

CITY OF GREELEY
FLOODPLAIN DEVELOPMENT PERMIT APPLICATION

Property Owner: _____ Date: _____

Owner Address: _____

Phone - Home: _____ Business: _____

Legal Description of Property:

Lot: _____ Block: _____ Subdivision: _____

Property Address: _____

Assessor Parcel No. _____ Longitude: _____ Latitude: _____

Contractor: _____ Phone: _____

Contractor Address: _____

Date of Construction: _____

PROJECT DESCRIPTION (check all that apply)

Single-Family Residential

Multifamily Residential

Manufactured Home

Nonresidential

Accessory Structure

Addition

Remodel

New Construction

Substantial Improvement

Fill Material

Excavation

Watercourse Alteration

Flood Damage Repair

Other

Brief Description of Proposed Development in the Floodplain:

The proposed Structure is to be

Elevated

Floodproofed

N/A

Does this project involve Federal Funds?

(Check the box if yes)

Floodplain Information

Floodplain Name:

- | | | |
|-----------------------|----------------|--------------------|
| Ashcroft Draw | Eaton Draw | Sheep Draw |
| Cache la Poudre River | John Law Ditch | South Platte River |
| Coal Bank Creek | Sand Creek | |

The FEMA base flood elevation is _____ feet above geodetic datum at the structure location and elevations are based on the: _____ vertical datum

The lowest floor of the structure is proposed to be built at an elevation of _____ feet above the vertical datum

Is the property or site located in Floodway?

Yes No

A floodplain development permit map shall be submitted as part of the application requirements. The map shall be drawn to scale and shall be a minimum of 8½" x 11" (or another suitable size when approved by the Floodplain Administrator) and shall, at a minimum, contain the following:

- ✓ The name and address of the property owner.
- ✓ A scale and north arrow.
- ✓ Existing topographic elevation information around the building site above mean sea level, with datum referenced to NAVD 1988.
- ✓ Note indicating the benchmark and datum used to determine the project elevations.
- ✓ Water surface elevation of the 100 year flood (BFE) at the building site.
- ✓ The boundary of the floodplain area and any regulatory cross-sections on the property.
- ✓ The location, dimensions and lowest floor elevations of the existing and proposed structures.
- ✓ The highest and lowest proposed ground elevations adjacent to any proposed structures.

Approval of the FDP is a determination by the Floodplain Administrator that the proposed development has been reviewed and is in compliance with floodplain management regulations. It is not a comprehensive design review and does not constitute approval or warranty of the design. It does not imply or create, and the City expressly disclaims, any liability on the part of the City or any official or employee thereof for any flood damages that result from reliance on the FDP.

No construction or development will commence until the FDP is approved. The FDP will expire one-hundred and eighty (180) days after the approval date unless development has commenced.

By signing below, I agree that:

The proposed development will be done in accordance with floodplain management regulations (*see Chapter 18.34, Article II, Greeley Municipal Code*) and all other applicable federal, state or local regulations.

I have obtained all other permits applicable to the proposed development. The floodplain development permit (FDP) will be considered void if all applicable permits have not been obtained.

Date: _____

Signature of Property Owner or Legally Authorized Representative

City Use Only

	Date: _____
Received By _____	
Approved	Federal Action Required? <small>(CLOMR, LOMR, LOMA, 404)</small>
Yes No	Yes No Special Conditions Permit Number
_____ City of Greeley Floodplain Administrator Signature	Date: _____

City Use Only



Certificate No. _____

“NO-RISE” CERTIFICATION

THIS IS TO CERTIFY THAT I AM A DULY QUALIFIED REGISTERED PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF COLORADO.

IT IS FURTHER TO CERTIFY THAT THE ATTACHED TECHNICAL DATA SUPPORTS THE FACT THAT THE PROPOSED EAST 8TH STREET PHASE I – US 85 TO ASH AVE. IMPROVEMENTS WILL NOT IMPACT THE 100-YEAR FLOOD ELEVATIONS, FLOODWAY ELEVATIONS, OR FLOODWAY WIDTHS ON THE CACHE LA POUDDRE RIVER AT PUBLISHED OR UNPUBLISHED CROSS-SECTIONS IN THE FEMA FLOOD INSURANCE STUDY FOR WELD COUNTY, COLORADO AND INCORPORATED AREAS DATED JANUARY 20, 2016 IN THE VICINITY OF THE PROPOSED DEVELOPMENT.

