

**REPORT TO GANGES SEWER LOCAL SERVICE COMMITTEE
MEETING OF WEDNESDAY, 30 MAY 2007**

SUBJECT 2007 CAPITAL WORKS – GANGES WASTEWATER TREATMENT PLANT

PURPOSE

To seek the approval of the Ganges Sewer Local Service committee to proceed with improvements to the Ganges wastewater treatment plant (GWWT) operations building and to carry out an inspection of the Ganges sewer outfall, as provided for in the 2007 Ganges sewer operating budget. Details of the proposed work will also be provided.

BACKGROUND

The committee agreed to fund three supplementary projects in the 2007 Ganges sewer operating budget in November 2006. The projects and budget allowances are as follows:

1. Mandatory treatment plant outfall inspection	\$11,000
2. Roof replacement for operations building	\$10,000
3. Modifications to operations building and electrical room to allow electrical code compliance and resolve safety issues	\$90,000

Staff would like to proceed with the works as outlined following:

Outfall Inspection

A sewage outfall pipe requires periodic maintenance to ensure continued performance and long life. A key component to the maintenance program is the physical inspection of the exterior of the pipeline and pipeline structures to assess degradation, damage, or changes in the seabed.

The GWWT outfall is a 4,800m long, 200mm diameter, polyethylene pipe, located in Ganges Harbour. Under the *Provincial Municipal Sewage Regulation*, the outfall requires inspection every five years. The last full inspection was completed in 2001; however, subsequent work on the flanged joint bolts was completed over the entire length of the outfall in 2003. Staff have requested an estimate from Advanced Subsea Services to perform the physical inspection this year. It is expected that the project will be completed within budget if the work can be completed within 2.5 days.

Operations Building Roof Replacement

The cedar shake roof on the operations building is the original roof and is in need of replacement. Due to the replacement cost of a cedar shake roof and the expected service life, it is common practice to replace cedar shakes with a fiberglass laminate shingle, which can be installed at a lower cost, even with the necessary sheathing. Staff will obtain quotations for the installation of the new roof. It is expected that the project will be completed within budget.

Electrical Room and Office Modifications and Electrical Improvements

In 2006, an assessment of the electrical room in the GWWTP Operations Building was made by an electrical consultant, to determine the status of equipment compliance with respect to the Canadian Electrical Code (CEC), Canadian Standards Association, and the Provincial Electrical Safety Branch. The assessment was presented to staff and can be summarized as follows:

1. Electrical Room Use

One of the main entrances to the building is via the electrical room, which also has doors leading to the operator's office and washroom. There are also tables and other pieces of equipment stored in the room due to limited storage space at the facility. The CEC requires that minimum clearances are maintained around the electrical equipment and that the high voltage equipment is housed in a dedicated electrical room, accessible only by electrically qualified personnel.

2. Electrical Distribution

The electrical distribution has been augmented several times with each upgrade of the plant. The Logic Control cabinet, the Control Section cabinet, and the VFD Control cabinet, have each been modified since the original installation and require further modifications to comply with the current CEC. The configuration and flow of power in the control systems is no longer immediately apparent. The preparation of a single line drawing for the entire electrical room would include the upgrades necessary in the individual cabinets and also serve as a reference drawing for the electrical system configuration. It was also noted that CEC will soon be adopting the Arc Flash Hazard requirements, and a facility such as GWWTP would require an analysis of the arc flash hazard potential.

3. Zeweed Process Controller

The design and configuration of the control panel presents several code and safety violations, namely, there is no provision for the application of a personal lockout device on the 600V circuit breakers, motor control contactors and overload resets are not equipped with dead front functionality and the logic controller is housed inside the electrical cabinet.

In order to resolve the issues identified with the assessment, and upgrade the electrical room and equipment to the CEC standards, the following improvements are suggested:

1. Construct a 140 square foot addition to the existing building to create dedicated space for the operator's office separate from the electrical room and to relocate the interior doorways. This work should be completed in advance of the roofing work.
2. Install a new 600V Motor Control Centre to correct issues with the Zeweed controller.
3. Complete minor modifications to the individual control cabinets and have all of the cabinets inspected by a CSA authorized field inspector for recertification.
4. Provide a single line drawing of the entire distribution system in the electrical room.
5. Undertake and implement Arc Flash analysis.

An estimate for the electrical improvements has been provided by the electrical consultant and it is expected that the project will be completed within budget. Although the renovation to separate the operator from the electrical room was not included in the original scope of work, it is believed there will be surplus funds from the electrical work and the roof replacement to fund the building addition.

ALTERNATIVES

There is no alternative to the outfall inspection as it is required by the province at this time. The operations building roof replacement could be delayed, but will require replacement imminently. The electrical improvements can no longer be delayed, as the existing conditions in the electrical room have been identified as non-compliant and potentially hazardous.

FINANCIAL IMPLICATIONS

The proposed projects are identified in the 2007 budget as single supplementary items and will be funded through the operating and reserve funds.

SUMMARY/CONCLUSIONS

Three projects were identified in the 2007 budget. The outfall inspection is necessary this year to satisfy the plant's registration requirements under the *Municipal Sewage Regulation*. The roof on the operations building requires replacement and may be incorporated into the office addition project. The electrical improvements in the plant electrical room are necessary to resolve code and safety issues. The proposed works will be funded through operating and reserve funds.

RECOMMENDATION

That the Ganges Sewer Local Service committee approve a project to expend \$111,000 from operating and reserve funds as provided for in the 2007 Ganges sewer operating budget, to fund the outfall inspection, roof replacement, and electrical/electrical room improvements.



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