

# **FINAL DRAINAGE REPORT**

**FOR**

## **LOT 2 PADMARK BUSINESS PARK FILING NO. 1**

**(LOT 44 OF CLAREMONT BUSINESS PARK FILING NO. 2)  
EL PASO COUNTY, COLORADO**

JUNE 2018

Prepared for:

**Hammers Construction, Inc.  
1411 Woolsey Heights  
Colorado Springs, CO 80915**

Prepared by:



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

Project #44-031  
PCD Project #PPR-18-020

**FINAL DRAINAGE REPORT  
FOR  
LOT 2 PADMARK BUSINESS PARK FILING NO. 1  
(Lot 44 of Claremont Business 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 established by the County for drainage reports and said report is in conformity with the master plan of the drainage basin. I accept responsibility for any liability caused by any negligent acts, errors or omissions on my part in preparing this report.

8/8/18

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: \_\_\_\_\_ 8-16-18

ADDRESS: Hammers Construction, LLC  
1411 Woolsey Heights  
Colorado Springs, CO80915

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.

Approved  
by Elizabeth Nijkamp  
El Paso County Planning and Community Development  
on behalf of Jennifer Irvine, County Engineer, ECM Administrator

BY: 09/13/2018 8:15:04 AM  
Jennifer Irvine, P.E.  
County Engineer



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

CONDITIONS:

**FINAL DRAINAGE REPORT**  
**FOR**  
**LOT 2 PADMARK BUSINESS PARK FILING NO. 1**  
**(Lot 44 of Claremont Business Park Filing No. 2)**

**TABLE OF CONTENTS**

PURPOSE	4
GENERAL LOCATION AND DESCRIPTION	4
SOILS	4
HYDROLOGIC CALCULATIONS	5
HYDRAULIC CALCULATIONS	5
FLOOD PLAIN STATEMENT	5
DRAINAGE CRITERIA	5
FOUR STEP PROCESS	5
EXISTING DRAINAGE CONDITIONS	6
PROPOSED DRAINAGE CONDITIONS	6
WATER QUALITY PROVISIONS AND MAINTENANCE	7
EROSION CONTROL	7
CONSTRUCTION COST OPINION	8
DRAINAGE AND BRIDGE FEES	8
SUMMARY	8
REFERENCES	9

**APPENDIX**

Vicinity Map  
Soils Map  
FIRM Panel W/Revised LOMR  
Hydrologic Calculations  
Hydraulic Calculations/SFB WQCV Calculations  
Proposed Drainage Map  
Existing Drainage Map

**PRIVATE DETENTION BASIN /  
STORMWATER QUALITY BEST MANAGEMENT PRACTICE  
MAINTENANCE AGREEMENT AND EASEMENT**

This PRIVATE DETENTION BASIN / STORMWATER QUALITY BEST MANAGEMENT PRACTICE MAINTENANCE AGREEMENT AND EASEMENT (Agreement) is made by and between EL PASO COUNTY by and through THE BOARD OF COUNTY COMMISSIONERS OF EL PASO COUNTY, COLORADO (Board or County) and HAMMERS CONSTRUCTION, INC, A COLORADO CORPORATION (**Developer**). The above may occasionally be referred to herein singularly as “Party” and collectively as “Parties.”

Recitals

A. WHEREAS, Developer is the owner of certain real estate (the Property or Subdivision) in El Paso County, Colorado, which Property is legally described in Exhibit A attached hereto and incorporated herein by this reference; and

B. WHEREAS, Developer desires to develop on the Property an industrial use to be known as **Lot 2, Padmark Business Park, Filing No. 1**; and

C. WHEREAS, the development of this Property will substantially increase the volume of water runoff and will decrease the quality of the stormwater runoff from the Property, and, therefore, it is in the best interest of public health, safety and welfare for the County to condition approval of this land use on Developer’s promise to construct adequate drainage, water runoff control facilities, and stormwater quality structural Best Management Practices (“BMPs”) for the subdivision; and

D. WHEREAS, Chapter 8, Section 8.4.5 of the El Paso County Land Development Code, as periodically amended, promulgated pursuant to Section 30-28-133(1), Colorado Revised Statutes (C.R.S.), requires the County to condition approval of all subdivisions on a developer’s promise to so construct adequate drainage, water runoff control facilities, and BMPs in subdivisions; and

E. WHEREAS, the Drainage Criteria Manual, Volume 2, as amended by Appendix I of the El Paso County Engineering Criteria Manual (ECM), as each may be periodically amended, promulgated pursuant to the County’s Colorado Discharge Permit System General Permit (MS4 Permit) as required by Phase II of the National Pollutant Discharge Elimination System (NPDES), which MS4 Permit requires that the County take measures to protect the quality of stormwater from sediment and other contaminants, requires subdividers, developers, landowners, and owners of facilities located in the County’s rights-of-way or easements to provide adequate permanent stormwater quality BMPs with new development or significant redevelopment; and

F. WHEREAS, Section 2.9 of the El Paso County Drainage Criteria Manual provides for a developer’s promise to maintain a subdivision’s drainage facilities in the event the County does not assume such responsibility; and

G. WHEREAS, developers in El Paso County have historically chosen water runoff detention basins as a means to provide adequate drainage and water runoff control in subdivisions,



which basins, while effective, are less expensive for developers to construct than other methods of providing drainage and water runoff control; and

H. WHEREAS, Developer desires to construct for the land use one (1) Water Quality Basin/stormwater quality BMP(s) (“detention basin/BMP(s)”) as the means for providing adequate drainage and stormwater runoff control and to meet requirements of the County’s MS4 Permit, and to provide for operating, cleaning, maintaining and repairing such detention basin/BMP(s); and

I. WHEREAS, Developer desires to construct the detention basin/BMP(s) on property that will be platted as **Lot 2, Padmark Business Park, Filing No. 1**, and as set forth on Exhibit A attached hereto; and

J. WHEREAS, Developer shall be charged with the duties of constructing the detention basin/BMP(s) and with the duties of operating, maintaining and repairing, including the detention basin/BMP(s) on the Property described in Exhibit A; and

K. WHEREAS, it is the County’s experience that developers historically have not properly cleaned and otherwise not properly maintained and repaired these detention basins/BMPs, and that these detention basins/BMPs, when not so properly cleaned, maintained, and repaired, threaten the public health, safety and welfare; and

L. WHEREAS, the County, in order to protect the public health, safety and welfare, has historically expended valuable and limited public resources to so properly clean, maintain, and repair these detention basins/BMPs when developers and homeowners’ associations have failed in their responsibilities, and therefore, the County desires the means to recover its costs incurred in the event the burden falls on the County to so clean, maintain and repair the detention basin/BMP(s) serving this land use due to the Developer’s failure to meet its obligations to do the same; and

M. WHEREAS, the County conditions approval of this land use on the Developer’s promise to so construct the detention basin/BMP(s), and further conditions approval on the promise to reimburse the County in the event the burden falls upon the County to so clean, maintain and/or repair the detention basin/BMP(s) serving this land use; and

N. WHEREAS, the County could condition approval on the Developer’s promise to construct a different and more expensive drainage, water runoff control system and BMPs than those proposed herein, which more expensive system would not create the possibility of the burden of cleaning, maintenance and repair expenses falling on the County; however, the County is willing to forego such right upon the performance of Developer’s promises contained herein; and

O. WHEREAS, the County, in order to secure performance of the promises contained herein, conditions approval of this land use upon the Developer’s grant herein of a perpetual Easement over the Property for the purpose of allowing the County to periodically access, inspect, and, when so necessary, to clean, maintain and/or repair the detention basin/BMP(s).

## Agreement

NOW, THEREFORE, in consideration of the mutual Promises contained herein, the sufficiency of which are hereby acknowledged, the Parties agree as follows:

1. Incorporation of Recitals: The Parties incorporate the Recitals above into this Agreement.
2. Covenants Running with the Land: Developer agrees that this entire Agreement and the performance thereof shall become a covenant running with the land, which land is legally described in Exhibit A attached hereto, and that this entire Agreement and the performance thereof shall be binding upon itself and its respective successors and assigns.
3. Construction: Developer shall construct on the Property described in Exhibit A attached hereto and incorporated herein by this reference, one (1) Water Quality Basin/BMP(s). Developer shall not commence construction of the detention basin/BMP(s) until the County has approved in writing the plans and specifications for the detention basin/BMP(s) and this Agreement has been signed by all Parties and returned to the PCD. Developer shall complete construction of the detention basin/BMP(s) in substantial compliance with the County-approved plans and specifications for the detention basin/BMP(s). Failure to meet these requirements shall be a material breach of this Agreement, and shall entitle the County to pursue any remedies available to it at law or in equity to enforce the same. Construction of the detention basin/BMP(s) shall be substantially completed within one (1) year (defined as 365 days), which one year period will commence to run on the date the Erosion and Stormwater Quality Permit (ESQCP) is issued. Rough grading of the detention basin/BMP(s) must be completed and inspected by the El Paso County Planning and Community Development Department prior to commencing road construction.

