

R E P O R T O N H E A R I N G S
DEAGO PROPERTIES SEWAGE TREATMENT PLANT

The Clean Environment Commission

August 25, 1989

DEAGO PROPERTIES SEWAGE TREATMENT PLANT

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**DEAGO PROPERTIES
SEWAGE TREATMENT PLANT**

BACKGROUND

A proposal to install a sewage treatment plant in the Rural Municipality of St. Clements was registered under the Environment Act on January 4, 1989 by A. Dean Gould on behalf of Deago Properties. The treatment plant would service a proposed fifteen lot residential subdivision. Treated effluent from the plant would be discharged via pipeline into Cooks Creek.

Objections to the proposal were received by the Environment Department as a result of the public notification process. Accordingly, the Honourable J. Glen Cummings requested the Clean Environment Commission hold a public hearing on the matter and, following the hearing, provide him with a report and recommendations.

Following notification and advertising in appropriate newspapers, a hearing was convened in Selkirk, Manitoba at 7:00 p.m., August 8, 1989. Commissioners in attendance were: Mr. Stan Eagleton, Chairperson; Dr. Barry Webster; Ms. Elizabeth Pawlicki; Mr. Leonard Flett; and Ms. Linda Erickson.

PRESENTATION OF PROPOSAL

Mr. A. Dean Gould, the principal contact person for this development representing Deago Properties, described the proposal. The 5 hectare (ha) (12.7 acre) parcel of land to be developed is located on Lots 51 and 52 at Lakeview Blvd. and George Street in East Selkirk, R.M. of St. Clements (See Figure 1). Cooks Creek forms the western boundary of this land, which has been jointly owned by Mr. Gould and his wife for the last 12 years. During

EAST SELKIRK

No 84 E

(UNINCORPORATED)

R.M. OF ST. CLEMENTS

SCALE: Approx. 1" = 2000'

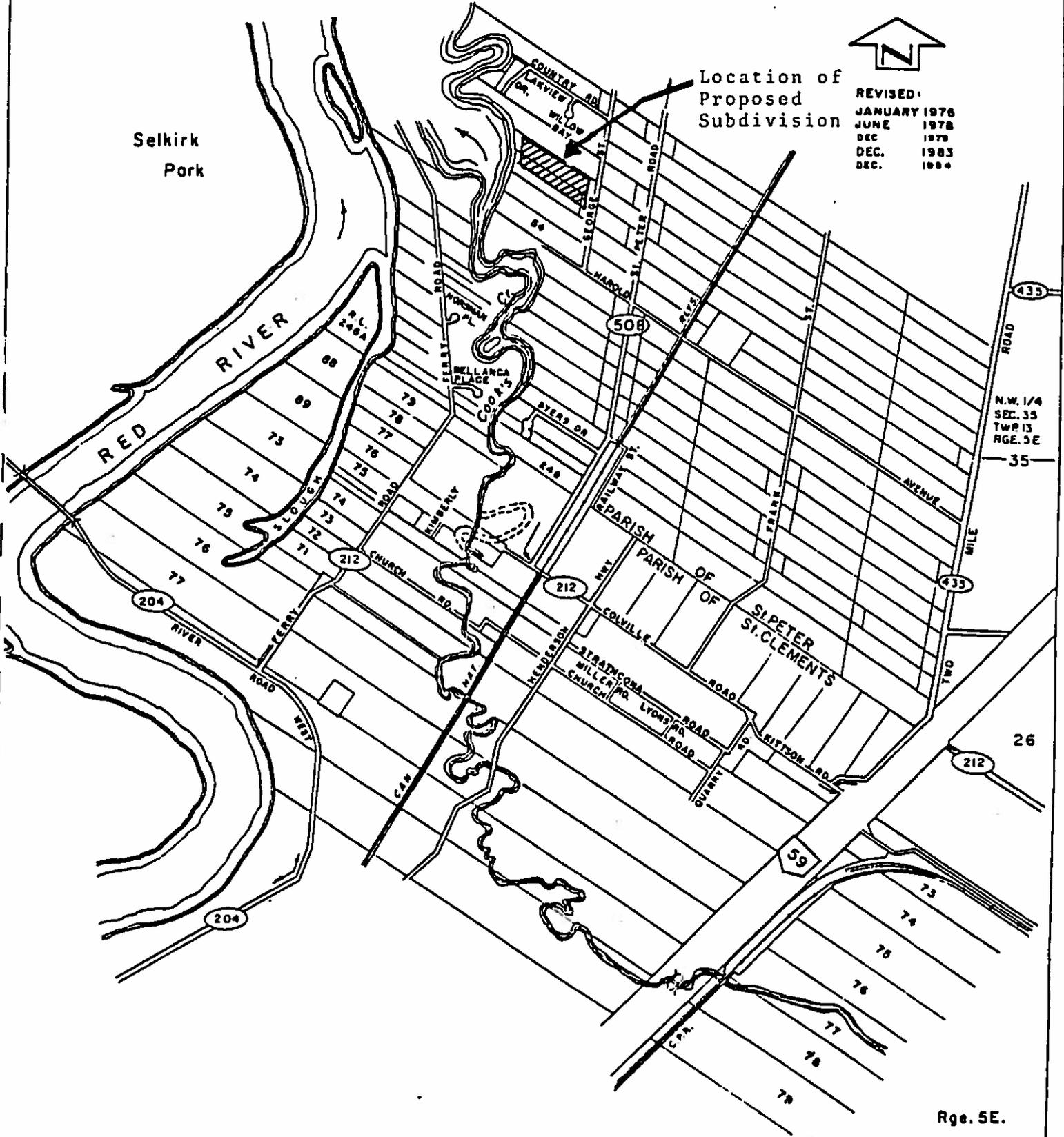
PROVINCE OF MANITOBA
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
DESIGN OFFICE
WINNIPEG, NOV. 1970



