documented complaint of water quality problems in the basin. The lands affected were 60 acres which lie to the northeast of the Spruce Grove sewage lagoons. The problem, consisted of a layer of scum deposited on pasture land which was flooded in early September, 1976. The flooding was reportedly caused by beaver activity and sewage effluent releases from Spruce Grove. Information on file however indicates that effluent releases from Spruce Grove were not initiated until September 23, 1976, following the removal of three beaver dams by Alberta Fish and Wildlife. Samples of the surface deposits were analyzed by the Pollution Control Division when they were submitted by the landowner in March, 1977. The layer of scum appears to be an algae deposit. The source of the algae cannot be pinpointed. Such quantities of algae could be dispersed from lagoons, or could be grown in standing water in the channel itself.

3.3 Groundwater Dewatering

The effect of the introduction of groundwater from the surface water regime, either by natural flow or by means of pumping tends to maintain a base flow in the channel. The result of this is; a) that the channel is maintained in a saturated condition by continuous flows, b) that where obstructions exist, such as beaver dams, the impoundments are maintained at bank full level.

Additional flows introduced to such a channel, by means of storm-water injections or other sources, tend to immediately overbank. Other problems associated with the introduction of groundwater to the system

include icing at culverts, bridges and along the channel itself.

Channel icing which can be attributed directly to pumped groundwater input below Stony Plain was identified by inspections by the Water Resources Management Division in the late winter of 1978. The problem area is attributed to pumped discharges to the system since it is located upstream of the points where naturally occurring flowing wells are found.

CHAPTER 4
ALTERNATIVES

4.1 Agricultural Flooding

Sources of agricultural flooding have been identified from both upstream in the system, and downstream due to interaction with Big Lake.

Reducing the fluctuation in Big Lake to eliminate urban and agricultural flooding adjacent to the lake and through the City of St. Albert is one alternative considered in the Sturgeon River Study. The cost of such an undertaking, which involves channelization through St. Albert to about 50 km. downstream, is estimated at about $19 million. This figure does not contain an allowance for channel works in Reach 18A which would be required to reduce flooding specifically in the Atim basin.

Taking this one step further, assuming Big Lake influences are removed, an example of the required channel works on Atim Creek has been examined. Average velocities throughout Reach 18A are in the order of .085 meters per second. The 1:2 year flow peak is estimated at 11 cms. Therefore a cross-sectional area of 130 square meters is required to pass as little as the 1:2 year event. Further assuming a depth of one meter, similar to the existing channel, the channel width required is about 130 meters, which would necessitate the excavation of about 1.2 million cubic meters for the 10 km. reach above Big Lake to near the Spruce Grove lagoons. Such works are estimated to cost in the order of three to four million dollars. Achievement of a channel flow capacity greater than the 1:2 year discharge would cost considerably more.

In Chapter 3, the present value of the typical annual damages to hay crops forecast over a 25 year period is estimated at $280,000. Clearly, a

solution to the flooding problem involving the low level stabilization of Big Lake with the associated enlargement of lower Atim Creek would involve costs extremely disproportionate to the benefits. Additional disbenefits with respect to lowering Big Lake are increased flooding and erosion downstream along the Sturgeon.

Turning then to other sources of agricultural flooding which have the potential to create or increase flooding when Big Lake is not the major contributing factor, alternatives are examined for, firstly, sewage lagoon releases. Lagoon releases are a singular concentrated event and are controllable. In view of the channel capacities downstream, an alternative to reduce flooding attributable fall releases from the Spruce Grove lagoons is to restrict outfalls to a maximum of 0.3 cms. This, in conjunction with the monitoring of the creek by the Town for obstructions should allow the effluent to remain within the banks for most of Reach 18A when Big Lake is very low. The release should be delayed until at least late September, as they have been in recent years, to preclude the interference with haying operations.

Stony Plain lagoon spring releases could be made only following, and not coincident with spring peaks in the creek. The result will be to prolong the spring duration of flows, but not aggravate the areal extent of flooding downstream. Outfalls should be limited to a 0.3 cms. maximum. It is recognized that in both the case of Spruce Grove and Stony Plain, future expansion of the lagoons in conjunction with restricted outfall rates will conflict with the required time duration for lagoon drainage. In the short term. the preceeding suggestions for operation should reduce the extent of flooding

attributable to lagoon releases. Long term alternatives, including exportation from the basin, are dealt with in the ongoing Regional Utilities Study to be release in the spring of 1978.

Urban stormwater runoff is a further identified source of flooding from upstream in the basin. The rates of urban runoff are currently uncontrollable, and the timing is unpredictable. An alternative, toward which both the Town and Spruce Grove and the Town of Stony Plain are working in cooperation with the Department, is developing stormwater management plans. The plans would restrict outflows from both the presently developed and future areas to an equivalent agricultural rate. This is accomplished by means of detention storage in and below the Towns and by the use of drainage parkways.

The degree to which urban stormwater aggravates downstream flooding throughout the Atim system cannot be quantified in this study. The problem will increase however with the expanding area of the Towns and resulting changes in runoff characteristics.

The final alternative for reducing agricultural flooding in the system is the implementation in the basin of a beaver control program. Such a control program is available to the County of Parkland on a cost-sharing basis in cooperation with Alberta Recreation Parks and Wildlife. The program funds beaver control up to a maximum of $10,000 per annum, with 40% of the cost borne by the County,*

---

* Verbal communication with V. Sigurdson, Alberta Fish and Wildlife

4.2 Water Quality

The only point loadings in the Atim system which technically lend themselves to improvement are the sewage lagoon releases. Significant improvement of the quality of the Spruce Grove, Stony Plain and ultimately Parkland Village lagoons would require some form of tertiary treatment aimed primarily at nutrient removal. Cost estimates have not been prepared for this alternative, however, tertiary treatment facilities would likely cost at least as much again as the existing three secondary treatment plants. Tertiary treatment is not employed anywhere in Canada for municipal effluent releases.

An alternative to an increased level of treatment and expanded facilities to accommodate future growth is to export the effluent, via pipeline, to a larger receiving body outside the basin. This possibility has been examined in the Regional Utilities Study for both the Towns. The effluent could be discharged via a new pipeline to join an existing pipeline at St. Albert, and thence to a regional treatment plant on the North Saskatchewan River. Little analysis can be done of the comparative benefits and disbenefits of exporting sewage from the basin until the details of the Regional Utilities Study are released.

Taking the current rates of release however, and projecting them upward to four times the present volume to match the projected population increases over the next 20 to 30 years, gives an estimated sewage volume from the two Towns plus Parkland Village of 7.3 million cubic meters. This is nearly 40% more than the predicted natural 1:2 year volume of runoff from the basin.

In another perspective, a release of this volume at a rate of roughly 0.5 cms. would take the entire open water season from May to October inclusive, regardless of other naturally occurring flows in the creek. This alone is equal to or greater than the bankful capacity in the lower areas of Reach 18A.

4.3 Groundwater Dewatering

Two practical alternatives are available for the groundwater dewatering at Stony Plain. Simply, they are to:

(a) maintain the status quo with continued disposal into the surface water regime

(b) local treatment and consumption of the supply, thereby disposing the bulk of it via the Town's sewage system.

Maintenance of perpetual groundwater pumping will mean continued unnatural icing along Atim Creek, continued threats of culvert icing and continued priming of a channel which, under normal conditions would be periodically dry. These problems will create annual maintenance costs which are difficult to estimate. The pumping itself necessitates a fixed perpetual energy cost. Specific icing complaints inspected in the winter of 1977/78 were inspected by the Water Resources Management Division. The problem area was examined in the spring of 1978 by the River Engineering Branch, and the site specific solution recommended is to carry out localized ditching to confine the flow and reduce ice build-up. A ditch approximately one to two meters wide and about 1.5 meters deep will confine the flow to a smaller cross-section, and reduce the threat of the channel freezing to the bottom.

The economics of treating and utilizing the groundwater supply locally is examined in the Regional Utilities Study, and the economic benefits and disbenefits to the Town are found to be approximately equal. Local utilization of the groundwater supply would keep the water within the system and remove the problems associated with year round low releases into the creek.

CHAPTER 5
CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

1. Agricultural flooding occurs on an annual basis in the lower reaches of Atim Creek, downstream of the Spruce Grove sewage lagoon. Area flooded ranges from about 600 acres in low runoff years (less than the 1 in 2 year event) to about 1,050 acres (1 in 100 year event). Spring flooding occurs annually; summer flooding less frequently.
2. Agricultural land use within the Atim Creek floodplain is about 50% native hay and pasture and 50% unproductive.
3. Floodplain bankfull channel capacity ranges from 0.3 to 0.6 cms near the mouth to about 2.5 cms at the upstream end. For comparison, the 1 in 2 year peak flow entering the floodplain reach is about 11 cms.
4. There are no significant channel obstructions such as road crossings, brush or debris identified in the floodplain reach of Atim Creek. The natural flow control is the essentially flat hydraulic gradient. Periodic beaver dams occur.
5. Floodplain channel banks are below the 1 in 2 year probabilistic level of Big Lake. Channel bottom elevation approaches the historical low recorded level of Big Lake. Thus, even low Big Lake levels exert a substantial backwater influence on Atim Creek discharge through the floodplain reach.
6. With increase in Big Lake levels above a 1 in 2 year probability, the incremental flood influence of discharge from Atim Creek decreases as more of the Atim Creek floodplain becomes a western extention of Big Lake inundation.

7. A significant portion of floodprone land near the mouth of Atim Creek is 0.1 to 0.5 meters lower than top-of-bank elevation. Thus, overbank flooding and/or local floodplain runoff can not drain effectively when inchannel levels subside.

