

Project Proposal for Resolute Bay Airport Sewage Lagoon

Resolute Bay Airport is located on the South coast of Cornwallis Island, a part of the Queen Elizabeth Islands, at approximately Latitude 74.70000 degree N, Longitude 94.83333degree W. Resolute Bay has been historically divided into two administrative parts: The airport and its support structures and agencies, and approximately five km away, the Hamlet where people live and work. Somewhere in between are various buildings and facilities, the most notable being the huge South Camp Fuel Tank farm. At present the Airport site and surrounding buildings and facilities are under the aegis of the GN Department of Economic Development and Transportation (GN-ED&T). The Ground consists of gravel caused by frost shatter and sand/gravel raised beaches. The active layer of permafrost rarely exceeds 1.4m, and in most often in the vicinity of only 0.50m at its greatest depth. Interestingly, the summer here is very short. The weather warms up only long enough to provide approximately one and a half months where the permafrost can begin to thaw.

The Water licence number NWB 3YRB 0308 was issued to ED&T on November 30, 2003 and it expired on November 30, 2008. This Water licence had originally included the water supply, the sewage lagoon and the solid waste site. However, the removal of water from Strip Lake located adjacent to the Airport was discontinued long time ago due to the presence of contaminants in the water. Since that time, a private contractor, now ATCO, have been delivering treated drinking water by trucks to the Airport and its neighborhood facilities collecting treated water directly from the Hamlet's Signal Hill Water Treatment Plant. At present the sewage is being collected by ATCO as well and dump into the sewage Lagoon. ATCO buys roughly 5M liters water from the Hamlet and sales to the Airport facilities. ATCO also charges the users for sewage collection. The individual looks after their garbage to the Municipal dump site.

A renewal application was submitted to NWB on dated November 28, 2008 and public review was completed with some comments. The activities of this file were put on hold until the Utilidor licensed number 3BM-RUT 1520 was renewed on March 30, 2015. It was initially planned to build the WWTP and redirect the entire waste water into the Plant. Ultimately the construction of the Proposed WWTP is delayed. As a result the existing Airport Sewage lagoon is required to keep active.

During this development, Transport Canada received a standalone water licence number 1BR-RBL 1419 dated July 11, 2014 to remediate the existing Landfill site located next to the sewage lagoon and this was originally part of the Airport Water Licence number NWB YRB 0308. Finally Airport sewage lagoon currently consists of four small cells remain alone under the Water licence number NWB YRB 0308. This development took place because historically, the airport site is a direct legacy of the Canadian Armed Forces and Transport Canada. "Upon division of the Northwest Territories in 1999, the Airport was transferred to the Government of Nunavut (GN). A condition of the transfer agreement between the GNWT and TC (and later the GN) required TC to address any instances of Environmental contamination and Environmental regulatory non- compliance that were as a result of activities prior to the transfer date (Jacques Whitford, 2006, p.2)."

Due in part to the dichotomy and in part to the distance between the two locals, there has historically been a separate Water licence for Resolute Airport.

Initially these were two cell lagoons built under capacity without liner and were non engineered facilities at the time of transfer to GNWT (Dillon's Report 1996). Due to current population ranges from 250 to 600, these lagoons become full each year. Two times decanting was conducted: at the beginning of summer and at the beginning of winter. Even though over flow takes place in the middle of each winter.

The sewage effluent gets treated during summer in the 2km long wetland prior to arriving to the receiving body which is the Ocean.

Once a Waste water Treatment Plant is built as the part of the Utilidor system second phase rehabilitation Program, the entire sewage of the Community will be directed into the Mechanical treatment plant. As soon as that the mechanical treatment plant is built and commissioned, these sewage lagoons might be no longer required and these shall be abandoned and decommissioned. Therefore, no commitment is made for abandonment and restoration of the sewage lagoon as this will be assessed as part of the WWTP project.



ATCO, a private contractor of Resolute Bay, uses trucked services for both water delivery and sewage collection. Wastewater is treated using constructed four retention Lagoon cells which are non-engineered and operated without any O&M manual. It is noted that the licence # NWB 3YRB 0308 no longer encompasses drinking water source and waste management site. The future new and amendment licence will deal only sewage lagoon alone.

