

**PRELIMINARY DRAINAGE REPORT**

**FOR**

**CLAREMONT COMMERCIAL  
SUBDIVISION FIL NO. 2  
A RESUBDIVISION OF TRACT C OF  
CLAREMONT BUSINESS PARK FILING NO. 2**

**EL PASO COUNTY, COLORADO**

JUNE 2017

Prepared for:

**Ron Waldthausen  
Land First, Inc.  
1378 Promontory Bluff View  
Colorado Springs, CO 80921  
(719) 491-0801**

Prepared by:



20 Boulder Crescent, Suite 110  
Colorado Springs, CO 80903  
(719) 955-5485

Project #42-008  
PCD - SP-17-004

**PRELIMINARY DRAINAGE REPORT FOR  
CLAREMONT COMMERCIAL SUBDIVISION FIL NO. 2  
A RESUBDIVISION OF TRACT C OF  
CLAREMONT BUISNESS PARK FILING NO. 2**

**DRAINAGE PLAN STATEMENTS**

**ENGINEERS STATEMENT**

The attached drainage plan and report was 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 acceptable to the City of Colorado Springs. I accept responsibility for any liability caused by any negligent acts, errors of omission on my part in preparing this report.

\_\_\_\_\_  
Virgil A. Sanchez, P.E. #37160  
For and on Behalf of M&S Civil Consultants, Inc

**DEVELOPER'S STATEMENT**

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

BY: \_\_\_\_\_

TITLE: \_\_\_\_\_

DATE: \_\_\_\_\_

ADDRESS: Ron Waldthausen  
Land First, Inc.  
1378 Promontory Bluff View  
Colorado Springs, CO 80921

**EL PASO COUNTY'S STATEMENT**

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

BY: \_\_\_\_\_ DATE: \_\_\_\_\_

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

**CONDITIONS:**

**PRELIMINARY DRAINAGE REPORT FOR  
CLAREMONT COMMERCIAL SUBDIVISION FIL NO. 2  
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CLAREMONT BUISNESS PARK FILING NO. 2**

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**PRELIMINARY DRAINAGE REPORT FOR  
CLAREMONT COMMERCIAL SUBDIVISION FIL NO. 2  
A RESUBDIVISION OF TRACT C OF  
CLAREMONT BUSINESS PARK FILING NO. 2**

Revise. A Final Drainage Report is required with the final plat. A drainage letter will be required with development of individual lots provided significant changes from the approved FDR is not proposed.

**PURPOSE**

This document is intended to serve as the Preliminary Drainage Report for CLAREMONT COMMERCIAL SUBDIVISION FIL NO. 2. The purpose of this document is to identify and analyze the onsite drainage patterns and to ensure that post development runoff is routed through the site safely and in a manner that satisfies the requirements set forth by the El Paso County and City of Colorado Springs Drainage Criteria Manual. The proposed principal use for the site will be neighborhood commercial and light industrial. The parcel is zoned by El Paso County for commercial service as CS. The development of the lots within this subdivision will provide a final drainage report to El Paso County for review. Those final drainage report(s) shall conform to this report or amend if necessary.

**GENERAL LOCATION AND DESCRIPTION**

CLAREMONT COMMERCIAL Filing No. 2 is located in the Northeast ¼ of the Northeast ¼ of Section 8, and the Southeast ¼ of the Southeast ¼ of Section 5, Township 14 South, Range 65 West of the 6th P.M. in El Paso County, Colorado. The site is bordered to the southeast by U.S. Highway 24 and to the northeast by N. Marksheffel Road, to the north and west by Meadowbrook Parkway, and to the south by a vacant lot. The site lies within the Sand Creek Drainage Basin. Flows from this site are tributary to Sand Creek.

The site consists of 13.7 acres in which is presently undeveloped. Vegetation is sparse, consisting of native grasses and weeds. Existing site terrain generally slopes from north to southwest at grade rates that vary between 1.2% and 2%. A soil retention wall runs along the eastside of the proposed site, next to U.S. Highway 24 and N. Marksheffel Road, and borders the back of Lots 10-16. The Claremont Commercial site is currently zoned "CS" and the proposed principal use for the site will be neighborhood commercial and light industrial.

A sand filter basin will provide water quality treatment for the development and is proposed to be constructed at the south end of the site. The outlet structure of the proposed water quality pond will tie into an existing 42" storm sewer, which will route the treated runoff to Sand Creek. See Appendix for details.

**SOILS**

Soils for this project are delineated by the map in the appendix as Ellicott Loamy Course Sand (28) and Blendon Sandy Loam (10) and Blakeland Loamy Sand is characterized as Hydrologic Soil Types "A" & "B". Soils in the study area are shown as mapped by S.C.S. in the "Soils Survey of El Paso County Area". Vegetation is sparse, consisting of native grasses and weeds. See Appendix for soils report.

**HYDROLOGIC CALCULATIONS**

Hydrologic calculations were performed using the El Paso County and City of Colorado Springs Storm Drainage Design Criteria manual and where applicable the Urban Storm Drainage Criteria Manual. The

Rational Method was used to estimate stormwater runoff anticipated from design storms with 5-year and 100-year recurrence intervals.

## HYDRAULIC CALCULATIONS

Hydraulic calculations were estimated using the Manning's Formula and the methods described in the El Paso County and City of Colorado Springs Storm Drainage Design Criteria manual. The relevant data sheets are included in the Appendix of this report.

## FLOODPLAIN STATEMENT

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panel No. 08041C0752 F, effective date March 17, 1997, LOMR 06-08-B137P dated November 13, 2006 and Panel No. 08041C0756 F, effective date March 17, 1997, LOMR 08-08-0630P dated September 24, 2008. No portion of this site is located within the 100 year floodplain.

## DRAINAGE CRITERIA

This drainage analysis has been prepared in accordance with the current City of Colorado Springs/El Paso County Drainage Criteria Manual. Calculations were performed to determine runoff quantities for the 5-year and 100-year frequency storms for developed conditions using the Rational Method as required for basins having areas less than 100 acres. See Appendix for calculations.

## FOUR STEP PROCESS

- Step1 Employ Runoff Reduction Practices** – Approx. 13.7 of the proposed developed 6.8+/- acres of ground within the project is being set aside for Open Space/WQ facility. Roof drains will be directed to property lines swales to minimize direct connection of impervious surfaces.
- Step 2 Stabilize Drainageways** – The site is upstream of an existing 42"/48" RCP the directly discharges to Sand Creek Channel via an outlet structure with wingwalls. The "Final Drainage Report for Claremont Business Park Filing No. 2", dated November 2006, by Matrix Design Group, Inc. (hence for referred to as "MDDP") has been designed to discharge developed flows via a 48" RCP directly to the East Fork Sand Creek. The Claremont Commercial Filing No. 2 site proposes a Sand Filter Water Quality Facility before discharging to the 42" RCP pipe in Meadowbrook Parkway. The outlet underdrain has been designed to drain the pond in a peak event within 12 hours, therefore is not anticipated to have negative effects on downstream drainageways. A Sand Filter Basin water quality facilities is proposed to provide WQCV.
- Step 3 Provide Water Quality Capture Volume** – A Sand Filter Basin water quality facility is proposed to provide WQCV.
- Step4 Consider Need for Industrial and Commercial BMP's** – This submittal provides a final grading and erosion control plans with BMPs in place. The proposed project will use silt fence, a vehicle tracking control pad, concrete washout area, mulching and reseeding to mitigate the potential for erosion across the site.

## EXISTING DRAINAGE CONDITIONS

The CLAREMONT COMMERCIAL Filing No, 2 site consists of 13.7 acres and is situated east of the East Fork Reach of the Sand Creek Watershed. This area was previously studied in the "Final Drainage

Revise. Per the FDR for Claremont Business Park Filing 2 on-site flood control detention is not required.

However, per Resolution 16-426, the BoCC determined that permanent water quality BMP's are required with new development within the Claremont Business Park.

**Unresolved. Provide a summary or statement why on-site detention is not provided and why WQCV is required.**

Meadowbrook Parkway. As stated in the MDDP, overall grading activities for the entire site have been completed.

An existing 42" private storm sewer runs along the east side of Meadowbrook Parkway and connects to a 48" public storm sewer near the intersection of Meadowbrook Parkway and Woolsey Heights. Two 10' Type R at grade inlet also exists at this intersection, one on the north side of Woolsey Heights, and the other along Meadowbrook Parkway at the northwest corner of the intersection. Runoff from the site and the two surrounding streets, Meadowbrook Parkway and Woolsey Heights, is intercepted by these inlets and conveyed to the Sand Creek channel via the existing 48" storm sewer. No offsite runoff will be collected by the proposed project site.

Refer to the drainage basin descriptions that follow for additional information as well as the Drainage Map located within the Appendix of this report.

update: 48" public storm sewer...  
**Unresolved.**

## PROPOSED DRAINAGE CHARACTERISTICS

### General Concept Drainage Discussion

The majority of the site will consist of neighborhood commercial and light industrial, asphalt, curb, a storm water quality sand filter basin, and landscaping. The site will drain, across asphalt and impermeable surfaces, to the south and southwest. Channelized flow will be conveyed via curb and gutter to the Design Points shown on the drainage map. Cumulative runoff of Q5=37.9 cfs and Q100=73.5 cfs has been calculated for the 13.7 acre site. These values are very similar to the previously mentioned MDDP study values (Q5=45.0 cfs, Q100=91.0 cfs), with the MDDP including runoff from the eastern half of Meadowbrook Parkway. A storm water quality sand filter basin is proposed to be constructed at the south end of the site and treat all onsite runoff. The outlet structure of the proposed water quality pond will tie into an existing private 42" storm sewer along Meadowbrook Parkway through an existing manhole. (Approximately 182' feet of the existing private 42" storm sewer north of the manhole MAY NEED to be removed for proposed storm pipe runs PR2, PR3, PR4 to be installed, OR it may be possible to utilize the existing pipe for these pipe runs to discharge into the WQ Pond. Upon final design for this project, research and surveying will determine the above condition.) The existing private 42" storm sewer ties into an existing public 48" storm sewer which will route the treated runoff to Sand Creek. For more information of drainage basins, existing and proposed structures refer to the Drainage Map located within the Appendix of this report.

### Detailed Drainage Discussion

**Basin A**, 2.46 acres, consists of steep slopes of 32% adjacent to U.S Highway 24 and N. Marksheffel Rd. The roadway embankment slopes into a soil retention wall that runs along the west boundary of Basin A. Runoff of Q5=1.1 cfs and Q100=7.7 cfs has been calculated to be produced by the basin. Flows produced within the basin will be conveyed westward into Basin B as sheet flow.

**Basin B**, 7.67 acres, consists of ten lots on the eastern portion of proposed site and two streets, El Jefe Lane and Mogul Drive. Runoff produce by the basin of Q5=25.6 cfs and Q100=46.5 cfs will travel south as sheet flow and conveyed as concentrated flow in El Jefe Lane and Mogul Drive to Design Point 2. All flows reaching Design Point 2 will by collected by a 15' sump inlet at the end of the cul-de-sac and conveyed to the proposed water quality pond located at the south end of the site. Runoff produced by Lots

1, 2, and Lots 11-14 shall sheet flow directly to Mogul Drive. Runoff produced by Lot 16 shall flow to Lot 15 and then shall be conveyed to Mogul Drive via a curb, swale etc, the conveyance source shall be determined at the time of development. Runoff produced by Lot 10 shall flow to Lot 9 and then shall be conveyed directly to the proposed water quality pond via a curb, swale etc, the conveyance source shall be determined at the time of development.

**Basin B1**, 2.33 acres, consists of Lots 3-6 located between Mogul Drive and Meadowbrook Parkway. Runoff produced by the basin of  $Q_5=8.3$  cfs and  $Q_{100}=15.1$  cfs will travel south to a curb, swale etc, the conveyance source shall be determined at the time of development where flows will be routed to a low point located in the southwest corner of the basin of Lot and collected by an area inlet at Design Point 1. Flows will continue via storm pipe to the proposed water quality pond located at the south end of the site.

**Basin B2**, 0.19 acres, consists entirely of Rey Pez Street. Runoff produced by the basin of  $Q_5=0.9$  cfs and  $Q_{100}=1.6$  cfs will travel west to two proposed At-Grade inlets located at the east end of the street. The total calculated runoff values for Basin B2 will be divided in half, representing the north and south halves of the street. Flows will be conveyed to the At-Grade inlets at Design Point 3 and Design Point 3A.

**Basin B3**, 0.73 acres, consists of Lots 7 and 8 located south of Rey Pez Street and north of the proposed water quality pond. Runoff produced by the basin of  $Q_5=3.1$  cfs and  $Q_{100}=5.6$  cfs will travel south to a curb, swale etc, the conveyance source shall be determined at the time of development where flows will be routed to a low point located in the southwest corner of the basin and collected by an area inlet at Design Point 4. Flows will continue via storm pipe to the proposed water quality pond located at the south end of the site. Lot 7 shall determine at the time of development if the runoff would be beneficial to be routed directly to the WQ pond rather than through Lot 8.

**Basin C**, 0.68 acres, consists of the area proposed for the onsite Sand Filter Basin water quality pond. Runoff of  $Q_5=0.7$  cfs and  $Q_{100}=2.4$  cfs produced within the basin will ultimately combine with flows entering the pond from Design Points 1, 2, 3, 3A, and Design Point 4. The flows from the basin and two proposed 42" and 36" private storm sewers will reach Design Point 5 with values of  $Q_5=37.9$  cfs and  $Q_{100}=73.5$  cfs. Flows carried by the proposed development are discharged through an outlet structure and routed to an existing public 42" public storm sewer located in the southwest corner of the proposed site.

**Basin D**, 0.94 acres, consists of a landscaping strip running alongside and adjacent to Meadowbrook Parkway. The basin will meet the landscaping strip with decorative ground cover. Flows will travel as sheet flow into the basin.

private  
**Unresolved. The narrative in the existing drainage condition narrative and the Matrix Drainage map shows the existing 42" west of Meadowbrook Parkway as a private storm line.**

## WATER QUALITY PROVISIONS AND MAINTENANCE

The proposed Sand Filter Basin functions to provide water quality for runoff produced onsite. The water quality pond is designed to treat approx 13.7.0 acres, and provide 16.635 cubic-feet of water quality storage. The water quality basin will be private. Identify the method used for water quality detention calculation.  
16' wide, 12% access road. Access shall be maintained. **Unresolved. State that with the Final Drainage Report the latest version of the UD-Detention will be used to design the Sand Filter Basin.**  
maintenance of the private WQCV facility. At the submittal.

The water quality volume required for the site is determined based on the City of Colorado Springs/El Paso County Drainage Criteria Manual - Volume II. Refer to the water quality facility sizing calculations located within the appendix of this report.

**EROSION CONTROL**

It is the policy of the El Paso County that we submit a grading and erosion control plan with the drainage report. Proposed silt fence, vehicle traffic control, and concrete washout area are proposed as erosion control measures.

**CONSTRUCTION COST OPINION**

Private Drainage Facilities NON-Reimbursable:

Item	Description	Quantity	Unit Cost	Cost
1.	24" RCP	205 LF	\$48 /LF	\$9,840.00
2.	36" RCP	61 LF	\$82 /LF	\$5,002.00
3.	42" RCP	135 LF	\$120 /LF	\$16,200.00
4.	WQCV Sand Filter Pond	1 EA	\$15,000 /EA	\$15,000.00
5.	Pond Outlet Structure	1 EA	\$12,000 /EA	\$12,000.00
6.	At Grade/Sump Inlet (Type R) L=15'	3 EA	\$7,923 /EA	\$23,769.00
				<b>*Total \$ \$79,642.00</b>

**\*Tentative cost dependent upon use of existing 42" RCP. To Be determined with Final Drainage Report**

M & S Civil Consultants, Inc. (M & S) cannot from these opinions of probable costs. These of familiar with the construction industry and this of the facility cost and drainage basin fee amou

Since the applicant has not submitted a final plat application revise the fees section using one of the following options:

**DRAINAGE & BRIDGE FEES**

This site is in the Sand Creek Drainage Basin. County for the CLAREMONT COMMERCIAL

**Drainage Fees:** 13.720 x 75%  
**Bridge Fees:** 13.720 x 75%

1. Revise based on the 2018 rates and add an asterisk similar to the construction cost opinion above. Add a note that drainage/bridge fees will be based on the effective rate for Sand Creek drainage basin at the time of final plat application submittal.