8. The floodplain is located in a regional groundwater discharge area, and the water table is near the surface. Several flowing wells are documented immediately upstream.

9. Sewage lagoon effluent release rates of about 0.3 cms at Spruce Grove (fall) and Stony Plain (spring) approximate bankfull channel flow capacity downstream near the mouth of Atim Creek.

10. Groundwater pumping at Stony Plain into Atim Creek at a constant rate approaching 0.1 cms requires about 25% of available channel capacity near the mouth of Atim Creek. Winter ice formation downstream of Stony Plain due to this base flow source may obstruct channel capacity during spring runoff.

11. Urban stormwater runoff rates from Spruce Grove and Stony Plain exceed pre-development rates. Peak flow increase due to urban runoff is more pronounced for concentrated summer storm events.

12. No technical solutions are available to alleviate the frequent flooding of 600 to 1,050 acres of floodplain land at the mouth of Atim Creek. Removal of the major backwater influence of Big Lake was determined to be unfeasible within the Sturgeon River Basin Study, requiring channel works for a distance of 50 kilometers downstream at an estimated cost of $19 million. Further, even considering Big Lake influence removed, extensive channel widening would be required for about 10 kilometers on Atim Creek to improve channel flow capacity.

13. Sewage lagoons at Spruce Grove and Stony Plain are rapidly approaching capacity. Sampled effluent conforms to Departmental standards for both sites; Big Lake is the ultimate nutrient sink.
14. A water quality complaint is documented on Atim Creek where a scum residue of unknown substance or origin was deposited on floodplain land during the fall of 1976. In a Sturgeon River basin context, Atim Creek exhibits the poorest sampled water quality indicators in the system; however, specific sources have not been identified. Several decomposing cattle carcasses were observed by Departmental staff adjacent to lower reaches of Atim Creek during April, 1978.
15. The majority of documented beaver activity on Atim Creek is located up-stream of the floodplain area where there is substantial channel gradient. During high flow, dams are either breached or locally circumvented; during low flow, dams maintain a degree of onstream water storage and tend to reduce flow peaks. Periodic dams in floodplain Reach 18A can effectively reduce the channel capacity to zero flow and induce local flooding.

5.2 Recommendations

1. Non-structural flood control measures should be formulated for the flood-prone area near the mouth of Atim Creek within the context of the Sturgeon River Basin Study.
2. The County of Parkland should enter into an agreement with Alberta Recreation Parks and Wildlife for the control and/or removal of beavers in Reaches 18A and 18B to a sufficient distance to insure the absence of future dam construction in the floodplain.

3. Identified flow generating sources in the Atim Creek watershed which may induce or aggravate flood conditions near the mouth of Atim Creek (and on the Sturgeon River) should be controlled:

(i) Spruce Grove and Stony Plain are encouraged to complete their stormwater studies and implement measures to restore agricultural outflow rates.

(ii) Long-term planning policy should include phasing out the sewage lagoons in favour of a regional collection and treatment facility to remove effluent from the Sturgeon system. In the interim, lagoon releases should be scheduled to ensure minimum possible downstream flood contribution.

(iii) Additional pumping of groundwater into the surface system should be prohibited, and a viable use found for water presently being pumped.

(iv) Future subdivision and development approval in the Atim Creek basin must be contingent on acceptable stormwater drainage control measures.

REFERENCES

1. Edmonton Regional Utilities Study, Surface Water Hydrology by Northwest Hydraulic Consultants Ltd.

2. Hydrogeology of the Sturgeon River Basin by Groundwater Consultants Ltd.

3. Interim Report - Sturgeon River Basin Study. Planning Division, Alberta Environment.

4. Spruce Grove Water Drainage Plan - February, 1978. Reid Crowther and Partners Limited.

5. Interim Report - Municipal Water and Sewage Facilities - Edmonton Region, April, 1977. Municipal Engineering Branch, Standards and Approvals Division, Environmental Protection Service, Alberta Environment.

6. A Choice of Growth Management Strategies, February, 1977. The Edmonton Regional Planning Commission.

7. Sturgeon River Basin Analysis, Technical Services Division, Alberta Environment- Sept. 1975.

SCHEDULE "E" FOLLOWS:

BOSECKE KNOL & BEEKEN
Barristers and Solicitors
1 - 9301 - 50 Street
Edmonton, Alberta
Canada T6B 2L5
Telephone (403) 469-0494
Facsimile (403) 465-0760

Our File Number: 50,681/RAB

March 16, 1994

Alberta Environment
4th Floor
Oxbridge Place
9820 - 106 Street
Edmonton, Alberta
T5K 2J6

Attention: David Spinks
Director of Standards and Approvals

Dear Sir:

Please be advised that I am solicitor for Aage Tottrup who is the owner of approximately 800 acres of land located in The County of Parkland No. 31 on the west end of Big Lake, Legal Descriptions NE 16-53-26-W4, SE 21-53-26-W4, N1/2 2153-26-W4, E1/2 22-53-26-W4, and SW 27-53-26-W4. Mr. Tottrup's land is in the Atim Creek Drainage Basin which is the primary drainage for waters flowing through The County of Parkland eastward into Big Lake.

Beginning in 1987 and continuing to the present day, Mr. Tottrup's land has suffered damage as a result of pollution entering onto his land during the annual flooding of Atim Creek. As a result of pollutants in the flooding water course, approximately 500 acres of Mr. Tottrup's land has been adversely affected. Specifically, 300 acres of his land was effected to such an extent in 1991 and 1992 that virtually no grass grew on that parcel. Previously this was a lush area with grass approximately 3 to 4 feet high. Since 1992, some grass has returned but to a height of only approximately 6 inches. In addition, there has been partial damage to an additional 200 acres. It is also significant that in 1991 5000 to 10,000 water fowl died as a result of a Botulism outbreak; Mr. Tottrup

takes the position that this may have been caused by pollutants in the water course or alternatively to a naturally fluctuating water levels.

Mr. Tottrup attributes both the fluctuating water levels and the pollutants which have entered onto his land to various acts by the City of Spruce Grove, the Town of Stony Plain, and the County of Parkland NO. 31. Specifically Mr. Tottrup believes that the only possible cause for the change in the nature of the water entering onto his land

through the Atim Creek Drainage Basis is acts by the County of Parkland No. 31 and the municipalities therein. Those acts include the following:

1. Approving ongoing development (issuing Development Permits) without adequate consideration to environmental concerns, including Mr. Tottrup's.

2. Construction of ditches, storm drainage systems, culverts, and sewage systems without concern for the effects upon down stream owners including Mr. Tottrup.

3. Approval of the construction and operation of Hunter's Marine including allowing it to drain recreational vehicle waste tanks and allowing waste from the site to enter into the Atim Creek Drainage Basin.

4. Failure to adequately assess the impact of the Lilydale Poultry Farm and the waste therefrom on the water courses in the area including the Atim Creek Drainage Basin.

Mr. Tottrup has notified the County of Parkland No. 31 in the past that damage has been caused to his property but no action has been taken.

It is acknowledged that it is difficult to specifically describe which particular development or activity is the cause of the pollution entering onto Mr. Tottrup's property. Nevertheless, it is clear that there has been a significant change in both the amount of flow onto his property and the quality of that flow. There is no other reasonable explanation for the extreme damage to his property other than that some pollutant has entered the Atim - Creek Drainage Basin. If nothing else, an investigation is required to protect the interests of Mr. Tottrup and other downstream owners who are effected by this polluting event.

It is our allegation that there has been a release of substances causing a significantly adverse effect as contemplated by Sections 97 and 98 of the Environmental Protection and Enhancement Act. We would ask that you

address whether or it is appropriate to make an Environmental Protection Order under Section 102 and to take remedial measures as provided for under Section 101. We would also ask that you consider whether an Emergency Environmental Protection Order under Section 103 is appropriate since Spring run-off for 1994 is imminent.

Alternatively, this may be a situation where a hazardous substance has been released as contemplated by Section 148 and an Order under Section 149 would be appropriate.

In any event, it is our position that there is clearly a situation here which requires an Environmental Impact Assessment and that actions should be taken by Alberta Environment, Municipal Affairs, the County of Parkland No. 31, the Town of Stony Plain, and the City of Spruce Grove.

We would also request that you advise as to whether you are aware of developments conducted by the County of Parkland No. 31 and the municipalities therein which have received the requisite approval from Alberta Environment or whether or not the environmental impact of such developments has been considered by Alberta Environment.

Developments are being approved by the County without due consideration for Environmental Impact Concerns. For example, the County initially approved construction of a hazardous waste site near Acheson Industrial Park and without adequately assessing its impact on the Atim Creek Drainage Basin.

Given the extended severity of the adverse effect on Mr. Tottrup's land, and given the nature of ongoing development within the County of Parkland No. 31, it is our position that it is appropriate that immediate steps be taken for an Environmental Impact Study and for all parties involved to address the causes and possible solutions to this problem. As previously indicated, there is some urgency in respect of this

matter as the damage continues with flooding from year to year.

I look forward to your earliest reply.