ATTACHED ARE THE FOLLOWING DOCUMENTS THAT SUPPORT MY FINDINGS:

- 1.) EXCERPTS FROM DRAINAGE REPORT: FLOODPLAIN MODEL DESCRIPTION AND HEC-RAS COMPARISON TABLE
- 2.) FEMA FIRM PANEL AND DRAFT PRELIMINARY FLOODPLAIN
- 3.) HEC-RAS 5.0.6 MODEL



P.E. STAMP

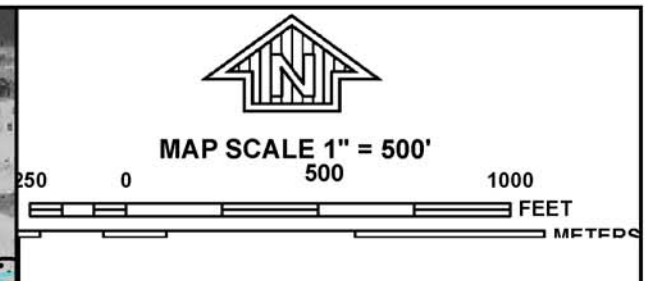
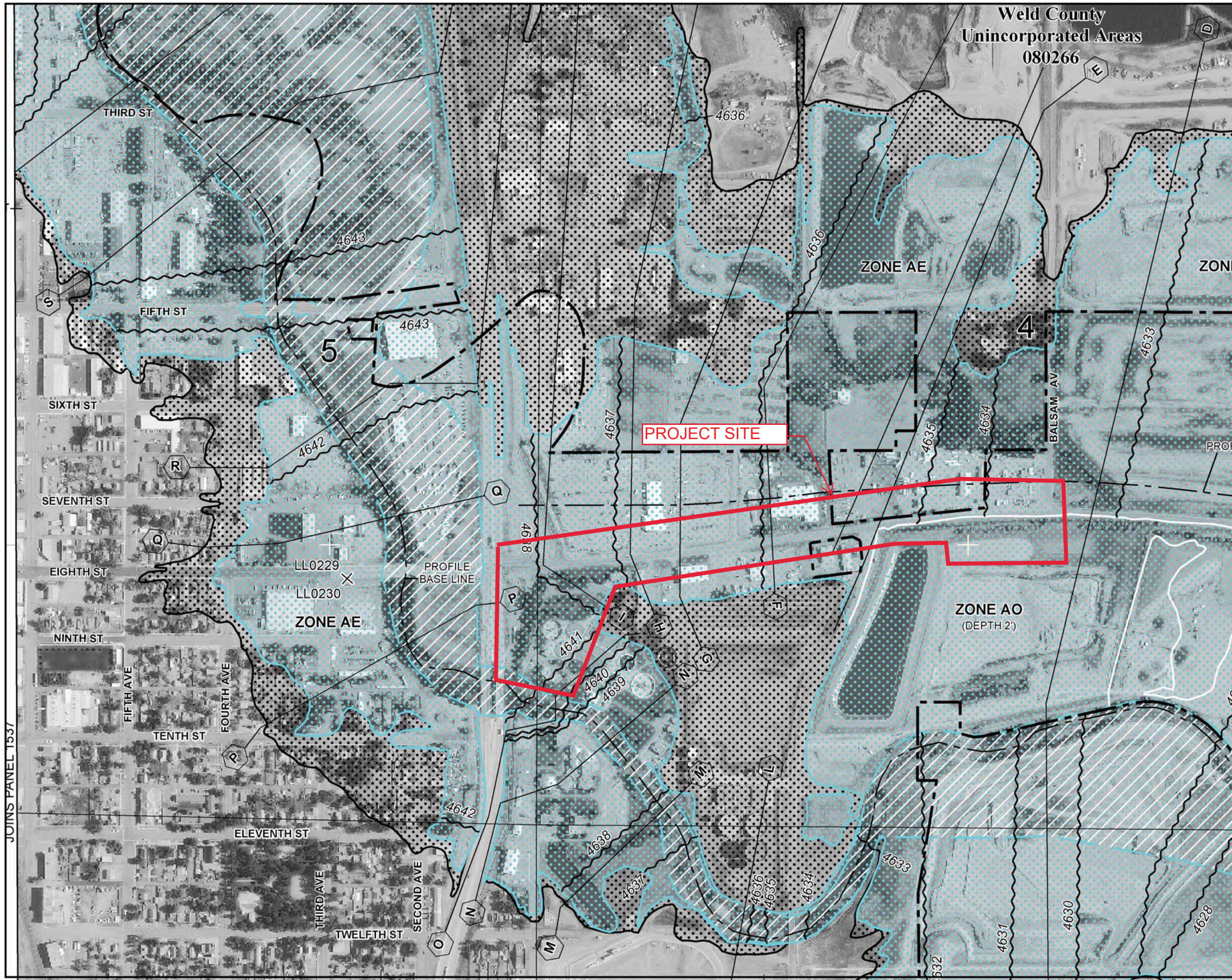
SIGNATURE: *Amy M. Gabor*