Location of
Proposed
Subdivision

REVISED:
JANUARY 1976
JUNE 1978
DEC 1979
DEC. 1983
DEC. 1984

Selkirk
Park



N.W. 1/4
SEC. 35
TWP. 13
RGE. 3E

26

PRESENTATION OF PROPOSAL (Cont.)

this time Mr. Gould maintained a cottage on the site and unsuccessfully attempted to grow Scots and red pine trees. Land uses to the north and south are a mix of rural residential and agricultural uses, with residential uses gradually becoming more predominant. Agriculture continues to be the principle land use a short distance to the east.

At present the site of the proposed subdivision is zoned "A-5" Agricultural, but Mr. Gould anticipates that a bylaw now being contemplated by the R.M. of St. Clements will receive approval, and zoning for this parcel of land will be changed to "RA" Suburban Zone. These anticipated changes would allow subdivision to lot sizes of 0.56 ha (60,000 ft²) if septic fields are installed, or as small as 0.19 ha (20,000 ft²) if an approved municipal sewage collection system is provided (this would include holding tanks and pump-out). Lands immediately to the south and north are presently zoned to allow subdivision to such lot sizes.

Mr. Gould wants to subdivide his land into fifteen 0.28 ha (30,000ft²) lots. To receive approval for this size of a lot, he would need to install sewage treatment facilities, otherwise he could only create seven 0.56 ha lots on the 5 ha parcel he owns.

Mr. Gould stated at the Hearing that he wanted to create smaller lots with sewage treatment facilities for two reasons. First, smaller lots are easier for owners to maintain, and a higher density of development represents a better use of the property, allowing better provision of municipal services. Second, modern living standards result in greater use of water, which, coupled with difficulties experienced with septic fields on the clay soils in the area, result in inadequate sewage disposal when septic fields are used.

In the proposal, the type of sewage treatment plant identified is a package wastewater treatment plant manufactured by JET INC., although Mr. Gould stressed there was no commitment at this time to buy a JET package, and

PRESENTATION OF PROPOSAL (Cont.)

other types of systems could be considered. The selected treatment plant would be situated on the north-west corner of the property, near Cooks Creek. The plant would receive about 19,000 l/day (5,000 U.S. gals/day) of domestic wastewater. JET INC. plants are an extended aeration type of aerobic digestion system, and because the residence time of wastewater in the plant is 24 hours, there will be little reduction in pathogen contamination, and therefore, final effluent will be chlorinated to give a residual free chlorine content of 0.5 mg/l (milligrams per liter). The chlorinated effluent will be continuously discharged directly into Cooks Creek.