Yours truly,

BOSECKE KNOL & BEEKEN

Per:
RICHARD A. BEEKEN
RAB/jlf

c.c. The Honourable Brian Evans
Minister of Alberta Environment
323 Legislature Building
10800 - 97 Avenue
Edmonton, Alberta
T5K 2B6

The Honourable Dr. Steve West
Minister of Municipal Affairs
425 Legislature Building
10800 - 97 Avenue
Edmonton, Alberta
T5K 2B6

The County of Parkland No. 31
4601 - 48 Street
Stony Plain, Alberta
T7Z lRl

The Town of Stony Plain
4905 - 51 Avenue
Stony Plain, Alberta
T5Z lYl

The City of Spruce Grove
315 Jespersen Avenue
Spruce Grove, Alberta
T7X 3E8

BOSECKE KNOL & BEEKEN
Barristers and Solicitors
1 - 9301 - 50 Street
Edmonton, Alberta
Canada T6B 2L5
Telephone (403) 469-0494
Facsimile (403) 465-0760

March 16, 1994

The Honourable Dr. Steve West
Minister of Municipal Affairs
425 Legislature Building
10800 - 97 Avenue
Edmonton, Alberta
T5K 2B6

Dear Sir:

Please find enclosed a copy of correspondence sent to David Spinks, Director of Standards and Approvals with Alberta Environment.

We trust the above is in order.

Yours truly,

BOSECKE KNOL & BEEKEN

Per:
RICHARD A. BEEKEN
RAB/jlf

Enclosure

BOSECKE KNOL & BEEKEN
Barristers and Solicitors
1 - 9301 - 50 Street
Edmonton, Alberta
Canada T6B 2L5
Telephone (403) 469-0494
Facsimile (403) 465-0760

March 16, 1994

The Honourable Brian Evans
Minister of Alberta Environment
325 Legislature Building
10800 - 97 Avenue
Edmonton, Alberta
T5K 2B6

Dear Sir:

Please find enclosed a copy of correspondence sent to David Spinks, Director of Standards and Approvals with Alberta Environment.

We trust the above is in order.

Yours truly,

BOSECKE KNOL & BEEKEN

Per:
RICHARD A. BEEKEN
RAB/jlf

Enclosure

BOSECKE KNOL & BEEKEN
Barristers and Solicitors
1 - 9301 - 50 Street
Edmonton, Alberta
Canada T6B 2L5
Telephone (403) 469-0494
Facsimile (403) 465-0760

Our File Number: 50,681/RAB

March 16, 1994

The City of Spruce Grove
315 Jespersen Avenue
Spruce Grove, Alberta
T7X 3E8

Dear Sirs:

Please be advised that I am solicitor for Aage Tottrup with respect to certain concerns he has regarding pollution entering on to his property located in the County of Parkland No. 31 and described as NE 16-53-26-W4, SE 21-53-26-W4, N1/2 21-53-26-W4, E1/2 22-53-26-W4, and SW 27-53-26W4. I enclose for your information a copy of correspondence to Alberta Environment of this date.

You will recall that Mr. Tottrup has advised you in the past of his concerns regarding excess flooding and pollution directed onto his land through the Atim Creek Drainage Basin and caused by increased and indiscriminate development, including the issuance of various Development Permits, in the County of Parkland No. 31. No steps have been taken by the County of Parkland to this date to address this issue or to investigate potential causes for the pollution and damage to Mr. Tottrup's land.

We take the position that you have the responsibility and legal duty to address Mr. Tottrup's complaints and to determine which public works approved developments in County of Parkland No. 31 may be responsible for directing additional pollution onto Mr. Tottrup's land. Formal demand is hereby made of you that you conduct an Environmental Impact Study or take other appropriate steps to address this issue. Mr. Tottrup would be

pleased to meet with you to provide you with his views regarding an appropriate course of action.

As there is some urgency in respect of this matter (the damage to Mr. Tottrup's land is ongoing) we would ask that you provide us with your position in respect of this matter at your very earliest convenience and in any event on or before April 5, 1994.

Thank you for your anticipated cooperation.

Yours truly,

BOSECKE KNOL & BEEKEN

Per:
RICHARD A. BEEKEN
RAB/jlf

Enclosure

BOSECKE KNOL & BEEKEN
Barristers and Solicitors
1 - 9301 - 50 Street
Edmonton, Alberta
Canada T6B 2L5
Telephone (403) 469-0494
Facsimile (403) 465-0760

Our File Number: 50,681/RAB

March 16, 1994

The County of Parkland No. 31
4601 - 48 Street
Stony Plain, Alberta
T7Z 1R1

Dear Sirs:

Please be advised that I am solicitor for Aage Tottrup with respect to certain concerns he has regarding pollution entering on to his property located in the County of Parkland No. 31 and described as NE 16-53-26-W4, SE 21-53-26-W4, N1/2 21-53-26-W4, E1/2 22-53-26-W4, and SW 27-53-26W4. I enclose for your information a copy of correspondence to Alberta Environment of this date.

You will recall that Mr. Tottrup has advised you in the past of his concerns regarding excess flooding and pollution directed onto his land through the Atim Creek Drainage Basin and caused by increased and indiscriminate development, including the issuance of various Development Permits, in the County of Parkland No. 31. No steps have been taken by the County of Parkland to this date to address this issue or to investigate potential causes for the pollution and damage to Mr. Tottrup's land.

We take the position that you have the responsibility and legal duty to address Mr. Tottrup's complaints and to determine which public works approved developments in County of Parkland No. 31 may be responsible for directing additional pollution onto Mr. Tottrup's land. Formal demand is hereby made of you that you conduct an Environmental Impact Study or take other appropriate steps to address this issue. Mr. Tottrup would be

pleased to meet with you to provide you with his views regarding an appropriate course of action.

As there is some urgency in respect of this matter (the damage to Mr. Tottrup's land is ongoing) we would ask that you provide us with your position in respect of this matter at your very earliest convenience and in any event on or before April 5, 1994.

Thank you for your anticipated cooperation.

Yours truly,

BOSECKE KNOL & BEEKEN

Per:
RICHARD A. BEEKEN
RAB/jlf

Enclosure

BOSECKE KNOL & BEEKEN
Barristers and Solicitors
1 - 9301 - 50 Street
Edmonton, Alberta
Canada T6B 2L5
Telephone (403) 469-0494
Facsimile (403) 465-0760

Our File Number: 50,681/RAB

March 16, 1994

The Town of Stony Plain
4905 51 Avenue
Stony Plain, Alberta
T5Z 1Y1

Dear Sirs:

Please be advised that I am solicitor for Aage Tottrup with respect to certain concerns he has regarding pollution entering on to his property located in the County of Parkland No. 31 and described as NE 16-53-26-W4, SE 21-53-26-W4, N1/2 21-53-26-W4, E1/2 22-53-26-W4, and SW 27-53-26W4. I enclose for your information a copy of correspondence to Alberta Environment of this date.

You will recall that Mr. Tottrup has advised you in the past of his concerns regarding excess flooding and pollution directed onto his land through the Atim Creek Drainage Basin and caused by increased and indiscriminate development, including the issuance of various Development Permits, in the County of Parkland No. 31. No steps have been taken by the County of Parkland to this date to address this issue or to investigate potential causes for the pollution and damage to Mr. Tottrup's land.

We take the position that you have the responsibility and legal duty to address Mr. Tottrup's complaints and to determine which public works approved developments in County of Parkland No. 31 may be responsible for directing additional pollution onto Mr. Tottrup's land. Formal demand is hereby made of you that you conduct an Environmental Impact Study or take other appropriate

steps to address this issue. Mr. Tottrup would be pleased to meet with you to provide you with his views regarding an appropriate course of action.

As there is some urgency in respect of this matter (the damage to Mr. Tottrup's land is ongoing) we would ask that you provide us with your position in respect of this matter at your very earliest convenience and in any event on or before April 5, 1994.

Thank you for your anticipated cooperation.

Yours truly,

BOSECKE KNOL & BEEKEN

Per:
RICHARD A. BEEKEN
RAB/jlf

Enclosure

BOSECKE KNOL & BEEKEN
Barristers and Solicitors
1 - 9301 - 50 Street
Edmonton, Alberta
Canada T6B 2L5
Telephone (403) 469-0494
Facsimile (403) 465-0760

Our File Number: 50,681/RAB

April 6, 1994

Alberta Environment
4th Floor
Oxbridge Place
9820 - 106 Street
Edmonton, Alberta
T5K 2J6

Attention: David Spinks
Director of Standards and Approvals

Dear Sir:

Further to my previous correspondence of March 16, 1994, I note that neither my office or Mr. Tottrup has received any response from you. I would have expected that I would have at least received the courtesy of a reply at this point.

I would ask that you please provide me with your response in respect of this matter on or before April 15, 1994. In the event that you fail to do so, we will proceed with such other steps as may be appropriate.

Yours truly;

Per:
RICHARD A. BEEKEN
RAB/jlf

c.c. Aage Tottrup

The Honourable Brian Evans
Minister of Alberta Environment
323 Legislature Building
10800 - 97 Avenue
Edmonton, Alberta
T5K 2B6

The Honourable Dr. Steve West
Minister of Municipal Affairs
425 Legislature Building
10800 - 97 Avenue
Edmonton, Alberta
T5K 2B6

The County of Parkland No. 31
4601 - 48 Street
Stony Plain, Alberta
T7Z 1R1

The Town of Stony Plain
4905 - 51 Avenue
Stony Plain, Alberta
T5Z 1Y1

The City of Spruce Grove
315 Jespersen Avenue
Spruce Grove, Alberta
T7X 3E8

BOSECKE KNOL & BEEKEN
Barristers and Solicitors
1 - 9301 - 50 Street
Edmonton, Alberta
Canada T6B 2L5
Telephone (403) 469-0494
Facsimile (403) 465-0760

Our File Number: 50,681/RAB

April 7, 1994

The Honourable Brian Evans
Minister of Alberta Environment
323 Legislature Building
10800 - 97 Avenue
Edmonton, Alberta
T5K 2B6

Dear Sir:

Further to my previous correspondence of March 16, 1994, I note that neither my office or Mr. Tottrup has received any response from you. I would have expected that I would have at least received the courtesy of a reply at this point.

