SATOO SANITARY "SUPERPIPE" (STORAGE)

Background

A number of heavy rainfall events occurred over portions of the City of Edmonton between July 2 and July 11, 2004. These rainfall events caused flooding in a number of neighborhoods throughout the south and west portions of the City. In addition to extensive street and road surface flooding, basements of more than 4,000 homes were flooded. In order to minimize such flooding in the future, the City of Edmonton commissioned a number of flood prevention studies to assess the to find the main causes of flooding and to identify potential relief.

Drainage Planning had retained consultants to undertake flood studies of the priority neighbourhoods in the Mill Woods area of the City. It was recommended that a series of several upgrading options for selected flood relief projects including the **Satoo Sanitary Storage Superpipe** for sanitary system relief be constructed. The recommendation involved constructing an "in-line" storage pipe to accommodate the excess sanitary wet weather flow diverted from the Knottwood Road sewer.

Project Objectives

The mission of this project is to evaluate options based on the Concept Plan for the Satoo sanitary superpipe and determine the most effective, practicable and cost effective system that will provide sufficient sanitary storage and sewer relief.

Project Description

The sanitary storage is required to be developed in the Satoo Neighbourhood adjacent to the existing drainage system (300 mm diameter sanitary sewer) running along Knotwood Road West in the vicinity of 16 Avenue to 19 Avenue.

Two types of storage are under consideration. These are "in-line" or "off-line". Each type will function differently though both would provide the required reduction in hydraulic grade line (i.e., both would function to reduce sewage back-up). **In-line** storage is essentially replacing the small sewer pipe with a much larger pipe/tank to act as storage when sewage levels get to high to be properly conveyed away. **Off-line** storage is not as efficient and requires a larger storage volume. The tank would be placed in a convenient location (where space permits and construction can be accommodated) off of the existing sewer line.

The project team is in the process of assessing the two types of storage systems based on the ability to construct, cost to construct, impacts, and associated risks. As a result different scenarios have been explored including different construction possibilities (tunneling or open-cut) at different possible locations. Tunneling installations have been largely been ruled out due to the geotechnical conditions and ground water elevations at the required depths along with high costs. The focus is narrowed down to in-line storage by open-cut (with shoring) and off-line storage by open- cut.

In the next few weeks, the project team will finalize its assessment and proceed with the detail design.

It is anticipated that construction of the selected alternative would occur in the summer of 2007.

A location plan for the potential storage facility is located on the back.