2. Alternatively, since this is a preliminary drainage report you can identify the total impervious acre, remove the calculated fees, and state that drainage and bridge fees for the property will be presented with the final drainage report. Add a note that drainage/bridge fees will be based on the effective rate for Sand Creek drainage basin at the time of final plat application submittal.

**SUMMARY**

Development of this site will not adversely affect the report with no negative impacts of the development. The proposed drainage facilities will adequately convey, detain and route runoff from the onsite flows to the Sand Creek Drainage channel. All drainage facilities described herein and shown on the included Drainage Map (See Appendix) are subject to change due to formal design considerations during the construction document preparation stage. Care will be taken to accommodate overland emergency flow routes on site and temporary drainage conditions. The development of the CLAREMONT COMMERCIAL FILING NO. 2 project will not adversely affect adjacent or downstream property.

## **REFERENCES**

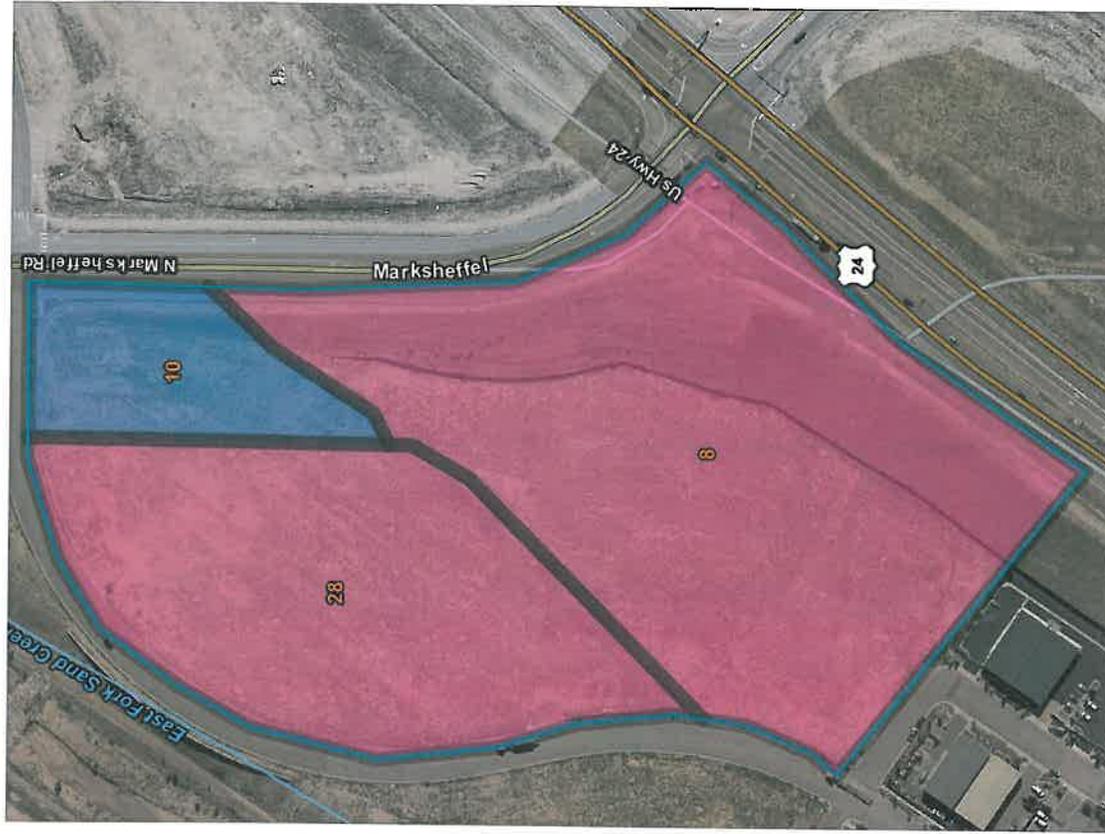
- 1.) "El Paso County and City of Colorado Springs Drainage Criteria Manual".
- 2.) "Urban Storm Drainage Criteria Manual"
- 3.) SCS Soils Map for El Paso County.
- 4.) Flood Insurance Rate Map (FIRM), Federal Emergency Management Agency, Effective date March 17, 1997.
- 5.) "Final Drainage Report for Claremont Business Park Filing No. 2", dated November 2006, by Matrix Design Group, Inc.

## **APPENDIX**

**VICINITY MAP**



**SOILS MAP**



CLAREMONT COMMERCIAL FILING NO. 2 NOT TO SCALE



SOILS MAP



Hydrologic Soil Group—Summary by Map Unit — El Paso County Area, Colorado (CO625)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
8	Blackland loamy sand, 1 A to 9 percent slopes	A	11.7	56.7%
10	Blendon sandy loam, 0 B to 3 percent slopes	B	2.1	10.0%
28	Ellicott loamy coarse sand, 0 to 5 percent slopes	A	6.9	33.3%
<b>Totals for Area of Interest</b>			<b>20.6</b>	<b>100.0%</b>

**FIRM PANEL W/ REVISED LOMR**

NATIONAL FLOOD INSURANCE PROGRAM

# FIRM FLOOD INSURANCE RATE MAP

EL PASO COUNTY,  
COLORADO  
AND INCORPORATED AREAS

PANEL 756 OF 1300  
(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS	COMMUNITY	NUMBER	PANEL SUFFIX
EL PASO COUNTY, UNINCORPORATED AREAS	080059	0756	F
EL PASO COUNTY, UNINCORPORATED AREAS	080059	0756	F

REVISED TO  
REFLECT LOMR  
EFFECTIVE September 24, 2000

MAP NUMBER  
08041C0756 F  
EFFECTIVE DATE:  
MARCH 17, 1997

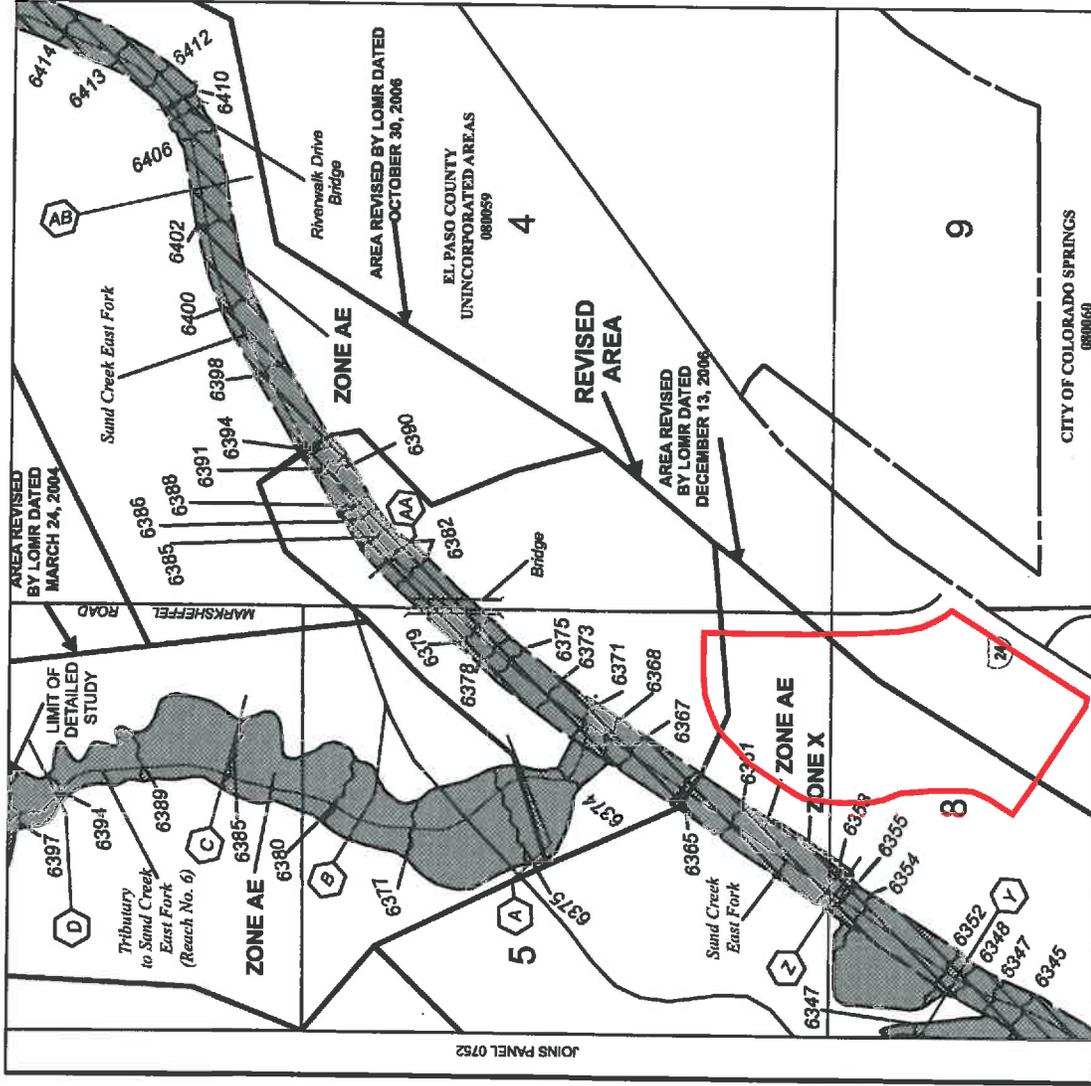


Federal Emergency Management Agency

## LEGEND

- 1% annual chance (100-Year) Floodplain
- 1% annual chance (100-Year) Floodway
- 0.2% annual chance (500-Year) Floodplain

SITE BOUNDARY



CLAREMONT COMMERCIAL FILING NO. 2

NOT TO SCALE

# FIRM MAP



CIVIL CONSULTANTS, INC.

Follows Conditional Case No.: 04-08-0469R



# Federal Emergency Management Agency

Washington, D.C. 20472

## LETTER OF MAP REVISION DETERMINATION DOCUMENT

COMMUNITY AND REVISION INFORMATION		PROJECT DESCRIPTION	BASIS OF REQUEST
COMMUNITY	El Paso County Colorado (Unincorporated Areas)	BRIDGE CHANNELIZATION FILL	FLOODWAY HYDRAULIC ANALYSIS NEW TOPOGRAPHIC DATA
	COMMUNITY NO.: 080059		
IDENTIFIER	Marksheffel Road Bridge	APPROXIMATE LATITUDE & LONGITUDE: 38.857, -104.682 SOURCE: Precision Mapping Streets DATUM: NAD 83	
ANNOTATED MAPPING ENCLOSURES		ANNOTATED STUDY ENCLOSURES	
TYPE: FIRM* NO.: 08041C0756 F DATE: March 17, 1997		DATE OF EFFECTIVE FLOOD INSURANCE STUDY: August 23, 1999 PROFILE(S): 212P, 344P FLOODWAY DATA TABLE: 5	

Enclosures reflect changes to flooding sources affected by this revision.

\* FIRM - Flood Insurance Rate Map; \*\* FBFM - Flood Boundary and Floodway Map; \*\*\* FHBM - Flood Hazard Boundary Map

### FLOODING SOURCE(S) & REVISED REACH(ES)

East Fork Sand Creek - from approximately 1,070 feet downstream of Marksheffel Road to 740 feet upstream

Tributary to Sand Creek East Fork (Reach No. 6) - from the confluence with Sand Creek East Fork to approximately 390 feet upstream

### SUMMARY OF REVISIONS

Flooding Source	Effective Flooding	Revised Flooding	Increases	Decreases
East Fork Sand Creek	Zone AE	Zone AE	YES	YES
	Floodway	Floodway	YES	YES
	BFEs*	BFEs	YES	YES
Tributary to Sand Creek East Fork (Reach No. 6)	BFEs	BFEs	NONE	YES

\* BFEs - Base Flood Elevations

### DETERMINATION

This document provides the determination from the Department of Homeland Security's Federal Emergency Management Agency (FEMA) regarding a request for a Letter of Map Revision (LOMR) for the area described above. Using the information submitted, we have determined that a revision to the flood hazards depicted in the Flood Insurance Study (FIS) report and/or National Flood Insurance Program (NFIP) map is warranted. This document revises the effective NFIP map, as indicated in the attached documentation. Please use the enclosed annotated map panels revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals in your community.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMR Depot, 3601 Eisenhower Avenue, Alexandria, VA 22304. Additional information about the NFIP is available on our website at <http://www.fema.gov/nfip>.

Beth A. Norton, CFM, Program Specialist  
Engineering Management Branch  
Mitigation Directorate



# Federal Emergency Management Agency

Washington, D.C. 20472

## LETTER OF MAP REVISION DETERMINATION DOCUMENT (CONTINUED)

### COMMUNITY INFORMATION

#### APPLICABLE NFIP REGULATIONS/COMMUNITY OBLIGATION

We have made this determination pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (P.L. 93-234) and in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, P.L. 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65. Pursuant to Section 1361 of the National Flood Insurance Act of 1968, as amended, communities participating in the NFIP are required to adopt and enforce floodplain management regulations that meet or exceed NFIP criteria. These criteria, including adoption of the FIS report and FIRM, and the modifications made by this LOMR, are the minimum requirements for continued NFIP participation and do not supersede more stringent State/Commonwealth or local requirements to which the regulations apply.

We provide the floodway designation to your community as a tool to regulate floodplain development. Therefore, the floodway revision we have described in this letter, while acceptable to us, must also be acceptable to your community and adopted by appropriate community action, as specified in Paragraph 60.3(d) of the NFIP regulations.

NFIP regulations Subparagraph 60.3(b)(7) requires communities to ensure that the flood-carrying capacity within the altered or relocated portion of any watercourse is maintained. This provision is incorporated into your community's existing floodplain management ordinances; therefore, responsibility for maintenance of the altered or relocated watercourse, including any related appurtenances such as bridges, culverts, and other drainage structures, rests with your community. We may request that your community submit a description and schedule of maintenance activities necessary to ensure this requirement.

#### COMMUNITY REMINDERS

We based this determination on the 1-percent-annual-chance flood discharges computed in the FIS report for your community without considering subsequent changes in watershed characteristics that could increase flood discharges. Future development of projects upstream could cause increased flood discharges, which could cause increased flood hazards. A comprehensive restudy of your community's flood hazards would consider the cumulative effects of development on flood discharges subsequent to the publication of the FIS report for your community and could, therefore, establish greater flood hazards in this area.

Your community must regulate all proposed floodplain development and ensure that permits required by Federal and/or State/Commonwealth law have been obtained. State/Commonwealth or community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction or may limit development in floodplain areas. If your State/Commonwealth or community has adopted more restrictive or comprehensive floodplain management criteria, those criteria take precedence over the minimum NFIP requirements.

We will not print and distribute this LOMR to primary users, such as local insurance agents or mortgage lenders; instead, the community will serve as a repository for the new data. We encourage you to disseminate the information in this LOMR by preparing a news release for publication in your community's newspaper that describes the revision and explains how your community will provide the data and help interpret the NFIP maps. In that way, interested persons, such as property owners, insurance agents, and mortgage lenders, can benefit from the information.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMR Depot, 3601 Eisenhower Avenue, Alexandria, VA 22304. Additional Information about the NFIP is available on our website at <http://www.fema.gov/nfip>.

A handwritten signature in cursive script, reading "Beth A. Norton".

Beth A. Norton, CFM, Program Specialist  
Engineering Management Branch  
Mitigation Directorate



# Federal Emergency Management Agency

Washington, D.C. 20472

## LETTER OF MAP REVISION DETERMINATION DOCUMENT (CONTINUED)

This revision has met our criteria for removing an area from the 1-percent-annual-chance floodplain to reflect the placement of fill. However, we encourage you to require that the lowest adjacent grade and lowest floor (including basement) of any structure placed within the subject area be elevated to or above the Base (1-percent-annual-chance) Flood Elevation.