In the event construction is not substantially completed within the one (1) year period, then the County may exercise its discretion to complete the project, and shall have the right to seek reimbursement from the Developer and its respective successors and assigns, for its actual costs and expenses incurred in the process of completing construction. The term actual costs and expenses shall be liberally construed in favor of the County, and shall include, but shall not be limited to, labor costs, tool and equipment costs, supply costs, and engineering and design costs, regardless of whether the County uses its own personnel, tools, equipment and supplies, etc. to correct the matter. In the event the County initiates any litigation or engages the services of legal counsel in order to enforce the Provisions arising herein, the County shall be entitled to its damages and costs, including reasonable attorney fees, regardless of whether the County contracts with outside legal counsel or utilizes in-house legal counsel for the same.

4. Maintenance: The Developer agrees for itself and its successors and assigns, that it will regularly and routinely inspect, clean and maintain the detention basin/BMP(s), and otherwise keep the same in good repair, all at its own cost and expense. No trees or shrubs that will impair the structural integrity of the detention basin/BMP(s) shall be planted or allowed to grow on the detention basin/BMP(s).

5. Creation of Easement: Developer hereby grants the County a non-exclusive perpetual easement upon and across the Property described in Exhibit A. The purpose of the easement is to allow the County to access, inspect, clean, repair and maintain the detention basin/BMP(s); however, the

creation of the easement does not expressly or implicitly impose on the County a duty to so inspect, clean, repair or maintain the detention basin/BMP(s).

6. County's Rights and Obligations: Any time the County determines, in the sole exercise of its discretion, that the detention basin/BMP(s) is not properly cleaned, maintained and/or otherwise kept in good repair, the County shall give reasonable notice to the Developer, that the detention basin/BMP(s) needs to be cleaned, maintained and/or otherwise repaired. The notice shall provide a reasonable time to correct the problem(s). Should the responsible parties fail to correct the specified problem(s), the County may enter upon the Property to so correct the specified problem(s). Notice shall be effective to the above by the County's deposit of the same into the regular United States mail, postage pre-paid. Notwithstanding the foregoing, this Agreement does not expressly or implicitly impose on the County a duty to so inspect, clean, repair or maintain the detention basin/BMP(s).

7. Reimbursement of County's Costs / Covenant Running With the Land: The Developer agrees and covenants, for itself and its successors and assigns, that it will reimburse the County for its costs and expenses incurred in the process of completing construction of, cleaning, maintaining, and/or repairing the detention basin/BMP(s) pursuant to the provisions of this Agreement.

The term "actual costs and expenses" shall be liberally construed in favor of the County, and shall include, but shall not be limited to, labor costs, tools and equipment costs, supply costs, and engineering and design costs, regardless of whether the County uses its own personnel, tools, equipment and supplies, etc. to correct the matter. In the event the County initiates any litigation or engages the services of legal counsel in order to enforce the provisions arising herein, the County shall be entitled to its damages and costs, including reasonable attorney's fees, regardless of whether the County contracts with outside legal counsel or utilizes in-house legal counsel for the same.

8. Contingencies of Subdivision Approval: Developer's execution of this Agreement is condition of land use approval.

The County shall have the right, in the sole exercise of its discretion, to approve or disapprove any documentation submitted to it under the conditions of this Paragraph, including but not limited to, any separate agreement or amendment, if applicable, identifying any specific maintenance responsibilities not addressed herein. The County's rejection of any documentation submitted hereunder shall mean that the appropriate condition of this Agreement has not been fulfilled.

9. Agreement Monitored by El Paso County: Any and all actions and decisions to be made hereunder by the County shall be made by the Director of the El Paso County Planning and Community Development Department and/or the Director of the El Paso County Department of Public Works. Accordingly, any and all documents, submissions, plan approvals, inspections, etc. shall be submitted to and shall be made by the Director of the Planning and Community Development Department and/or the Director of the El Paso County Department of Public Works.

11. Indemnification and Hold Harmless: Developer agrees, for itself, its successors and assigns, that they will indemnify, defend, and hold the County harmless from any and all loss, costs, damage, injury, liability, claim, lien, demand, action and causes of action whatsoever, whether at law or in equity, arising from or related to their respective intentional or negligent acts, errors or omissions or that of their agents, officers, servants, employees, invitees and licensees in the construction, operation, inspection, cleaning (including analyzing and disposing of any solid or hazardous wastes as defined by

State and/or Federal environmental laws and regulations), maintenance, and repair of the detention basin/BMP(s), and such obligation arising under this Paragraph shall be joint and several. Nothing in this Paragraph shall be deemed to waive or otherwise limit the defense available to the County pursuant to the Colorado Governmental Immunity Act, Sections 24-10-101, *et seq.* C.R.S., or as otherwise provided by law.

12. Severability: In the event any Court of competent jurisdiction declares any part of this Agreement to be unenforceable, such declaration shall not affect the enforceability of the remaining parts of this Agreement.

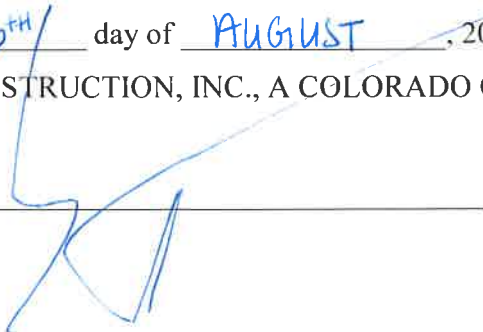
13. Third Parties: This Agreement does not and shall not be deemed to confer upon or grant to any third party any right to claim damages or to bring any lawsuit, action or other proceeding against either the County, the Developer, or their successors and assigns, because of any breach hereof or because of any terms, covenants, agreements or conditions contained herein.

14. Solid Waste or Hazardous Materials: Should any refuse from the detention basin/BMP(s) be suspected or identified as solid waste or petroleum products, hazardous substances or hazardous materials (collectively referred to herein as "hazardous materials"), the Developer shall take all necessary and proper steps to characterize the solid waste or hazardous materials and properly dispose of it in accordance with applicable State and/or Federal environmental laws and regulations, including, but not limited to, the following: Solid Wastes Disposal Sites and Facilities Acts, §§ 30-20-100.5 – 30-20-119, C.R.S., Colorado Regulations Pertaining to Solid Waste Disposal Sites and Facilities, 6 C.C.R. 1007-2, *et seq.*, Solid Waste Disposal Act, 42 U.S.C. §§ 6901-6992k, and Federal Solid Waste Regulations 40 CFR Ch. I. The County shall not be responsible or liable for identifying, characterizing, cleaning up, or disposing of such solid waste or hazardous materials. Notwithstanding the previous sentence, should any refuse cleaned up and disposed of by the County be determined to be solid waste or hazardous materials, the Developer, but not the County, shall be responsible and liable as the owner, generator, and/or transporter of said solid waste or hazardous materials.

15. Applicable Law and Venue: The laws, rules, and regulations of the State of Colorado and El Paso County shall be applicable in the enforcement, interpretation, and execution of this Agreement, except that Federal law may be applicable regarding solid waste or hazardous materials. Venue shall be in the El Paso County District Court.

IN WITNESS WHEREOF, the Parties affix their signatures below.

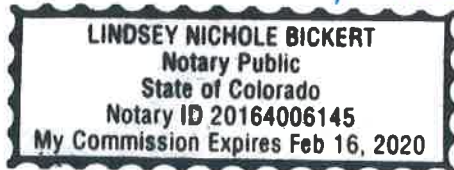
Executed this 16<sup>th</sup> day of AUGUST, 2018, by: STEVE HAMMERS  
HAMMERS CONSTRUCTION, INC., A COLORADO CORPORATION

By: 

The foregoing instrument was acknowledged before me this 16<sup>th</sup> day of AUGUST, 2018, by STEVE HAMMERS as PRESIDENT of, HAMMERS CONSTRUCTION, INC., A COLORADO CORPORATION

Witness my hand and official seal.

My commission expires: February 16<sup>th</sup>, 2020



Lindsey N. Bickert  
Notary Public

Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2018,

By: \_\_\_\_\_  
BOARD OF COUNTY COMMISSIONERS  
OF EL PASO COUNTY, COLORADO

By: \_\_\_\_\_  
Craig Dossey, Executive Director  
Planning and Community Development  
Authorized signatory pursuant to LDC

Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2018,

The foregoing instrument was acknowledged before me this \_\_\_\_\_ day of \_\_\_\_\_, 2018, by \_\_\_\_\_, Executive Director of Planning and Community Development of El Paso County, Colorado.

