

a recreational
lifestyle community

WOODMEN HILLS

***WOODMEN HILLS
METROPOLITAN DISTRICT***

LIFT STATION #1 REPLACEMENT

***SITE DEVELOPMENT PLAN
DRAINAGE LETTER***

November 2018

Prepared By:



CONSULTANTS, INC.

**El Paso County
Planning & Community Development**
2880 International Circle, Suite 110
Colorado Springs, CO 80910-3127
Attn: Len Kendall

November 19, 2018

**RE: Woodmen Hills Metropolitan District
Lift Station #1 Replacement
Administrative Plot Plan – Drainage Letter
Address: TBD (Current Site Address: 12048 Falcon Highway, Peyton, CO 80831)**

Dear Mr. Kendall:

The purpose of this drainage letter is to satisfy requirements of the El Paso County Planning and Community Development division pertaining to the proposed Administrative Plot Plan for the project referenced above.

Property Description:

The site for Lift Station #1 is located in the Southwest 1/4 of Section 7, Township 13 South, Range 64 West of the 6th Principle Meridian, El Paso County, Colorado (El Paso County Parcel #: 4307300006).

This project is located in the Falcon Drainage Basin (CHWS1400) with Chico Creek being the receiving water shed. A Drainage Basin Planning Study (DBPS) was performed for this basin in 2013. The site borders Falcon Highway to the south and a drainage way owned by the El Paso County Parks Department to the west.

The existing facility that is to be replaced with this project does not have an address since it is below ground. Electrical infrastructure on the site has been given an address of 12048 Falcon Highway, Peyton, Colorado. The address for the new facility will be determined and granted by the Pikes Peak Regional Building Department during their review of the building permit.

An existing lift station is located on the site within a 0.33-acre easement on Falcon School District 49 property. It currently consists of a holding tank for wastewater and a steel structure that houses pumping equipment. Both the holding tank and steel structure are buried, with the only above-grade infrastructure consisting of access hatches, electrical/control equipment, and a diesel generator.

A “holding pond” was built on the site when the original facility was constructed. Its purpose was to contain emergency overflow of wastewater in the event of a power or equipment failure. This pond will be removed and replaced with sealed, below-grade holding tanks for emergency overflows.

Existing native vegetation and about 1,000 square feet of gravel cover the site. The gravel provides access for operation and maintenance by the Woodmen Hills Metropolitan District (WHMD, the District).

Existing Drainage Characteristics:

Existing drainage sheet-flows to the south and west into the drainage way mentioned above. There are no existing drainage facilities (storm pipes, inlets, culverts, etc.) on the site. Most of the site drains directly to the drainage way to the west, while a small portion drains into a roadside ditch on the north side of Falcon Highway, and eventually west into the drainage way.

Proposed Drainage Characteristics:

Proposed drainage will generally remain the same as the existing drainage. The addition of an above-grade building will add 756 square-feet of new impervious area to the site. However, detention facilities are not proposed for this project.

In order to offset the additional impervious area and avoid detention facilities, we are proposing to install permeable material around the building in lieu of the typical gravel driveway.

The permeable material will consist of over 3,300 square feet of 5-inch thick gravel, and a 1-inch “permeable paver” with 3/8-inch gravel at finished grade. This system will allow storm water to infiltrate almost immediately and filter into the soils beneath instead of flowing immediately offsite. The volume of the permeable material at an assumed 40% void ratio is roughly 4,500 gallons, or 1,500 cubic feet.

There are multiple reasons that detention is not desired for this project, including:

- Lack of area
 - The lift station and buried infrastructure take up most of the site
- Proximity to existing drainage way, 100-year floodplain, and wetlands
 - A detention pond serving the facility would have to be constructed in existing floodplain and wetlands, disturbing the wetlands and potentially impacting existing floodplain elevations.

BMP Selection (Four-Step Process)

Step 1: Runoff Reduction Practices

- Reduced Pavement area – No pavement is proposed for this site.
- Porous Pavement – Permeable material employed to reduce or eliminate detention.

Step 2: Stabilize Drainage Ways

- Stabilized Natural Channel – Proposed improvements are not channelized, and have slopes of 4H:1V or flatter. Both efforts promote stabilization of downstream drainage ways by decreasing velocities.

Step 3: Provide Water Quality Capture Volume (WQCV)

- Porous Pavement Detention – Proposed Permeable material will provide 4,500 gallons of available WQCV.

