

## LONG POINT AND TEMISCAMING FIRST NATIONS

## EXECUTIVE SUMMARY

ANGLIERS HYDROELECTRIC DEVELOPMENT PROJECT :  
ENVIRONMENTAL IMPACT STUDY

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The "Société d'hydro-électricité Régionale inc. (La Régionale) proposes to construct a hydroelectric generating station beside the "des Quinze" dam in Angliers, Quebec. This project aims at harnessing the hydroelectric potential at the "des Quinze" dam, while contributing to local economic development, and mitigating or compensating for negative environmental impacts.

The project is justified in order to assure adequate energy supply starting in 2005 when a supply deficit is expected. It also allows regional development and the participation of local stakeholders in the project, confirmed by the agreement signed between La Regional and the Town of Angliers. Furthermore, the Angliers project is a clean, and renewable energy source that does not emit green house gases, unlike other projects being considered in Quebec (i.e. le Suroit, Bécancourt).

The study area contains various infrastructures that regulate the Upper Ottawa River basin, as several dams, reservoirs and hydroelectric stations are located near the project area. The "des Quinze" dam, owned and operated by Public Works and Government Services Canada (PWGSC) was originally built in 1905 with major rehabilitation work occurring in 1940 and 2000. The dam consists of a 143 m spillway, containing 19 sluices controlled by stop logs, and retaining dykes of 60 m on the Angliers side, and 400 m on the right bank side. The deck is also used as a bridge for highway 391 (Figure 1). The water management plan of the des Quinze reservoir is established by the Ottawa River Regulating Committee (ORRC), and is optimized to control flooding in the lower Ottawa River basin, to sustain hydroelectric production, and to maintain navigation during summer months.

Three project alternatives were analysed, two of these alternatives included construction of the generating station near the existing spillway, while the third alternative consisted in implementing the station on lot 43-1, located 250 m from the spillway. This last alternative was the preferred solution since it allowed for the construction of the project without destroying existing spawning area. Furthermore, alternative #1 would have greatly modified the existing municipal park and required for major construction activities directly within the town's residential area, while alternative #2 would have required major construction work directly within aquatic habitat. Alternative #3 was also the preferred alternative for the Town of Angliers.

The project consists of constructing a 25 MW generating station beside the existing dyke of the Angliers dam. The Angliers GS will turbine up to 410 m<sup>3</sup>/s at an average head of 6,3 m. The project configuration includes an intake canal, over which a bridge would need to be constructed for Highway 391, the generating station, with a distinct architectural style (including an exterior electric substation), a tail race that will restore flows to the small des Quinze reservoir, an auxiliary spillway adjacent to the station that will discharge up to 380 m<sup>3</sup>/s, a 600 m extension of the municipal sewer outfall, and a spawning area next to the tailrace as a compensation habitat for fish (Figure 2).

During construction, temporary works, such as the upstream cofferdam, need to be built. This cofferdam will also serve as a bypass lane for highway 391. Activities that are also required during construction include:

- clear-cutting and landscaping 4 ha of land;
- importing 4200 m<sup>3</sup> of material from outside of the construction area for site preparation;
- excavation of 105 000 m<sup>3</sup> of rock and 34 000 m<sup>3</sup> of top soil, most of this material being re-used on site, with 37 500 m<sup>3</sup> needing to be disposed in local sites;
- installation of construction site (i.e. offices, work area, etc.);
- disposal of drainage area waters, and filtration of these waters, if required;
- disposal of construction debris, and domestic waste from site;
- drilling and blasting near water ;
- purchase of goods and services in the Abitibi-Temiscaming area;
- hiring of approximately 100 workers during construction (2 years).

The construction of the project is expected to start in late 2003, with commissioning planned for the fall of 2005. The project budget is estimated at 55 M\$, with 60 % of this amount to be spent in the Abitibi-Temiscaming region.

The project has received support from various local and regional parties. The project has been under discussion since 1994, and La Regionale has had discussions at various levels to insure local support for the project. Once the project was better defined, a first public information meeting was held in Angliers in January 2002. Additional information and consultation meetings were held in February, April and May 2003 within the BAPE hearings. The main issues that were raised regarding the project concerned fish resources, water quality, job creation during construction, local economic spin-offs, and water management of the des Quinze reservoir.