Cooks Creek is a small stream that flows into the Red River a short distance downstream from Mr. Gould's property. Mr. Gould said the quality of effluent from the proposed treatment plant would be such that there would be no adverse impacts on receiving water quality. Between the point of discharge and the Red River, there is a lot of marsh grass growing along Cooks Creek, and Mr. Gould pointed out it is known from other areas such vegetation can assimilate sewage wastes, and would provide an extra degree of protection in this case.

Uses of Cooks Creek described by Mr. Gould included recreational boating and fishing. Cooling water discharges from the Manitoba Hydro East Selkirk thermal generating plant augment natural flows in the creek, and have an environmental impact on the creek ecosystem.

During questions following Mr. Gould's presentation, it was pointed out that flows in Cooks Creek are highly variable, and at times approach zero flow rates. Also, farmers withdraw water from Cooks Creek, nearby to the proposed discharge, for the purpose of irrigating strawberry crops.

Installation of the JET INC. package treatment plant by Dalco Contractors Ltd., the regional licensed distributor, along with construction of an unheated building to enclose the plant, a sewage collection system of underground pipe, a lift station, and discharge piping to Cooks Creek, are

PRESENTATION OF PROPOSAL (Cont.)

estimated to cost \$150,000. These development costs would be recaptured by Mr. Gould through the sale of serviced lots. Ongoing maintenance costs for the sewage treatment plant are estimated to be about \$2,000 per year.

During the first two years, the plant start-up phase, the distributor would be responsible for plant operation. After two years, operation and maintenance responsibilities, and possibly ownership, for the plant would be assumed by the R.M. of St. Clements. The terms of such an agreement remain to be defined, but would be specified in the "Development Agreement" entered into between Mr. Gould (the developer) and the R.M. of St. Clements, before the municipality will approve the development plan.

Monitoring of effluent quality would be done by the distributor for the first two years, until the plant stabilized. After that, monitoring would become the responsibility of the Municipality, under terms established in the Development Agreement.

Councillor Sheldon Goers from the R.M. of St. Clements said Council was very interested in this proposal. East Selkirk has a problem with septic fields in the area, and in anticipation of future development, they recognize a need for some other approach to sewage treatment. Councillor Goers said they had not examined sewage treatment options yet, but were interested in package treatment plants. Similar systems in the R.M. of St. Andrews, are in Mr. Goers opinion, successful, and there is the added benefit that capitalization costs are covered by the developer, with only the low annual maintenance costs being a responsibility of the Municipality.

The R.M. of St. Clements supports the proposal, said Councillor Goers, and is interested in it as an experiment. If the package sewage treatment plant proves successful they would consider other such installations. An advantage of the JET INC. system is that it is modular, such that the capacity of an installed plant can be increased by adding another module.

PRESENTATION OF PROPOSAL (Cont.)

Proposed changes to zoning bylaws were described by Councillor Goers as an effort to standardize the existing piecemeal pattern of zoning. The ammendment would give the same zoning classification to the Deago property that land to the immediate north and south already has. The Deago property lies within an area deemed "the settlement centre" for East Selkirk. Objections to the new by-law have been received by Council, and so a public hearing will be held to consider the changes. If the bylaw receives approval at these hearings, the earliest it could be passed by Council would be September 25, 1989.

In response to questions following his presentation, Councillor Goers said they had not talked to the Water Services Board about developing a program for improved sewage disposal in East Selkirk. The success of the treatment plant installed by Deago Properties will be closely monitored, and if it proves feasible, they may consider expanding the plant. Councillor Goers said they expected the Environment Department to identify any problems from possible environmental impacts, and that Council had not conducted an environmental review.

One member of the audience pointed out that if Council wanted to know if package sewage treatment plants were successful, they could look at similar plants in other municipalities, rather than build one for experimental purposes. Another member of the audience wondered why they didn't install the plant at a development with existing sewage problems. Councillor Goers said they were interested in the proposal as offered, and it would allow them to easily monitor the feasibility of such systems. He thought it was worthwhile exploring this type of option before committing themselves to building a big plant.