I would ask that you please provide me with your response in respect of this matter on or before April 15, 1994. In the event that you fail to do so, we will proceed with such other steps as may be appropriate.

Yours truly,

BOSECKE KNOL & BEEKEN

Per:
RICHARD A. BEEKEN
RAB/jlf

c.c. Aage Tottrup

David Spinks
Director of Standards and Approvals
Alberta Environment
4th Floor
Oxbridge Place
9820 - 106 Street
Edmonton, Alberta
T5K 2J6

The Honourable Dr. Steve West
Minister of Municipal Affairs
425 Legislature Building
10800 - 97 Avenue
Edmonton, Alberta
T5K 2B6

The County of Parkland No. 31
4601 - 48 Street
Stony Plain, Alberta
T7Z 1R1

The Town of Stony Plain
4905 - 51 Avenue
Stony Plain, Alberta
T5Z 1Y1

The City of Spruce Grove
315 Jespersen Avenue
Spruce Grove, Alberta
T7X 3E8

BOSECKE KNOL & BEEKEN
Barristers and Solicitors
1 - 9301 - 50 Street
Edmonton, Alberta
Canada T6B 2L5
Telephone (403) 469-0494
Facsimile (403) 465-0760

April 7, 1994

The Honourable Dr. Steve West
Minister of Municipal Affairs
425 Legislature Building
10800 - 97 Avenue
Edmonton, Alberta
T5K 2B6

Dear Sir:

Further to my previous correspondence of March 16, 1994, I note that neither my office or Mr. Tottrup has received any response from you. I would have expected that I would have at least received the courtesy of a reply at this point.

I would ask that you please provide me with your response in respect of this matter on or before April 15, 1994. In the event that you fail to do so, we will proceed with such other steps as may be appropriate.

Yours truly,

BOSECKE KNOL & BEEKEN

Per:
RICHARD A. BEEKEN
RAB/jlf

c.c. Aage Tottrup

David Spinks
Director of Standards and Approvals
Alberta Environment
4th Floor
Oxbridge Place
9820 - 106 Street
Edmonton, Alberta

T5K 2J6

The Honourable Brian Evans
Minister of Alberta Environment
323 Legislature Building
10800 - 97 Avenue
Edmonton, Alberta
T5K 2B6

The County of Parkland No. 31
4601 - 48 Street
Stony Plain, Alberta
T7Z 1R1

The Town of Stony Plain
4905 - 51 Avenue
Stony Plain, Alberta
T5Z 1Y1

The City of Spruce Grove
315 Jespersen Avenue
Spruce Grove, Alberta
T7X 3E8

BOSECKE KNOL & BEEKEN
Barristers and Solicitors
1 - 9301 - 50 Street
Edmonton, Alberta
Canada T6B 2L5
Telephone (403) 469-0494
Facsimile (403) 465-0760

Our File Number: 50,681/RAB April 7, 1994

The County of Parkland No. 31
4601 - 48 Street
Stony Plain, Alberta
T7Z 1R1

Dear Sir:

Further to my previous correspondence of March 16, 1994, I note that neither my office or Mr. Tottrup has received any response from you. I would have expected that I would have at least received the courtesy of a reply at this point.

I would ask that you please provide me with your response in respect of this matter on or before April 15, 1994. In the event that you fail to do so, we will proceed with such other steps as may be appropriate.

Yours truly,

BOSECKE KNOL & BEEKEN

Per:
RICHARD A. BEEKEN
RAB/jlf

c.c. Aage Tottrup

David Spinks
Director of Standards and Approvals
Alberta Environment
4th Floor
Oxbridge Place
9820 - 106 Street
Edmonton, Alberta
T5K 2J6

The Honourable Brian Evans
Minister of Alberta Environment
323 Legislature Building
10800 - 97 Avenue
Edmonton, Alberta
T5K 2B6

The Honourable Dr. Steve West
Minister of Municipal Affairs
425 Legislative Building
10080 - 97 Avenue
Edmonton, Alberta
T5K 2B6

The Town of Stony Plain
4905 - 51 Avenue
Stony Plain, Alberta
T5Z 1Y1

The City of Spruce Grove
315 Jespersen Avenue
Spruce Grove, Alberta
T7X 3E8

BOSECKE KNOL & BEEKEN
Barristers and Solicitors
1 - 9301 - 50 Street
Edmonton, Alberta
Canada T6B 2L5
Telephone (403) 469-0494
Facsimile (403) 465-0760

Our File Number: 50,681/RAB

The Town of Stony Plain
4905 - 51 Avenue
Stony Plain, Alberta
T5Z 1Y1

Dear Sir:

Further to my previous correspondence of March 16, 1994, I note that neither my office or Mr. Tottrup has received any response from you. I would have expected that I would have at least received the courtesy of a reply at this point.

I would ask that you please provide me with your response in respect of this matter on or before April 15, 1994. In the event that you fail to do so, we will proceed with such other steps as may be appropriate.

Yours truly,

BOSECKE KNOL & BEEKEN

Per:
RICHARD A. BEEKEN
RAB/jlf

c.c. Aage Tottrup

David Spinks
Director of Standards and Approvals
Alberta Environment
4th Floor
Oxbridge Place
9820 - 106 Street
Edmonton, Alberta

T5K 2J6

The Honourable Brian Evans
Minister of Alberta Environment
323 Legislature Building
10800 - 97 Avenue
Edmonton, Alberta
T5K 2B6

The Honourable Dr. Steve West
Minister of Municipal Affairs
425 Legislative Building
10080 - 97 Avenue
Edmonton, Alberta
T5K 2B6

The County of Parkland No. 31
4601 - 48 Street
Stony Plain, Alberta
T7Z 1R1

The City of Spruce Grove
315 Jespersen Avenue
Spruce Grove, Alberta
T7X 3E8

BOSECKE KNOL & BEEKEN
Barristers and Solicitors
1 - 9301 - 50 Street
Edmonton, Alberta
Canada T6B 2L5
Telephone (403) 469-0494
Facsimile (403) 465-0760

Our File Number: 50,681/RAB April 7, 1994

The City of Spruce Grove
315 Jespersen Avenue
Spruce Grove, Alberta
T7X 3E8

Dear Sir:

Further to my previous correspondence of March 16, 1994, I note that neither my office or Mr. Tottrup has received any response from you. I would have expected that I would have at least received the courtesy of a reply at this point.

I would ask that you please provide me with your response in respect of this matter on or before April 15, 1994. In the event that you fail to do so, we will proceed with such other steps as may be appropriate.

Yours truly,

BOSECKE KNOL & BEEKEN

Per:
RICHARD A. BEEKEN
RAB/jlf

c.c. Aage Tottrup

David Spinks
Director of Standards and Approvals
Alberta Environment
4th Floor
Oxbridge Place
9820 - 106 Street
Edmonton, Alberta
T5K 2J6

The Honourable Brian Evans
Minister of Alberta Environment
323 Legislature Building
10800 - 97 Avenue
Edmonton, Alberta
T5K 2B6

The Honourable Dr. Steve West
Minister of Municipal Affairs
425 Legislative Building
10080 - 97 Avenue
Edmonton, Alberta
T5K 2B6

The County of Parkland No. 31
4601 - 48 Street
Stony Plain, Alberta
T7Z 1R1

The Town of Stony Plain
4905 - 51 Avenue
Stony Plain, Alberta
T5Z 1Y1

BIRDSELL GRANT GARDNER
Barristers and Solicitors
P.O. Box 1119
5300 - 50th Street
Stony Plain, Alberta
T03 2G0
Telephone (403) 963-8181
Facsimile (403) 963-9618

Our File #8905 MB

April 8, 1994

Boseke Knol & Beeken
Barristers & Solicitors
1 - 9301 - 50 Street
Edmonton, Alberta T6B 2L5

Attention: Richard A. Beeken

Dear Sirs:

Re: Aage Tottrup

We are solicitors for the Town of Stony Plain, and we have reviewed your letter of March 16, 1994 directed to the Town of Stony Plain and the correspondence enclosed with it. We note that your letter makes no allegations against the Town of Stony Plain, although references are made in the second and third paragraphs to the County of Parkland No. 3 1. We acknowledge that there is some suggestion that actions of the Town of Stony Plain have played a part in the conditions complained of by Mr. Tottrup in your letter of the same date to Alberta Environment.

While the Minister of the Environment may have the authority to order an Environmental Impact Assessment in the circumstances you describe, no such authority lies with the municipality, particularly where it is the effect of continued development in the community as a whole which is at issue, rather than a particular development. Should such an assessment be ordered by the Minister the Town of Stony Plain will of course cooperate fully.

Surface drainage flow rates and effluent discharges are of concern to the Town of Stony Plain, and to the extent that such matters are within the control of the Town all discharges into Atim Creek are in accordance with the requirements of Alberta Environment, and comply with authorities and permits granted.

Finally, we note that neither of your letters demonstrate any objective evidence supporting your client's conclusion that it is development in upstream communities which has caused both the volume fluctuations and the "pollution" he indicates has occurred. You state that "Mr. Tottrup attributes both the fluctuating water levels and the pollutants which have entered onto his land to various acts ... " of the municipalities. While the inference your client has made from his empirical observations may be

warranted, it requires the assumption, in the absence of proof, that there are pollutants entering his land, that they are carried there by Atim Creek, that the actions of the municipalities, rather than the actions of individual owners, are the primary cause, and that there are no other explanations (such as naturally occurring cycles or other phenomena) for the conditions observed by Mr. Tottrup. While each of these assumptions may be reasonable, we would expect that some further support of your client's conclusions will be forthcoming.