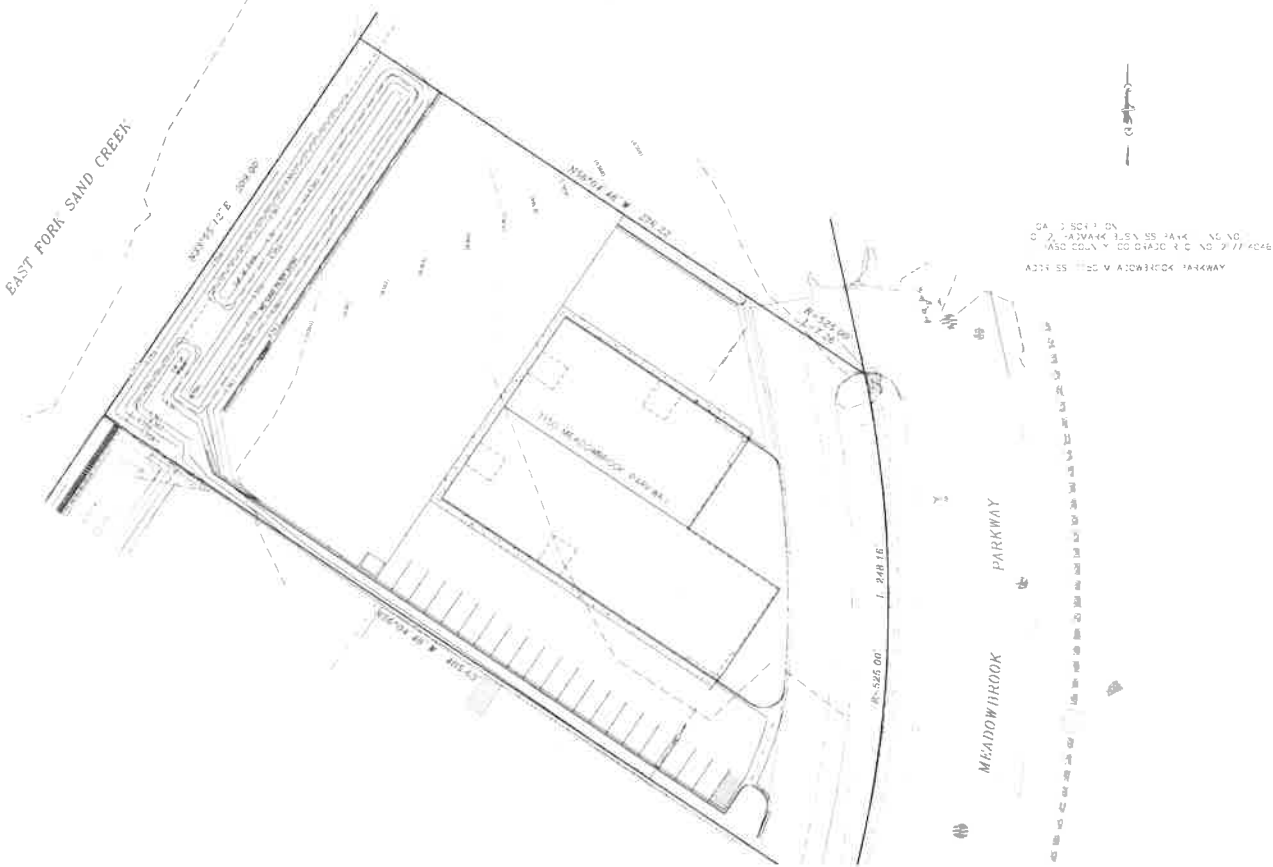
Witness my hand and official seal. My commission expires: \_\_\_\_\_  
\_\_\_\_\_, Notary Public

Approved as to Content and Form:

\_\_\_\_\_  
Assistant County Attorney

LOT 2, OF PADMARK BUSINESS PARK FILING NO. 1

PASO COUNTY, S.A. CO. GRAD  
X-3 "A"



**FINAL DRAINAGE REPORT**  
**FOR**  
**LOT 2 PADMARK BUSINESS PARK FILING NO. 1**  
**(Lot 44 of Claremont Business Park Filing No. 2)**

**PURPOSE**

This document is intended to serve as the Final Drainage Report for Lot 2 PADMARK BUSINESS PARK FILING NO. 1 formerly (Lot 44 of Claremont Business Park Filing No. 2). The purpose of this document is to identify and analyze the on and offsite 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 Drainage Criteria Manual. The proposed principal use for Lot 2 consists of all infrastructures typically associated with commercial building structures. The majority of the site will consist of asphalt, curb, lighting, a storm water quality facility and landscaping. The proposed use is a permissible use within the Commercial Service zoning criteria.

**GENERAL LOCATION AND DESCRIPTION**

PADMARK BUSINESS PARK FILING NO. 1 is located in the northeast quarter of the northeast quarter of Section 8, Township 14 South, Range 65 West of the 6th P.M. in El Paso County, Colorado. The site is bound on the northeast by a vacant parcel of land (Lot 3 Padmark Business Park) that is anticipated to be developed in the near future as the Claremont Business Park continues to build out. The site is bound on the northwest by the East Fork Sand Creek Channel. The property is bound to the southwest by an existing development of an office/warehouse/storage yard (Lot 1 Padmark Business Park). An existing access road runs along the eastern property boundary, adjacent to Meadowbrook Parkway, and currently provides access to Lot 1 of Padmark Business Park and will also function to provide access to the proposed development of Lot 2. The site lies within the Sand Creek Drainage Basin. Flows from this site are tributary to Sand Creek.

Lot 2 of Padmark Business Park is presently undeveloped, with an exception to the access road, and consists of 1.691 acres. Vegetation is sparse, consisting of native grasses. The site had experienced overlot grading activities within the last ten years. Existing site terrain generally slopes from north to south at grade rates that vary between 2% and 12%.

The PADMARK BUSINESS PARK FILING NO. 1 site is currently zoned "CS" and the proposed principal uses for Lot 2 will be an office/warehouse/light manufacturing. The majority of Lot 2 shall consist of warehouse building, asphalt, curb, lighting, a storm water quality facility and landscaping. A sand filter basin is located within the southwest portion of the lot and will function to provide water quality treatment for the site. Flows discharge from the sand filter basin through an outlet structure and eventually outfall directly to East Fork Sand Creek.

**SOILS**

Soils for this project are delineated by the map in the appendix as Ellicott Loamy Course Sand (28) and characterized as Hydrologic Soil Types "A". 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.

## 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. 08041C0756 F and Panel No. 08041C0752 F, effective date March 17, 1997 and revised to reflect LOMR, 06-08-B137P, dated December 13, 2006, the site lies adjacent to and is NOT impacted by a Zone "AE". An annotated FIRM Panel is included in the Appendix. The approximate BFE of the East Fork Creek adjacent to the proposed pond is approximately 6354 to 6355. The proposed sand filter pond and emergency spillway is designed above the East Sand Creek BFE.

## 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.

## FOUR STEP PROCESS

**Step1 Employ Runoff Reduction Practices** – Approx. 0.17 ac of the proposed developed 1.691 ac of ground within the project is being set aside for Open Space/WQ facility. Roof drains will be directed to landscaped areas to minimize direct connection of impervious surfaces.

**Step 2 Stabilize Drainageways** – The site is directly adjacent to the Sand Creek Channel. 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 an existing public 48" RCP directly to the East Fork Sand Creek. The existing public 48" RCP is located south of Lot 44 Claremont Business Park Filing No. 2 as highlighted on the existing drainage map. Lot 2 proposes a Sand Filter Water Quality Facility before ultimately discharging to the existing public 48" RCP pipe. 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.

**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 Lot 2 PADMARK BUSINESS PARK FILING NO. 1 site consists of 1.691 acres and is situated east of the East Fork Reach of the Sand Creek Watershed. This area was previously studied in 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") and was included within Sub-basin B5 (Lot 44). The MDDP calculations indicate that the total tributary area of Sub-basin B5 (4.0acres) would produce runoff of approximately  $Q_5=12.0$  cfs and  $Q_{100}=24.1$ cfs. The MDDP illustrated that the basin watershed would drain and be collected by a 10' Type R sump inlet which was proposed to be located at the southwest corner of the Lot 44. Flows from the sump inlet would be carried to the existing public 48" storm sewer before outfalling into East Fork Sand Creek.

In the existing condition, Lot 1 of Padmark Business Park is currently developed. The "Final Drainage Report for Padmark Business Park Filing No. 1", dated June 2017, by M & S Civil Consultants, Inc (hence for referred to as "FDR") details the subdivision of Lot 44 of Claremont Business Park Filing No. 2 into three lots and the development of Lot 1 within that subdivision. An existing access road runs along the eastern property boundary of Lot 2, adjacent to Meadowbrook Parkway, and currently provides access to Lot 1 of Padmark Business Park. Flows are collected from Lot 1, treated and discharged into an existing 30" RCP pipe that connects to the existing public 48" storm sewer, outfalling into East Fork Sand Creek as determined by the MDDP and implemented in the FDR. During development of Lot 1, the existing 30" RCP pipe was installed northeast through Lot 1 and capped at the intersecting boundary to Lot 2. This provides a drainage connection upon the development of Lot 2. The runoff from the adjacent existing Meadowbrook Parkway roadway is collected via curb inlets and outfalls to Sand Creek via the existing public 48" storm sewer.

## **PROPOSED DRAINAGE CHARACTERISTICS**

### **General Concept Drainage Discussion**

Runoff tributary to the southwestern boundary and sand filter basin of Lot 2 PADMARK BUSINESS PARK FILING NO. 1 site is produced within Basin A and offsite Basin OS1 (See Proposed Drainage Map in the appendix). The sand filter basin is designed to treat the offsite tributary area of Basin OS1 during the interim condition while Lot 3 is undeveloped. Upon development, Lot 3 shall be responsible for its own water quality treatment. The tributary basins consists of approximately (Lot 2) 1.61 commercial developed acres and (offsite) 0.42 undeveloped acres.