Mr. Cam Dalmyn, General Manager of Dalco Contractors Ltd. is the licensed distributor for JET INC. in Manitoba. Mr. Dalmyn said that there are JET INC. systems in operation from Alaska to Guam, and there are a few in Manitoba. These systems provide dependable sewage treatment, and are

PRESENTATION OF PROPOSAL (Cont.)

economic, for populations of up to 1000 people. For larger populations he would recommend a different type of system.

Mr. Dalbyn said that because most of the JET system is underground, they are not unsightly and are often installed in residential neighborhoods. These plants were described by Mr. Dalbyn as virtually odour free. There is a back-up blower in the system to ensure continuous operation, and in the unlikely event that both blowers broke down at the same time, the system will act as a septic tank with a settler, so effluent, while not of great quality, would not be raw sewage. In the event of a power failure the system would stop operating, but this would not present a problem because the water supply for the development would be supplied by electric pumps, so there would be no inflows to the plant during power failures.

LOCAL OPPOSITION

There were a number of local residents present at the hearing in opposition to the proposal. Opposition was mainly over operation of the sewage treatment plant and discharges of treated effluent to Cooks Creek. Most of the comments made by residents were in the form of questions and comments throughout the hearing, but there were two brief presentations made.

Mrs. Mary Davies, a resident of East Selkirk was concerned about pollution going into Cooks Creek. She was concerned about deteriorating water quality, and the effect this would have on river users, including farmers who use the water for irrigation. Mrs. Davies was concerned that there could be more small sewage treatment plants installed in the future, and felt that land uses should be planned now to avoid future problems. It was suggested by Mrs. Davies that Deago Properties should only be allowed to develop seven 0.56 ha lots, and that sewage holding tanks should be installed.

Ms. Anne Cyr, another local resident, and a member of the Selkirk and District Environmental Organization, was concerned about future development.

LOCAL OPPOSITION (Cont.)

She said there were already existing problem, and these should be dealt with first. Ms. Cyr wanted further study of the regional sewage problems and alternative solutions before this development went ahead. Before the treatment plant is constructed, Ms. Cyr wants further study of the impact that effluent discharge would have on water quality. She has found strange growths on fish she caught in the Red River, and this indicates to her that problems already exist. Residents of Selkirk withdraw some of their water supply from the Red River, not too far upstream of where Cooks Creek enters the Red River. This already poor source of water needs to be protected from further pollution.

MANITOBA HEALTH REVIEW

Dr. N.S. Rihal representing the Environmental Health Services Branch of the Manitoba Department of Health reviewed the possible impact on public health from the proposed development. Based on the information contained in the proposal, Dr. Rihal concluded there would be no adverse affect on health. Septic tanks in general were not considered by Dr. Rihal to be as good a sewage disposal option as a mechanical treatment plant, and as long as the proposed package treatment plant provides the level of treatment claimed, the proposal is worthy of support from a health perspective. Monitoring is required to ensure effluent discharges do meet specified limits, and there needs to be enforcement if limits are exceeded.

ENVIRONMENT DEPARTMENT REVIEW

Mr. Larry Strachan, P. Eng., Chief of Environmental Control Programs for the Department of Environment, began his presentation by emphasizing that the proposal presented by Deago Properties, to create a 15 lot subdivision, with a package sewage treatment plant releasing 19,000 l/day treated effluent into Cooks Creek, was what the Department had evaluated. Whether this is the

ENVIRONMENT DEPARTMENT REVIEW (Cont.)

best solution for sewage problems in the Municipality was not part of the evaluation. Mr. Strachan said that if the Municipality is intending to use this private development as a guinea pig to determine a total solution for Municipal sewage problems, then they will encounter trouble. The question then should be what can Cooks Creek handle, not what will this one system do. What the municipality really needs is a feasibility study to evaluate overall need, treatment option, and receiving water capabilities.

After the Environment Department received the proposal from Deago Properties, it circulated copies to the Provincial Technical Advisory Committee for review, and advertised details of the proposal in appropriate newspapers. A summary of comments received as a result of this review was presented by Mr. Strachan.

There was no response received from the Departments of Agriculture or Industry, Trade and Technology to the circulated proposal.

The Provincial Planning Branch commented that the proposal should not be considered independent of the broader land use and community issues which arise out of higher-density serviced development. If the proposal is approved, they recommend that the licence specify the quality of effluent which may be discharged into Cooks Creek. They also recommended the licence be conditional upon receiving the necessary local planning approvals for rezoning and subdivision of land.