All project components were analysed for their potential impact on the environment both during construction and during the project operation phase. It is important to note that the study area was limited to encompass the area that is directly affected by the project. As such, historical impacts of past developments, including the construction of the des Quinze dam were not included as they are not affected by the current project.

The negative impacts that were identified during construction include water quality and fish habitat, residents' quality of life, and recreational activities. However, mitigation measures can be applied to minimize impacts on the environment. For example, silt screens around cofferdams, and stilling basins will minimize the diffusion of sediments in the reservoirs. Similarly, mitigation measures can be taken to minimise disturbance related to construction activities, such as limiting the activities to normal week day periods, preparing a communication plan for local residents, etc. During construction, no modification to water flows at the des Quinze dam, or to water levels in the reservoirs is expected. The main impact during construction is related to the regional economy. A positive impact is expected from the

construction activities, with major job opportunities, as well as for the regional supply of products and services for the project,

During the operation of the generating station, the components that would be impacted are resumed below:

- fish habitat: modification to the existing spawning areas near the right bank (600 m<sup>2</sup>), and the left bank (1100 m<sup>2</sup>). With the construction of a new spawning area near the tailrace of the generating station (4900 m<sup>2</sup>), and the allowance for a minimum flow on the existing spillway, no impact on fish habitat is expected;
- fish population: it is estimated that mortality could occur if fish are entrained through the turbines. Since no migrating species is present in the waterway, and the site is characterised by a low head configuration, mortality levels would be limited. Thus, the overall impact is only considered minor;
- municipal water intake: since the water flow at the municipal water intake will be diminished, the dilution of the waste water outfall, located roughly 150 m downstream, will also be reduced which could cause the contamination of the water intake. To compensate this phenomenon, it is proposed to extend the municipal outfall up to the tailrace, thus avoiding contact of the outfall waters with the water intake. No residual impact is anticipated for this component;
- landscape: a new building with distinct architectural style will create a positive impact to attract tourists in the area. The generating station could be part of the "route des barrages" in this area of Temiscaming;
- surrounding ambiance: the water fall ambiance will be reduced through the existing spillway as water is passed through the turbines. A reserved flow of 10 m<sup>3</sup>/s will be maintained through the sluices near the municipal park in order to maintain as much as possible the ambiance. However, it is estimated that a residual impact will remain. The impact is considered negative and minor;
- recreational activities: The addition of a cycling path on the bridge over the intake canal, as well as interpretation signs explaining the various components of the project will add to the "Route des barrages", thus creating a positive impact;
- water management: the water management of the des Quinze reservoir will continue to be under the jurisdiction of the ORRC, with Hydro-Quebec dictating flows to be discharged from the Angliers site. Therefore, historical flows and reservoir levels will be maintained. Since no modification to the actual water management plan will take place, the project does not create any additional impact on the environment;
- dam safety: the project allows for the construction of an auxiliary spillway adjacent to the powerhouse. This allows for additional spillage capacity on the existing spillway and improves the overall safety factor of the dam. A positive impact is estimated from this component;

- local and regional economic spin-offs: the area will benefit from the project, mainly at the municipal level with a 165 k \$ annual royalty. An additional 100 k\$ will be available to the municipality during the first year of operation of the project. Additional royalties and taxes amounting to nearly 750 k\$ annually are payable to the provincial Government. Furthermore, 4 permanent jobs will be created for the operation of the generating station, as well as temporary work for the maintenance activities.

In addition to various mitigation and compensation measures that were proposed, monitoring activities will take place both during construction and operation of the generating station. The activities during construction will concentrate essentially on respecting mitigation measures that were identified in the environmental study. During the operation phase, three main components will be monitored, the spawning habitats, water quality at the municipal water intake, and the surrounding ambiance near the existing spillway. The fish habitat will be monitored three times during a 10 year period, while the other two components will be monitored only during the first year of operation of the generating station.