Runoff collected and conveyed to the water quality facility (Design Point 1) is discharged from a proposed sand filter basin via a 2.91' X 2.91' CDOT outlet box & an 18" RCP. The proposed 18" RCP outlet pipe from the sand filter forms a junction with another proposed 18" RCP coming in, and a proposed 30" RCP discharging out. A Type II manhole is proposed at the junction. The 30" RCP storm sewer discharging out is proposed to tie into an existing 30" RCP stub located at the southwest property boundary. Beyond the stub, the existing 30" RCP storm sewer currently ties into and conveys flows to the existing public 48" storm sewer. The northeast (NE) proposed 18" RCP pipe shall be extended northeast towards Lot 3 and capped at the property boundary between Lot 2 and Lot 3 to be available upon future development of Lot 3. Pipe Run calculations for the proposed 18" RCP extending northeast are based upon anticipated future commercial development of Lot 3. An emergency overflow spillway section has been proposed in the event of blockage of the 2.91' X 2.91' CDOT inlet. All flows generated by Lot 2 Padmark Business Park will eventually be discharged to the existing public 48" storm sewer, outfalling into East Fork Sand Creek as determined by the MDDP. A detailed drainage discussion of each basin is presented below.

## Detailed Drainage Discussion

**Basin A**, 1.61 acres, ( $Q_5=6.7$  cfs,  $Q_{100}=12.3$  cfs), consists of office/warehouse/light manufacturing building, asphalt paving, crushed asphalt, curb and gutter, and landscaping. Flows produced within the watershed are routed as surface runoff to DP1 where they are conveyed to the onsite sand filter basin for water quality.

**Basin B**, 0.10 acre, ( $Q_5=0.3$  cfs,  $Q_{100}=0.6$  cfs), consists of an existing concrete access drive and a proposed strip of landscaping. Nominal flows from Basin B travel southwest into Lot 1 and are treated by the existing sand filter basin within Lot 1.

**Basin OS1**, 0.42 acres, ( $Q_5=0.2$  cfs,  $Q_{100}=1.0$  cfs), consists of existing offsite flows that are tributary to the proposed sand filter basin during the interim condition when the Lot 2 is developed and the remaining land north, within Lot 3, is undeveloped.

There are no planned or required improvements to the Sand Creek Drainage Channel with the development of the Lot 2 PADMARK BUSINESS PARK FILING NO. 1.

## WATER QUALITY PROVISIONS AND MAINTENANCE

The proposed Sand Filter Basin functions to provide water quality for runoff produced on the LOT 2 PADMARK BUSINESS PARK FILING NO. 1 site and by offsite Basin OS1 located north of the site (see Proposed Drainage Map). Lot 44 of Claremont Business Park Filing No. 2 has been replatted in to (3) lots. Each of the 3 lots shall be and has been responsible for each respective generated runoff. This water quality pond is designed to treat approx 2.03 (Basin A and Basin OS1) ac up to the 100 yr event, and provide 1,851 cubic-feet of water quality storage. The water quality basin will be private and shall be maintained by the property owner. Access shall be granted to the owner and El Paso County for access and maintenance of the private WQCV facility. A private maintenance agreement document shall accompany the submittal.

The subject site was previously analyzed within the Final Drainage Report for Claremont Business Park Filing No. 2 prepared by Matrix Design Group approved April 24, 2006. Per Resolution 16-426 of the BOCC, on-site WQCV is required but on-site stormwater detention is not required per the FDR for Claremont Business Park Fil. 2, (See Appendix). The water quality volume required for the site has been determined using the guidelines set forth in the City of Colorado Springs/El Paso County Drainage Criteria Manual - Volume II. Refer to the water quality facility sizing calculations (UD-Detention Version 3.07 & UD-BMP Version 3.06) 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.	18" RCP	200 LF	\$40 /LF	\$8,000.00
2.	30" RCP	26 LF	\$65 /LF	\$1,690.00
3.	Type II Manhole (4' DIA)	1 EA	\$6,000 /EA	\$6,000.00
4.	WQ Sand Filter Basin	1 EA	\$6,000 /EA	\$6,000.00
5.	Spillway Protection (SC250 Mat)	76 SY	\$10 /SY	\$760.00
6.	Pond Outlet Structure	1 EA	\$5,000 /EA	\$5,000.00
<b>Total \$</b>				<b>\$27,450.00</b>

## DRAINAGE & BRIDGE FEES

The proposed replat of the Claremont Business Park Filing No. 2, Lot 1 into 3 commercial lots does not proposed a change to the zoning designation nor the impervious acreage, therefore no drainage fees are due.

M &S Civil Consultants, Inc. (M &S) cannot and does not guarantee the construction cost will not vary from these opinions of probable costs. These opinions represent our best judgment as design professionals familiar with the construction industry and this development in particular. The above is only an estimate of the facility cost and drainage basin fee amounts in 2018.

## SUMMARY

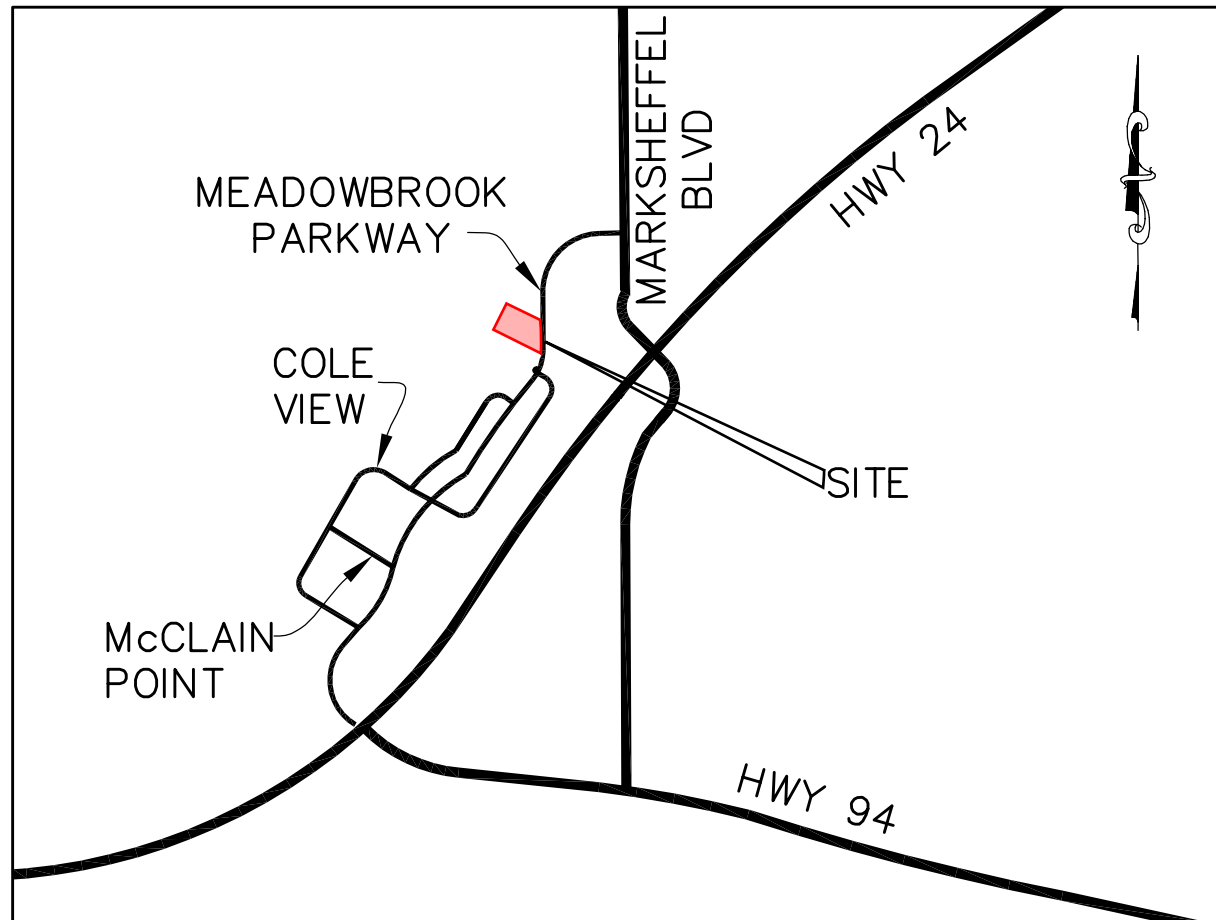
Development of Lot 2 PADMARK BUSINESS PARK FILING NO. 1 site will not adversely affect the surrounding development per this final drainage report with no negative impacts on surrounding developments and the East Fork Sand Creek channel. The proposed drainage facilities will adequately convey, detain and route runoff from the tributary onsite and existing offsite flows to the Sand Creek Drainage channel. All drainage facilities described herein and shown on the included drainage map 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 Lot 2 PADMARK BUSINESS PARK FILING NO. 1, project shall 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.
- 6.) "Final Drainage Report for Padmark Business Park Filing No. 1", dated June 2017, by M & S Civil Consultants, Inc