The Department of Natural Resources had no concerns, providing the quality of discharges to Cooks Creek were such that fisheries in Cooks Creek and the Red River are protected.

The Departments of Highways and Transportation and of Urban Affairs, and the Historic Resources Branch indicated they had no concerns or comments on the proposal.

Various Branches of the Environment Department responded to the

ENVIRONMENT DEPARTMENT REVIEW (Cont.)

proposal, indicating that effluent quality should meet acceptable standards consistent with secondary treatment, and that monitoring of effluent quality is required.

The R.M. of St. Clements stated that they were in full support of the proposal if environmental approval is granted, and that if there are conditions to the licence, they will be addressed by way of the development agreement.

Mr. Clifford Waytiuk wrote in, requesting a hearing so the R.M. could publicly state their policy regarding sewage treatment plants and lagoons, etc.

Mary and Michael Davies sent a letter registering their opposition to the proposal due to a lack of information, and concerns about impacts on water quality.

Licensing considerations identified through the review were summarized by Mr. Strachan as follows. Receiving waters of Cooks Creek and the Red River should be protected for fisheries. Appropriate limits for suspended solids, biological oxygen demand, fecal and total coliform and free chlorine should be established for discharge of effluent from the sewage treatment plant. Monitoring of effluent quality on a regular basis should be required.

Mr. Strachan concluded by saying the sewage treatment plant as proposed is adequate to treat wastewater flows from the proposed subdivision. Cooks Creek should be able to adequately assimilate the 19,000 l/day rate of effluent discharge.

In response to a question, Mr. Strachan said that chlorination of effluent from sewage lagoons is not a normal practice because the residence time of wastewater is long enough that pathogen numbers are reduced to a safe level. With a residence time of 24 hours in a package treatment plant,

ENVIRONMENT DEPARTMENT REVIEW (Cont.)

pathogens are not reduced, so chlorination is used to reduce numbers to an acceptable level. The standard free chlorine residual level of 0.05 mg/l, a level suitable to protect these receiving waters, would be specified in any licence issued for this proposal.

The environmental fate of chlorine released into a waterway was discussed. A concern with chlorine is that it reacts with organic compounds present in the effluent, possibly forming carcinogenic compounds. Mr. Strachan said these compounds break down in nature. How much of the possibly carcinogenic compounds are formed depends in part on the level of chlorination, and for this reason, chlorination is only recommended when necessary.

Mr. Strachan said domestic sewage, such as would be discharged from the proposed treatment plant, does not contain the precursors generally believed to form carcinogenic compounds. Although he agreed that there would be some production of carcinogens in any chlorinated effluent, he said the levels would be so low in this case there would be no detectable impact, and he was satisfied the environment would be protected.

Mr. Dalman said JET INC. was aware of the problem with chlorine, and that they had developed a dechlorinator which could be installed in the sewage treatment plant under consideration.

Responding to questions about alternative sewage treatment options, Mr. Strachan stated his opinion that, in general, septic fields are more acceptable than package sewage treatment plants but he had not reviewed septic field suitability for this development, and in view of the reported heavy soils in the area, would not state at this time whether septic fields might be preferable.

Sewage lagoons are a very common method of treatment in Manitoba, and, Mr. Strachan said, given our conditions very efficient and economical.

ENVIRONMENT DEPARTMENT REVIEW (Cont.)

There are communities in Manitoba that operate lagoon systems for populations as small as 200 - 300 people. Additional cells can be constructed as needed to increase the capacity of a lagoon system.

Mr. Rick Sokolowski, a Public Health Inspector with the Environment Department from Selkirk said there had been no well contamination from septic fields in the area. In this regard, Mr. Waytiuk, a local resident said he could show the Commission overflowing septic fields in the area.

Standard practice in Manitoba is that the responsibility for monitoring lies with the sewage treatment plant operator. The Environment Department routinely inspects sewage treatment plants twice a year, or more often in response to citizen complaints. Mr. Strachan agreed with Ms. Cyr that this frequency of inspection was inadequate.

