



Request for Comments

Case Name: Riverdale Park Lift Station Extraction Project
Case Number: RCU2020-00021

September 3, 2020

The Adams County Planning Commission is requesting comments on the following application: **conditional use permit to extract approximately 200 cubic yards of soil from the property to allow for upcoming improvements to the existing lift station facility within the Riverdale Park PUD.** This request is located at 9401 Riverdale Lane. The Assessor's Parcel Number is 0172118407041.

Applicant Information: CITY OF THORNTON, KRISTIN SCHWARTZ
12450 WASHINGTON ST
THORNTON, CO 80241

Please forward any written comments on this application to the Community and Economic Development Department at 4430 South Adams County Parkway, Suite W2000A Brighton, CO 80601-8216 or call (720) 523-6800 by **9/24/2020** in order that your comments may be taken into consideration in the review of this case. If you would like your comments included verbatim please send your response by way of e-mail to GJBarnes@adcogov.org.

Once comments have been received and the staff report written, the staff report and notice of public hearing dates may be forwarded to you upon request. The full text of the proposed request and additional colored maps can be obtained by contacting this office or by accessing the Adams County web site at www.adcogov.org/planning/currentcases.

Thank you for your review of this case.

Greg Barnes
Planner III

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Technical Memo

To: City of Thornton

From: Ryan Duve, P.E.

Date: April 8, 2020

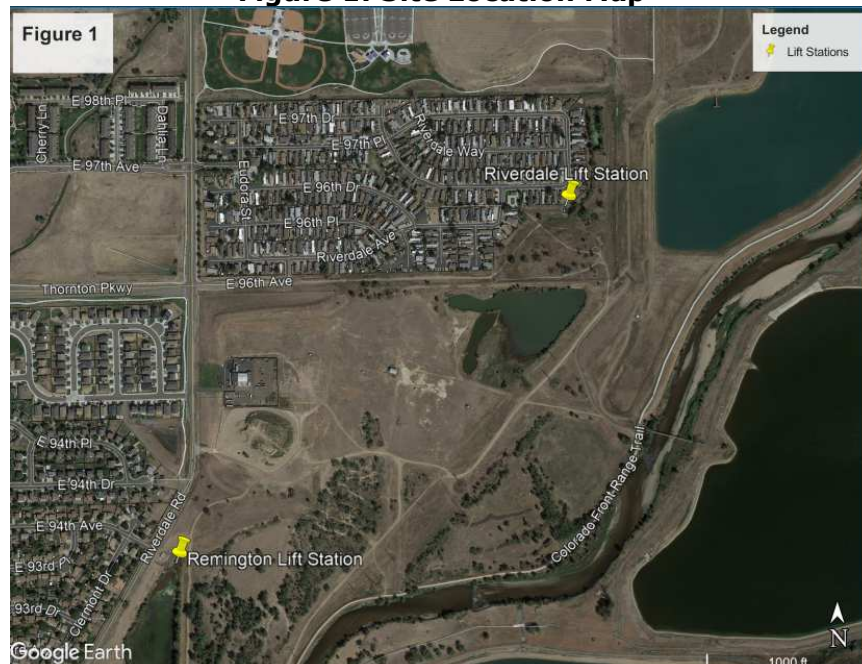
Subject: Project Description for Adams County Conceptual Review Application
Remington to Riverdale Lift Station Gravity Main and Riverdale Park Lift Station
Replacement, Project No. 19-233 and 19-234

Background and Purpose

The City of Thornton (City) would like to decommission and demolish the Remington Lift Station. Flows from the Remington Lift Station sewer shed will be redirected to a new Riverdale Park Lift Station by a new 8-inch gravity sewer. The new Riverdale Park Lift Station will include new construction, reuse the existing Riverdale Park Lift Station's 8-inch force main, and be up-sized for full buildout flows within its service area.

The Remington Lift Station is located east of the intersection of 94th Avenue and Riverdale Park Road. The Riverdale Park Lift Station is located east of Riverdale Road on 96th Avenue. Both lift stations discharge to the South Thornton Interceptor where the wastewater flows to the Northern Treatment Plant located at 51 Baseline Road, Brighton, Colorado. The Northern Treatment Plant is owned and operated by the Metro Wastewater Reclamation District (Metro District). The locations of the lift stations are shown in **Figure 1**.

Figure 1: Site Location Map



Both lift stations have been in service for 30 years or more and have reached their useful life.

Existing Remington Lift Station

The existing Remington Lift Station (**Figure 2**) was constructed in 1979 to serve the new Remington subdivision as part of Filing No. 1. The lift station was retrofitted from a self-priming suction lift pump station to a submersible pump wet well configuration in 1991. There are two submersible 10 horsepower (hp) constant speed pumps in a 6-inch diameter by 18.5-foot deep wet well. The pumps operate by wet well levels and have a capacity of 0.49 million gallons per day (MGD) each (340 gallons per minute, gpm). An 8-inch force main conveys pump station discharge to the South Thornton interceptor located near the intersection of 94th Avenue and Colorado Boulevard. The Remington Lift Station is located within an easement granted by Adams County, within the Adams County Parks & Open Space property (Pelican Ponds Open Space).