Step 4: Need for Industrial and Commercial BMP's

- Spill Containment and Control – Will be employed before, during, and after the construction process, as well as during normal operation and maintenance of the facility.

Drainage Fees

The Site is in the Falcon Drainage Basin of Chico Creek (Basin Number CHWS1400). The Chico Creek Basin 2018 fees are \$27,762 per impervious acre for drainage fees. The 0.33-acre easement on which the

new facility would occupy is approximately 6% impervious (based on the proposed structure and ancillary structures), resulting in a drainage fee of \$550.

Summary

Proposed drainage characteristics will generally remain the same as existing, with additional impervious area offset by permeable material placed on site in lieu of gravel driveway. No detention is proposed as impacts to stormwater runoff will be almost negligible.

Respectfully,

JDS-Hydro Consultants, Inc.

Ryan Mangino, PE



Design Engineer's Statement:

The attached drainage plan and report were prepared under my direction and supervision and are correct to the best of my knowledge and belief. Said drainage report has been prepared according to the criteria established by the County for drainage reports and said report is in conformity with the applicable master plan of the drainage basin. I accept responsibility for any liability caused by any negligent acts, errors or omissions on my part in preparing this report.



Ryan M. Mangino, PE #43304

11/19/2018

Date

Owner/Developer's Statement:

I, the owner/developer have read and will comply with all of the requirements specified in this drainage report and plan.



Jerry Jacobson
Woodmen Hills Metropolitan District
8046 Eastonville Road, Peyton, CO 80831

11/19/2018

Date

El Paso County:

Filed in accordance with the requirements of the Drainage Criteria Manual, Volumes 1 and 2, El Paso County Engineering Criteria Manual and Land Development Code as amended.