NAME (PRINTED): AMY M. GABOR, PE, CFM
 COMPANY NAME: OLSSON, INC.
 DATE: MAY 12, 2020
 PHONE NUMBER: 303-237-2072
 ADDRESS: 1525 RALEIGH STREET, SUITE 400
 DENVER, CO, 80204

CITY ACCEPTANCE

FLOODPLAIN ADMINISTRATOR

DATE



NFP PANEL 1541E

FIRM
FLOOD INSURANCE RATE MAP
WELD COUNTY,
COLORADO
AND INCORPORATED AREAS

PANEL 1541 OF 2250
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
GREELEY, CITY OF	080184	1541	E
WELD COUNTY	080266	1541	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
08123C1541E
EFFECTIVE DATE
JANUARY 20, 2016

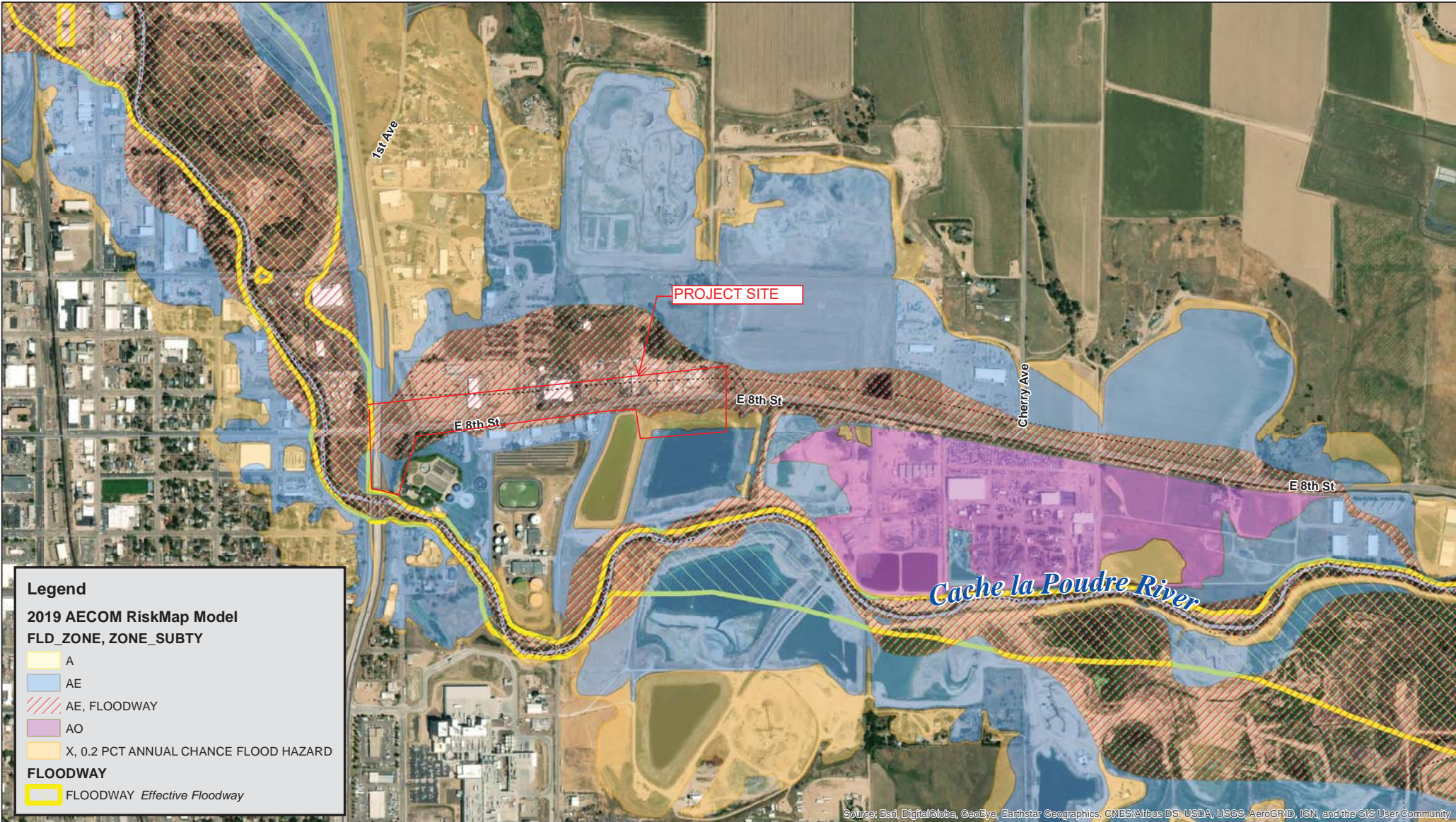
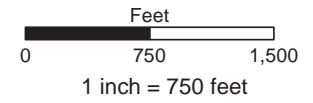
Federal Emergency Management Agency

NATIONAL FLOOD INSURANCE PROGRAM

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

JOINS PANEL 1537

Draft Poudre Floodplain (2019) East 8th Street



Legend

2019 AECOM RiskMap Model

FLD_ZONE, ZONE_SUBTY

- A
- AE
- AE, FLOODWAY
- AO
- X, 0.2 PCT ANNUAL CHANCE FLOOD HAZARD

FLOODWAY

- FLOODWAY Effective Floodway

area will be 43.29 acres (Subbasins 1-4), with a percent imperviousness of 59.00 %. The drainage in Subbasin 4 has many constraints with the existing topography. In order to drain Subbasin 4, the invert of the pipes under East 8th Street will be lowered. Lowering the pipe invert will require modifications to the outlet structure and a second parallel outlet pipe will be installed at the lower elevation and connected to the existing wingwall. A Tideflex Series TF-1 valve will be installed in a new manhole to keep the river flows out of the detention pond, while allowing the new 18-inch RCP to drain. The manual gate on the existing structure will be replaced with a flap gate.

To minimize the amount of needed lowering, a trickle channel will be installed in the CDOT Highway 85 water quality pond at a 0.1% longitudinal slope. Given the minimal slope, the trickle channel will be concrete to help facilitate maintenance activities and avoid marshy bottom. The pond bottom will be graded at an approximate 3% slope toward the trickle channel. The trees on the eastern portion of the pond will be protected. The outlet structure would be replaced with a similar, but slightly larger, outlet structure in order to satisfy current state requirements for detention and water quality ponds and to lower the 100-year water surface elevation. The water quality plate will be designed to capture and release the required water quality volume for the entire proposed tributary area over 40 hours. The proposed water quality capture volume elevation was calculated to be 4634.22, and the 100-year water surface elevation was calculated to be 4635.74. The proposed 100-year peak outflow was calculated to be 38.1 cfs, which is lower than the design discharge of 51.1 cfs.