## **APPENDIX**

## **VICINITY MAP**

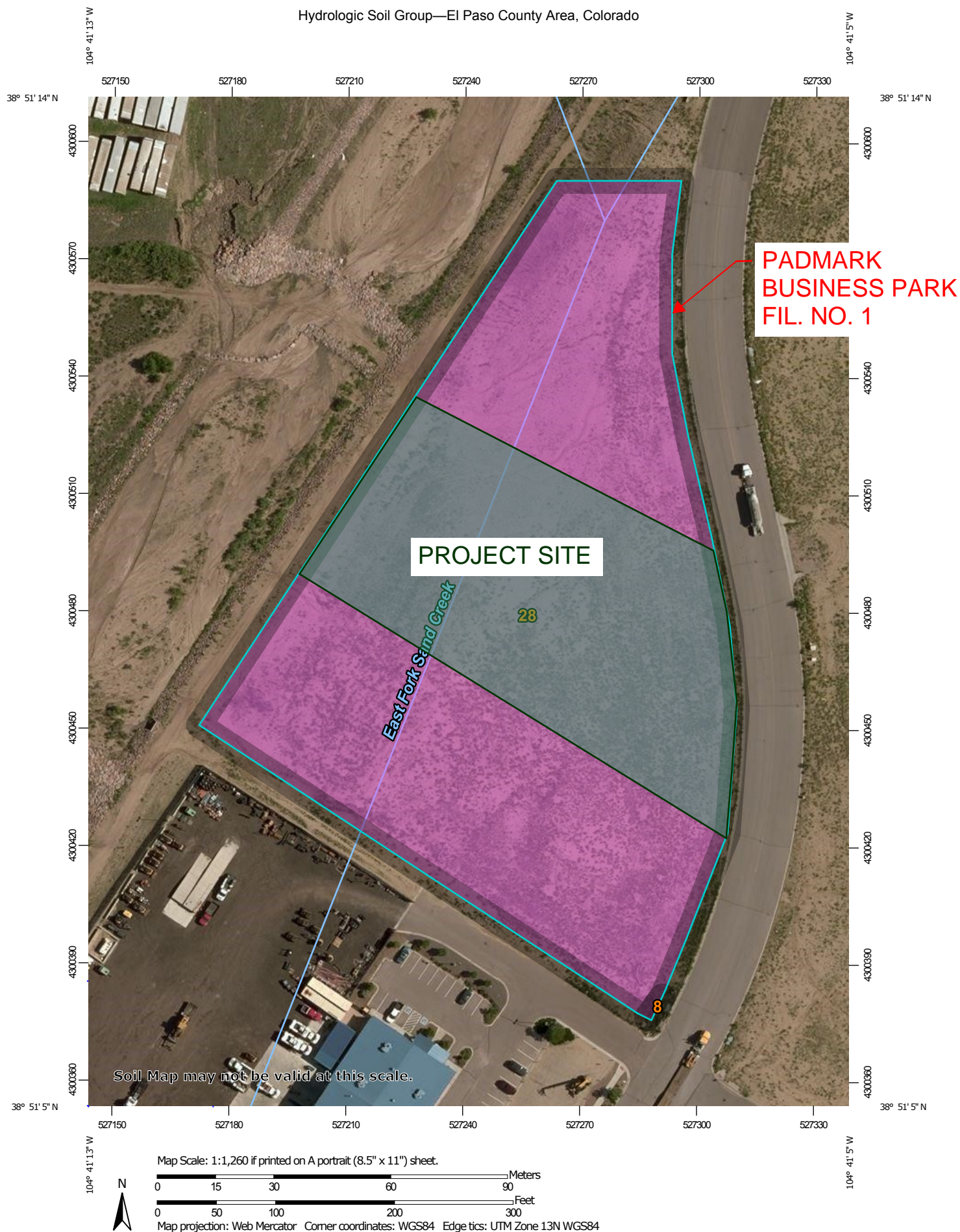


VICINITY MAP  
N.T.S.

## **SOILS MAP**



# Hydrologic Soil Group—El Paso County Area, Colorado



## MAP LEGEND

### Area of Interest (AOI)









 Area of Interest (AOI)

### Soils

#### Soil Rating Polygons





 A  
 A/D  
 B  
 B/D  
 C  
 C/D  
 D  
 Not rated or not available

#### Soil Rating Lines


 A  
 A/D  
 B  
 B/D  
 C  
 C/D  
 D  
 Not rated or not available

#### Soil Rating Points






 A  
 A/D  
 B  
 B/D

 C  
 C/D  
 D  
 Not rated or not available

### Water Features

 Streams and Canals

### Transportation

 Rails  
 Interstate Highways  
 US Routes  
 Major Roads  
 Local Roads

### Background

 Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL:  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: El Paso County Area, Colorado  
 Survey Area Data: Version 15, Oct 10, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 3, 2014—Jun 17, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
8	Blakeland loamy sand, 1 to 9 percent slopes	A	0.0	0.0%
28	Ellicott loamy coarse sand, 0 to 5 percent slopes	A	4.2	100.0%
<b>Totals for Area of Interest</b>			<b>4.2</b>	<b>100.0%</b>

## Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

## Rating Options

*Aggregation Method:* Dominant Condition

*Component Percent Cutoff:* None Specified

*Tie-break Rule:* Higher

**FIRM PANEL W/ REVISED LOMR**



# 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, -104.674 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 1-877-336-2627 (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

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'	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY FEET (NGVD)	WITH FLOODWAY INCREASE
Sand Creek East Fork	1,100	100	455	11.9	6,038.7	6,038.7	0.0
	2,400	100	446	12.2	6,054.3	6,054.3	0.0
	3,330	100	450	12.0	6,069.9	6,069.9	0.0
	4,240	100	449	12.1	6,085.1	6,085.1	0.0
	4,870	100	451	12.0	6,095.2	6,095.2	0.0
	5,820	250	602	8.9	6,118.4	6,118.4	0.5
	6,690	150	518	10.3	6,128.1	6,129.1	1.0
	7,795	125	477	11.2	6,155.2	6,155.2	0.0
	8,665	150	505	10.6	6,168.8	6,168.8	0.0
	9,675	100	443	12.0	6,188.4	6,188.4	0.0
	10,565	115	465	11.5	6,196.2	6,196.2	0.0
	11,325	166	525	10.2	6,207.3	6,207.3	0.0
	11,375	173	632	8.4	6,207.9	6,207.9	0.0
	12,610	367	699	7.6	6,228.8	6,228.8	0.1
	13,720	188	570	10.0	6,241.7	6,241.7	0.0
	14,805	125	479	11.1	6,257.9	6,257.9	0.0
	14,885	125	601	8.9	6,259.9	6,259.9	1.0
	15,850	228	582	9.2	6,268.7	6,268.7	0.0
	16,325	300	678	7.9	6,277.3	6,277.3	0.2
	16,995	321	690	7.7	6,291.4	6,291.4	0.6
	17,065	326	667	8.0	6,291.4	6,292.1	0.7
	17,915	388	1,598	3.3	6,293.4	6,294.0	0.6
	18,995	367	683	7.8	6,307.2	6,307.2	0.4
	20,730	103	575	11.7	6,327.8	6,328.4	0.6
	22,560	142	506	11.0	6,348.8	6,349.4	0.6
	23,060	145	503	11.0	6,358.0	6,358.0	0.0
	24,835	418	3,156	7.0	6,383.5	6,383.5	0.0
	26,470	132	452	10.0	6,402.7	6,402.7	0.0
	27,715	112	419	10.8	6,416.6	6,416.6	0.0