In conclusion, the Angliers hydroelectric project meets environmental, social and economical criteria that are expected from such projects. The Angliers development, a 55 M\$ project is expected to be in operation in 2005.

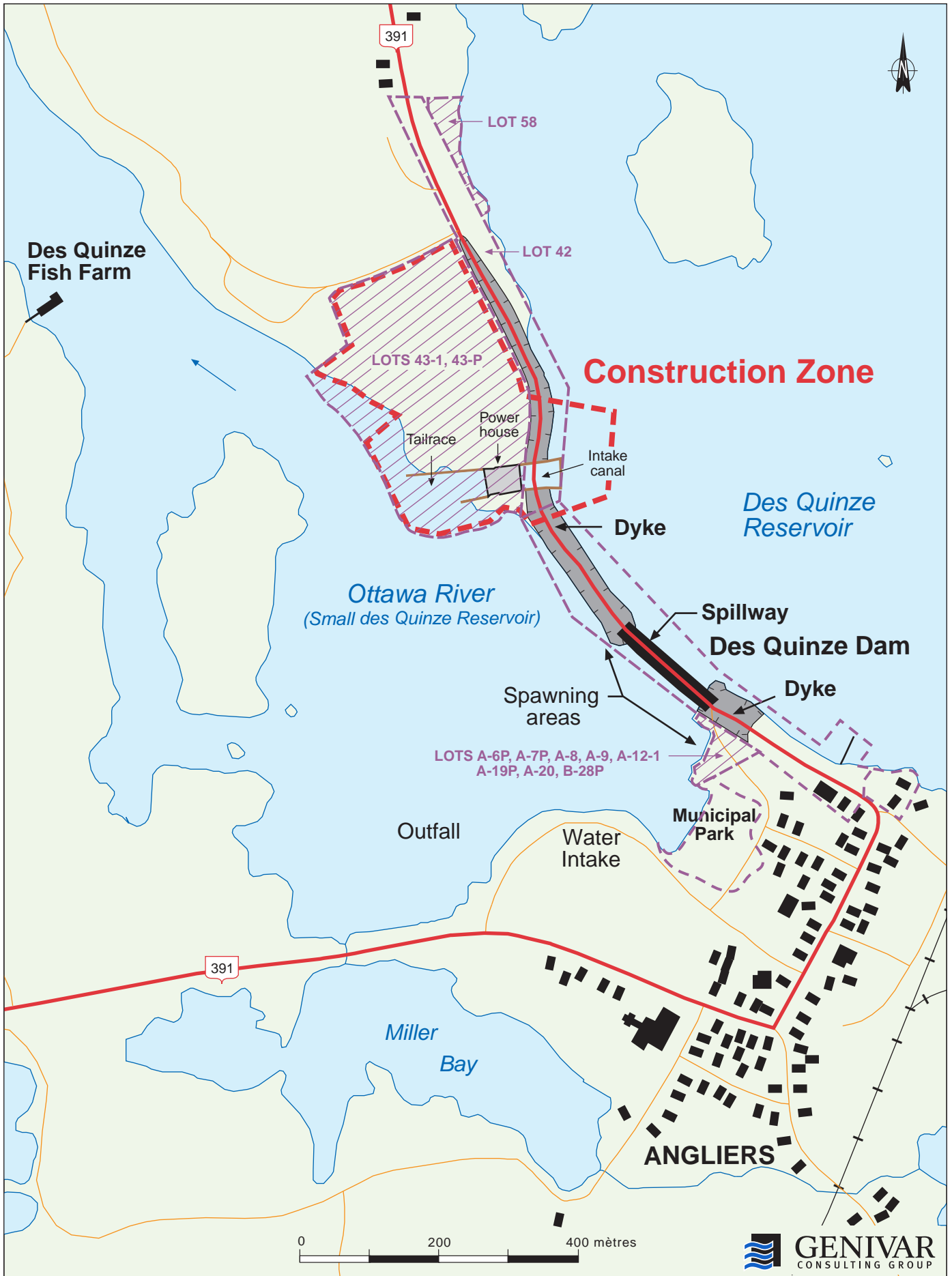


Figure 1 Study area of the Angliers hydroelectric project.