Mr. Michael Davies, a local resident, said there are periods of low flow in Cooks Creek, even periods of zero flow, and he was concerned that at such times there would be little or no dilution of the discharged effluent. Undiluted effluent during these periods would have significantly more impact on aquatic life than would diluted effluent.

Mr. Strachan agreed with Mr. Davies that there were periods of very low flow in Cooks Creek, with water standing in the channel, but stated that allowable limits of contaminants in discharges would be set at levels low enough to ensure there would be no impact on fisheries or other aquatic life even if there was no dilution of effluent.

Mr. Al Beck, an Environment Officer with the Environment Department, described Cooks Creek to the Commission. He had played in the Creek area as a boy, and has conducted test netting of fish in the Creek. He said it was a fairly typical, intermittent prairie stream, with water levels in the lower reaches influenced by Red River levels. By local standards it is a nice little creek.

ENVIRONMENT DEPARTMENT REVIEW (Cont.)

The Creek supports populations of carp and bullhead. Game fish and minnow species move upstream from the Red River for spawning and feeding, and the Creek acts as a nursery area for the Red River. Beaver, geese, and other wildlife are found along the Creek. Fish and wildlife move out of the Creek when water levels drop. Mr. Beck said if appropriate standards for discharges from the proposed treatment plant are adhered to, the Creek should not be affected.

Water quality in the Creek has deteriorated in recent years. Silt and pesticide runoff from agricultural activities enters the Creek. Mr. Beck has measured very high background levels of phosphates in the Creek, but in his opinion stands of marsh grass along the Creek can absorb this.

Cooling water discharges from the Manitoba Hydro East Selkirk thermal generating plant have had the most significant impact on the Creek. Mr. Beck remembered fishing on the Creek as a boy, when the thermal plant began discharging cooling water. Since that time he has noticed a considerable reduction in fishing success. Mr. Beck thinks because regular operation of the plant has now stopped, the Creek will recover.

Councillor Goers noted summer flows were declining because of upstream changes to the watershed.

When asked, Mr. Strachan said his opinion was that solutions to sewage treatment problems in the area should not proceed on a piecemeal approach, which is what is being proposed. Mr. Strachan agreed with the Provincial Planning Branch's comment that the plant should not be considered independently of the broader land use and community issues. Mr. Strachan stated that the one plant proposed by Deago Properties would be permissible, from an environmental protection viewpoint, but that does not mean that a number of plants discharging into Cooks Creek would.

CONCLUSIONS

Evidence presented to the Clean Environment Commission indicated that the proposal, as presented, is environmentally sound when considered in isolation. When the proposal is considered in a broader, regional context it does not appear to provide a satisfactory answer. The need to proceed with the proposed package sewage treatment plant to handle wastewater from a new housing subdivision does not, in the opinion of the Clean Environment Commission, outweigh the need to first develop a regional strategy towards improving sewage treatment facilities in the R.M. of St. Clements.

RECOMMENDATIONS

The Clean Environment Commission recommends that:

1. the application by Deago Properties for a licence for the proposed sewage treatment plant discharging into Cooks Creek be refused.
2. any future proposals, referred to the Clean Environment Commission for a Hearing, that involve a proposal for a sewage treatment plant in the Rural Municipality of St. Clements, should include a review of Municipal wastewater disposal needs, treatment options, and receiving water capabilities.

APPENDIX

DEAGO PROPERTIES SEWAGE TREATMENT PLANT

L I S T O F E X H I B I T S

August 8, 1989

1. Mr. Dean Gould, Deago Properties, Brief, Information Supporting Application For A Serviced Subdivision.
- 1.A. Mr. Dean Gould, Deago Properties, Map
- 1.B. Mr. Dean Gould, Deago Properties, Microbiological Water Reports, provided to Mr. Gould from Dalco Contractors.
2. Mr. Cam Dalbyn, General Manager, Dalco Contractors Ltd. of Winnipeg, Brief, (dated August 8, 1989).
- 2.A. Mr. Cam Dalbyn, General Manager, Dalco Contractors Ltd. of Winnipeg, Technical Manual.
3. Mary & Michael Davies, Letter, (dated March 26, 1989).
4. Mr. Larry Strachan, P. Eng., Chief, Environmental Control Programs, Department of Environment, Submission, (dated July 25, 1989).