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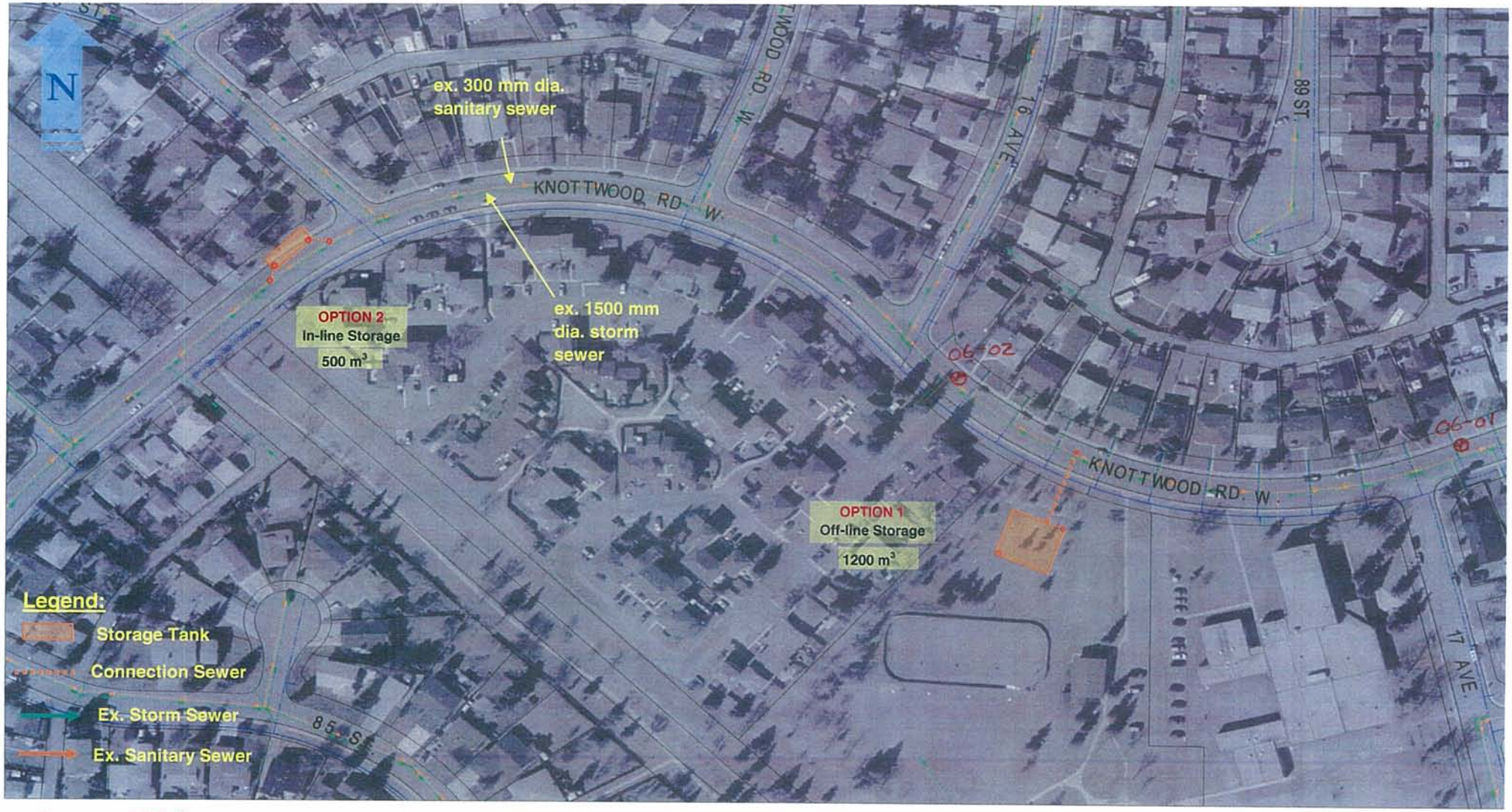


06-02 EX. TEST HOLE LOCATION

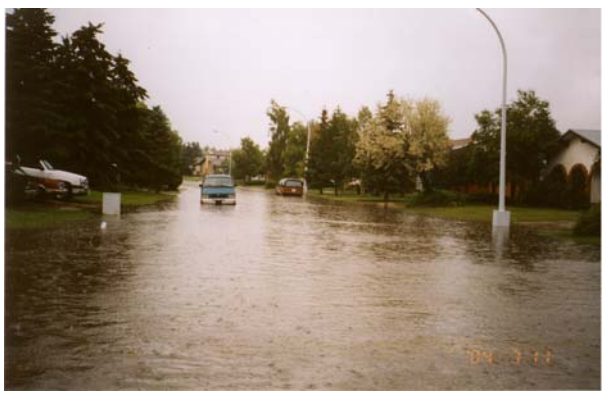
Mill Woods Flood Relief

Satoo Dry Pond

Background

The severe storm of July 2004 caused widespread flooding in a number of Edmonton neighborhoods. In addition to extensive street and surface flooding, more than 4,000 homes were flooded causing over $140 million in damages. In order to minimize future flooding, the City of Edmonton commissioned a number of flood prevention studies to assess the flooding mechanisms and to develop solutions to improve flood protection.

Satoo was one of the neighborhoods examined as part of the Mill Woods Flood Evaluation. The streets and private properties in the Satoo neighborhood experienced widespread flooding. This area was also hard hit with sanitary sewer backup.



Flooding at 10TH Avenue

One of the recommendations for this area is the Southwest Satoo Pond. The proposed pond would provide 17,000 m^3 of flood storage.

Two previous studies "July 2004 Mill Woods Flood Evaluation" and "Mill Woods Food Relief Concept Plan" identified and developed a conceptual design for the Satoo Dry Pond as an integral part of an overall flood relief program for the area.