We have designated a Consultation Coordination Officer (CCO) to assist your community. The CCO will be the primary liaison between your community and FEMA. For information regarding your CCO, please contact:

Ms. Jeanine D. Petterson  
Director, Mitigation Division  
Federal Emergency Management Agency, Region VIII  
Denver Federal Center, Building 710  
P.O. Box 25267  
Denver, CO 80225-0267  
(303) 235-4830

### STATUS OF THE COMMUNITY NFIP MAPS

We will not physically revise and republish the FIRM and FIS report for your community to reflect the modifications made by this LOMR at this time. When changes to the previously cited FIRM panel(s) and FIS report warrant physical revision and republication in the future, we will incorporate the modifications made by this LOMR at that time.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMR Depot, 3601 Eisenhower Avenue, Alexandria, VA 22304. Additional information about the NFIP is available on our website at <http://www.fema.gov/nfip>.

A handwritten signature in cursive script that reads "Beth A. Norton".

Beth A. Norton, CFM, Program Specialist  
Engineering Management Branch  
Mitigation Directorate



# Federal Emergency Management Agency

Washington, D.C. 20472

## LETTER OF MAP REVISION DETERMINATION DOCUMENT (CONTINUED)

### PUBLIC NOTIFICATION OF REVISION

#### PUBLIC NOTIFICATION

FLOODING SOURCE	LOCATION OF REFERENCED ELEVATION	BFE (FEET NGVD 29)		MAP PANEL NUMBER(S)
		EFFECTIVE	REVISED	
East Fork Sand Creek	Approximately 430 feet downstream of Marksheffel Road	6,375	6,374	08041C0756 F
	Approximately 290 feet upstream of Marksheffel Road	6,385	6,384	08041C0756 F
Tributary to Sand Creek East Fork (Reach No. 6)	Approximately 120 feet upstream of the confluence with Sand Creek East Fork	6,374	6,373	08041C0756 F

Within 90 days of the second publication in the local newspaper, a citizen may request that we reconsider this determination. Any request for reconsideration must be based on scientific or technical data. This revision is effective as of the date of this letter. However, until the 90-day period has elapsed, the revised BFEs presented in this LOMR may be changed.

A notice of changes will be published in the *Federal Register*. A short notice also will be published in your local newspaper on or about the dates listed below. Please refer to FEMA's website at [https://www.floodmaps.fema.gov/fhm/Scripts/bfe\\_main.asp](https://www.floodmaps.fema.gov/fhm/Scripts/bfe_main.asp) for a more detailed description of the proposed BFE changes, which will be posted within a week of the date of this letter.

#### LOCAL NEWSPAPER

Name: *El Paso County News*  
Dates: 10/08/2008 10/15/2008

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMR Depot, 3601 Eisenhower Avenue, Alexandria, VA 22304. Additional information about the NFIP is available on our website at <http://www.fema.gov/nfip>.

*Beth A. Norton*

Beth A. Norton, CFM, Program Specialist  
Engineering Management Branch  
Mitigation Directorate

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY FEET	WITH FLOODWAY (NGVD)	INCREASE
Sand Creek East Fork					REVISED BY LOMR DATED OCTOBER 07, 2004			
A	1,100	100	455	11.9	6,038.7	6,038.7	6,038.7	0.0
B	2,400	100	446	12.2	6,054.3	6,054.3	6,054.3	0.0
C	3,330	100	450	12.0	6,069.9	6,069.9	6,069.9	0.0
D	4,240	100	449	12.1	6,085.1	6,085.1	6,085.1	0.0
E	4,870	100	451	12.0	6,095.2	6,095.2	6,095.2	0.0
F	5,820	250	602	8.9	6,118.4	6,118.4	6,118.9	0.5
G	6,690	150	518	10.3	6,128.1	6,128.1	6,129.1	1.0
H	7,795	125	477	11.2	6,155.2	6,155.2	6,155.2	0.0
I	8,665	150	505	10.6	6,168.8	6,168.8	6,168.8	0.0
J	9,675	100	443	12.0	6,188.4	6,188.4	6,188.4	0.0
K	10,565	115	465	11.5	6,196.2	6,196.2	6,196.2	0.0
L	11,325	166	525	10.2	6,207.3	6,207.3	6,207.3	0.0
M	11,375	173	632	8.4	6,207.9	6,207.9	6,207.9	0.0
N	12,610	367	699	7.6	6,228.8	6,228.8	6,228.8	0.1
O	13,720	188	570	10.0	6,241.7	6,241.7	6,241.7	0.0
P	14,805	125	479	11.1	6,257.9	6,257.9	6,257.9	0.0
Q	14,885	125	601	8.9	6,259.9	6,259.9	6,259.9	1.0
R	15,850	228	582	9.2	6,268.7	6,268.7	6,268.7	0.0
S	16,325	300	678	7.9	6,277.3	6,277.3	6,277.5	0.2
T	16,995	321	690	7.7	6,291.4	6,291.4	6,292.0	0.6
U	17,065	326	667	8.0	6,291.4	6,291.4	6,292.1	0.7
V	17,915	388	1,598	3.3	6,293.4	6,293.4	6,294.0	0.6
W	18,995	367	683	7.8	6,307.2	6,307.2	6,307.6	0.4
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Z	23,060	145	503	11.0	6,358.0	6,358.0	6,358.0	0.0
AA	25,020	139	580	9.3	6,382.1	6,382.1	6,382.1	0.0
AB	26,470	132	452	10.0	6,402.7	6,402.7	6,402.7	0.0
AC	27,715	112	419	10.8	6,416.6	6,416.6	6,416.6	0.0

REVISED AREA

<sup>1</sup> Feet Above Confluence With Sand Creek

REVISED BY LOMR DATED OCTOBER 30, 2006

REVISED BY LOMR DATED DECEMBER 13, 2006

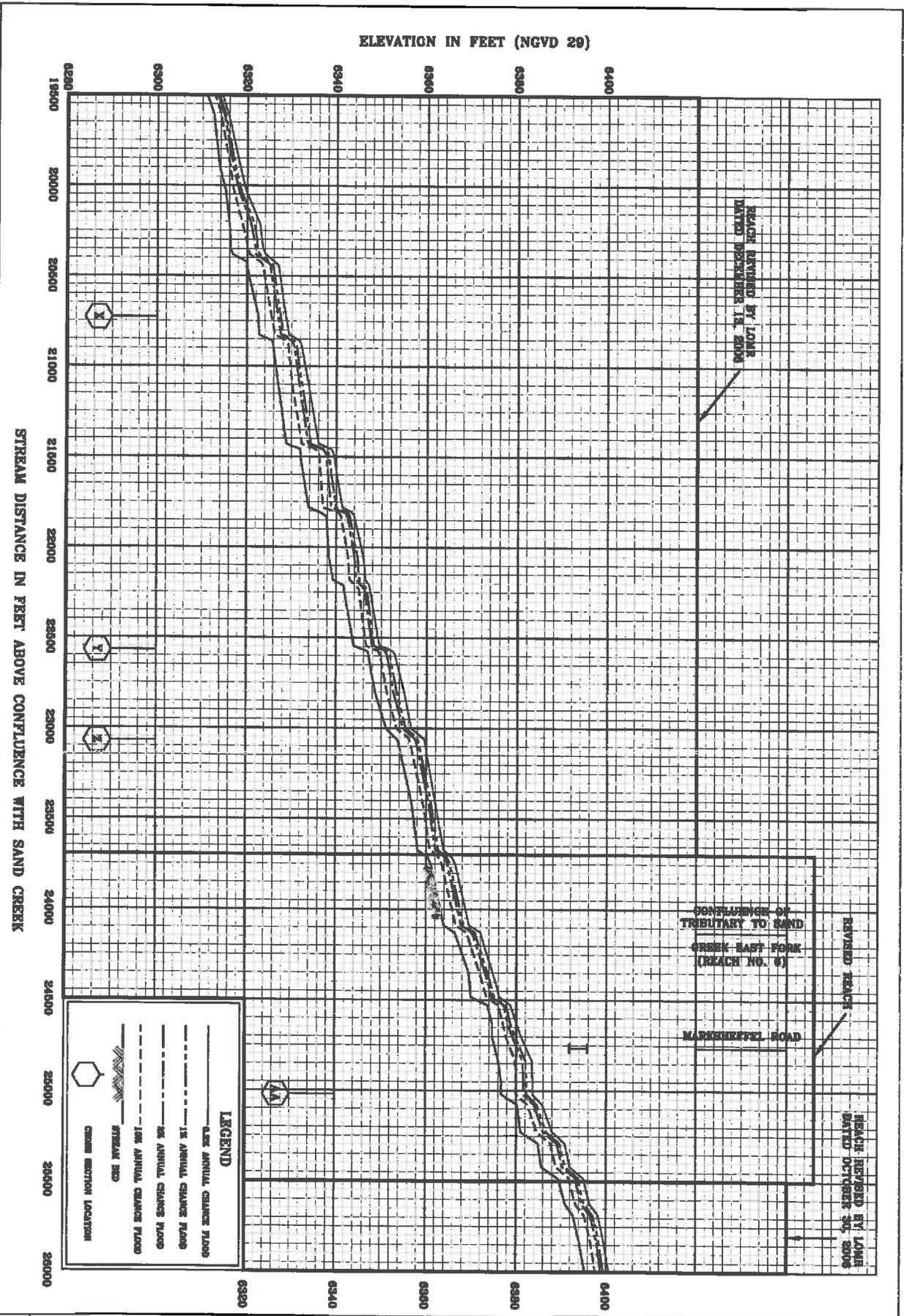
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5

FEDERAL EMERGENCY MANAGEMENT AGENCY  
EL PASO COUNTY, CO  
AND INCORPORATED AREAS

REVISED TO  
REFLECT LOMR  
EFFECTIVE: September 24, 2006

FLOODWAY DATA

SAND CREEK EAST FORK

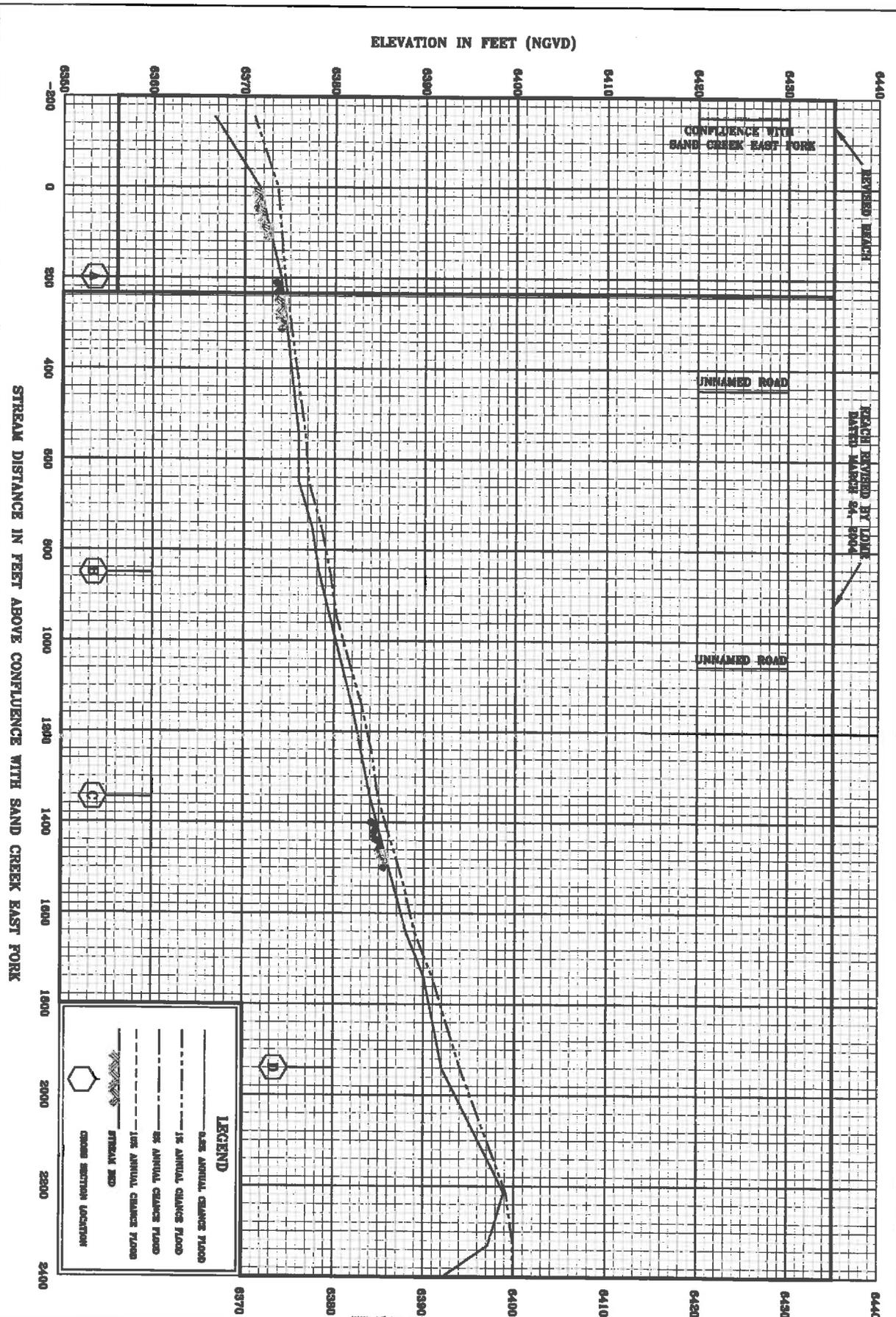


212P

FEDERAL EMERGENCY MANAGEMENT AGENCY  
 EL PASO COUNTY, CO  
 AND INCORPORATED AREAS

**FLOOD PROFILES**

REVISED TO  
 REFLECT LOWR  
 EFFECTIVE: September 24, 2008 SAND CREEK EAST FORK



344P

FEDERAL EMERGENCY MANAGEMENT AGENCY  
 EL PASO COUNTY, CO  
 AND INCORPORATED AREAS

REVISED TO REFLECT LOWR EFFECTIVE: September 24, 2008

**FLOOD PROFILES**

TRIBUTARY TO SAND CREEK EAST FORK (REACH NO. 6)

Legend

-  1% annual chance (100-Year) Floodplain
-  1% annual chance (100-Year) Floodway
-  0.2% annual chance (500-Year) Floodplain



APPROXIMATE SCALE IN FEET



NATIONAL FLOOD INSURANCE PROGRAM

# FIRM FLOOD INSURANCE RATE MAP

EL PASO COUNTY, COLORADO AND INCORPORATED AREAS

PANEL 756 OF 1300 (SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
COLORADO SPRINGS, CITY OF	08002C	0756	F
EL PASO COUNTY, UNINCORPORATED AREAS	080059	0756	F