Yours truly,
BIRDSELL GRANT GARDNER

Per: Michael C. Birdsell

MCB:
cc: Town of Stony Plain
Attention: Phil Hamel

ALBERTA
MUNICIPAL AFFAIRS
Office of the Minister
425 Legislature Building
Edmonton, Alberta
T5K 2B6
Telephone (403) 427-3744
Facsimile (403) 422-9550

April 12, 1994

Mr. Richard A. Beeken
Bosecke, Knol & Beeken
1, 9301 - 50 Street
Edmonton, Alberta
T6B 2L5

Dear Mr. Beeken:

I acknowledge your letter of April 7, 1994, indicating your concern with not receiving a reply to your correspondence of March 16, 1994.

You had addressed your concern to an individual in the Department of Environmental Protection. As such, I would expect that individual to reply to your concerns.

I trust this clarifies your concern.

Yours truly,

Stephen C. West
Minister

cc: Hon. Brian Evans
Minister

THE CITY OF SPRUCE GROVE
315 Jespersen Avenue
Spruce Grove, Alberta,
Canada T7X 3E8
Telephone (403) 962-2611
Facsimile (403) 962-2526/962-1062

April 13, 1994 File: E-5-1

Bosecke Knol & Beeken
Barristers & Solicitors
1 - 9301 - 50 Street
Edmonton, Alberta
T6B 2L5

Attention: Mr. R.A. Beeken

Dear Sir:

Re: Aage Tottrup Property (File 50,681/RAB)

In response to your letter of March 16, 1994, 1 wish to advise that the only water presently discharged from the City of Spruce Grove into the Atim Creek drainage basin is natural runoff which occurs as a result of rainfall or snow melt. In 1987, the City's sanitary sewer system was connected to the Regional Sewer System and hence the City's previous practice of discharging the treated effluent to the Atim Creek system has been discontinued. It should, however, be noted that treated effluent from Parkland Village, which is outside of the jurisdiction of the City of Spruce Grove, is periodically discharged to Atim Creek.

With reference to your comments regarding the issuance of Development Permits, I would like to clarify that Spruce Grove is only responsible for development within the corporate limits of the City. Any development and/or permit requirements/approvals outside of our boundaries is under the jurisdiction of the County of Parkland.

It is also my understanding that Alberta Environment has initiated a complete review of the particular pollution/flooding concerns expressed by your client. I'm reasonably confident that their study and report will in fact address these concerns.

Should you have any questions regarding this matter please do not hesitate to contact me.

Yours truly,

E.R. Koshuta, P. Eng.

City Engineer
/bjs

REYNOLDS, MIRTH, RICHARDS & FARMER
Barristers and Solicitors
3200 Manulife Place
10180 - 101 Street
Edmonton, Alberta
Canada T5J 3W8
Telephone (403) 425-9510
Facsimile (403) 429-3044

Your File 50,671/RAB
Our File 66,249-01-028

April 15, 1994

To Facsimile: 465-0760

Attention: Richard A. Beeken

BOSECKE KNOL & BEEKEN
Barristers and Solicitors
1, 9301 - 50 Street
Edmonton, AB T6B 2L5

Dear Sirs:

Mr. Tottrup -- The County of Parkland No. 31

Our client, the County of Parkland No. 31 (the "County"), has asked us to respond to your correspondence of March 16th, 1994 and April 7th, 1994. The delay in responding to you was occasioned because your correspondence was brought to the attention of county council.

The County is unable to take any action in response to your request. Your client's concern, although somewhat vague, appears to deal with storm water management. Alberta' Environment has established criteria for storm water management which are, we believe, followed in the County.

Yours very truly,

REYNOLDS MIRTH RICHARDS & FARMER

Per: SHEILA C. McNAUGHTAN

SCM/eve

cc: County of Parkland No. 31
ATTENTION: MR. PAT HARRINGTON
VIA FACSIMILE

ALBERTA
ENVIRONMENTAL PROTECTION
9820 - 106 Street
Edmonton, Alberta
Canada T5K 2J6
Telephone (403) 427-5883
Facsimile (403) 422-4192

April 15, 1994

MR. RICHARD A. BEEKEN
BOSECKE KNOL & BEEKEN
BARRISTERS AND SOLICITORS
1 9301 50 ST
EDMONTON AB T6B 2L5

Dear Mr. Beeken:

RE: Flooding and Pollution Concerns - Mr. A. Tottrup Property

This is pursuant to your recent letter concerning lands belonging to Mr. Aage Tottrup.

Staff from Alberta Environmental Protection met with Mr. Tottrup at his farm on April 13, 1994. At that time they were able to identify his specific concerns and will be able to address them over the coming months. As these concerns involve several different Branches of the Department, each of the Branches will be reviewing the concerns pertaining to its authority.

As the information becomes available, the various Department Branches will be corresponding directly with Mr. Tottrup.

Yours truly,

David Spink, M.Sc., P. Eng.
Director
Standards and Approvals Division

cc: A. Tottrup
T. Sly, WRAD
S. Livingstone, PCD

L. Williams

ALBERTA
MUNICIPAL AFFAIRS
Office of the Minister
425 Legislature Building
Edmonton, Alberta
T5K 2B6
Telephone (403) 427-3744
Facsimile (403) 422-9550

April 12, 1994

Mr. Richard A. Beeken
Bosecke, Knol & Beeken
1, 9301 - 50 Street
Edmonton, Alberta
T6B 2L5

Dear Mr. Beeken:

I acknowledge you letter of April 7, 1994, indicating your concern with not receiving a reply to your correspondence of March 16, 1994.

You had addressed your concern to an individual in the Department of Environmental Protection. As such, I would expect that individual to reply to your concerns.

I trust this clarifies your concern.

Yours truly,

Stephen C. West
Minister

cc: Hon. Brian Evans
Minister

BOSECKE KNOL & BEEKEN
Barristers and Solicitors
1 - 9301 - 50 Street
Edmonton, Alberta
Canada T6B 2L5
Telephone (403) 469-0494
Facsimile (403) 465-0760

Our File Number: 50,681/RAB

April 18, 1994

David Spinks
Director of Standards and Approvals
Alberta Environment
4th Floor
Oxbridge Place
9820 - 106 Street
Edmonton, Alberta
T5K 2J6

Dear Sir:

Further to your correspondence of April 15, 1994, my client requests that you provide him with some concrete indication of what the "review" referred to will consist of, what specific steps will be taken to address Mr. Tottrup's concern, and some time frame for the conduct of further investigation.

As indicated in his correspondence, Mr. Tottrup is of the view that the damage is ongoing and that, as the County of Parkland approves further development in the area, damage will continue or may increase. Mr. Tottrup would like intervener status with respect to future development applications or alternatively would like some assurance that Alberta Environment will effectively monitor further development in the area. Common sense dictates that it can be far more difficult to address these concerns after the development has been approved and undertaken then to intervene at the stage when an application for a development permit is received and processed.

I look forward to your response to these concerns at your earliest convenience.

Yours truly,

BOSECKE KNOL & BEEKEN

Per:
RICHARD A. BEEKEN
RAB/jlf

c.c. Aage Tottrup

REYNOLDS, MIRTH, RICHARDS & FARMER
Barristers and Solicitors
3200 Manulife Place
10180 - 101 Street
Edmonton, Alberta
Canada T5J 3W8
Telephone (403) 425-9510
Facsimile (403) 429-3044

Your File 50,671/RAB

Our File 66,249-01-028

April 15, 1994

To Facsimile: 465-0760

Attention: Richard A. Beeken

BOSECKE KNOL & BEEKEN
Barristers and Solicitors
1, 9301 - 50 Street
Edmonton, AB T6B 2L5

Dear Sirs:

RE: Mr. Tottrup -- The County of Parkland No. 31

Our client, the County of Parkland No. 31 (the "County"), has asked us to respond to your correspondence of March 16th, 1994 and April 7th, 1994. The delay. in responding to you was occasioned because your correspondence was brought to the attention of county council.

The County is unable to take any action in response to your request. Your client's concern, although somewhat vague, appears to deal with storm water management. Alberta' Environment has established criteria for storm water management which are, we believe, followed in the County.

Yours very truly,

REYNOLDS MIRTH RICHARDS & FARMER

Per: SHEILA C. McNAUGHTAN

SCM/eve

cc: County of Parkland No. 31
ATTENTION: MR. PAT HARRINGTON
VIA FACSIMILE

ALBERTA
ENVIRONMENTAL PROTECTION
9820 - 106 Street
Edmonton, Alberta
Canada T5K 2J6
Telephone (403) 427-5883
Facsimile (403) 422-4192

April 15, 1994

MR. RICHARD A. BEEKEN
BOSECKE KNOL & BEEKEN
BARRISTERS AND SOLICITORS
1 9301 50 ST
EDMONTON AB T6B 2L5

Dear Mr. Beeken:

RE: Flooding and Pollution Concerns - Mr. A. Tottrup Property

This is pursuant to your recent letter concerning lands belonging to Mr. Aage Tottrup.

Staff from Alberta Environmental Protection met with Mr. Tottrup at his farm on April 13, 1994. At the time they were able to identify his specific concerns and will be able to address them over the coming months. As these concerns involve several different Branches of the Department, each of the Branches will be reviewing the concerns pertaining to its authority.

As the information becomes available, the various Department Branches will be corresponding directly with Mr. Tottrup.