In July 2006, the City commissioned Sameng Inc. to prepare preliminary and final designs for the pond and assist in the construction of the project.

Flooding in Pipeline Corridor

Project Objective

The intention of the project is to develop a dry pond to collect overland flow from the neighborhood and store it temporarily for later controlled release to the storm sewer system.

The pond will also serve to relieve pressure from the storm sewer during flooding events when large amounts of water exceed the capacity of the storm sewers.

The pond should significantly reduce the overall flood risk for the neighborhood.

The Satoo dry pond's Level of Service goals are:

- The project will ensure that the storm sewer system could function without surcharging during a rainfall event that would occur, on average, every 5 years.
- Provide the optimum benefit in terms of flooding relief, during a rainfall event that has a return period of 100 years.
- Construction impacts to the neighborhood should be kept to a minimum.
- The developed dry pond area will enhance the aesthetic and recreational values of the site.
- The risks associated with this pond should be minimized.

Project Description

The dry pond will be developed within the triangular parcel of land as shown on the figure below. The site is about 2 ha in size and the pond will store about 17,000 m^3 of water and have a maximum depth of about 2.8 m.

The pond should have side slopes that allow easy egress during flood conditions and the inlet/outlet structure shall be designed to ensure that it does not inhibit recreational uses of the pond.

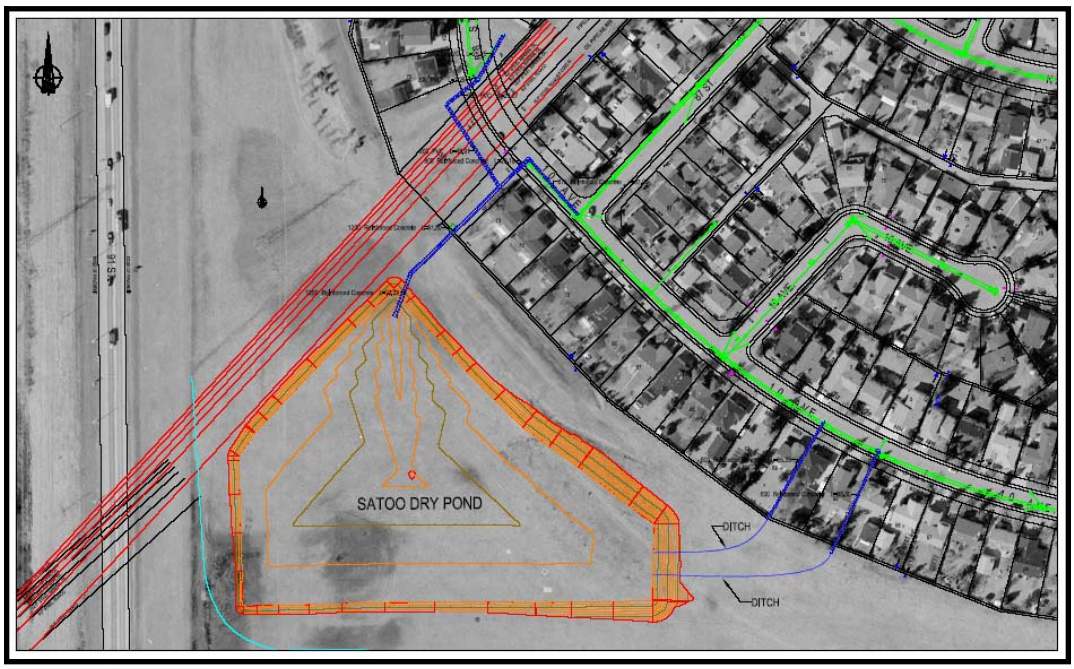
The pond area could be landscaped to integrate with the surrounding landscape. The majority of the area will be maintained as turf grass.

There will be a potential to develop the site to accommodate passive recreation activities (e.g., Reading, bird watching, talking, etc.) and unstructured active recreation activities (e.g. Frisbee, catch, etc.).

Communication Strategy

The objective of the communication strategy is to seek input from local residents into the development of the site and to keep them informed of project progress.

The project is currently at the preliminary design stage and we are seeking input regarding the design. A second open house is planned to take place just prior to construction and will focus on informing residents about construction impacts and schedules.



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