COLORADO SPRINGS, CITY OF	08002C	0756	F
EL PASO COUNTY, UNINCORPORATED AREAS	080059	0756	F

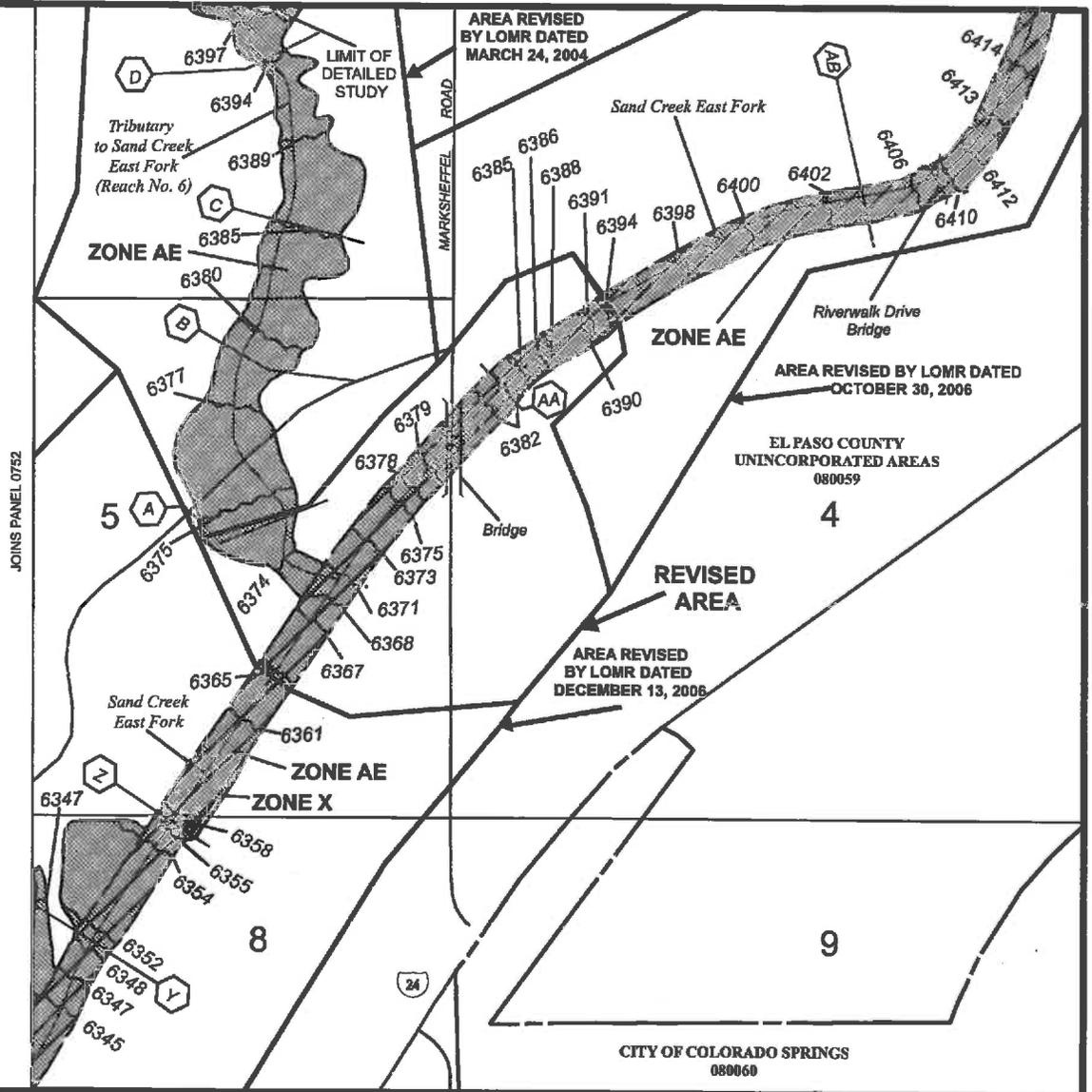
REVISED TO REFLECT LOMR EFFECTIVE: September 24, 2006

MAP NUMBER 08041C0756 F

EFFECTIVE DATE: MARCH 17, 1997



Federal Emergency Management Agency





# Federal Emergency Management Agency

Washington, D.C. 20472

**NOV 13 2006**

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

The Honorable Sallie Clark  
Chair, El Paso County  
Board of Commissioners  
27 East Vermijo Avenue  
Colorado Springs, CO 80903

IN REPLY REFER TO:

Case No.: 06-08-B137P  
Follows Conditional  
Case No.: 04-08-0469R  
Community Name: El Paso County, CO  
Community No.: 080059  
Effective Date of  
This Revision: **DEC 13 2006**

Dear Ms. Clark:

The Flood Insurance Study Report and Flood Insurance Rate Map for your community have been revised by this Letter of Map Revision (LOMR). Please use the enclosed annotated map panel(s) revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals issued in your community.

Additional documents are enclosed which provide information regarding this LOMR. Please see the List of Enclosures below to determine which documents are included. Other attachments specific to this request may be included as referenced in the Determination Document. If you have any questions regarding floodplain management regulations for your community or the National Flood Insurance Program (NFIP) in general, please contact the Consultation Coordination Officer for your community. If you have any technical questions regarding this LOMR, please contact the Director, Federal Insurance and Mitigation Division of the Department of Homeland Security's Federal Emergency Management Agency (FEMA) in Denver, Colorado, at (303) 235-4830, or the FEMA Map Assistance Center, toll free, at 1-877-336-2627 (1-877-FEMA MAP). Additional information about the NFIP is available on our website at <http://www.fema.gov/nfip>.

Sincerely,

Kevin C. Long, CFM, Project Engineer  
Engineering Management Section  
Mitigation Division

For: William R. Blanton Jr., CFM, Chief  
Engineering Management Section  
Mitigation Division

List of Enclosures:

Letter of Map Revision Determination Document  
Annotated Flood Insurance Rate Map  
Annotated Flood Insurance Study Report

cc: Mr. Kevin Stilson, P.E., CFM  
Regional Floodplain Administrator

████████████████████  
Central Marksheffel Business District

████████████████████  
Matrix Design Group



# Federal Emergency Management Agency

Washington, D.C. 20472

## LETTER OF MAP REVISION DETERMINATION DOCUMENT

COMMUNITY AND REVISION INFORMATION		PROJECT DESCRIPTION	BASIS OF REQUEST
COMMUNITY	El Paso County Colorado (Unincorporated Areas)	CHANNELIZATION	FLOODWAY HYDRAULIC ANALYSIS NEW TOPOGRAPHIC DATA
	COMMUNITY NO.: 080059		
IDENTIFIER	Marksheffel Business District	APPROXIMATE LATITUDE & LONGITUDE: 38.863, -104.874 SOURCE: USGS QUADRANGLE DATUM: NAD 27	
ANNOTATED MAPPING ENCLOSURES		ANNOTATED STUDY ENCLOSURES	
TYPE: FIRM*	NO.: 08041C0752F	DATE: March 17, 1997	
TYPE: FIRM*	NO.: 08041C0756F	DATE: March 17, 1997	
		DATE OF EFFECTIVE FLOOD INSURANCE STUDY: August 23, 1999 PROFILE: 212P FLOODWAY DATA TABLE 5	

Enclosures reflect changes to flooding sources affected by this revision.

\* FIRM - Flood Insurance Rate Map; \*\* FBFM - Flood Boundary and Floodway Map; \*\*\* FHBM - Flood Hazard Boundary Map

### FLOODING SOURCE(S) & REVISED REACH(ES)

East Fork Sand Creek - from approximately 5,250 feet downstream to just upstream of Marksheffel Road

### SUMMARY OF REVISIONS

Flooding Source	Effective Flooding	Revised Flooding	Increases	Decreases
East Fork Sand Creek	Floodway	Floodway	YES	YES
	Zone AE	Zone AE	YES	YES
	BFEs	BFEs	NONE	YES
	Zone X (Shaded)	Zone X (Unshaded)	NONE	YES

\* BFEs - Base Flood Elevations

### DETERMINATION

This document provides the determination from the Department of Homeland Security's Federal Emergency Management Agency (FEMA) regarding a request for a Letter of Map Revision (LOMR) for the area described above. Using the information submitted, we have determined that a revision to the flood hazards depicted in the Flood Insurance Study (FIS) report and/or National Flood Insurance Program (NFIP) map is warranted. This document revises the effective NFIP map, as indicated in the attached documentation. Please use the enclosed annotated map panels revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals in your community.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMR Depot, 3601 Eisenhower Avenue, Alexandria, VA 22304. Additional information about the NFIP is available on our website at <http://www.fema.gov/nfip>.

*Kevin C. Long*  
Kevin C. Long, CFM, Project Engineer  
Engineering Management Section  
Mitigation Division



Federal Emergency Management Agency  
Washington, D.C. 20472

LETTER OF MAP REVISION  
DETERMINATION DOCUMENT (CONTINUED)

COMMUNITY INFORMATION

APPLICABLE NFIP REGULATIONS/COMMUNITY OBLIGATION

We have made this determination pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (P.L. 93-234) and in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, P.L. 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65. Pursuant to Section 1361 of the National Flood Insurance Act of 1968, as amended, communities participating in the NFIP are required to adopt and enforce floodplain management regulations that meet or exceed NFIP criteria. These criteria, including adoption of the FIS report and FIRM, and the modifications made by this LOMR, are the minimum requirements for continued NFIP participation and do not supersede more stringent State/Commonwealth or local requirements to which the regulations apply.

We provide the floodway designation to your community as a tool to regulate floodplain development. Therefore, the floodway revision we have described in this letter, while acceptable to us, must also be acceptable to your community and adopted by appropriate community action, as specified in Paragraph 60.3(d) of the NFIP regulations.

NFIP regulations Subparagraph 60.3(b)(7) requires communities to ensure that the flood-carrying capacity within the altered or relocated portion of any watercourse is maintained. This provision is incorporated into your community's existing floodplain management ordinances; therefore, responsibility for maintenance of the altered or relocated watercourse, including any related appurtenances such as bridges, culverts, and other drainage structures, rests with your community. We may request that your community submit a description and schedule of maintenance activities necessary to ensure this requirement.

COMMUNITY REMINDERS

We based this determination on the 1-percent-annual-chance flood discharges computed in the FIS for your community without considering subsequent changes in watershed characteristics that could increase flood discharges. Future development of projects upstream could cause increased flood discharges, which could cause increased flood hazards. A comprehensive restudy of your community's flood hazards would consider the cumulative effects of development on flood discharges subsequent to the publication of the FIS report for your community and could, therefore, establish greater flood hazards in this area.

Your community must regulate all proposed floodplain development and ensure that permits required by Federal and/or State/Commonwealth law have been obtained. State/Commonwealth or community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction or may limit development in floodplain areas. If your State/Commonwealth or community has adopted more restrictive or comprehensive floodplain management criteria, those criteria take precedence over the minimum NFIP requirements.

We will not print and distribute this LOMR to primary users, such as local insurance agents or mortgage lenders; instead, the community will serve as a repository for the new data. We encourage you to disseminate the information in this LOMR by preparing a news release for publication in your community's newspaper that describes the revision and explains how your community will provide the data and help interpret the NFIP maps. In that way, interested persons, such as property owners, insurance agents, and mortgage lenders, can benefit from the information.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMR Depot, 3601 Eisenhower Avenue, Alexandria, VA 22304. Additional information about the NFIP is available on our website at <http://www.fema.gov/nfip>.

*Kevin C. Long*

Kevin C. Long, CFM, Project Engineer  
Engineering Management Section  
Mitigation Division



Federal Emergency Management Agency  
Washington, D.C. 20472

**LETTER OF MAP REVISION  
DETERMINATION DOCUMENT (CONTINUED)**

We have designated a Consultation Coordination Officer (CCO) to assist your community. The CCO will be the primary liaison between your community and FEMA. For information regarding your CCO, please contact:

Ms. Jeanine D. Petterson  
Director, Federal Insurance and Mitigation Division  
Federal Emergency Management Agency, Region VIII  
Denver Federal Center, Building 710  
P.O. Box 25267  
Denver, CO 80225-0267  
(303) 235-4830

**STATUS OF THE COMMUNITY NFIP MAPS**

We will not physically revise and republish the FIRM and FIS report for your community to reflect the modifications made by this LOMR at this time. When changes to the previously cited FIRM panel(s) and FIS report warrant physical revision and republication in the future, we will incorporate the modifications made by this LOMR at that time.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMR Depot, 3601 Eisenhower Avenue, Alexandria, VA 22304. Additional information about the NFIP is available on our website at <http://www.fema.gov/nfip>.

*Kevin C. Long*  
Kevin C. Long, CFM, Project Engineer  
Engineering Management Section  
Mitigation Division



**Federal Emergency Management Agency**  
Washington, D.C. 20472

**LETTER OF MAP REVISION  
DETERMINATION DOCUMENT (CONTINUED)**

**PUBLIC NOTIFICATION OF REVISION**

**PUBLIC NOTIFICATION**

FLOODING SOURCE	LOCATION OF REFERENCED ELEVATION	BFE (FEET NGVD 29)		MAP PANEL NUMBER(S)
		EFFECTIVE	REVISED	
East Fork Sand Creek	Approximately 5,150 feet downstream of Marksheffel Road	6,316	6,315	08041C0752F
	Approximately 210 feet downstream of Marksheffel Road	6,381	6,379	08041C0756F

Within 90 days of the second publication in the local newspaper, a citizen may request that we reconsider this determination. Any request for reconsideration must be based on scientific or technical data. This revision will become effective 30 days from the date of this letter. However, until the 90-day period has elapsed, the revised BFEs presented in this LOMR may be changed.

A notice of changes will be published in the *Federal Register*. This information also will be published in your local newspaper on or about the dates listed below.

**LOCAL NEWSPAPER**

Name: *El Paso County News*  
Dates: 11/29/2006 and 12/06/2006

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-338-2627 (1-877-FEMA MAP) or by letter addressed to the LOMR Depot, 3601 Eisenhower Avenue, Alexandria, VA 22304. Additional information about the NFIP is available on our website at <http://www.fema.gov/nfp>.

*Kevin C. Long*  
Kevin C. Long, CFM, Project Engineer  
Engineering Management Section  
Mitigation Division

**CHANGES ARE MADE IN DETERMINATIONS OF BASE FLOOD ELEVATIONS FOR THE UNINCORPORATED AREAS OF EL PASO COUNTY, COLORADO, UNDER THE NATIONAL FLOOD INSURANCE PROGRAM**

On March 17, 1997, the Department of Homeland Security's Federal Emergency Management Agency identified Special Flood Hazard Areas (SFHAs) in the unincorporated areas of El Paso County, Colorado, through issuance of a Flood Insurance Rate Map (FIRM). The Mitigation Division has determined that modification of the elevations of the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood) for certain locations in this community is appropriate. The modified Base Flood Elevations (BFEs) revise the FIRM for the community.

The changes are being made pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (Public Law 93-234) and are in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, Public Law 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65.

A hydraulic analysis was performed to incorporate the effects of channel improvements along Sand Creek East Fork from approximately 5,250 feet downstream to just upstream of Marksheffel Road, and has resulted in a revised delineation of the regulatory floodway, an increase in SFHA width, a decrease in SFHA width, and decreased BFEs for Sand Creek East Fork. The aforementioned channelized portion of Sand Creek East Fork contains the base flood. The table below indicates existing and modified BFEs for selected locations along the affected lengths of the flooding source(s) cited above.

Location	Existing BFE (feet)*	Modified BFE (feet)*
Sand Creek East Fork		
Approximately 5,150 feet downstream of Marksheffel Road	6,316	6,315
Approximately 210 feet downstream of Marksheffel Road	6,381	6,379

\*National Geodetic Vertical Datum, rounded to nearest whole foot

Under the above-mentioned Acts of 1968 and 1973, the Mitigation Division must develop criteria for floodplain management. To participate in the National Flood Insurance Program (NFIP), the community must use the modified BFEs to administer the floodplain management measures of the NFIP. These modified BFEs will also be used to calculate the appropriate flood insurance premium rates for new buildings and their contents and for the second layer of insurance on existing buildings and contents.

Upon the second publication of notice of these changes in this newspaper, any person has 90 days in which he or she can request, through the Chief Executive Officer of the community, that the Mitigation Division reconsider the determination. Any request for reconsideration must be based on knowledge of changed conditions or new scientific or technical data. All interested parties are on notice that until the 90-day period elapses, the Mitigation Division's determination to modify the BFEs may itself be changed.