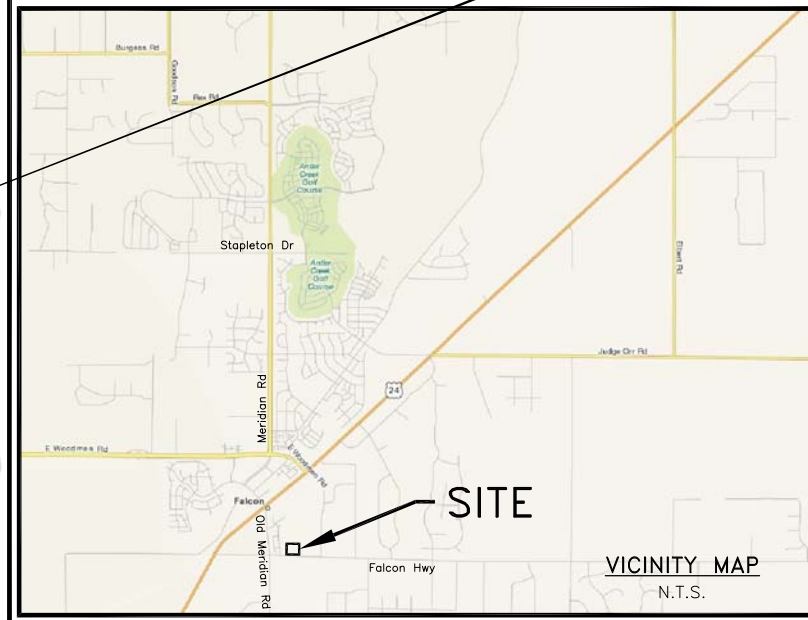
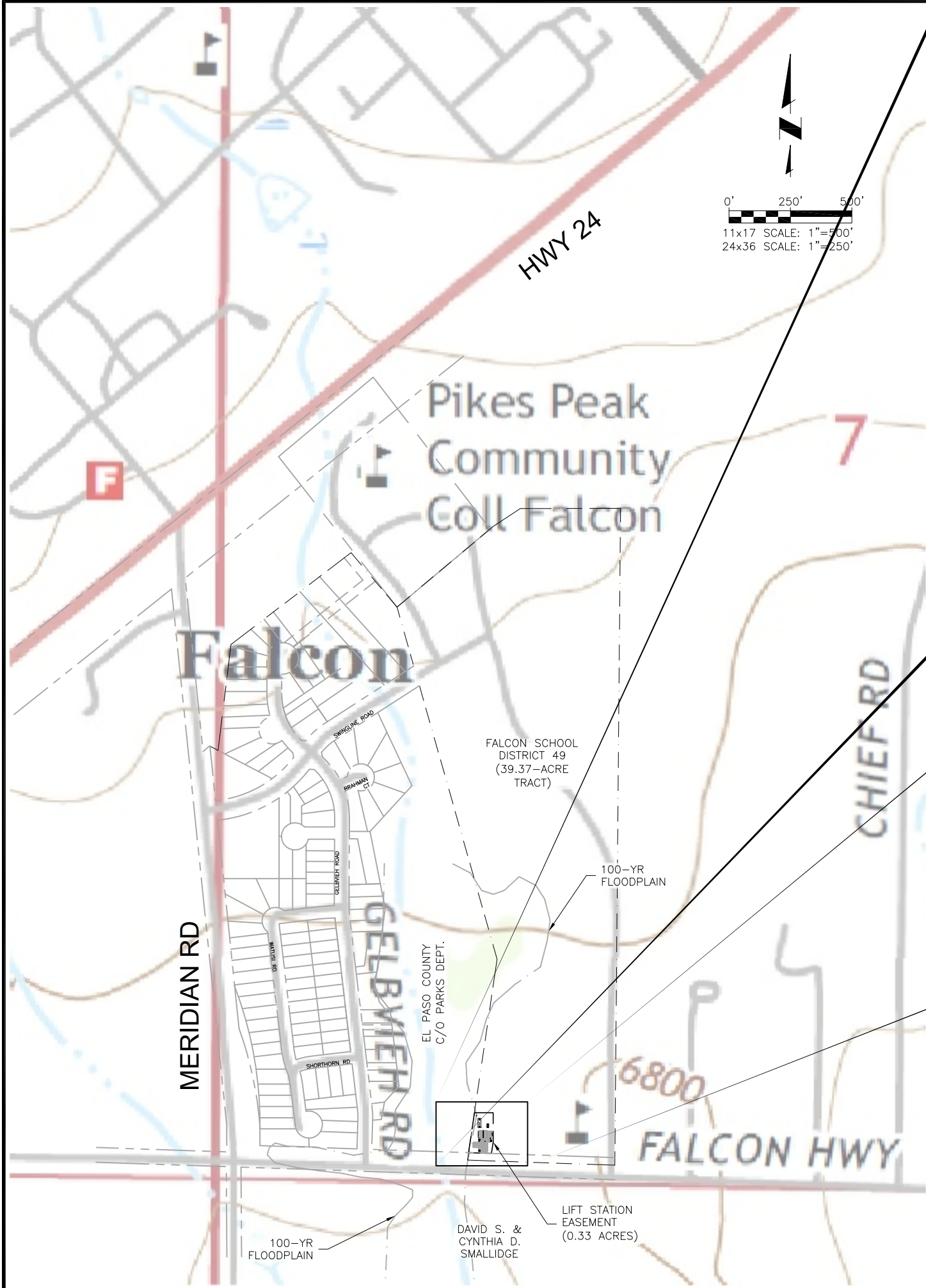
Jennifer Irvine, P.E.
County Engineer / ECM Administrator

Date

Conditions:

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JDS-HYDRO
CONSULTANTS, INC.
545 EAST PIKES PEAK AVENUE, SUITE 300
COLORADO SPRINGS, COLORADO 80903
(719) 227-0072

WOODMEN HILLS METROPOLITAN DISTRICT
LIFT STATION #1 REPLACEMENT
DRAINAGE EXHIBIT

NO.	DESCRIPTION	BY	APP.	DATE
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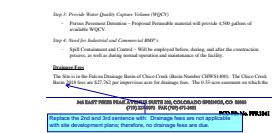
Project No.: 112.96
Date: 11/19/18
Design: RMM
Drawn: RMM
Check: DES

PCD File No. PPR1841

DM1
SHEET 1 OF 1

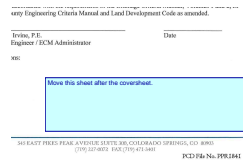
Markup Summary

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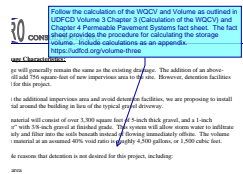
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Author: dsdlaforce
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Replace the 2nd and 3rd sentence with:
Drainage fees are not applicable with site
development plans; therefore, no
drainage fees are due.



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Page Label: 3
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Follow the calculation of the WQCV and
Volume as outlined in UDFCD Volume 3
Chapter 3 (Calculation of the WQCV) and
Chapter 4 Permeable Pavement Systems
fact sheet. The fact sheet provides the
procedure for calculating the storage
volume. Include calculations as an
appendix.
<https://udfcd.org/volume-three>