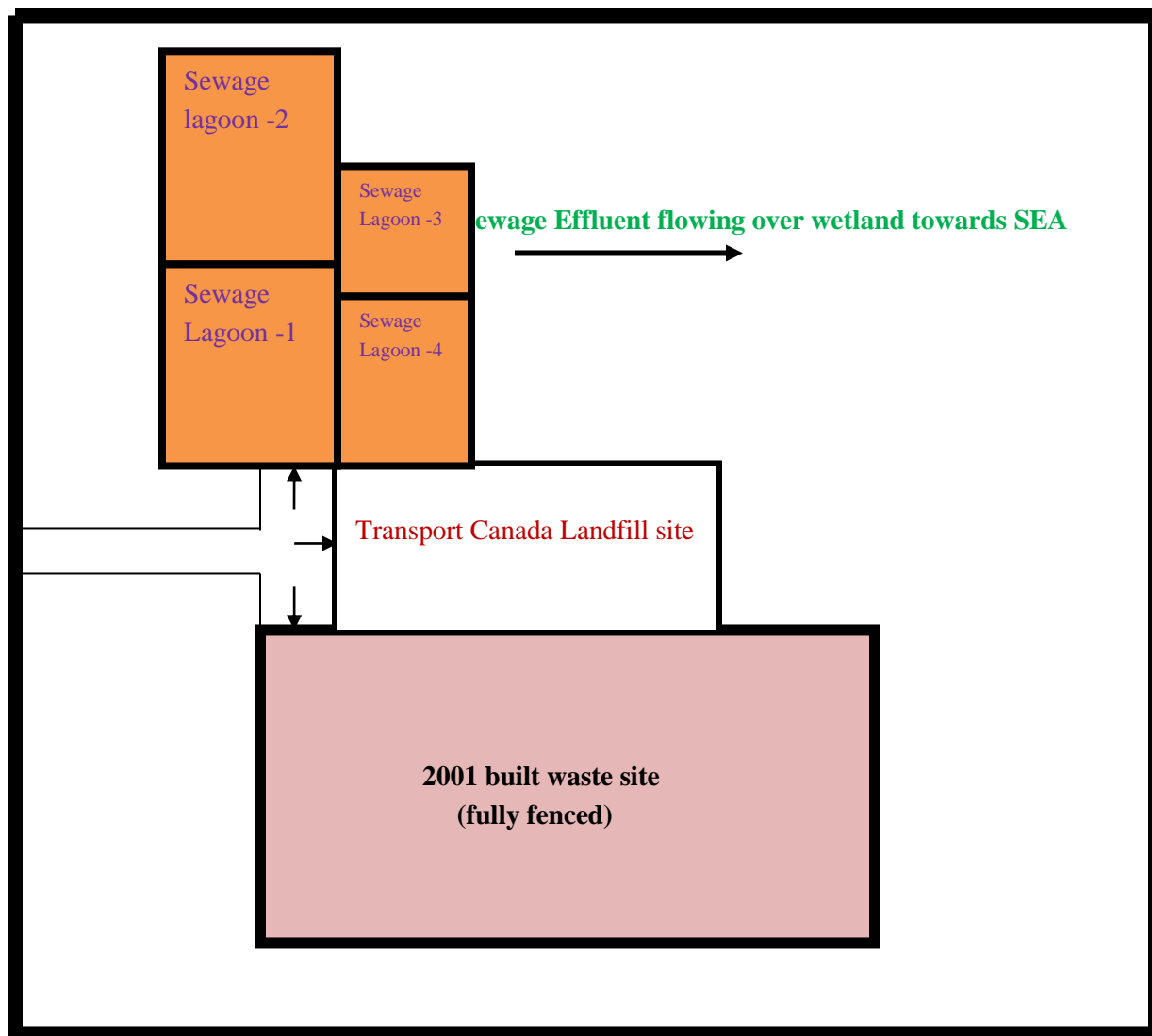


Fig.-1

Table 1: Sampling Station Locations

Monitoring Program Station Number	Description of Monitoring Program Station
YRB-2	Raw sewage at Truck offload point; N74°40.408' and W94°55.256'
YRB-3	Effluent discharge from the Final Discharge Point of the Sewage disposal Facilities
	N72°41.973' and W77°55.902'
YRB-1	This is a new station to be established in between Sea and YRB-3.