Any person having knowledge or wishing to comment on these changes should immediately notify:

The Honorable Sallie Clark  
Chair, El Paso County  
Board of Commissioners  
27 East Vermijo Avenue  
Colorado Springs, CO 80903

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY FEET	WITH FLOODWAY (NGVD)	INCREASE
Sand Creek East Fork								
A	1,100	100	455	11.9	6,038.7	6,038.7	6,038.7	0.0
B	2,400	100	446	12.2	6,054.3	6,054.3	6,054.3	0.0
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AC	27,715	112	419	10.8	6,416.6	6,416.6	6,416.6	0.0

REVISIED AREA

REVISIED TO

<sup>1</sup>Feet Above Confluence With Sand Creek

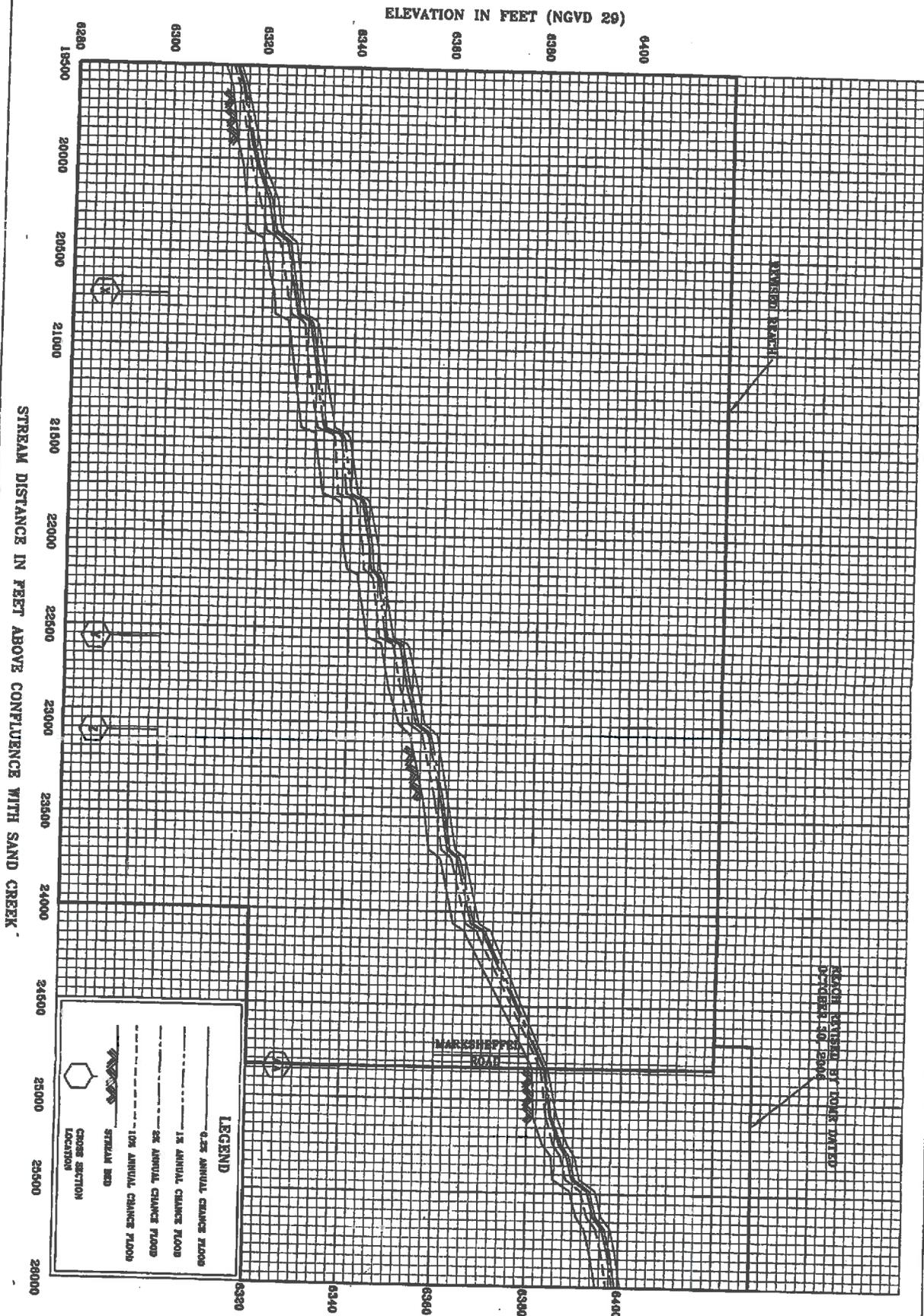
REFLECT LOMR

REVISIED BY LOMR DATED OCTOBER 30, 2006

FLOODWAY DATA REFLECTIVE DEC 13, 2006

FEDERAL EMERGENCY MANAGEMENT AGENCY  
EL PASO COUNTY, CO  
AND INCORPORATED AREAS

SAND CREEK EAST FORK



**LEGEND**

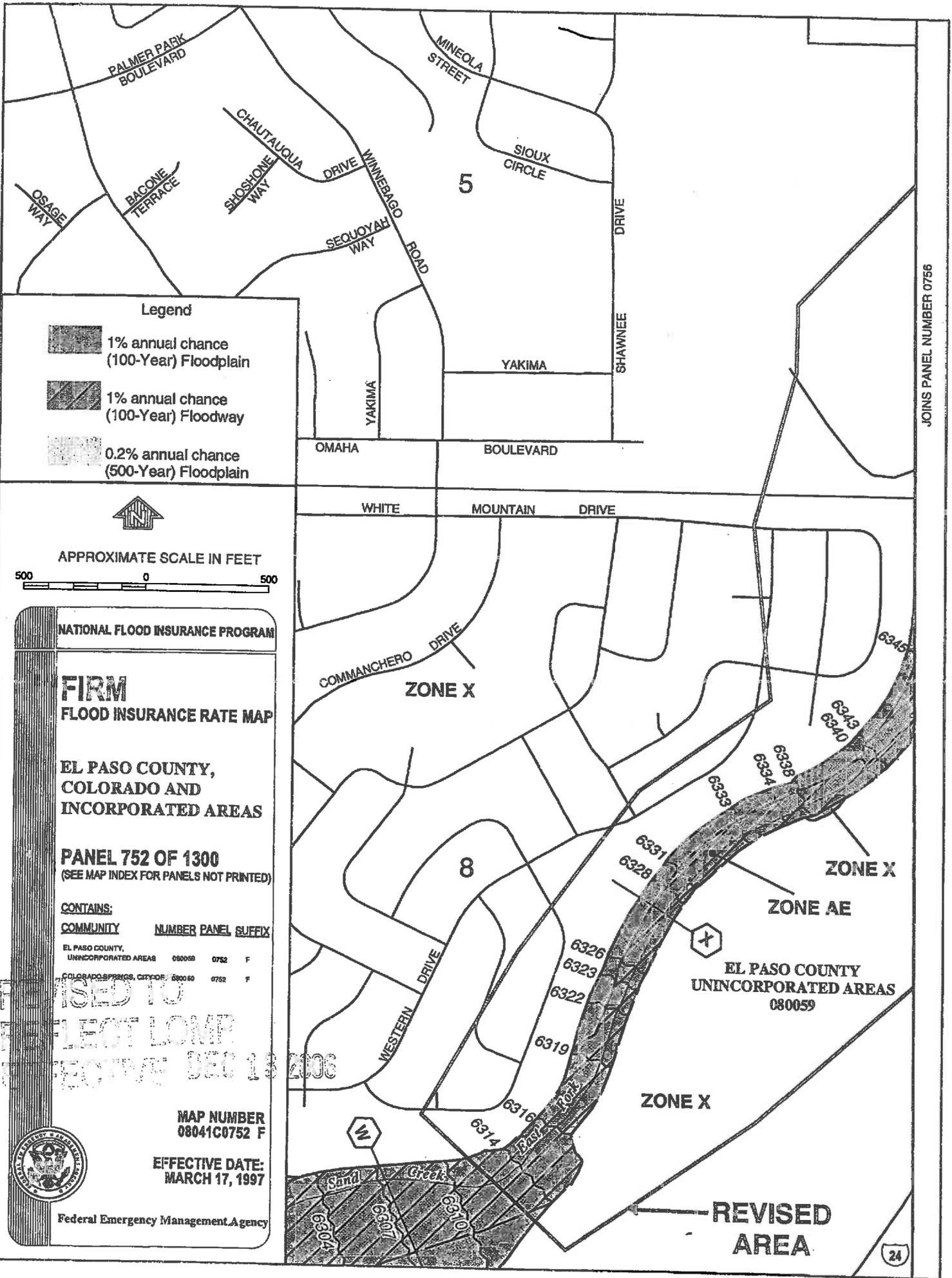
- 0.25 ANNUAL CHANCE FLOOD
- 1% ANNUAL CHANCE FLOOD
- 5% ANNUAL CHANCE FLOOD
- 10% ANNUAL CHANCE FLOOD
- STREAM BED
- CROSS SECTION LOCATION

212P

FEDERAL EMERGENCY MANAGEMENT AGENCY  
 EL PASO COUNTY, CO  
 AND INCORPORATED AREAS

REVISED TO  
 FLOOD PROFILES  
 REFLECT LOMR  
 EFFECTIVE DEC 13 2006

SAND CREEK EAST FLOOD



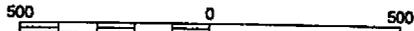
JOINS PANEL NUMBER 0756

**Legend**

-  1% annual chance (100-Year) Floodplain
-  1% annual chance (100-Year) Floodway
-  0.2% annual chance (500-Year) Floodplain



APPROXIMATE SCALE IN FEET



**NATIONAL FLOOD INSURANCE PROGRAM**

**FIRM FLOOD INSURANCE RATE MAP**

**EL PASO COUNTY, COLORADO AND INCORPORATED AREAS**

**PANEL 752 OF 1300**  
(SEE MAP INDEX FOR PANELS NOT PRINTED)

**CONTAINS:**

COMMUNITY	NUMBER	PANEL	SUFFIX
EL PASO COUNTY, UNINCORPORATED AREAS	080059	0752	F
COLORADO SPRINGS, CITY OF	080050	0752	F

REVISED TO REFLECT LUMP EFFECTIVE DATE: DEC 18 2006



MAP NUMBER  
08041C0752 F

EFFECTIVE DATE:  
MARCH 17, 1997

Federal Emergency Management Agency



## **HYDROLOGIC CALCULATIONS**

**CLAREMONT COMMERCIAL**  
**PRELIMINARY DRAINAGE REPORT DRAINAGE CALCULATIONS**  
**(Area Runoff Coefficient Summary)**

BASIN	TOTAL AREA (Sq Ft)	TOTAL AREA (Acres)	STREETS / DEVELOPED							OVERLAND / DEVELOPED							OVERLAND / UNDEVELOPED							WEIGHTED					
			AREA (Acres)	C <sub>2</sub>	C <sub>5</sub>	C <sub>10</sub>	C <sub>25</sub>	C <sub>50</sub>	C <sub>100</sub>	AREA (Acres)	C <sub>2</sub>	C <sub>5</sub>	C <sub>10</sub>	C <sub>25</sub>	C <sub>50</sub>	C <sub>100</sub>	AREA (Acres)	C <sub>2</sub>	C <sub>5</sub>	C <sub>10</sub>	C <sub>25</sub>	C <sub>50</sub>	C <sub>100</sub>	C <sub>2</sub>	C <sub>5</sub>	C <sub>10</sub>	C <sub>25</sub>	C <sub>50</sub>	C <sub>100</sub>
<i>A</i>	107329.28	2.46	0.00	0.89	0.90	0.92	0.94	0.95	0.96	0.00	0.76	0.78	0.80	0.82	0.84	0.85	2.46	0.03	0.09	0.17	0.26	0.31	0.36	<i>0.03</i>	<i>0.09</i>	<i>0.17</i>	<i>0.26</i>	<i>0.31</i>	<i>0.36</i>
<i>B</i>	334032.96	7.67	1.15	0.89	0.90	0.92	0.94	0.95	0.96	6.52	0.79	0.81	0.83	0.85	0.87	0.88	0.00	0.03	0.09	0.17	0.26	0.31	0.36	<i>0.80</i>	<i>0.82</i>	<i>0.84</i>	<i>0.86</i>	<i>0.88</i>	<i>0.89</i>
<i>B1</i>	101290.22	2.33	0.00	0.89	0.90	0.92	0.94	0.95	0.96	2.33	0.79	0.81	0.83	0.85	0.87	0.88	0.00	0.03	0.09	0.17	0.26	0.31	0.36	<i>0.79</i>	<i>0.81</i>	<i>0.83</i>	<i>0.85</i>	<i>0.87</i>	<i>0.88</i>
<i>B2</i>	8352.95	0.19	0.19	0.89	0.90	0.92	0.94	0.95	0.96	0.00	0.79	0.81	0.83	0.85	0.87	0.88	0.00	0.03	0.09	0.17	0.26	0.31	0.36	<i>0.89</i>	<i>0.90</i>	<i>0.92</i>	<i>0.94</i>	<i>0.95</i>	<i>0.96</i>
<i>B3</i>	31982.43	0.73	0.00	0.89	0.90	0.92	0.94	0.95	0.96	0.73	0.79	0.81	0.83	0.85	0.87	0.88	0.00	0.03	0.09	0.17	0.26	0.31	0.36	<i>0.79</i>	<i>0.81</i>	<i>0.83</i>	<i>0.85</i>	<i>0.87</i>	<i>0.88</i>
<i>C</i>	29674.18	0.68	0.00	0.89	0.90	0.92	0.94	0.95	0.96	0.68	0.11	0.20	0.28	0.36	0.41	0.44	0.00	0.03	0.09	0.17	0.26	0.31	0.36	<i>0.11</i>	<i>0.20</i>	<i>0.28</i>	<i>0.36</i>	<i>0.41</i>	<i>0.44</i>
<i>D</i>	41038.77	0.94	0.00	0.89	0.90	0.92	0.94	0.95	0.96	0.94	0.05	0.12	0.20	0.30	0.34	0.39	0.00	0.03	0.09	0.17	0.26	0.31	0.36	<i>0.05</i>	<i>0.12</i>	<i>0.20</i>	<i>0.30</i>	<i>0.34</i>	<i>0.39</i>

# CLAREMONT COMMERCIAL PRELIMINARY DRAINAGE REPORT (Area Drainage Summary)

BASIN	From Area Runoff Coefficient Summary			OVERLAND				STREET / CHANNEL FLOW				Time of Travel		INTENSITY *		TOTAL FLOWS	
	AREA TOTAL (Acres)	C <sub>s</sub>	C <sub>100</sub>	Length (ft)	Height (ft)	T <sub>c</sub> (min)	Slope (%)	Velocity (fps)	T <sub>t</sub> (min)	TOTAL (min)	CHECK (min)	I <sub>5</sub> (in/hr)	I <sub>100</sub> (in/hr)	Q <sub>5</sub> (c.f.s.)	Q <sub>100</sub> (c.f.s.)		
		From DCM Table 5-1															
<b>Proposed Area Drainage Summary</b>																	
A	2.46	0.09	0.36	35	10	3.6	37.0%	4.3	0.3	5.0	10.7	5.2	8.7	1.1	7.7		
B	7.67	0.82	0.89	130	2.5	4.6	1.1%	2.1	5.9	10.5	14.8	4.1	6.8	25.6	46.5		
B1	2.33	0.81	0.88	130	1.8	5.4	1.4%	2.3	3.1	8.4	13.1	4.4	7.4	8.3	15.1		
B2	0.19	0.90	0.96	25	0.5	1.4	1.7%	2.6	0.9	5.0	10.9	5.2	8.7	0.9	1.6		
B3	0.73	0.81	0.88	50	0.8	3.2	1.5%	2.4	0.9	5.0	11.0	5.2	8.7	3.1	5.6		
C	0.68	0.20	0.44	40	3	5.3	1.5%	1.8	0.9	6.2	10.8	4.8	8.1	0.7	2.4		
D	0.94	0.12	0.39	100	1.4	15.8	1.6%	1.3	7.9	23.7	13.9	3.6	6.1	0.4	2.2		