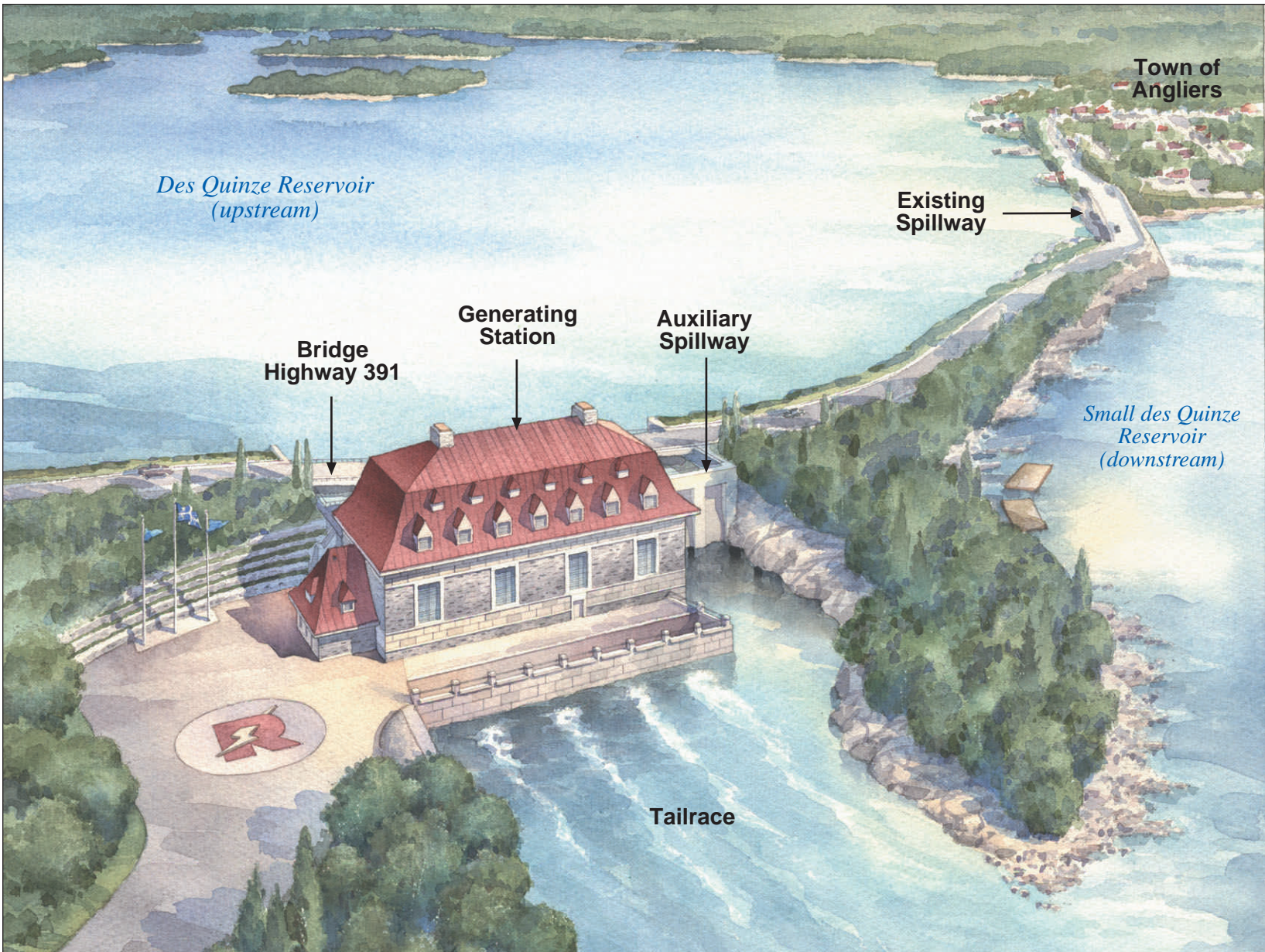


Illustration : L. Krisfalusi '02

Figure 2 Illustration of the Angliers hydroelectric projet components.