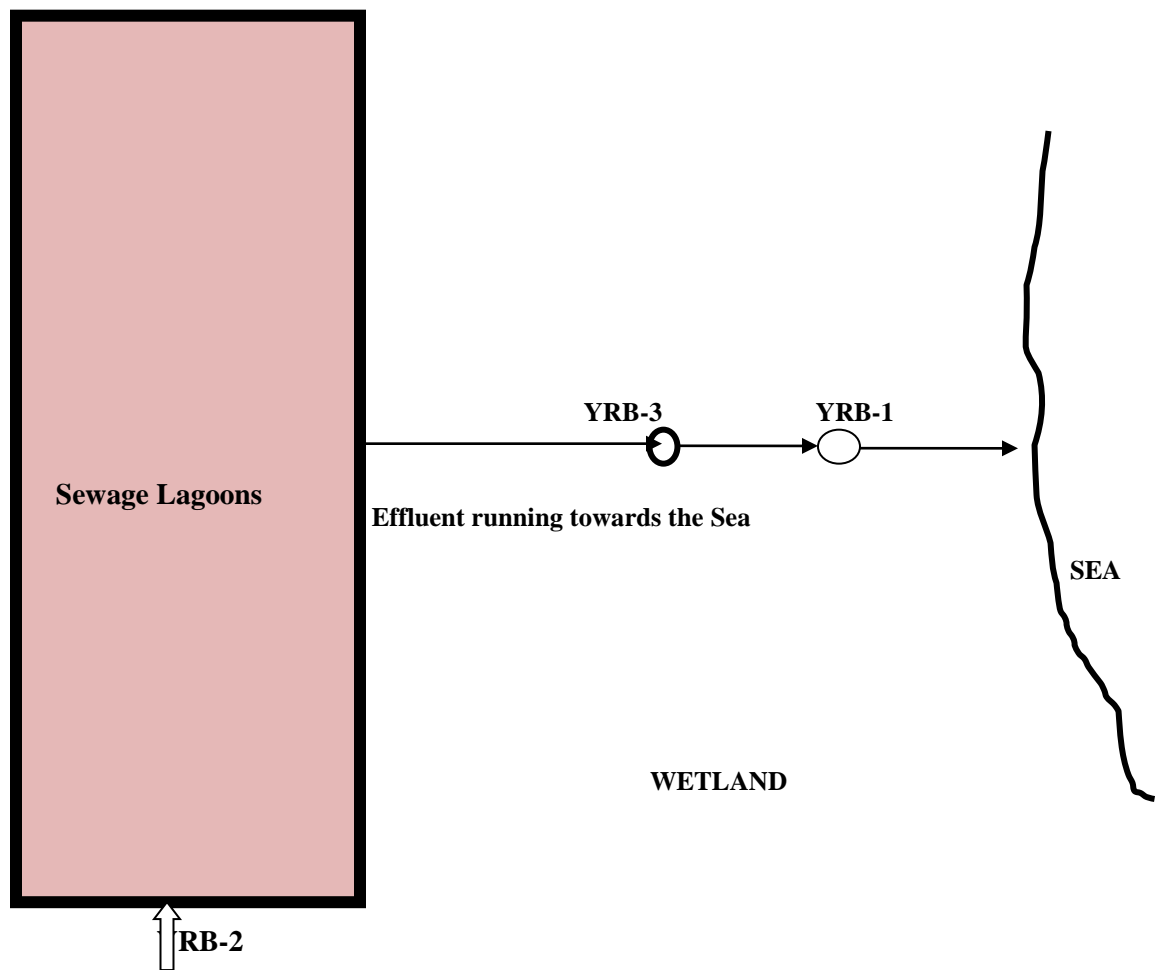


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