Calculated by: CMN  
Date: 6/2/2017  
Checked by: VAS

# CLAREMONT COMMERCIAL PRELIMINARY DRAINAGE REPORT (Basin Routing Summary)

DESIGN POINT	From Area Runoff Coefficient Summary			OVERLAND				PIPE / CHANNEL FLOW				Time of Travel (T <sub>t</sub> )		INTENSITY *		TOTAL FLOWS	
	CONTRIBUTING BASINS	CA <sub>s</sub>	CA <sub>100</sub>	C <sub>s</sub>	Length (ft)	Height (ft)	T <sub>c</sub> (min)	Length (ft)	Slope (%)	Velocity (fps)	T <sub>t</sub> (min)	TOTAL (min)	I <sub>s</sub> (in/hr)	I <sub>100</sub> (in/hr)	Q <sub>s</sub> (c.f.s.)	Q <sub>100</sub> (c.f.s.)	
1	B1	1.38	2.05									8.4	4.4	7.4	8.3	15.1	
2	A	0.22	0.89												0.9	6.0	
	B	6.31	6.84								10.5		4.1	6.8	25.6	46.5	
3/3A	B2	6.54	7.73												26.5	52.6	
4	B3	0.17	0.18												0.9	1.6	
		0.59	0.65												3.1	5.6	
5	DP1, DP2, DP3/3A, DP4	9.19	10.60								10.0		4.1	6.9	37.9	73.5	

**PROPOSED DRAINAGE BASIN ROUTING SUMMARY**

Calculated by: CMN

Date: 6/2/2017

Checked by: VAS

**HYDRAULIC CALCULATIONS / SFB WQCV CALCULATIONS**

**CLAREMONT COMMERCIAL  
PRELIMINARY DRAINAGE REPORT DRAINAGE CALCULATIONS  
(Storm Sewer Routing Summary)**

PIPE RUN Point(s)	Contributing Pipes/Design Points	Equivalent CA <sub>5</sub>	Equivalent CA <sub>100</sub>	Maximum T <sub>C</sub>	Intensity*		Flow	
					I <sub>5</sub>	I <sub>100</sub>	Q <sub>5</sub>	Q <sub>100</sub>
1	DP 2	6.54	7.73	10.5	4.1	6.8	26.5	52.6
2	DP 1	1.88	2.05	8.4	4.4	7.4	8.3	15.1
3	PR 2, DP 3	1.97	2.14	8.5	4.4	7.3	8.6	15.7
4	PR 3, DP 3A	2.06	2.23	8.6	4.4	7.3	9.0	16.3
5	PR 4, DP 4	2.65	2.88	8.8	4.3	7.3	11.5	20.9
6	WQ POND	9.19	10.60	10.0	4.1	6.9	37.9	73.5

\* Intensity equations assume a minimum travel time of 5 minutes.

DP - Design Point

PR - Pipe Run

Calculated by: CMN

Date: 6/2/2017

Checked by: VAS

<b>Weighted Percent Imperviousness of WQ Pond</b>				
<b>Contributing Basins</b>	<b>Area (Acres)</b>	<b>C<sub>s</sub></b>	<b>Impervious % (I)</b>	<b>(Acres)*(I)</b>
<i>A</i>	2.46	0.09	2	4.93
<i>B</i>	7.67	0.82	95	728.49
<i>B1</i>	2.33	0.81	95	220.90
<i>B2</i>	0.19	0.90	100	19.18
<i>B3</i>	0.73	0.81	95	69.75
<i>C</i>	0.68	0.20	20	13.62
<i>D</i>	0.94	0.12	7	6.59
<b>Totals</b>	<b>15.01</b>			<b>1063.47</b>
<b>Imperviousness of WQ Pond</b>	<b>70.9</b>			

## Design Procedure Form: Sand Filter (SF)

UD-BMP (Version 3.06, November 2016)

**Designer:** Chase Nelses  
**Company:** M&S Civil Consultants  
**Date:** June 2, 2017  
**Project:** Lots 1-16, Claremont Commercial  
**Location:** Meadowbrook Parkway and Marksheffel Road

With the Final Drainage Report, use the UD-Detention worksheet for final design of the Sand Filter.

As specifically stated on the Intro of the UD-BMP the purpose of the workbook is to be used as a design aid in the preliminary stages of BMP design.

### 1. Basin Storage Volume

- A) Effective Imperviousness of Tributary Area,  $I_e$   
(100% if all paved and roofed areas upstream of sand filter)
- B) Tributary Area's Imperviousness Ratio ( $i = I_e/100$ )
- C) Water Quality Capture Volume (WQCV) Based on 12-hour Drain Time  
 $WQCV = 0.8 * (0.81 * I^3 - 1.19 * I^2 + 0.78 * I)$
- D) Contributing Watershed Area (including sand filter area)
- E) Water Quality Capture Volume (WQCV) Design Volume  
 $V_{WQCV} = WQCV / 12 * Area$
- F) For Watersheds Outside of the Denver Region, Depth of Average Runoff Producing Storm
- G) For Watersheds Outside of the Denver Region, Water Quality Capture Volume (WQCV) Design Volume
- H) User Input of Water Quality Capture Volume (WQCV) Design Volume  
(Only if a different WQCV Design Volume is desired)

$I_e = 70.9$  %

$i = 0.709$

WQCV = 0.22 watershed inches

Area = 553,704 sq ft

$V_{WQCV} = 12,166$  cu ft

$d_0 =$  \_\_\_\_\_ in

$V_{WQCV \text{ OTHER}} =$  \_\_\_\_\_ cu ft

$V_{WQCV \text{ USER}} =$  \_\_\_\_\_ cu ft

### 2. Basin Geometry

- A) WQCV Depth
- B) Sand Filter Side Slopes (Horizontal distance per unit vertical, 4:1 or flatter preferred). Use "0" if sand filter has vertical walls.
- C) Minimum Filter Area (Flat Surface Area)
- D) Actual Filter Area
- E) Volume Provided

$D_{WQCV} = 2.0$  ft

$Z = 6.00$  ft / ft

$A_{Min} = 5793$  sq ft

$A_{Actual} = 6074$  sq ft

$V_T = 16907$  cu ft

### 3. Filter Material

Choose One \_\_\_\_\_

18" CDOT Class B or C Filter Material

Other (Explain): \_\_\_\_\_

### 4. Underdrain System

- A) Are underdrains provided?
- B) Underdrain system orifice diameter for 12 hour drain time
- i) Distance From Lowest Elevation of the Storage Volume to the Center of the Orifice
- ii) Volume to Drain in 12 Hours
- iii) Orifice Diameter, 3/8" Minimum

Choose One \_\_\_\_\_

YES

NO

$y = 1.7$  ft

$Vol_{12} = 12,166$  cu ft

$D_o = 2$  in

**Design Procedure Form: Sand Filter (SF)**

Sheet 2 of 2

Designer: Chase Nelses  
Company: M&S Civil Consultants  
Date: June 2, 2017  
Project: Lots 1-16, Claremont Commercial  
Location: Meadowbrook Parkway and Marksheffel Road

5. Impermeable Geomembrane Liner and Geotextile Separator Fabric

A) Is an impermeable liner provided due to proximity of structures or groundwater contamination?

Choose One

YES  NO

6-7. Inlet / Outlet Works

A) Describe the type of energy dissipation at inlet points and means of conveying flows in excess of the WQCV through the outlet

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Notes:

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**Claremont Commerical**  
**DRAINAGE REPORT DRAINAGE CALCULATIONS**  
**(Pond Volume Calculation)**

**SFB**

Elevation	SF	CF	Storage	
			AF	Sum
6365.00	6,428.00			0
6366.00	8,286.00	7,357.00	0.17	0.17
6367.00	10,270.00	9,278.00	0.21	0.38
		Total =	<u>16,635</u> CF	
			Total =	<u>0.4</u> Ac-ft
At Elevation 6366.52, the Storage is 0.28 Ac-ft, 12196 CF				

Calculated by: CMN  
Date: 6/5/2017  
Checked by: VAS

**Claremont Commercial**

**Outlet Box Sizing Worksheet and orifice/weir head required**

increment

Proposed SFB - Outlet Box

0.067 ft

**Box Size**

Width	<b>2.91 ft</b>	area	25.2006 sq ft	open area	12.60 sq ft
Length	<b>8.66 ft</b>	Est. blockage	50%		
Perimeter	23.14 ft	Est .blockage	3.2 ft	non obstr. Perm	19.9 ft

TOB EL	H				Orifice	Weir
6366.52	0				0	0
6366.59	0.07				15.7	1.1
6366.65	0.13				22.2	3.0
6366.72	0.20				27.2	5.6
6366.79	0.27				31.4	8.6
6366.86	0.34				35.1	12.0
6366.92	0.40				38.5	15.8
6366.99	0.47				41.5	19.9
6367.06	0.54				44.4	24.3
6367.12	0.60				47.1	28.9
6367.19	0.67				49.7	33.9
6367.26	0.74				52.1	39.1
6367.32	0.80				54.4	44.6
6367.39	0.87				56.6	50.2
6367.46	0.94				58.8	56.2
6367.53	1.01				60.8	62.3
6367.59	1.07				62.8	68.6
6367.66	1.14				64.7	75.1
6367.73	1.21				66.6	81.9
6367.79	1.27				68.5	88.8
6367.86	1.34				70.2	95.9
6367.93	1.41				72.0	103.2
6367.99	1.47				73.7	110.6
6368.06	1.54				75.3	118.2
6368.13	1.61				76.9	126.0
6368.20	1.68				78.5	134.0

**CLAREMONT COMMERCIAL  
EMERGENCY SPILLWAY CALCULATIONS SFB**

Horizontal Broad-Crested Weir (Eqn 12-20 UDFCD)			
Variable	Solve For		
C	3.00	H (ft)	Q (cfs)
L	32.00	ft	68.7
H	0.80	ft	
Q		cfs	

Equation 12-20

$$Q = C_{scw} L H^{1.5}$$

Where:

Q = discharge (cfs)

Total Q	74.19
100-yr Emergency Spillway Crest Elev.	6367.99
100-yr Emergency Spillway P-S Elev.	6368.79
Top Of SFB Pond Elev.	6370.00
Freeboard Provided (ft.)	1.21

Sloping Broad-Crested Weir (Eqn 12-21 UDFCD)			
Variable	Solve For		
C	3.00	Z (ft)	Q (cfs)
Z	4.00	ft	0.0
H	0.80	ft	2.7
Q		cfs	

Equation 12-21

$$Q = \left(\frac{2}{5}\right) C_{scw} Z H^{2.5}$$

$C_{scw}$  = broad-crested weir coefficient (This ranges from 2.6 to 3.0. A value of 3.0 is often used in practice.) See Hydraulic Engineering Circular No. 22 for additional information.

L = broad-crested weir length (ft)

H = head above weir crest (ft)

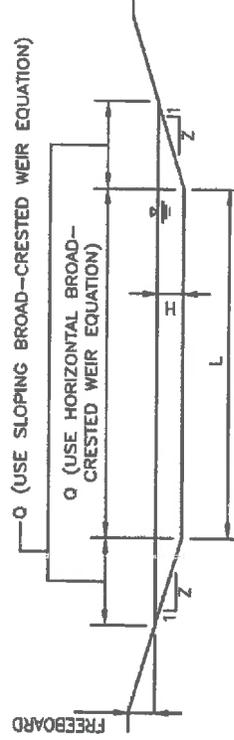


Figure 12-20. Sloping broad-crest weir

**DRAINAGE MAP**

# CLAREMONT COMMERCIAL SUBDIVISION FILING NO. 2

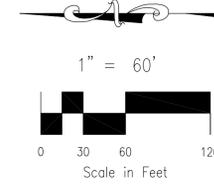
## COUNTY OF EL PASO, STATE OF COLORADO

### PRELIMINARY DRAINAGE PLAN

JUNE 2017

#### LEGEND

- BASIN DESIGNATION
- PIPE RUN REFERENCE LABEL
- SURFACE DESIGN POINT
- BASIN BOUNDARY
- EXISTING CONTOUR
- PROP CONTOUR
- UNDERGROUND ELECTRICAL
- EXISTING GAS LINE
- STORM SEWER PIPE
- EXISTING STORM SEWER PIPE
- CROSSSPAN
- INLET
- EXISTING FLOW DIRECTION ARROW
- EMERGENCY OVERFLOW DIRECTION
- FLOW DIRECTION
- FLARED END SECTION
- HIGH POINT
- LOW POINT

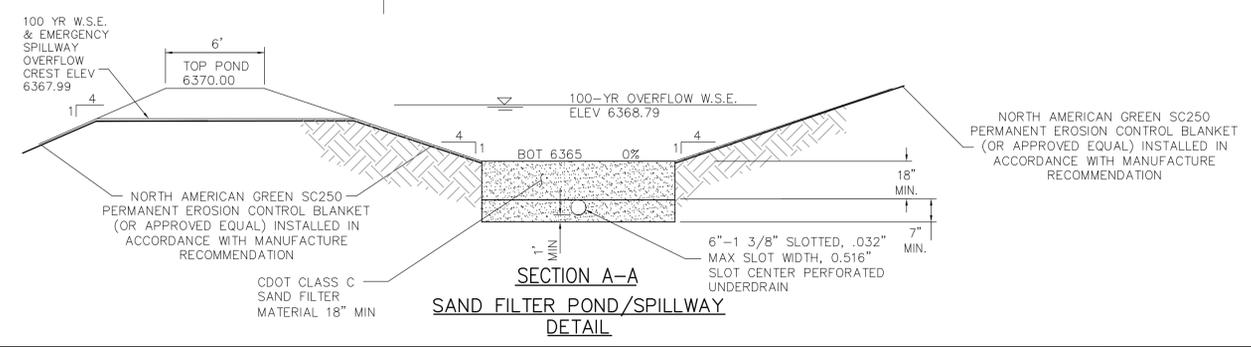


BASIN SUMMARY				
BASIN	AREA (ACRES)	Q <sub>5</sub>	Q <sub>100</sub>	
A	2.46	1.1	7.7	
B	7.67	25.6	46.5	
B1	2.33	8.3	15.1	
B2	0.19	0.9	1.6	
B3	0.73	3.1	5.6	
C	0.68	0.7	2.4	
D	0.94	0.4	2.2	

DESIGN POINT SUMMARY				
DESIGN POINT	Q <sub>5</sub>	Q <sub>100</sub>	BASIN	STRUCTURE
1	8.3	15.1	B1	AREA INLET
2	26.5	52.6	A,B	SUMP INLET
3/3A	0.9	1.6	B2	TWO AT-GRADE INLETS
4	3.1	5.6	B3	AREA INLET
5	37.9	73.5	DP1, DP2, DP3/3A, DP4	OUTLET STRUCTURE

WQCV SUMMARY	
EPC/URBAN DRAINAGE SAND FILTER BASIN-SEE STD. DET.	
WQCV REQUIRED	12,166 CF
WQCV PROVIDED	16,635 CF
AREA REQUIRED	5,793 SF
AREA PROVIDED	6,428 SF
WQCV WSE = 6366.52	
100 YR SPILLWAY ELEV = 6367.99	
100 YR WSE = 6368.79	

STORM SEWER SUMMARY			
PIPE RUN	Q <sub>5</sub>	Q <sub>100</sub>	CONTRIBUTING PIPES
1	26.5	52.6	42" RCP DP2
2	8.3	15.1	24" RCP DP1
3	8.6	15.7	24" RCP PR2, DP3
4	9.0	16.3	24" RCP PR3, DP3A
5	11.5	20.9	36" RCP PR4, DP4
6	38.9	73.5	42" RCP WQ POND



EL PASO COUNTY FILE NO. PPR 17-004

CLAREMONT COMMERCIAL SUB FILING NO. 2			
PRELIMINARY DRAINAGE PLAN			
PROJECT NO. 42-008	FILE: \dwg\Eng Exhibits\PPDR.dwg		
DESIGNED BY: VAS	SCALE	DATE: 6-5-2017	
DRAWN BY: BB	HORIZ: 1"=60'	SHEET 1 OF 1	
CHECKED BY: VAS	VERT: N/A	PDP01	

File: C:\42008A\Meadowbrook\Eng\Plan\PPDR.dwg Plotstamp: 6/12/2017 1:11 PM

FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES  
 FOR BURIED UTILITY INFORMATION  
 48 HRS BEFORE YOU DIG  
 CALL 1-800-922-1987

**BOCC RESOLUTION 16-426**

502  
Chuck Broerman  
11/28/2016 11:50:04 AM  
Doc \$0.00 2  
Rec \$0.00 Pages

El Paso County, CO



216137149

**RESOLUTION NO. 16- 426**

**BOARD OF COUNTY COMMISSIONERS  
COUNTY OF EL PASO, STATE OF COLORADO**

**Resolution Denying an Appeal by Hammers Construction LLC (APP-16-002) of the Administrative Determination made by the Planning and Community Development Department Executive Director regarding the requirement for permanent/post construction Water Quality (permanent stormwater quality best management practices or BMP's).**

**WHEREAS**, pursuant to §§30-11-101(1)(e) and 30-11-107(1)(e), C.R.S., the Board of County Commissioners of El Paso County, Colorado (hereinafter "Board") has the legislative authority to manage the concerns of El Paso County when deemed by the Board to be in the best interests of the County and its inhabitants; and

**WHEREAS**, after consultation with the County Attorney's Office, the Executive Director of Planning and Community Development on August 4, 2016 issued an administrative determination finding made an administrative determination that all undeveloped lots within the Claremont Business Park are subject to installation of permanent stormwater management best management practices (BMP's) associated with development, and that the terms of a 2008 approved deviation relieving the developer of the requirements have not been met.; and

**WHEREAS**, an appeal of the administrative determination was filed by Hammers Construction on August 10, 2016, and a hearing date was set for September 27, 2016 to hear the appeal; and

**WHEREAS**, the hearing was continued to a date certain of November 22, 2016; and

**WHEREAS**, at the Applicant's appeal hearing on November 22, 2016, testimony from the Applicant and the Applicant's representatives was heard by the Board in favor of the appeal, testimony from representatives of Planning and Community Development Department and was presented, and such testimony and associated evidence was weighed by the Board; and

**WHEREAS**, the Board, having reviewed the testimony and evidence, hereby finds and determines that the requested appeal of the administrative determination by the Planning and Community Development Executive Director by the Applicant did not satisfy the criteria of approval to overturn the administrative determination.