Yours truly,

David Spink, M.Sc., P. Eng.
Director
Standards and Approvals Division

cc: A. Tottrup
T. Sly, WRAD
S. Livingstone, PCD
L. Williams

1969 - 1994

25TH ANNIVERSARY

COUNTY OF PARKLAND
ALBERTA

Tottrup, Aage F.
Box 11210
Edmonton, Alberta
T5J 3K5

Public Services

June 22, 1994

94-D-140

Dear Sir/Madam:

RE: Rebuilding of engine & compressors related to oilfield activities, Lots 1 & 2, Block 3, Plan 772-0277 (Ellis Industrial Park), S 1/2 04-53-26-W4M, Applicant: Quest Compression System, Registered Owners: Ellis Building Ltd.

Be advised that a Development Permit has been conditionally approved for the above noted property.

As a landowner who may be affected, you are being notified in accordance with the County's Land Use By-law. If you wish to appeal the approval of this development, a written submission, stating the grounds of appeal, must be received on or before JULY 11, 1994. The appeal should be addressed to the Secretary of the Development Appeal Board, County of Parkland, 4601-48 Street, Stony Plain, Alberta T7Z 1R1.

PLEASE NOTE: By-law No. 28-90, County of Parkland No. 31 Development Appeal Board, requires that a non-refundable fee of $30.00 must be paid for every appeal served on the Development Appeal Board. The fee may be paid by cheque, made payable to the County of Parkland No. 31.

For any further information please contact the undersigned.

Yours truly

Grace Horsfield
Development Officer

:vrs

Planning Services - Parks & Recreation - Patrol & Emergency Communications - Fire & Disaster Services
4601 - 48 Street, Stony Plain, Alberta, T7Z 1R1 Telephone: (403) 963-2231 Fax: (403) 963-2980

BOSECKE KNOL & BEEKEN
Barristers and Solicitors
1 - 9301 - 50 Street
Edmonton, Alberta
Canada T6B 2L5
Telephone (403) 469-0494
Facsimile (403) 465-0760

Our File Number: 50,681/RAB April 18, 1994

David Spinks
Director of Standards and Approvals
Alberta Environment
4th Floor
Oxbridge Place
9820 - 106 Street
Edmonton, Alberta
T5K 2J6

Dear Sir:

Further to your correspondence of April 15, 1994, my client requests that you provide him with some concrete indication of what the "review" referred to will consist of, what specific steps will be taken to address Mr. Tottrup's concern, and some time frame for the conduct of further investigation.

As indicated in his correspondence, Mr. Tottrup is of the view that the damage is ongoing and that, as the County of Parkland approves further development in the area, damage will continue or may increase. Mr. Tottrup would like intervener status with respect to future development applications or alternatively would like some assurance that Alberta Environment will effectively monitor further development in the area. Common sense dictates that it can be far more difficult to address these concerns after the development has been approved and undertaken then to intervene at the stage when an application for a development permit is received and processed.

I look forward to your response to these concerns at your earliest convenience.

Yours truly,

BOSECKE KNOL & BEEKEN

Per:
RICHARD A. BEEKEN
RAB/jlf

cc: Aage Tottrup

ALBERTA
ENVIRONMENTAL PROTECTION
9820 - 106 Street
Edmonton, Alberta
Canada T5K 2J6
Telephone (403) 427-5883
Facsimile (403) 422-4192

April 27, 1994

MR A TOTTRUP
P 0 BOX 11210
EDMONTON AB T5J 3K5

Dear Mr. Tottrup:

RE: Sanitary and Storm Sewer Discharges

In response to your lawyer's correspondence of April 18, 1994, 1 am able to provide you with the following information.

The Director of Standards and Approvals oversees the issuance of approvals for municipal waterworks, sanitary and storm sewer systems. We are, therefore, able to respond to concerns pertaining to these municipal systems only; other divisions of the Department will be reviewing your concerns within their jurisdictions, and will provide information when it becomes available.

Some of your concerns, particularly those related to runoff from acreages, agriculture, and the Hunter Marine, are issues that fall outside the approval mandate of Standards and Approvals. Any developments of this nature within the County of Parkland require the County's approval in accordance with the local planning requirements.

Municipal Branch staff are currently reviewing the municipal sanitary and stormwater practises within the area of concern and will be providing you with information as soon as possible. If you have further questions pertaining to municipal waterworks or drainage standards, please direct them to Mr. Larry Williams, Municipal Branch, Standards and Approvals Division, at 427-5877.

Yours truly,

David Spink, M.Sc., P. Eng.
Director
Standards and Approvals Division

cc: A. Tottrup
T. Sly, WRAD
S. Livingstone, PCD
L. Williams

ALBERTA
ENVIRONMENTAL PROTECTION
9820 - 106 Street
Edmonton, Alberta
Canada T5K 2J6
Telephone (403) 427-5883
Facsimile (403) 422-4192

May 27, 1994

ATT: MR AAGE TOTTRUP
BOX 11210
EDMONTON AB T5J 3K5

Dear Sir:

Re: Municipal Discharges to Atim Creek

In response to your concerns about discharges to Atim Creek, I am able to provide you with the following:

1) The sanitary sewage from Stony Plain and Spruce Grove is treated at the Capital Region Wastewater Treatment Plant near Fort Saskatchewan.

2) The sanitary sewage from the Parkland Mobile Home Park is treated by a mechanical plant, then stored in a lagoon, and then discharged to Atim Creek. This discharge to Atim Creek will no longer be allowed as the mobile home park must find an alternative method of disposal by this fall.

3) Sewage wastes from the Hunter's Marine Development are trucked to the system serving Spruce Grove and Stony Plain.

4) Stormwater runoff from Spruce Grove and Stony Plain is controlled by the use of stormwater ponds. Their stormwater management practice conforms to the Alberta Environmental Protection Objectives (copy attached) that limit release rates to the pre-development rate.

Based on the information I have available, the impact of the municipalities on the amount of water flowing in Atim Creek should not be causing the problems you have noted. I acknowledge that there will be more runoff from a developed area, but the runoff is over an extended period which should minimize the impact, if any. Because the municipalities that lie within the Atim Creek Drainage Area meet our standards (with the exception of the Parkland Mobile Home Park), the Municipal Branch will not be conducting any further review into municipal discharges to Atim Creek at this time.

I trust that this information addresses your concerns.

Yours truly,

L.A. Williams, P. Eng.
Regional Engineer
Municipal Branch

Attachment

cc: Bosecke, Knol & Beeken
Town of Stony Plain
City of Spruce Grove
County of Parkland
Terry Sly, Water Resources
Scott Livingstone, PCD

ALBERTA
ENVIRONMENTAL PROTECTION
15th Floor Standard Life Centre
10405 Jasper Avenue
Edmonton, Alberta
Canada T5J 3N4
Telephone (403) 427-5296
Facsimile (403) 422-0528

May 17,1994 File: 53-26-4

MR AAGE TOTTRUP
PO BOX 11210
EDMONTON AB T5J 3K5

Dear Mr. Tottrup:

Re: Drainage Concerns
NE 16, SE 21, N 21, E 22 & SW 27-53-26-4

In response to the drainage concerns raised by you at our meeting on April 13, 1994, I am able to provide you with the following information.

A subsequent inspection at the outlet of Big Lake found no obstruction to flow. The City of St. Albert snow dumps along the right bank of the Sturgeon River near the outlet of Big Lake have no impact on your land.

Manawan (Egg) Lake is located within the Manawan Drainage District. The district operates and maintains an outlet control structure for the lake. The structure's primary purpose is to prevent flooding around and downstream of the lake. The structure's control gates were closed during 1993, with no outflow from the lake.

The County of Parkland did not refer the Hunters Trailer & Marine Ltd. development to the department. The county plans to refer Phase II of the development to the department, at which time a stormwater management plan will be requested.

I trust this addresses your drainage concerns. Our Pollution Control and Standards and Approvals Divisions will be contacting you direct regarding concerns under their mandate.

Yours truly,

Terry Sly, B. Sc.
District Technologist

TS/jg

cc: R. Beeken
S. Livingstone, Pollution Control Division
L. William, Standards & Approvals Division

ALBERTA
ENVIRONMENTAL PROTECTION
9820 - 106 Street
Edmonton, Alberta
Canada T5K 2J6
Telephone (403) 427-5883
Facsimile (403) 422-4192

May 27, 1994

ATT: MR AAGE TOTTRUP
BOX 11210
EDMONTON AB T5J 3K5

Dear Sir:

Re: Municipal Discharges to Atim Creek

In response to your concerns about discharges to Atim Creek, I am able to provide you with the following:

1) The sanitary sewage from Stony Plain and Spruce Grove is treated at the Capital Region Wastewater Treatment Plant near Fort Saskatchewan.

2) The sanitary sewage from the Parkland Mobile Home Park is treated by a mechanical plant, then stored in a lagoon, and then discharged to Atim Creek. This discharge to Atim Creek will no longer be allowed as the mobile home park must find an alternative method of disposal by this fall.

3) Sewage wastes from the Hunter's Marine Development are trucked to the system serving Spruce Grove and Stony Plain.

4) Stormwater runoff from Spruce Grove and Stony Plain is controlled by the use of stormwater ponds. Their stormwater management practice conforms to the Alberta Environmental Protection Objectives (copy attached) that limit release rates to the pre-development rate.

