City of Saskatoon

Utilities & Environment Division

Saskatoon Water

To: Meewasin Valley Authority

Date: February 22, 2021

From: John Lacny
Project Engineer
Saskatoon Water

Phone: 306-657-8786

Our File: 7990-118

Re: Meewasin Development Review Application – Spadina Lift Station

The purpose of this memorandum is to provide background information for the City of Saskatoon's (City's) Spadina Lift Station Replacement Project as part of the Meewasin Development Review application.

1. Project Background

The existing Spadina Lift Station and the existing Spadina Bypass Lift Station are critical components of the City's infrastructure. Combined, they convey more than 60 percent of the City's collected wastewater to the City's wastewater treatment plant (WWTP). The existing lift station was first built in the 1940s as a sewage disposal facility and was repurposed into a lift station in 1971. The existing bypass lift station was built in 2016 and serves primarily to 'peak shave' wherein it operates only when the existing lift station cannot meet the flow demand. The two lift stations, in their current arrangement/capacity, do not have sufficient pumping capacity to accommodate the City's forecasted growth.

The raw sewage pumps at the existing lift station were installed between 1987 and 1994 and require replacement due to age, wear and tear, and insufficient capacity to meet the City's growing population and future densification of the downtown core. Simply replacing the pumps to provide more capacity is not recommended without first making major modifications to the existing lift station's below-grade structure (substructure) to address severe hydraulic deficiencies that result in a de-rated lift station with ongoing odour issues. However, the risk in modifying an eighty year old structure is significant and not feasible, both from an operational perspective and from a capital expenditure perspective. There is a significant risk that the lift station would be 'lost' during any sort of modifications to the substructure, which could result in raw sewage overflow to the adjacent South Saskatchewan River. Thus, rather than modifying the existing lift station, it was determined via a conceptual design evaluation, which was completed in 2019, that a new lift station would be designed and constructed to replace the existing station.

2. Project Description

The existing lift stations are located at 1702 Spadina Crescent East. The new lift station will be located at the same site, just to the north of the existing lift stations. The lift station will be constructed to the east of Spadina Crescent East and to the west of the Meewasin Trail. The new station will replace the existing pumping station built in the 1940s. The bypass lift station will remain in service and will operate in parallel with the new station. Once the new lift station is

operational, the existing 1940s lift station will be decommissioned.

In 2020, the City retained Jacobs to provide preliminary design, detailed design, and services during construction for the new lift station. Design is scheduled to be completed in April 2021. Construction is expected to commence in June 2021. Construction is expected to require about one year, with commissioning of the facility occurring in Summer 2022.

3. Design Information and Considerations

Project drawings have been included as an attachment to this submission. These drawings are the 50% completed detailed design drawings for the project. A final set of detailed design drawings can be supplied once completed in April 2021.

3.1 Site Security

All areas in the new lift station, including access doors, fenced areas, and exterior floor hatches, will be locked and operable only by the City's forces (i.e., inaccessible to the public). The building will be accessed by City of Saskatoon employees using a swipe card access reader at the main entrance door at the northwest corner of the building. The perimeter of the building will be monitored by point-tilt-zoom (PTZ) cameras mounted at each corner of the building.

3.2 Fenced Areas

The new lift station will include two locked fenced areas:

1. Around the perimeter of the lift station's wet well, on the east side of the facility and thus viewable from the Meewasin Trail, to secure the inlet gate's electric actuator and the wet well access hatches; and
2. Around an air conditioning unit's condenser and the facility's natural gas meter on the west side of the facility and thus viewable from Spadina Crescent East.

The fenced area on the east side of the facility will be comprised of a short parapet wall with an architectural fence mounted on top of the parapet. The fenced area on the west side of the facility will be chainlink. Both fenced areas will have locked gates to provide access to the area for the City when maintenance activities are required.

3.3 Area Lighting

Exterior lighting for the new lift station will be designed and selected in collaboration with CPTED and the Meewasin Valley Authority. We understand the importance of providing enough light to ensure the site's security while also not impacting the wildlife corridor and pathway users. At minimum, we will use downward projecting lights that can be turned on/off from the facility's electrical room.

3.4 Architecture

The new lift station's façade will match the existing lift stations to provide a cohesive aesthetic at the site. Exterior above-grade walls will be cladded in a red brick. The facility will be topped by a sloped brown metal roof. There will be no benches or urban furniture near the building due to it's operational nature (i.e., not a public facility). Renderings of the new station have been attached.

3.5 Pathways

The new building will include a new parking lot and sidewalks along the west side of the facility. There will not be a public pathway connection to the Meewasin Trail. Access to the new parking lot will be via the existing access point off Spadina Crescent East.

3.6 Area Vegetation and Landscaping

Construction of the new lift station will require the removal of some existing plantings and vegetation in the construction area. Trees and/or plants that will be removed will be replaced after construction is completed. Plant species will be selected based on feedback/input from the Meewasin Valley Authority during design.

Bioswales will be used to manage stormwater flows on site. Vegetation for the bioswales will also be selected based on feedback/input from the Meewasin Valley Authority during design.

3.7 Trail Impacts

During construction, the Meewasin Trail requires a short detour to allow trail users a safe passageway though the area as sections of large diameter sanitary sewer are installed in close proximity of the pathway. The detour will remain in place for about 3 months over the summer months in 2021. After construction is complete, the trail will be returned to its original condition.

3.8 Existing Station Demolition

Once the new station is operational, the existing facility will be decommissioned. A complete decommissioning plan has not been fully developed but will include removing the superstructure and converting that area into a greenspace or site parking. The substructure below ground will be altered to be left in a safe condition.

3.9 Project Reports and Assessments

The following reports have been completed or will be completed prior to the start of construction:

- Geotechnical Report
- Environment Assessment Report
- Heritage Resource Review
- CPTED Review
- Meewasin Development Permit Review
- City of Saskatoon Building Permit
- Climate Change Resilience Assessment
- Greenhouse Gas Mitigation Assessment

Each report is available upon request.

3.10 Public Consultations

As part of the Investing in Canada Infrastructure Program (ICIP) application, the City has engaged with local First Nations and Métis communities to discuss the impacts that this project would have on those communities. Each community that was engaged did not bring up any concerns with the project.

The City also intends to work with the City's Communication Department to hold public forum for the local community to provide information on the project. The public forum has not been held yet as the City would like to wait until the design is progressed further and once there is a better estimated construction schedule.

Attachments: Meewasin Development Review Application Form
50% Detailed Design Drawings
Renderings
Site Legal Ownership Information
Aerial Image of the Site