REVISED AREA

REVISED TO

1 Feet Above Confluence With Sand Creek

REFLECT LOMR

REVISED BY LOMR DATED OCTOBER 30, 2006

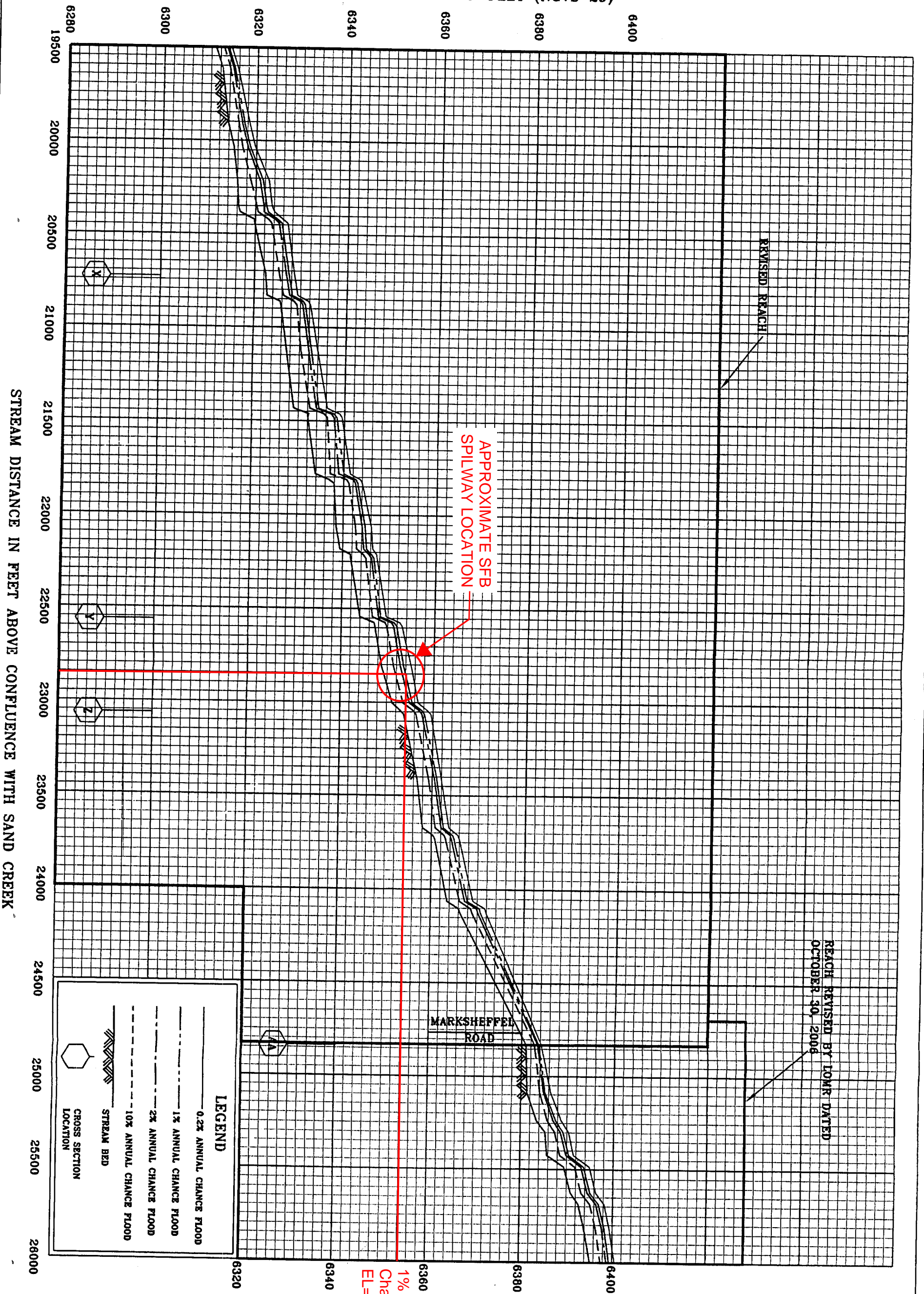
T A B L E 5

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

FLOODWAY DATA EFFECTIVE DEC 13 2006

SAND CREEK EAST FORK

ELEVATION IN FEET (NGVD 29)

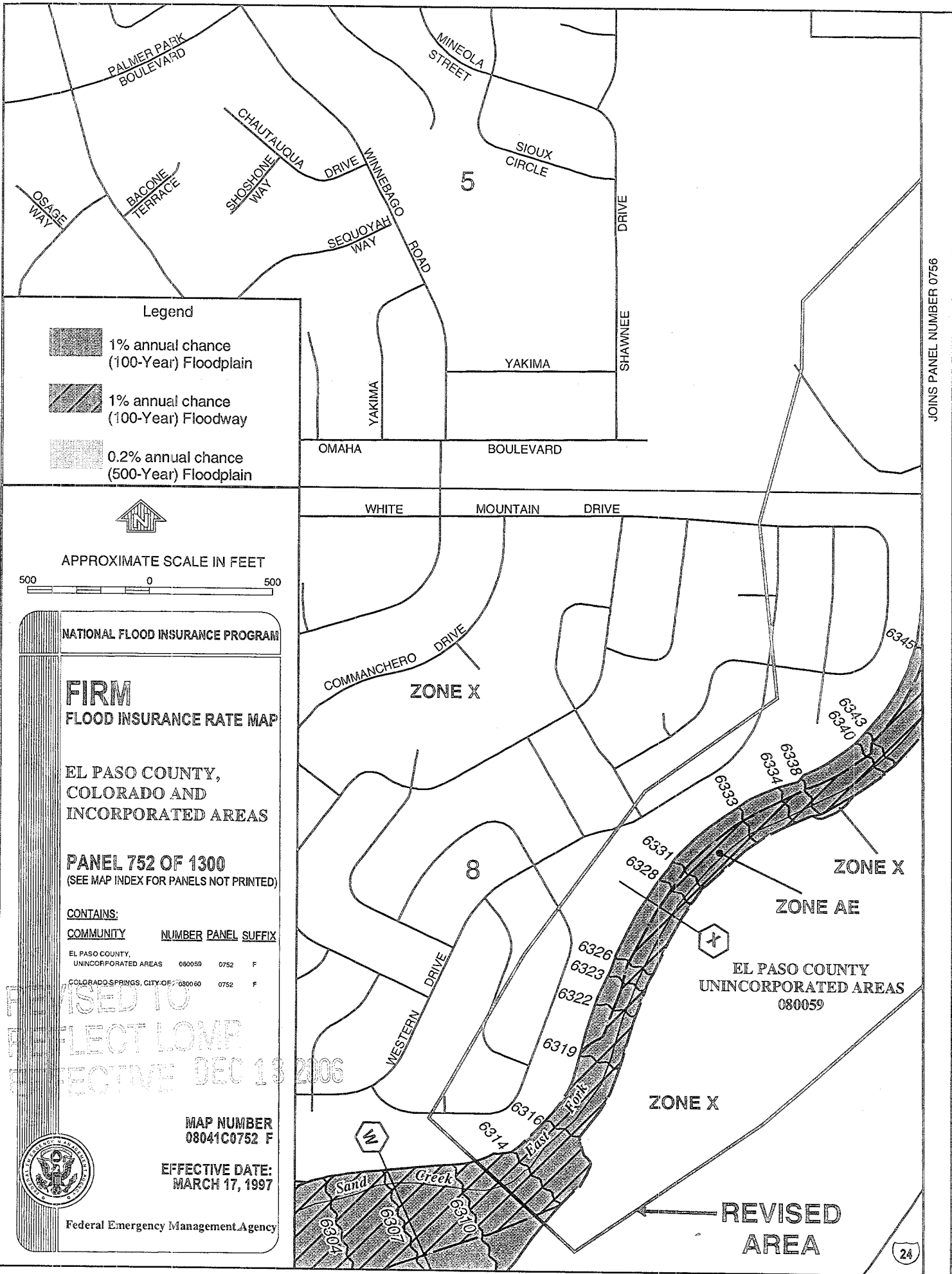


1% Annual  
Chance Flood  
EL=6354

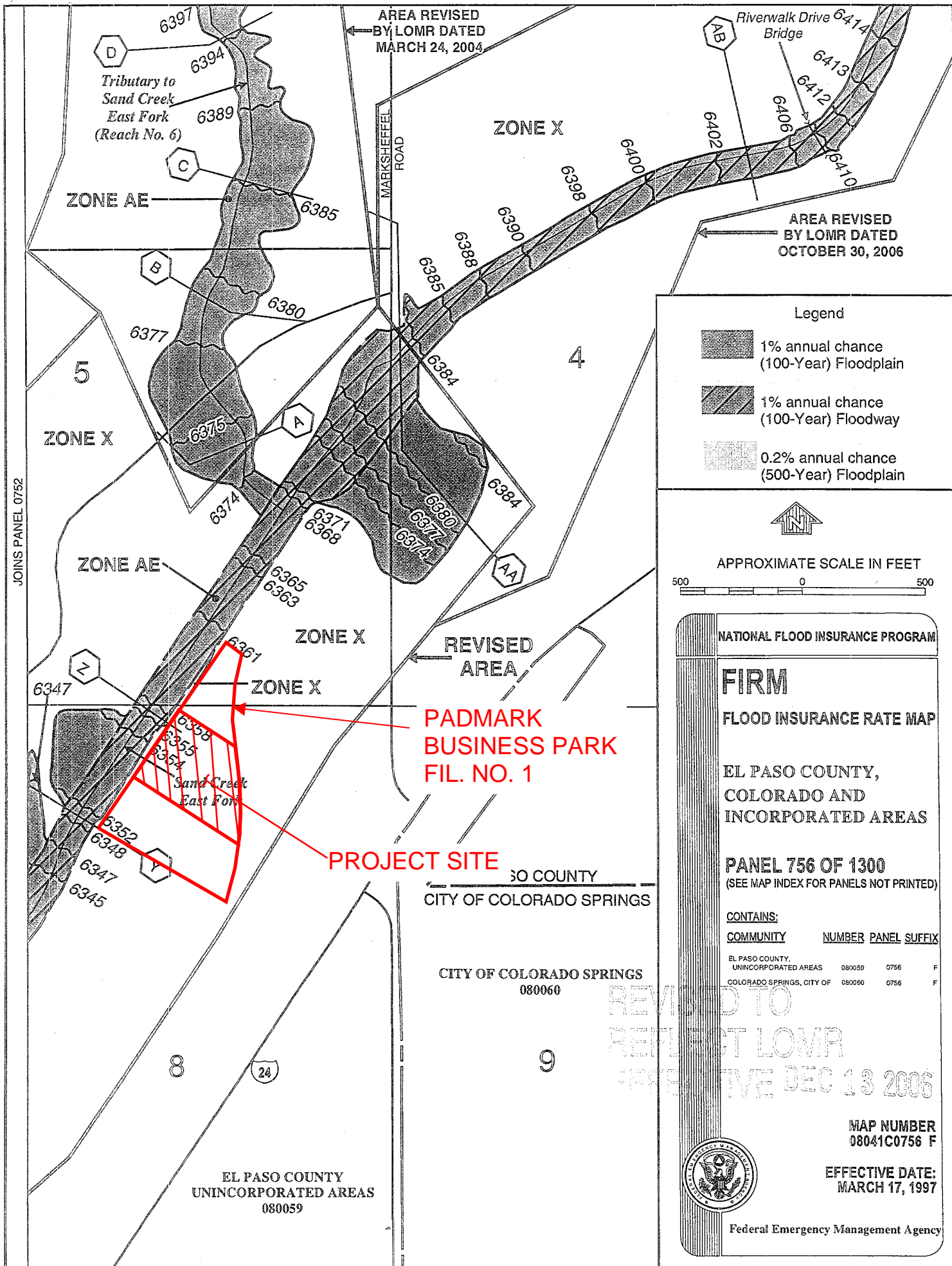
FEDERAL EMERGENCY MANAGEMENT AGENCY  
EL PASO COUNTY, CO  
AND INCORPORATED AREAS