**NOW, THEREFORE, BE IT RESOLVED** that the Board of County Commissioners of El Paso County, Colorado, hereby denies the appeal of the administrative determination by Hammers Construction and determines that permanent stormwater management best management practices (BMP's) are required with new development within the Claremont Business Park: and

**BE IT FURTHER RESOLVED** that Sallie Clark, duly elected, qualified member and Chair of the Board of County Commissioners, or Darryl Glenn, duly elected, qualified member and Vice Chair of the Board of County Commissioners, be and is hereby authorized on behalf of the Board to execute any and all documents necessary to carry out the intent of the Board as described herein.

**DONE THIS 22<sup>nd</sup>** day of November, 2016, at Colorado Springs Colorado.

BOARD OF COUNTY COMMISSIONERS  
EL PASO COUNTY, COLORADO

ATTEST:  Cheryl D. Broerman  
County Clerk & Recorder

By: Sallie Clark  
Chair of the Board

**EXISTING DRAINAGE MAP**



**FINAL DRAINAGE REPORT**  
**For**  
**"Claremont Business Park Filing No. 2"**

Prepared for:  
**El Paso County**  
**Department of Public Works**  
**Engineering Division**

On Behalf of:  
**Claremont Development, Inc.**

Prepared by:



**Matrix Design Group, Inc.**  
Integrated Design Solutions  
*Infrastructure Engineering  
Community Development  
Program Management*

2435 Research Parkway, Suite 300  
Colorado Springs, CO 80920  
(719) 575-0100  
fax (719) 572-0208

Revised November 2006

05.151.006

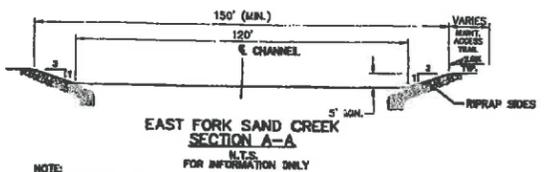
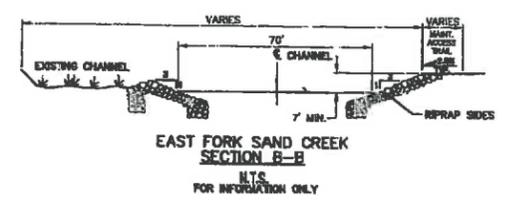
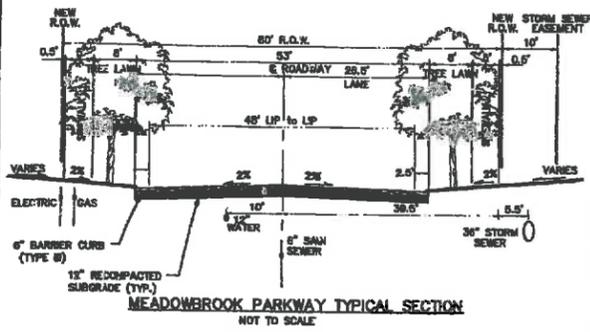
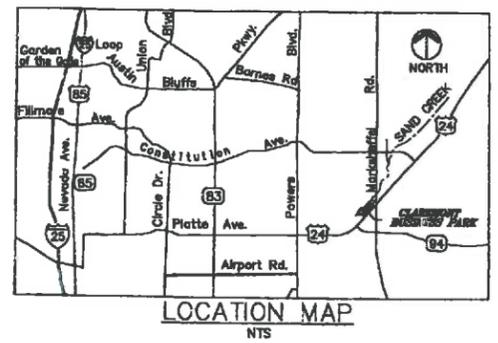
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**NOV 28 2005**

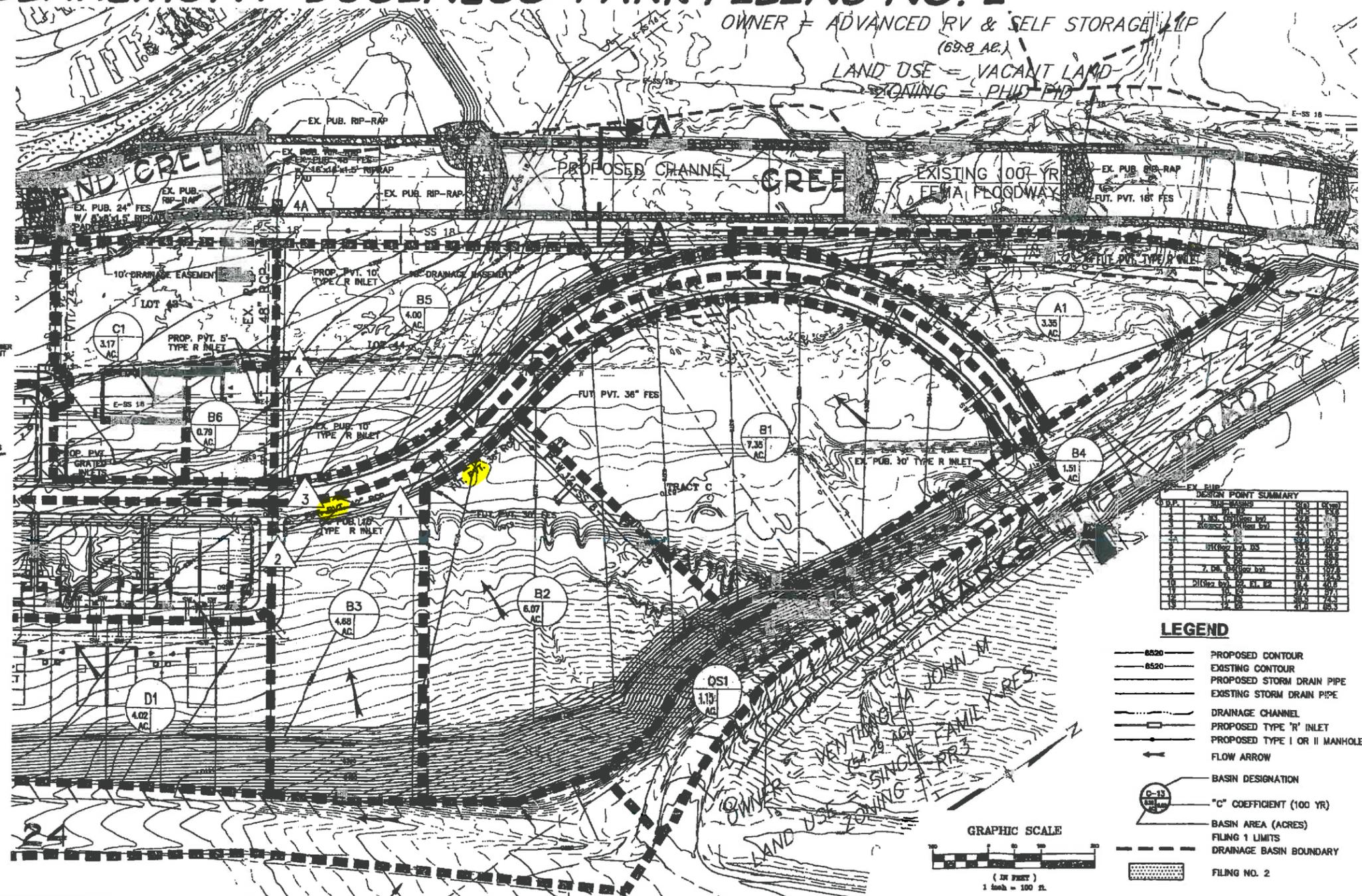
**EPC DEVELOPMENT SERVICES**

# DRAINAGE PLAN CLAREMONT BUSINESS PARK FILING NO. 2

OWNER = ADVANCED RV & SELF STORAGE LLP  
(69.8 AC.)  
LAND USE = VACANT LAND  
SIGNING = PHD PHD

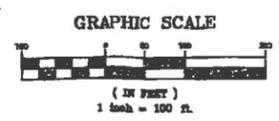


**NOTE:** CONSTRUCTION OF THE EAST FORK SAND CREEK CHANNEL IMPROVEMENTS WILL BE REQUIRED TO REMOVE A PORTION OF CLAREMONT BUSINESS PARK FILING NO. 1 FROM THE EXISTING 100-YEAR FLOODPLAIN (PER FEMA FLOOD INSURANCE RATE MAPS 7502 AND 7507)



EX. SUB DESIGN POINT SUMMARY			
INLET	PIPE	MANHOLE	OUTLET
1	1.5" DIA. 10' L	1	1.5" DIA. 10' L
2	1.5" DIA. 10' L	1	1.5" DIA. 10' L
3	1.5" DIA. 10' L	1	1.5" DIA. 10' L
4	1.5" DIA. 10' L	1	1.5" DIA. 10' L
5	1.5" DIA. 10' L	1	1.5" DIA. 10' L
6	1.5" DIA. 10' L	1	1.5" DIA. 10' L
7	1.5" DIA. 10' L	1	1.5" DIA. 10' L
8	1.5" DIA. 10' L	1	1.5" DIA. 10' L
9	1.5" DIA. 10' L	1	1.5" DIA. 10' L
10	1.5" DIA. 10' L	1	1.5" DIA. 10' L
11	1.5" DIA. 10' L	1	1.5" DIA. 10' L
12	1.5" DIA. 10' L	1	1.5" DIA. 10' L
13	1.5" DIA. 10' L	1	1.5" DIA. 10' L
14	1.5" DIA. 10' L	1	1.5" DIA. 10' L
15	1.5" DIA. 10' L	1	1.5" DIA. 10' L

- LEGEND**
- 6520 — PROPOSED CONTOUR
  - 6520 — EXISTING CONTOUR
  - — PROPOSED STORM DRAIN PIPE
  - — EXISTING STORM DRAIN PIPE
  - — DRAINAGE CHANNEL
  - — PROPOSED TYPE 'R' INLET
  - — PROPOSED TYPE I OR II MANHOLE
  - FLOW ARROW
  - BASIN DESIGNATION
  - "C" COEFFICIENT (100 YR)
  - BASIN AREA (ACRES)
  - — FILING 1 LIMITS
  - — DRAINAGE BASIN BOUNDARY
  - — FILING NO. 2



NO.	DATE	DESCRIPTION	BY
REVISIONS			
BENCHMARK DATA (ELEV.) (DATUM)			
(DESCRIPTION/LOCATION)			

**SUBDIVIDER**  
HAMMERS CONSTRUCTION INC.  
3460 CAPITAL DRIVE  
COLORADO SPRINGS, CO 80915-9710

FOR AND ON BEHALF OF  
MATRIX DESIGN GROUP, INC.

**Matrix Design Group, Inc.**  
Integrated Design Solutions 2435 Research Parkway, Suite 300  
Colorado Springs, CO 80920  
Phone 719-575-0100  
Fax 719-575-0201

**CLAREMONT BUSINESS PARK**

**FINAL DRAINAGE PLAN  
MASTER DEVELOPMENT DRAINAGE PLAN  
FINAL DRAINAGE PLAN  
FILING NO. 2**

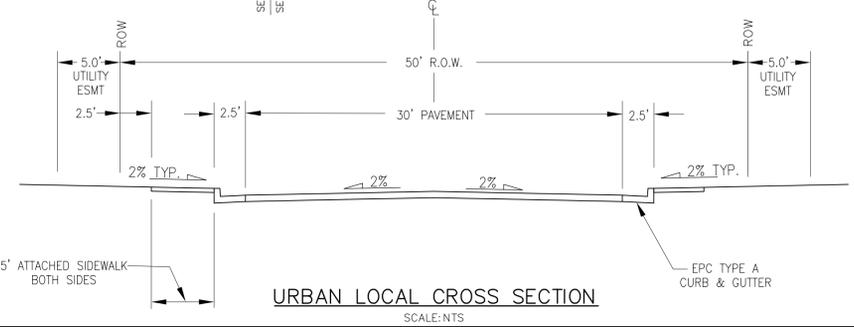
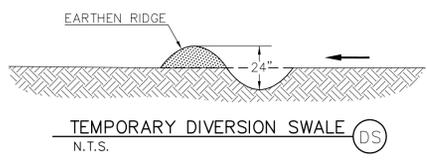
DESIGNED BY: RGG	SCALE: 1" = 100'	DATE ISSUED: SEPTEMBER 2006	<b>DR01</b>
DRAWN BY: GES	HORIZ: 1" = 100'	SHEET NO. 1 OF 2 SHEETS	
CHECKED BY: JPL	VERT: N/A		