Figure 2: Existing Remington Lift Station



Existing Riverdale Park Lift Station

The existing Riverdale Park Lift Station (**Figure 3**) was constructed in 1986 to serve the Riverdale Park Subdivision under Adams County Planned Unit Development (PUD) 81-84. Tract R of the PUD was dedicated to the City to provide an exclusive water and sewer easement where the existing lift station is located (**Attachment A**). The lift station has a Smith & Loveless wet well/dry well configuration. The dry well is a steel structure that houses pumps and electrical equipment requiring the City to enter the dry well on a routine basis. The steel structure is corroding, and the City has seen an increase in ground water infiltration and is concerned with the combination of water and electrical equipment inside the dry well. The City is also concerned about having to enter the dry well which is awkward and unsafe.

The lift station has two 20 hp constant speed pumps that operate by wet well levels and have a capacity of 0.44 MGD each (307 gpm). An 8-inch force main conveys pump station discharge to the South Thornton Interceptor near the intersection of 96th Avenue and Cherry Street. The wet well consists of a 10-foot x 11-foot x 11-foot 6-inch deep wet well with a 12-inch thick wall that divides the wet well in north/south halves. Only the south half of the wet well is used. An 8-foot diameter x 8-foot 4-inch deep manhole is stacked on top of the wet well to provide access to the wet well.

Figure 3: Existing Riverdale Park Lift Station



Riverdale Park Lift Station Replacement Design

The replacement lift station will be sized for both the Remington and Riverdale Park lift station service areas. The current Remington Lift Station service area is fully developed while the current Riverdale Park Lift Station service area is approximately 76% developed. The proposed lift station will be a submersible pump wet well configuration with an 8-foot by 12-foot modular enclosure to house the valves, flow meter and pump controls. The existing Riverdale Park Lift Station's emergency generator and automatic transfer switch will be repurposed for the replacement lift station. The existing wet well will be repurposed for emergency on-site storage.

Remington Lift Station Relief Sewer

A new 8-inch gravity sewer will redirect flows from the Remington Lift Station to the proposed Riverdale Park Lift Station replacement. This will relieve the Remington Lift Station so that it can be decommissioned and demolished. The 8-inch line was sized based on Colorado Department of Public Health and Environment (CDPHE) and City of Thornton Design Criteria.

Service Area

The service area for the new lift station encompasses both the Riverdale Park and Remington Lift Station service areas. The service area is approximately 442 acres and consists of residential and open space uses. Developable property within the service area is designated residential use per the City of Thornton's 2020 Future Land Use Map. Service area maps (**Figures B1** and **B2**) for both lift stations are included as **Attachment B**. The service area maps show the locations of both developable and non-developable property.

Sizing and Staging

The replacement lift station is sized for full buildout/development of its service area. The calculated design flow is 675 gpm. The City has requested a pump station with three pumps in which each pump has the capacity to operate at the design flow of 675 gpm. The proposed lift station will utilize the existing Riverdale Park Lift Station 8-inch force main.

The replacement lift station will use submersible pumps with the pumps and motors located inside the 10-foot wide by 12-foot long by 24-foot 6-inch deep wet well. An 8-foot by 12-foot by 8-foot tall preassembled modular enclosure will sit on top of the wet well and will be equipped with lighting, and heating and ventilation systems. The enclosure will be made of double laminate reinforced fiberglass with 2.5-inch urethan foam polyurethane insulating core sandwiched in-between them.

There is limited space for the new Riverdale Lift Station due to the design decision to locate the structure outside the regulatory floodplain (100-year) that is east and south of the site, and the residential subdivision to the north. Sheet C-207 shows a plan view of the alignment with the regulatory floodplain. There is also a low vegetated swale directly south of the existing lift station. Therefore, the proposed lift station will be placed to the west of the existing lift station as shown on Sheet C-105. Sheets C-105 and C-207 are include as **Attachment C**.

Lift Station Features

Wet Well Level

The lift station will be equipped with redundant controls. A bubbler system will provide the main controls for pump operation. Backup float switches will provide backup controls.

Power

XCEL Energy will provide utility power. An on-site diesel-powered emergency generator with an automatic transfer switch will provide backup power.

Bypass

The lift station will be equipped with a bypass system. If the pumps are down for an extended period of time, the City will have the ability to connect a temporary submersible pump or trailer mounted pump to the bypass system for temporary bypass pumping.

Emergency Storage

CDPHE requires a minimum of 1 hour of storage at the design flow. Based on the design flow of 675 gpm, the required storage is 40,500 gallons. There is approximately 69,522 gallons of available storage within the collection system and onsite storage which provides 1.7 hours.

Security

The lift station will be secured by an 8-foot tall chain link fence with three strands of barbed wire. The chain link fence will have privacy slats to reduce the visibility of the equipment inside the fence.

Site Access

The City will use its current access road, Riverdale Lane. The existing XCEL transformer will be relocated to the west side of replacement lift station fence providing the City better access for their maintenance vehicles and equipment.

**A PART OF THE S1/2 SE1/4 SECTION 18, T2S R67W OF
THE 6TH P.M., COUNTY OF ADAMS, STATE OF COLORADO**

SHEET 8 OF 10

SEE SHEET 5 OF 10