Based on the information I have available, the impact of the municipalities on the amount of water flowing in Atim Creek should not be causing the problems you have noted. I acknowledge that there will be more runoff from a developed area, but the runoff is over an extended period which should minimize the impact, if any. Because the municipalities that Lie within the Atim Creek Drainage Area meet our standards (with the exception of the Parkland Mobile Home Park), the Municipal Branch will not be conducting any further review into municipal discharges to Atim Creek at this time.

I trust that this information addresses your concerns.

Yours truly,

L. A. Williams, P. Eng.
Regional Engineer
Municipal Branch

Attachment

cc: Bosecke, Knol & Beeken
Town of Stony Plain
City of Spruce Grove
County of Parkland
Terry Sly, Water Resources
Scott Livingstons, PCD

SCHEDULE "F" FOLLOWS:

IN THE COURT OF QUEEN'S BENCH OF ALBERTA

JUDICIAL DISTRICT OF EDMONTON

BETWEEN:

AAGE TOTTRUP

Plaintiff,

- and -

HER MAJESTY THE QUEEN IN RIGHT OF ALBERTA; PARKLAND COUNTY; PARKLAND VILLAGE COMMUNITIES INC.; THE CITY OF SPRUCE GROVE; THE TOWN OF STONY PLAIN; ALBERTA ENVIRONMENTAL PROTECTION; TY LUND, MINISTER OF ALBERTA ENVIRONMENTAL PROTECTION; BRIAN EVANS, former MINISTER OF ENVIRONMENT; and RALPH KLEIN, former MINISTER OF ENVIRONMENT

Defendants

STATEMENT OF CLAIM

1. The Plaintiff is the owner of land located in Parkland County, in the Province of Alberta legally described as:

NW 21-53-26 W4
NE 16-53-26 W4
NE 21-53-26 W4
NW 22-53-26 W4
SW 22-53-26 W4
SW 27-53-26 W4
SE 21-53-26 W4

COMPRISING APPROXIMATELY 725 ACRES
(hereinafter the "Plaintiff's Land").

2. The Defendants, Parkland County, the Town of Stony Plain ("Stony Plain"), and the City of Spruce Grove ("Spruce Grove") are all Municipalities (collectively referred to as the "Defendant Municipalities") pursuant to the Municipal Government Act S.A. 94 c. M-26.1, as amended.

3. Parkland Village Communities Inc. (hereinafter "Parkland Village") is a body corporate duly registered pursuant to the laws of Alberta.

4. Alberta Environmental Protection, and its predecessors, Alberta Environment and the Department of Environment, are, or have been, departments of the Government of Alberta responsible for the protection, enhancement and wise use of the environment (hereinafter "Alberta Environmental Protection") pursuant to the Environmental Protection and Enhancement Act, S.A. 1992, E-13.3 and its predecessor legislation.

5. Ty Lund is currently the Minister of Alberta Environmental Protection and he has held that position since October 21, 1994. Brian Evans was Minister of the Department of Environment from December 15, 1992 to October 21, 1994. Ralph Klein was Minister of the Department of Environment from April 14, 1989 to December 15, 1992.

6. The Plaintiff's Land is contiguous to a large lake known as Big Lake, and a water course known as Atim Creek which flows into Big Lake, and as a riparian owner, the Plaintiff is entitled to the

water of Atim Creek in its natural flow, without significant decrease or increase in that flow and without significant alteration in its character or quality.

7. The Defendant Municipalities have approved, designed, constructed, operated, and continue to operate, wastewater and storm drainage systems in and around the Atim Creek drainage basin. These wastewater and storm drainage systems have discharged, and continue to discharge, contaminated water in volumes beyond the capacity of the Atim Creek channel.

8. In addition, the Town of Stony Plain has operated and continues to operate, a groundwater pumping system which continuously pumps water into the Atim Creek in amounts beyond the capacity of the Atim Creek channel.

9. Presently, and at all material times, the Defendants Parkland Village and the City of Spruce Grove have operated a sewage collection and disposal system which discharges untreated and partially treated sewage directly into Atim Creek.

10. As a direct result of these matters plead in paragraphs 7 to 9, the Defendant Municipalities and the Defendant Parkland Village have interfered with the Plaintiff's riparian rights by significantly altering the natural flow of Atim Creek in quantity and quality and in particular, have significantly increased the flow and have wrongfully polluted the waters of Atim Creek and Big Lake.

11. Further, the release of untreated and partially treated sewage into the waters of Atim Creek and Big Lake is contrary to the Environmental Protection and Enhancement Act, S.A. 1992, c. E-13.3 and to the Canadian Environmental Protection Act, R.S.C. 1985, c. C-15.3. The Defendant Ministers of the Environment have not brought any proceedings to prevent the breach of these Acts or of the licences and approvals issued by Alberta Environmental Protection to the Defendant Municipalities or to the Defendant Parkland Village. The Plaintiff has suffered and continues to suffer damage as a result of conduct which is contrary to the provisions of these Acts.

12. The Defendant Municipalities and the Defendant Parkland Village have brought onto their lands sewage, wastewater, and storm waters which is a non-natural use of these Defendants' Lands. These Defendants have released and continue to release sewage, wastewater and storm waters into the Atim Creek drainage basin when they know or should know that such release pollutes and causes damage to the Lands of the Plaintiff. These Defendants are strictly liable to the Plaintiff, for the extensive environmental damages sustained and for losses as a result of the waters of Atim Creek and consequently Big Lake, being unfit for natural use by the Plaintiff as a result of the escape, release, and discharge of dangerous substances including sewage, wastewater and storm waters into Atim Creek and onto the Plaintiff's Lands.

13. Further, the Defendant Stony Plain has pumped water out of the underground water table on its lands and into Atim Creek. Such pumping out of underground waters is a non-natural use of the lands within the control of the Town of Stony Plain. As a result of this discharge and release of large

quantities of water into Atim Creek and consequently into Big Lake, Atim Creek and Big Lake have, and continue to, flood onto the Plaintiff's Lands. This Defendant is strictly liable for this release and discharge of large volumes of water into Atim Creek and onto the Plaintiff's Lands.

14. The Defendant Municipalities, and the Defendant Parkland Village, in causing or permitting the discharge of sewage, wastewater and storm waters which contain contaminants into Atim Creek and Big Lake, have caused and continue to cause, a nuisance which has substantially diminished the enjoyment, value and beneficial use of the Plaintiff's property. This nuisance was created and continued by these Defendants by their acts and/or omissions and further by their negligence. Particulars of the negligence of these Defendants include:

(a) failing to construct and maintain sewage, wastewater and storm water systems in good repair and proper working order;

(b) failing to inspect and test sewage, wastewater and storm water systems;

(c) failing to warn property owners, including the Plaintiff, of the release of sewage, wastewater and storm waters and the risk of flooding and seepage which could cause damage to their property;

(d) failing to act in a reasonable and prudent manner or to take reasonable or proper steps to alleviate the release of sewage, wastewater and storm waters although there were numerous studies and reports indicating that there were problems;

(e) failing to comply with their statutory duty under the Environmental Protection and Enhancement Act, S.A. 1992, c. E-13.3, the Clean Water Act, R.S.A. 1980, c. C-12, and the Canadian Environmental Protection Act, R.S.C. 1985, c. C-15.3, and the regulations thereunder.

15. As a result of these Defendant's acts, omissions, nuisance and negligence, the Plaintiff has suffered damages to his Lands caused by the contamination and flooding of his Lands and resulting in the diminution of the value of his Lands, and other damages, the particulars of which will be provided during the course of these proceedings.

16. The Plaintiff has also suffered damages for the emotional upset and anxiety associated with the flooding and seepage of sewage, wastewater and storm waters, for the odour emanating therefrom, and for botulism resulting in the death of large numbers of wildfowl and fish on the Plaintiff's property, and for damages for the loss of use of the Plaintiff's Lands.

17. The Defendant Municipalities and the Defendant Parkland Village, by causing or permitting the discharge of sewage, wastewater, storm water, contaminants and contaminated water into Atim Creek and Big Lake have caused a nuisance which has substantially diminished the enjoyment, value and beneficial use of the Plaintiff's land and in particular, but not limited to, have created adverse environmental conditions, including periodic outbreaks of botulism on the Plaintiff's land, which, has in turn, caused a die-off of vegetation and the loss of thousands of water fowl, small mammals and fish. This nuisance has caused the Plaintiff particular and special damages in the form of interference with the use and enjoyment of his Lands and interference with his riparian rights.

18. Further, and in the alternative, the Defendant Municipalities owe a duty of care to the Plaintiff, they have breached and continue to breach such duty of care by acts of negligence, the particulars of which include the following:

(a) by constructing a storm sewer system which was inadequate to handle the drainage requirements of their respective Municipalities;

(b) failing to implement a storm sewer management system and to upgrade its storm sewer systems to meet the requirements of their Municipalities as the population and corresponding urbanization significantly increased;

(c) permitting the release and discharge of contaminated water into the Atim Creek drainage basin;

(d) depositing or permitting the deposit of a deleterious substance in water contrary to s. 35(3) of the Fisheries Act, R.S.C. 1991, c. F-14;

(e) permitting large amounts of contaminated water to drain into Atim Creek in excess of the channel capacity of Atim Creek and in amounts which have caused and continue to cause, adverse effects; and

(f) failing to take proper remedial steps when it knew, or should have known, that its storm sewer system was substantially contributing to the flooding and pollution of Atim Creek, Big Lake and consequently the flooding and pollution the Plaintiff's Lands.

19. Further, and in the alternative, the Defendant Municipalities and the Defendant Parkland Village owe a duty of care to the Plaintiff and breached and continue to breach, such duty of care by acts of negligence, the particulars of which include the following:

(a) operating and maintaining a sewage, wastewater and storm water collection and disposal system in contravention of the requirements of the Alberta Environmental Protection and Enhancement Act, S.A. 1992, c. E-13.3, the Clean Water Act, R.S.A.