**GRADING AND EROSION CONTROL PLAN**

**GRADING AND EROSION CONTROL NOTES:**

- CONSTRUCTION MAY NOT COMMENCE UNTIL A CONSTRUCTION PERMIT IS OBTAINED FROM DEVELOPMENT SERVICES AND A PRECONSTRUCTION CONFERENCE IS HELD WITH DEVELOPMENT SERVICES INSPECTIONS.
- STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF STATE WATERS. ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFF-SITE WATERS, INCLUDING WETLANDS.
- NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS TO REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.
- A SEPARATE STORMWATER MANAGEMENT PLAN (SWMP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION. DURING CONSTRUCTION THE SWMP IS THE RESPONSIBILITY OF THE DESIGNATED STORMWATER MANAGER, SHALL BE LOCATED ON SITE AT ALL TIMES AND SHALL BE KEPT UP TO DATE WITH WORK PROGRESS AND CHANGES IN THE FIELD.
- ONCE THE ESQCP HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE INITIAL STAGE EROSION AND SEDIMENT CONTROL BMPs AS INDICATED ON THE GEC. A PRECONSTRUCTION MEETING BETWEEN THE CONTRACTOR, ENGINEER, AND EL PASO COUNTY WILL BE HELD PRIOR TO ANY CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE APPLICANT TO COORDINATE THE MEETING TIME AND PLACE WITH COUNTY DSD INSPECTIONS STAFF.
- SOIL EROSION CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN 21 CALENDAR DAYS AFTER FINAL GRADING, OR FINAL EARTH DISTURBANCE, HAS BEEN COMPLETED. DISTURBED AREAS AND STOCKPILES WHICH ARE NOT AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 30 DAYS SHALL ALSO BE MULCHED WITHIN 21 DAYS AFTER INTERIM GRADING. AN AREA THAT IS GOING TO REMAIN IN AN INTERIM STATE FOR MORE THAN 60 DAYS SHALL ALSO BE SEEDED. ALL TEMPORARY SOIL EROSION CONTROL MEASURES AND BMPs SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND ESTABLISHED.
- TEMPORARY SOIL EROSION CONTROL FACILITIES SHALL BE REMOVED AND EARTH DISTURBANCE AREAS GRADED AND STABILIZED WITH PERMANENT SOIL EROSION CONTROL MEASURES PURSUANT TO STANDARDS AND SPECIFICATION PRESCRIBED IN THE DCM VOLUME II AND THE ENGINEERING CRITERIA MANUAL (ECM) APPENDIX I.
- ALL PERSONS ENGAGED IN EARTH DISTURBANCE SHALL IMPLEMENT AND MAINTAIN ACCEPTABLE SOIL EROSION AND SEDIMENT CONTROL MEASURES INCLUDING BMPs IN CONFORMANCE WITH THE EROSION CONTROL TECHNICAL STANDARDS OF THE DRAINAGE CRITERIA MANUAL (DCM) VOLUME II AND IN ACCORDANCE WITH THE STORMWATER MANAGEMENT PLAN (SWMP).
- ALL TEMPORARY EROSION CONTROL FACILITIES INCLUDING BMPs AND ALL PERMANENT FACILITIES INTENDED TO CONTROL EROSION OF ANY EARTH DISTURBANCE OPERATIONS, SHALL BE INSTALLED AS DEFINED IN THE APPROVED PLANS, THE SWMP AND THE DCM VOLUME II AND MAINTAINED THROUGHOUT THE DURATION OF THE EARTH DISTURBANCE OPERATION.
- ANY EARTH DISTURBANCE SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO EFFECTIVELY REDUCE ACCELERATED SOIL EROSION AND RESULTING SEDIMENTATION. ALL DISTURBANCES SHALL BE DESIGNED, CONSTRUCTED, AND COMPLETED SO THAT THE EXPOSED AREA OF ANY DISTURBED LAND SHALL BE LIMITED TO THE SHORTEST PRACTICAL PERIOD OF TIME.
- ANY TEMPORARY OR PERMANENT FACILITY DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORMWATER AROUND, THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE DESIGNED TO LIMIT THE DISCHARGE TO A NON-EROSIVE VELOCITY.
- CONCRETE WASH WATER SHALL BE CONTAINED AND DISPOSED OF IN ACCORDANCE WITH THE SWMP. NO WASH WATER SHALL BE DISCHARGED TO OR ALLOWED TO RUNOFF TO STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES.
- EROSION CONTROL BLANKETING IS TO BE USED ON SLOPES STEEPER THAN 3:1.
- BUILDING, CONSTRUCTION, EXCAVATION, OR OTHER WASTE MATERIALS SHALL NOT BE TEMPORARILY PLACED OR STORED IN THE STREET, ALLEY, OR OTHER PUBLIC WAY, UNLESS IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. BMPs MAY BE REQUIRED BY EL PASO COUNTY ENGINEERING IF DEEMED NECESSARY, BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES.
- VEHICLE TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFFSITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL WASTES FROM THE CONSTRUCTION SITE FOR DISPOSAL IN ACCORDANCE WITH LOCAL AND STATE REGULATORY REQUIREMENTS. NO CONSTRUCTION DEBRIS, TREE SLASH, BUILDING MATERIAL WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, OR DISCHARGED AT THE SITE.
- THE OWNER, SITE DEVELOPER, CONTRACTOR, AND/OR THEIR AUTHORIZED AGENTS SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION DEBRIS, DIRT, TRASH, ROCK, SEDIMENT, AND SAND THAT MAY ACCUMULATE IN THE STORM SEWER OR OTHER DRAINAGE CONVEYANCE SYSTEM AND STORMWATER APPURTENANCES AS A RESULT OF SITE DEVELOPMENT.
- THE QUANTITY OF MATERIALS STORED ON THE PROJECT SITE SHALL BE LIMITED, AS MUCH AS PRACTICAL, TO THAT QUANTITY REQUIRED TO PERFORM THE WORK IN AN ORDERLY SEQUENCE. ALL MATERIALS STORED ON-SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER, IN THEIR ORIGINAL CONTAINERS, WITH ORIGINAL MANUFACTURER'S LABELS.
- NO CHEMICALS ARE TO BE USED BY THE CONTRACTOR, WHICH HAVE THE POTENTIAL TO BE RELEASED IN STORMWATER UNLESS PERMISSION FOR THE USE OF A SPECIFIC CHEMICAL IS GRANTED IN WRITING BY THE ECM ADMINISTRATOR. IN GRANTING THE USE OF SUCH CHEMICALS, SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED.
- BULK STORAGE STRUCTURES FOR PETROLEUM PRODUCTS AND OTHER CHEMICALS SHALL HAVE ADEQUATE PROTECTION SO AS TO CONTAIN ALL SPILLS AND PREVENT ANY SPILLED MATERIAL FROM ENTERING STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES.
- NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE FLOW LINE OF THE CURB AND GUTTER OR IN THE DITCHLINE.
- INDIVIDUALS SHALL COMPLY WITH THE "COLORADO WATER QUALITY CONTROL ACT" (TITLE 25, ARTICLE 8, CRS), AND THE "CLEAN WATER ACT" (33 USC 1344), IN ADDITION TO THE REQUIREMENTS INCLUDED IN THE DCM VOLUME II AND THE ECM APPENDIX I. ALL APPROPRIATE PERMITS MUST BE OBTAINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION (NPDES, FLOODPLAIN, 404, FUGITIVE DUST, ETC.). IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND LAWS, RULES, OR REGULATIONS OF OTHER FEDERAL, STATE, OR COUNTY AGENCIES, THE MORE RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.
- ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE AT APPROVED CONSTRUCTION ACCESS POINTS.
- PRIOR TO ACTUAL CONSTRUCTION THE PERMITEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.
- A WATER SOURCE SHALL BE AVAILABLE ON SITE DURING EARTHWORK OPERATIONS AND UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.
- THE SOILS REPORT FOR THIS SITE HAS BEEN PREPARED BY ENTECH ENGINEERING, INC. # 76021 JUNE 1, 2011. AND SHALL BE CONSIDERED A PART OF THESE PLANS.
- AT LEAST TEN DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB 1 ACRE OR MORE, THE OWNER OR OPERATOR OF CONSTRUCTION ACTIVITY SHALL SUBMIT A PERMIT APPLICATION FOR STORMWATER DISCHARGE TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, WATER QUALITY DIVISION. THE APPLICATION CONTAINS CERTIFICATION OF COMPLETION OF A STORMWATER MANAGEMENT PLAN (SWMP), OF WHICH THIS GRADING AND EROSION CONTROL PLAN MAY BE A PART. FOR INFORMATION OR APPLICATION MATERIALS CONTACT:

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT  
WATER QUALITY CONTROL DIVISION  
WOOD - PERMITS  
4300 CHERRY CREEK DRIVE SOUTH  
DENVER, CO 80246-1530  
ATTN: PERMITS UNIT

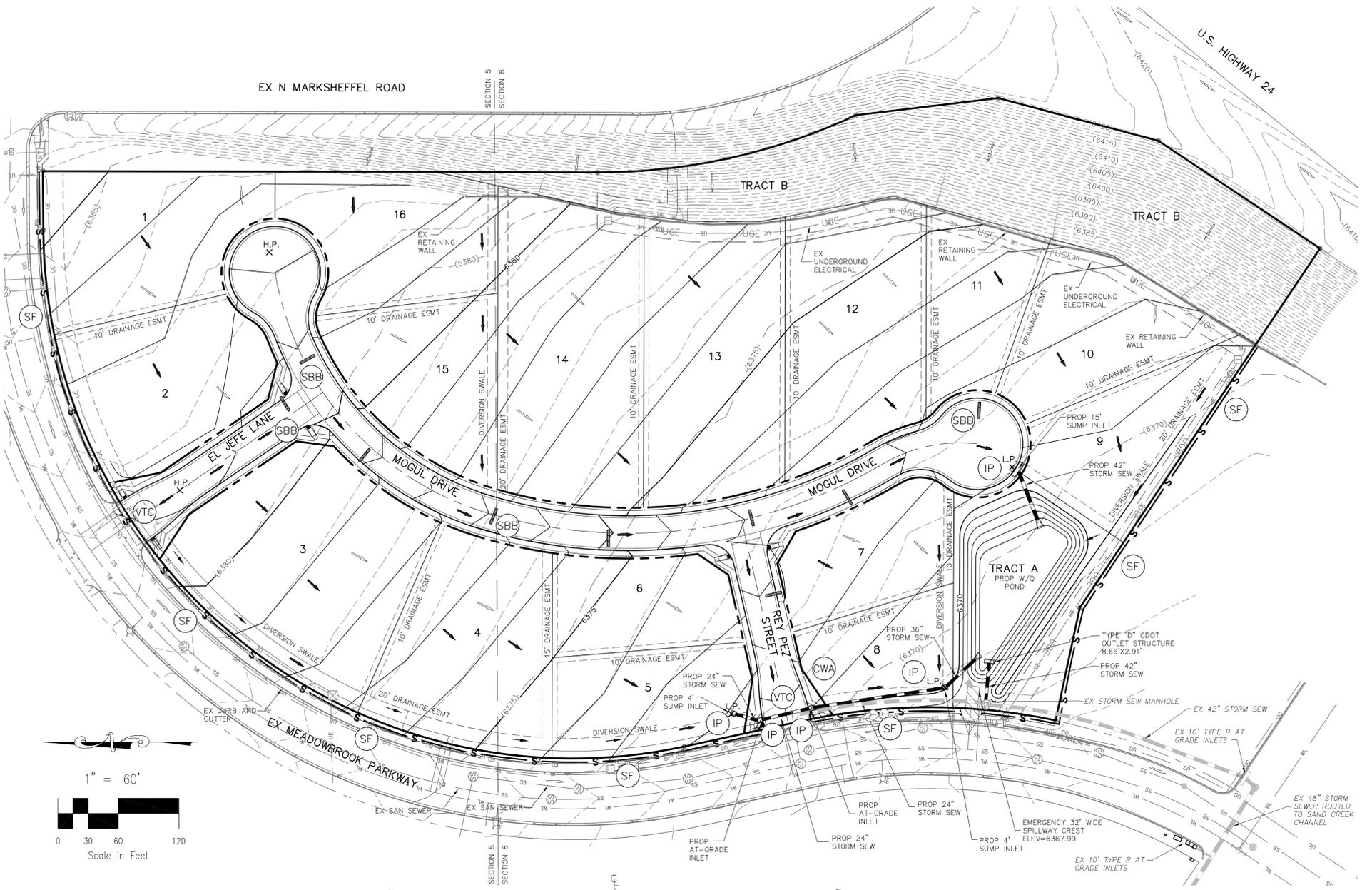


# CLAREMONT COMMERCIAL FILING NO. 2

## COUNTY OF EL PASO, STATE OF COLORADO

# PRELIMINARY GRADING AND EROSION CONTROL PLAN

JUNE 2017



**LEGEND**

- (6920) --- EXISTING CONTOUR
- 6920 — PROP CONTOUR
- S — STORM SEWER PIPE
- C — CROSSSPAN
- I — INLET
- F — EXISTING FLOW DIRECTION
- E — EMERGENCY OVERTFLOW DIRECTION
- D — FLOW DIRECTION
- F — FLARED END SECTION
- S — DIVERSION SWALE
- U — UNDERGROUND ELECTRICAL
- H.P. X — HIGH POINT
- L.P. X — LOW POINT
- SF — SILT FENCE
- VTC — VEHICLE TRACKING CONTROL
- CWA — CONCRETE WASH-OUT BASIN
- IP — INLET PROTECTION
- SBB — STRAW BALE DITCH CHECK

File: 0:\42008A\Meadowbrook\Eng\Plan\Pre\Grading\Plans\GR&EC.dwg Plotstamp: 6/5/2017 11:13 PM

EL PASO COUNTY FILE NO. PPR 17-004

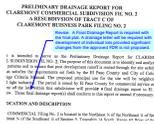
FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES  
FOR BURIED UTILITY INFORMATION  
48 HRS BEFORE YOU DIG  
CALL 1-800-922-1987

20 BOULDER CRESCENT, SUITE 110  
COLORADO SPRINGS, CO 80903  
PHONE: 719.955.5485

CLAREMONT COMMERCIAL FILING NO. 2			
PRELIMINARY GRADING AND EROSION CONTROL PLAN			
PROJECT NO. 42-008	FILE: \dwg\Eng Exhibits\GR&EC.dwg	DATE: 6-5-2017	
DESIGNED BY: CMN	SCALE: HORIZ: 1"=60'	SHEET 1 OF 1	GR&EC01
DRAWN BY: CMN	VERT: N/A		
CHECKED BY: VAS			

# Markup Summary

dsdlaforce (10)



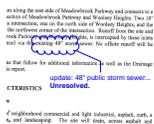
**Subject:** Callout  
**Page Label:** 4  
**Lock:** Locked  
**Author:** dsdlaforce

Revise. A Final Drainage Report is required with the final plat. A drainage letter will be required with development of individual lots provided significant changes from the approved FDR is not proposed.



**Subject:** Cloud+  
**Page Label:** 6  
**Lock:** Locked  
**Author:** dsdlaforce

Revise. Per the FDR for Claremont Business Park Filing 2 on-site flood control detention is not required. However, per Resolution 16-426, the BoCC determined that permanent water quality BMP's are required with new development within the Claremont Business Park. Unresolved. Provide a summary or statement why on-site detention is not provided and why WQCV is required.



**Subject:** Cloud+  
**Page Label:** 6  
**Lock:** Locked  
**Author:** dsdlaforce

update: 48" public storm sewer...  
Unresolved.



**Subject:** Callout  
**Page Label:** 7  
**Lock:** Locked  
**Author:** dsdlaforce

private  
Unresolved. The narrative in the existing drainage condition narrative and the Matrix Drainage map shows the existing 42" west of Meadowbrook Parkway as a private storm line.



**Subject:** Callout  
**Page Label:** 7  
**Lock:** Locked  
**Author:** dsdlaforce

Identify the method used for water quality detention calculation.  
Unresolved. State that with the Final Drainage Report the latest version of the UD-Detention will be used to design the Sand Filter Basin.



**Subject:** Callout  
**Page Label:** 8  
**Lock:** Locked  
**Author:** dsdlaforce

Since the applicant has not submitted a final plat application revise the fees section using one of the following options:

1. Revise based on the 2018 rates and add an asterisk similar to the construction cost opinion above. Add a note that drainage/bridge fees will be based on the effective rate for Sand Creek drainage basin at the time of final plat application submittal.
2. Alternatively, since this is a preliminary drainage report you can identify the total impervious acre, remove the calculated fees, and state that drainage and bridge fees for the property will be presented with the final drainage report. Add a note that drainage/bridge fees will be based on the effective rate for Sand Creek drainage basin at the time of final plat application submittal.



**Subject:** Text Box  
**Page Label:** 41  
**Lock:** Locked  
**Author:** dsdlaforce

With the Final Drainage Report, use the UD-Detention worksheet for final design of the Sand Filter.

As specifically stated on the Intro of the UD-BMP the purpose of the workbook is to be used as a design aid in the preliminary stages of BMP design.



**Subject:** Callout  
**Page Label:** 47  
**Lock:** Locked  
**Author:** dsdlaforce

Identify the type of detention facility (Sand Filter)



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**Page Label:** 52  
**Lock:** Locked  
**Author:** dsdlaforce



**Subject:** Highlight  
**Page Label:** 52  
**Lock:** Locked  
**Author:** dsdlaforce