REVISED TO  
FLOOD PROFILES  
REFLECT LOMR  
EFFECTIVE DEC 13 2006  
SAND CREEK EAST FORK

212P







AREA REVISED  
BY LOMR DATED  
MARCH 24, 2004

Riverwalk Drive  
Bridge

AREA REVISED  
BY LOMR DATED  
OCTOBER 30, 2006

#### Legend

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



APPROXIMATE SCALE IN FEET

500 0 500

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
COLORADO SPRINGS, CITY OF	080060	0756	F

CITY OF COLORADO SPRINGS  
080060

REVISED TO  
REFLECT LOMR  
EFFECTIVE DEC 13 2006

MAP NUMBER  
08041C0756 F

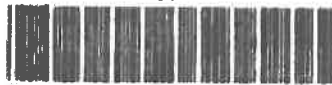
EFFECTIVE DATE:  
MARCH 17, 1997



Federal Emergency Management Agency

**RESOLUTION 16-426**



**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

## **HYDROLOGIC CALCULATIONS**

**LOT 2 PADMARK BUSINESS PARK FILING NO. 1**  
**PROPOSED DRAINAGE CALCULATIONS**  
**(Area Runoff Coefficient Summary)**

			<i>STREETS / DEVELOPED</i>			<i>OVERLAND / DEVELOPED</i>			<i>OVERLAND / UNDEVELOPED</i>			<i>WEIGHTED</i>	
BASIN	TOTAL AREA (SF)	TOTAL AREA (Acres)	AREA (Acres)	C <sub>5</sub>	C <sub>100</sub>	AREA (Acres)	C <sub>5</sub>	C <sub>100</sub>	AREA (Acres)	C <sub>5</sub>	C <sub>100</sub>	C <sub>5</sub>	C <sub>100</sub>
<i>A</i>	70030.82	1.61	1.61	0.81	0.88	0.00	0.81	0.88	0.00			0.81	0.88
<i>B</i>	4194.241	0.10	0.06	0.81	0.88	0.04	0.16	0.41	0.00			0.54	0.68
<i>OSI</i>	18329.62	0.42	0.00			0.00			0.42	0.09	0.36	0.09	0.36

**LOT 2 PADMARK BUSINESS PARK FILING NO. 1**  
**FINAL DRAINAGE REPORT**  
**(Area Drainage Summary)**

From Area Runoff Coefficient Summary				OVERLAND				STREET / CHANNEL FLOW				Time of Travel (T <sub>t</sub> )		INTENSITY *		TOTAL FLOWS	
BASIN	AREA TOTAL (Acres)	C <sub>5</sub>	C <sub>100</sub>	C <sub>5</sub>	Length (ft)	Height (ft)	T <sub>C</sub> (min)	Length (ft)	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															
A	1.61	0.81	0.88	0.81	45	2.0	2.1	145	5.7%	4.8	0.5	2.7	11.1	5.2	8.7	6.7	12.3
B	0.10	0.54	0.68	0.54	40	2.2	3.6	100	3.2%	3.6	0.5	4.1	10.8	5.2	8.7	0.3	0.6
OSI	0.42	0.09	0.36	0.09	45	1.0	9.4	100	6.0%	2.4	0.7	10.1	10.8	4.1	6.9	0.2	1.0

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

Calculated by: CMN  
Date: 2/6/2018  
Checked by: VAS

**LOT 2 PADMARK BUSINESS PARK FILING NO. 1**  
**FINAL DRAINAGE REPORT**  
**(Basin Routing Summary)**

<i>From Area Runoff Coefficient Summary</i>				<b>OVERLAND</b>				<b>PIPE / CHANNEL FLOW</b>				<b>Time of Travel (T<sub>t</sub>)</b>	<b>INTENSITY *</b>		<b>TOTAL FLOWS</b>		COMMENTS
DESIGN POINT	CONTRIBUTING BASINS	CA <sub>5</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>5</sub> (in/hr)	I <sub>100</sub> (in/hr)	Q <sub>5</sub> (c.f.s.)	Q <sub>100</sub> (c.f.s.)	
<b>I</b>	<b>A, OS1</b>	1.34	1.57	0.45	50	1	6.6	210	5.7%	4.8	0.7	7.3	4.6	7.7	<b>6.2</b>	<b>12.1</b>	SAND FILTER BASIN AND CDOT TYPE C OUTLET STRUCTURE

Calculated by: CMN  
Date: 2/6/2018  
Checked by: VAS

**LOT 2 PADMARK BUSINESS PARK FILING NO. 1**  
**FINAL DRAINAGE REPORT**  
**(Storm Sewer Routing Summary)**

<i><b>PIPE</b></i>	<i><b>Contributing Pipes/Design Points</b></i>	<i><b>Equivalent CA<sub>5</sub></b></i>	<i><b>Equivalent CA<sub>100</sub></b></i>	<i><b>Maximum T<sub>c</sub></b></i>	<i><b>Intensity*</b></i>		<i><b>Flow</b></i>	
					<i><b>I<sub>5</sub></b></i>	<i><b>I<sub>100</sub></b></i>	<i><b>Q<sub>5</sub></b></i>	<i><b>Q<sub>100</sub></b></i>
<b>1</b>	<b>DP1</b>	1.34	1.57	7.3	4.6	7.7	<b>6.2</b>	<b>12.1</b>
<b>2</b>	<b>Anticipated Commercial Development of Lot 3 Padmark Business Park Fil. No. 1</b>	0.70	0.77	5.0	5.2	8.7	<b>3.6</b>	<b>6.6</b>
<b>3</b>	<b>PR1, PR2</b>	2.05	2.33	8.5	4.4	7.3	<b>8.9</b>	<b>17.1</b>

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

DP - Design Point

EX - Existing Design Point

FB- Flow By from Design Point

INT- Intercepted Flow from Design Point

Calculated by: CMN

Date: 2/6/2018

Checked by: VAS

## **HYDRAULIC CALCULATIONS / SFB WQCV CALCULATIONS**



<b><i>Weighted Percent Imperviousness of WQ SFB</i></b>				
<b><i>Contributing Basins</i></b>	<b><i>Area (Acres)</i></b>	<b><i>C<sub>s</sub></i></b>	<b><i>Impervious % (I)</i></b>	<b><i>(Acres)*(I)</i></b>
<b><i>A</i></b>	1.6077	0.81	95	152.73
<b><i>OSI</i></b>	0.4208	0.09	2	0.84
<b><i>Totals</i></b>	<b>2.0285</b>			<b>153.57</b>
<b><i>Imperviousness of WQ Pond 1</i></b>	<b>75.7</b>			

## DETENTION BASIN STAGE-STORAGE TABLE BUILDER

UD-Detention, Version 3.07 (February 2017)

Basin ID: Basin A and Basin OS1

ZONE 3  
ZONE 2



### Required Volume Calculation

Selected BMP Type = **SF**

Watershed Area =	2.03	acres
Watershed Length =	158	ft
Watershed Slope =	0.046	ft/ft
Watershed Imperviousness =	75.70%	percent
Percentage Hydrologic Soil Group A =	100.0%	percent
Percentage Hydrologic Soil Group B =	0.0%	percent
Percentage Hydrologic Soil Group C/D =	0.0%	percent
Desired WQCV Drain Time =	12.0	hours
Location for 1-hr Rainfall Depths =	Denver - Capitol Building	
Water Quality Capture Volume (WQCV) =	0.041	acre-feet
Excess Urban Runoff Volume (EURV) =	0.199	acre-feet
2-yr Runoff Volume (P1 = 1.19 in.) =	0.138	acre-feet
5-yr Runoff Volume (P1 = 1.57 in.) =	0.179	acre-feet
10-yr Runoff Volume (P1 = 1.75 in.) =	0.216	acre-feet
25-yr Runoff Volume (P1 = 2 in.) =	0.258	acre-feet
50-yr Runoff Volume (P1 = 2.25 in.) =	0.300	acre-feet
100-yr Runoff Volume (P1 = 2.52 in.) =	0.349	acre-feet
500-yr Runoff Volume (P1 = 3.14 in.) =	0.462	acre-feet
Approximate 2-yr Detention Volume =	0.130	acre-feet
Approximate 5-yr Detention Volume =	0.170	acre-feet
Approximate 10-yr Detention Volume =	0.203	acre-feet
Approximate 25-yr Detention Volume =	0.242	acre-feet
Approximate 50-yr Detention Volume =	0.285	acre-feet
Approximate 100-yr Detention Volume =	0.287	acre-feet