In both existing and proposed conditions, the 100-year water surface elevation is hydraulically connected to the area north of East 8th Street, and east of the pond. This area is private property, and the stage-area curve does not reflect any storage on private property. In reality, this area will pond with water as the CDOT pond fills up, but the water surface elevations would likely be lower than those reported herein since there would be inadvertent detention occurring. The proposed condition is improved from the existing conditions, and lowers the 100-year water surface elevation by 0.66-foot.

Floodplain

The entire project is located in the Cache La Poudre River FEMA designated Zone AE floodplain. A draft preliminary HEC-RAS model, which includes updated flowrates, has been prepared for this area by AECOM, and is expected to become the effective model in 2022. The effective model has many cross sections that do not contain the 100-year water surface elevation and do not accurately model the existing conditions. To evaluate the impacts of the proposed project, the draft preliminary model was used as a corrected effective model. For the corrected effective model, HEC-RAS version 5.0.6 was used. Small difference between the draft preliminary and corrected effective model are a result of using a newer HEC-RAS version. Differences range from -0.09 foot to 0.02 foot. The draft preliminary model includes a flow split at Highway 85 that directs flows along East 8th Street. The East 8th Street reach includes lateral structures along the south side of East 8th Street starting at Ash Avenue that allow flows to spill back to the Cache La Poudre River. The model includes optimized runs with these spill locations. Because the spills are optimized, any model changes in this portion of the model to reflect the roadway improvements result in changed flow rates and a corresponding increase or decrease in water surface elevations, either along the 8th Street split reach, or along the main stem of Cache La Poudre River. The project extents end at the start of the spill locations.

The model tolerances for the existing and proposed model were tightened as compared to the draft preliminary model in order to achieve more stable results. Using the tolerances in the draft preliminary model showed increases in the 100-year water surface elevation in proposed conditions as compared to existing that appeared to be solely the result of model iterations ending on a slightly different result within the model tolerances. Additionally, several lateral structures were based on targeting energy grade, instead of water surface elevation, which also caused water surface elevation results to vary between the model runs. These lateral structures were changed to target water surface elevation for the existing and proposed models 100-year run. It should be noted that with the tighter model tolerances, other storm events will not optimize in the model, which is likely why they were set the way they were in the preliminary model.

The existing survey dat16a was incorporated into the draft preliminary model to evaluate existing conditions. Topographic changes between the 2013 LiDAR that was used for the preliminary modeling and the existing conditions survey result in a change in a lateral structure that spills water from the 8th Street reach, back into the Cache La Poudre River and cause up to 1.13-foot rises in the water surface elevation as compared to the corrected effective model.

The existing conditions model cross sections were revised to reflect the proposed grading for the roadway improvements. The proposed improvements were adjusted until a no rise was achieved for the proposed improvements. The proposed conditions result in a 100-year water surface elevation with a maximum decrease of 0.07-foot as compared to existing conditions. A rise of 0.02-foot is located significantly upstream of the project area, approximately two miles on the "RR Sand Pit" reach and in the "NE IGP" reach which is approximately 1 mile upstream of the project reach. The two cross sections with a rise are purely a result of model iterations. The proposed water surface elevations match existing for all of the river reaches between the RR Sand Pit reach and NE IGP reach and the project area. The proposed conditions result in a maximum rise of 4.20-foot as compared to the effective base flood elevations, due mainly to the differences between the effective and draft preliminary models. The proposed conditions result in a maximum 1.13-foot rise as compared to the corrected effective model due to the change in existing topography. A comparison table is included in Appendix C.

The project will result in no-rise to the 100-year floodplain.

VII. CONCLUSIONS

A. Compliance with Standards

Criteria from the City of Greeley *Design Criteria and Construction Specifications – Street Volume I Manual 2015*, MHPD *Urban Storm Drainage Criteria Manual 2017 (USDCM)*, and *Design Criteria and Construction Specifications – Storm Drainage Volume II Manual, amended 2019* were used for the design and hydraulic analysis of this project. Other than the Cache La Poudre River floodplain studies, no known drainage studies or master plans are present in the project area. The proposed stormwater improvements will be an improvement from existing conditions.

