

**Edmonton Energy and Technology Park
Report Summary: Neighbourhood Design Report (Draft): Edmonton Energy and Technology Park
Chemical Precinct Technical Research and Analysis**

Industrial Site Location Analysis in the Edmonton Energy and Technology Park

Report date: May 2014
 Consultant: ISL Engineering and Land Services
 Commissioned by: The City of Edmonton
 Primary sector of interest: Petrochemical

Overview

This report outlines various wastewater and stormwater servicing issues and options, recommended wastewater and stormwater servicing concepts and cost estimates for the sites within the Edmonton Energy and Technology Park (EETP) petrochemical precinct identified for possible rezoning and some portions of the EETP within the Horsehill Creek basin. The report was developed to support an application to rezone 13 parcels of land from agriculture use to petrochemical use in the EETP.

Recommended Solutions

Wastewater

- The proposed wastewater servicing concept is composed of gravity trunk sewer servicing from each of the 12 quarter sections to the Alberta Capital Region Wastewater Commission (ACRWC) St. Albert Regional Trunk (START) transmission line.
- The recommended ultimate flow rate is 13 cubic metres per hectare per day ($\text{m}^3/\text{ha}/\text{day}$).

Stormwater

The recommended option includes the following components:

- standard stormwater management facilities (SWMFs) for each quarter section, designed as constructed wetlands to mitigate the bird hazard,
- maximum pond discharge rates based on 1.0 litres/second/hectare (L/s/ha),
- trunk sewers to drain each SWMF to the off-site storm trunk at Horsehill Creek and Manning Drive, and
- a storm outlet trunk from Horsehill Creek and Manning Drive to the river.

Servicing Constraints and Recommendations

Wastewater

1. The three flow alternate flow rates under consideration are: $6.17 \text{ m}^3/\text{ha}/\text{day}$ (the Alberta Capital Region Wastewater Commission (ACRWC) level of service criteria), $13 \text{ m}^3/\text{ha}/\text{day}$ (recommended) and $20 \text{ m}^3/\text{ha}/\text{day}$ (current City planning standard for unknown land zoning).
Recommendation: Design wastewater sewers to accommodate $13 \text{ m}^3/\text{ha}/\text{day}$. There is very low risk of sewer surcharging and damaging properties at this capacity. This low risk is present for all three alternative design options.
2. There is potential for significant upfront costs, posing a disincentive for development.
Recommendation: A staging concept requires initial developments to construct an 800-metre portion of the downstream ultimate trunk system and truck haul wastewater for an interim period. Each quarter section development would also pay the levy charge less the cost of the 800-metre section of trunk as well as the ongoing costs of truck-haul and disposal.

Stormwater

1. Erosion in the downstream portions of Horsehill Creek requires a bypass trunk upfront.
Recommendation: Do not direct post-development incremental discharges into downstream Horsehill Creek. Investigate the potential of using upstream portions of the creek system.
2. The North Saskatchewan River Valley Area Redevelopment Plan Bylaw (River Valley Bylaw) extends well into the EETP, restricting development to preserve naturalized areas.
Recommendation: Any use of the Horsehill Creek system would require approval under the River Valley Bylaw.
3. The Department of National Defence (DND) bird hazard zone covers most of the EETP. Its regulations include significant limitations on the design of stormwater management facilities (SWMFs) so potential bird habitat is reduced. The Walton development in the southwest corner of the EETP is proposing constructed wetlands, which pose potential concerns.
Recommendation: Early DND feedback on the Walton bird hazard mitigation plan is favourable.
4. The EETP AMP and the Horse Hill residential AMP identify multiple river outfalls. Multiple outfalls are easier to stage but are more costly and post a higher risk to the conditions of the river slopes and to fish habitat. A Walton study identified two potential locations.
Recommendation: Give strong consideration to locating the outfalls as per the Walton study.

Wastewater/stormwater shared constraints and recommendations

1. Trunk sewer corridors are generally located beside arterial and collector roadways. Because EETP roadway planning is not yet complete, planning trunk sewer corridors is difficult.
Recommendation: Locate trunk sewers along quarter section lines. This will result in longer lengths of trunk sewers. Some trunk sewers may be relocated when roadway corridors have been planned. Design trunk sewers 1.5 metres deeper than minimum to provide flexibility for the future design of local collection systems within each quarter section.
2. Because the EETP sites selected for rezoning are far away from the existing ACRWC transmission trunks, servicing for initial development may require costly off-site infrastructure.
Recommendation: Explore servicing alternatives to minimize initial servicing costs.

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The EETP staff team is here to help. For free access to the full report, contact:

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