1980, c.C-12, the Canadian Environmental Protection Act, R.S.C. 1985, c. C-15.3, and in contravention of the Wastewater and Storm Drainage regulations; and

(b) violating the terms and conditions of the licenses and approvals by which they are authorized by Alberta Environmental Protection to operate a sewage, wastewater and/or storm water disposal system; and

(c) discharging or permitting the release of deleterious substances into a water course.

20. At all material times since 1978, the Defendants, the Minister of Alberta Environmental Protection, Alberta Environmental Protection, its officers, employees and agents, were aware of the ongoing and increasing pollution and flooding problems at Atim Creek and Big Lake, and were aware of the discharge of contaminants, sewage, wastewater and storm water by the Defendant Municipalities, the Defendant, Parkland Village and others whose identity is known to Alberta Environmental Protection, into the Atim Creek drainage basin.

21. The Defendants, Alberta Environmental Protection and the Minister of Alberta Environmental Protection knew as early as 1978 and at all material times thereafter, that:

(a) Big Lake is an environmentally-sensitive area of provincial, national and international significance because of its water fowl habitat and the position of the lake in various North American water fowl migration pathways;

(b) area residents were and continue to be concerned over the water quality and quantity in the Atim Creek Basin;

(c) Atim Creek exhibits the poorest water quality in the Sturgeon water system;

(d) the dissolved oxygen, iron, total phosphorous and ammonia levels in Atim Creek and Big Lake significantly exceed Alberta Surface Water Quality Objectives as set by the Defendant Alberta Environmental Protection;

(e) the discharge of sewage and other waste water into Atim Creek and Big Lake has caused, and is continuing to cause, environmental damage, and

(f) storm water management is ineffective at the City of Spruce Grove, the Town of Stony Plain and Parkland County, and that storm water, drainage run-off, and sewage discharge into Atim Creek should be modified to pre-development levels in order to protect Atim Creek and Big Lake.

22. At all material times, the Defendants, Alberta Environmental Protection and the Minister of Alberta Environmental Protection had a duty pursuant to the Alberta Environmental Protection Act, S.A. 1992 c.E-13.3, the Clean Water Act, R.S.A. 1980, c. C-13, the Department of Environment Act, R.S.A. 1980, c. D-19, the Water Resources Act, R.S.A. 1980 c. W-5.1, and the Canadian Environmental Protection Act, R.S.C. 1985, c. C-15.3 (the "Environmental Statutes") or at law:

(a) to prevent, control, alleviate or stop the pollution and flooding of Atim Creek and Big Lake;

(b) to monitor and enforce compliance with permits and licenses issued pursuant to the Environmental Statutes; and

(c) to enforce the provisions of the said Environmental Statutes, and the regulations made pursuant to those statutes.

23. Notwithstanding the knowledge of the Defendants Alberta Environmental Protection and the Ministers of Alberta Environmental Protection, of the said flooding and pollution problems, and the damage being caused to the Plaintiff's Lands, these Defendants were negligent by failing:

(a) to fulfil their duty under the Environmental Statutes, and at law;

(b) permitting the discharge or release of contaminants, contrary to the Environmental Statutes and regulations, into the Atim Creek drainage basin in amounts, concentration or levels which have caused, and are continuing to cause, a significantly adverse effect;

(c) failing to remediate the damage caused by the pollution and flooding of Atim Creek and Big Lake; and

(d) permitting the Defendant Municipalities, the Defendant Parkland Village and others known to the Defendant Alberta Environmental Protection to discharge excessive amounts of contamination and contaminated water into the Atim Creek drainage basin;

(e) failing to implement and enforce its own guidelines and standards for the construction and operation of sewage, wastewater and storm water drainage systems; and

(f) failing to implement or enforce its own water quality objectives.

24. As Ministers of Alberta Environmental Protection at the material times, the Defendants, Ty Lund, Brian Evans, and Ralph Klein, were and are responsible for the acts and omissions of the employees, officers and agents of Alberta Environmental Protection.

25. As a result of all of the Defendants' acts, omissions, nuisance and negligence, the Plaintiff has suffered flooding and contamination of his Lands and in particular, the flooding of the Plaintiff's Lands with contaminated water has created soil conditions which periodically kill off vegetation and prevent the regrowth of vegetation, including crops. The Defendants' said interference with the Plaintiff's

riparian rights are such that the Plaintiff's lands are now unfit for agricultural or recreational use, and as such, the Defendants' conduct has amounted to an expropriation of the Plaintiff's Land.

26. The Plaintiff has also suffered loss of income as a result of loss of capacity to produce feed, grass and hay and to maintain a herd of cattle, from 1989 to the present, and as a result of destruction of soil and natural grasses.

27. The Defendants' acts, omissions, nuisance and negligence have caused harm to the environment, including but not limited to the following:

(a) rendering Big Lake and Atim Creek uninhabitable for sturgeon and other fish;

(b) destroying riparian habitat for water fowl and other animals;

(c) causing the death of approximately 5,000 ducks, 5,000 muskrats and thousands of fish, frogs, voles and other small animals in the past six years;

(d) creating soil conditions causing the die-off of significant amounts of crops and other vegetation; and

(e) creating conditions which cause outbreaks of botulism.

28. The loss and damage suffered by the Plaintiff is continuing.

29. As a result of the pollution and flooding caused by or contributed to by the Defendants, or one or more of them, the Plaintiff has suffered and continues to suffer irreparable harm to his property

and farming enterprise. The Plaintiff therefore requests an interim and permanent mandatory injunction requiring the Defendants, or one of them, to cease the release of sewage, wastewater, storm water and contaminants into Atim Creek and Big Lake and to construct a five-foot dyke around the Plaintiff's property to restrain the movement of already polluted water onto his property.

30. The Plaintiff states that the conduct of the Defendants and each of them, as hereinbefore plead, was and continues to be high-handed, arbitrary, oppressive, deliberate, outrageous, callous, wanton and generally disgraceful and socially reprehensible and the Plaintiff seeks punitive damages in respect of the conduct of the Defendants and each of them.

31. The Plaintiff proposes that the trial of this action be held by Jury at the Law Courts, in the City of Edmonton, in the Province of Alberta.

WHEREFORE THE PLAINTIFF CLAIMS damages against the Defendants, and each of them:

(a) Damages for loss of the value of the Plaintiff's land in the sum of $7,000,000.00;

(b) Special damages in the amount of $990,000.00;

(c) An Order in the nature of Mandamus;

(d) An interim and mandatory injunction;

(e) Punitive damages of $50,000,000.00;

(f) Interest pursuant to the Judgment Interest Act, S.A. 1984, c. J-0.5;

(g) Costs of this action on a solicitor and his client basis.

DATED at the City of Edmonton, in the Province of Alberta, this 10th day of July, 1995 and DELIVERED BY Messrs. Parlee McLaws, Barristers & Solicitors, 1500, ManuLife Place, 10180 - 101 Street, Edmonton, Alberta T5J 4K1, solicitors for the Plaintiff, whose address for service in this action is in care of the said solicitors.

ISSUED out of the office of the Clerk of the Court of Queen's Bench of Alberta, Judicial District of Edmonton, in the City of Edmonton, in the Province of Alberta, this 10th day of July, 1995.

"J. BACHINSKI"
CLERK OF THE COURT
QUEEN'S BENCH OF ALBERTA OF ALBERTA

TO THE DEFENDANTS:

You have been sued. You are the Defendants. You have only 15 days to file and serve a Statement of Defence or Demand of Notice. You or your lawyer must file your Statement of Defence or Demand of Notice in the office of the Clerk of the Court of Queen's Bench in Edmonton, Alberta. You or your lawyer must also leave a copy of your Statement of Defence or Demand of Notice at the address for service for the Plaintiff named in this Statement of Claim.

WARNING: If you do not do both things within 15 days, you may automatically lose the law suit. The Plaintiff may get a Court judgment against you if you do not file, or do not give a copy to the Plaintiff, or do either thing late.

This Statement of Claim is issued by the solicitors for the Plaintiff, whose name and address for service is:

Parlee McLaws
Barristers & Solicitors
1500 ManuLife Place
10180 - 101 Street
Edmonton, Alberta
T5J 4K1

The Plaintiff's residence is Edmonton, Alberta.

The Defendant's residence and place of business so far as known to the Plaintiff is Alberta.

Action No. 9503 14035

IN THE COURT OF QUEEN'S BENCH OF ALBERTA

JUDICIAL DISTRICT OF EDMONTON

BETWEEN:

AAGE TOTTRUP

Plaintiff,

- and -

HER MAJESTY THE QUEEN IN RIGHT OF ALBERTA; PARKLAND COUNTY; PARKLAND VILLAGE COMMUNITIES INC.; THE CITY OF SPRUCE GROVE; THE TOWN OF STONY PLAIN; ALBERTA ENVIRONMENTAL PROTECTION; TY LUND, MINISTER OF ALBERTA ENVIRONMENTAL PROTECTION; BRIAN EVANS, former MINISTER OF ENVIRONMENT; and RALPH KLEIN, former MINISTER OF ENVIRONMENT

STATEMENT OF CLAIM

PARLEE McLAWS
BARRISTERS & SOLICITORS
1500, MANULIFE PLACE
10180 - 101 STREET
EDMONTON, ALBERTA
T5J 4K1

ATTENTION: RICHARD C. SECORD

TELEPHONE: 423-8514
File No.: 44697-1 RCS