Watershed Slope =	0.046	ft/ft
Watershed Imperviousness =	75.70%	percent

2-yr Runoff Volume (P1 = 1.19 in.) =	0.138	acre-feet	1.19	inches
--------------------------------------	-------	-----------	------	--------

Approximate 2-yr Detention Volume =	0.130	acre-feet
Approximate 5-yr Detention Volume =	0.130	acre-feet

Zone 1 Volume (WQCV) = 0.041 acre-feet

Select Zone 2 Storage Volume (Optional) =		acre-feet
Select Zone 3 Storage Volume (Optional) =		acre-feet
Total Detention Basin Volume =	0.041	acre-feet
Initial Surge Volume (ISV) =	N/A	ft <sup>3</sup>
Initial Surge Depth (ISD) =	N/A	ft
Total Available Detention Depth ( $H_{\text{total}}$ ) =	user	ft
Depth of Trickle Channel ( $H_{TC}$ ) =	N/A	ft
Slope of Trickle Channel ( $S_{TC}$ ) =	N/A	ft/ft
Slopes of Main Basin Sides ( $S_{\text{main}}$ ) =	user	H/V
Basin Length-to-Width Ratio ( $R_{L/W}$ ) =	user	

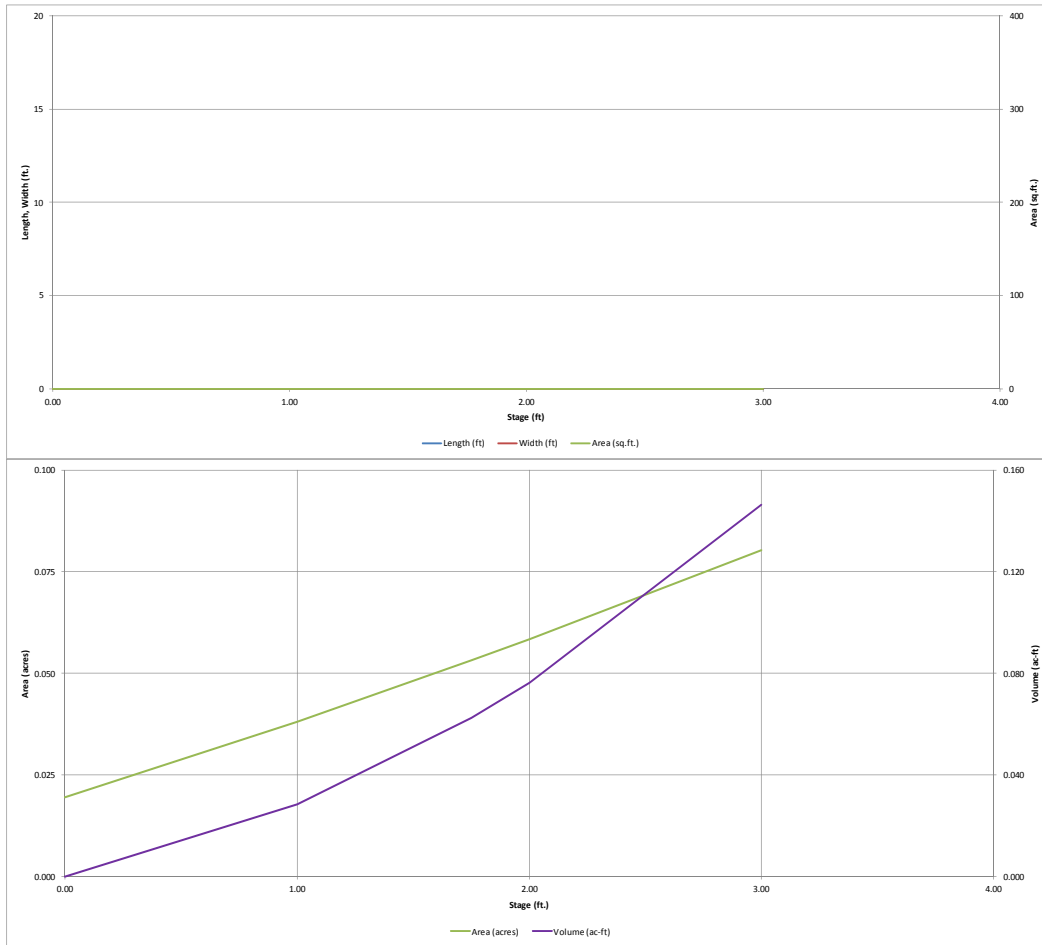
Initial Surge Volume (ISV) =	N/A	ft <sup>3</sup>
------------------------------	-----	-----------------

Initial Surcharge Area ( $A_{0i}$ )	= user	ft <sup>2</sup>
Surcharge Volume Length ( $L_{0i}$ )	= user	ft
Surcharge Volume Width ( $W_{0i}$ )	= user	ft
Depth of Basin Floor ( $H_{1,000}$ )	= user	ft
Length of Basin Floor ( $L_{1,000}$ )	= user	ft
Width of Basin Floor ( $W_{1,000}$ )	= user	ft
Area of Basin Floor ( $A_{1,000}$ )	= user	ft <sup>2</sup>
Volume of Basin Floor ( $V_{1,000}$ )	= user	ft <sup>3</sup>
Depth of Main Basin ( $H_{M,000}$ )	= user	ft
Length of Main Basin ( $L_{M,000}$ )	= user	ft
Width of Main Basin ( $W_{M,000}$ )	= user	ft
Area of Main Basin ( $A_{M,000}$ )	= user	ft <sup>2</sup>
Volume of Main Basin ( $V_{M,000}$ )	= user	ft <sup>3</sup>
Calculated Total Basin Volume ( $V_{000}$ )	= user	acre-feet

[illegible]

# DETENTION BASIN STAGE-STORAGE TABLE BUILDER

UD-Detention, Version 3.07 (February 2017)

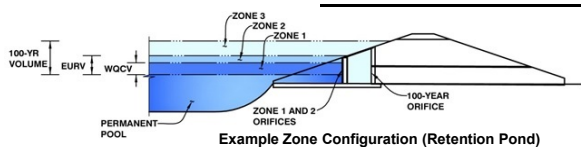


## Detention Basin Outlet Structure Design

UD-Detention, Version 3.07 (February 2017)

Project: Lot 2 Padmark Business Park Filing No. 1

Basin ID: Basin A and Basin OS1



Example Zone Configuration (Retention Pond)

	Stage (ft)	Zone Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	1.30	0.041	Filtration Media
Zone 2			
Zone 3			
		0.041	Total

User Input: Orifice at Underdrain Outlet (typically used to drain WQCV in a Filtration BMP)

Underdrain Orifice Invert Depth = 1.89 ft (distance below the filtration media surface)  
Underdrain Orifice Diameter = 1.00 inches

Calculated Parameters for Underdrain

Underdrain Orifice Area = 0.0 ft<sup>2</sup>  
Underdrain Orifice Centroid = 0.04 feet

User Input: Orifice Plate with one or more orifices or Elliptical Slot Weir (typically used to drain WQCV and/or EURV in a sedimentation BMP)

Invert of Lowest Orifice = ft (relative to basin bottom at Stage = 0 ft)  
Depth at top of Zone using Orifice Plate = ft (relative to basin bottom at Stage = 0 ft)  
Orifice Plate: Orifice Vertical Spacing = inches  
Orifice Plate: Orifice Area per Row = inches

Calculated Parameters for Plate

WQ Orifice Area per Row = N/A ft<sup>2</sup>  
Elliptical Half-Width = N/A feet  
Elliptical Slot Centroid = N/A feet  
Elliptical Slot Area = N/A ft<sup>2</sup>

User Input: Stage and Total Area of Each Orifice Row (numbered from lowest to highest)

	Row 1 (optional)	Row 2 (optional)	Row 3 (optional)	Row 4 (optional)	Row 5 (optional)	Row 6 (optional)	Row 7 (optional)	Row 8 (optional)
Stage of Orifice Centroid (ft)								
Orifice Area (sq. inches)								

	Row 9 (optional)	Row 10 (optional)	Row 11 (optional)	Row 12 (optional)	Row 13 (optional)	Row 14 (optional)	Row 15 (optional)	Row 16 (optional)
Stage of Orifice Centroid (ft)								
Orifice Area (sq. inches)								

User Input: Vertical Orifice (Circular or Rectangular)

Invert of Vertical Orifice = Not Selected ft (relative to basin bottom at Stage = 0 ft)  
Depth at top of Zone using Vertical Orifice = Not Selected ft (relative to basin bottom at Stage = 0 ft)  
Vertical Orifice Diameter = Not Selected inches

Calculated Parameters for Vertical Orifice

Vertical Orifice Area = Not Selected ft<sup>2</sup>  
Vertical Orifice Centroid = Not Selected feet

User Input: Overflow Weir (Dropbox) and Grate (Flat or Sloped)

Overflow Weir Front Edge Height, H<sub>o</sub> = 1.30 ft (relative to basin bottom at Stage = 0 ft)  
Overflow Weir Front Edge Length = 2.91 feet  
Overflow Weir Slope = 0.00 H:V (enter zero for flat grate)  
Horiz. Length of Weir Sides = 2.91 feet  
Overflow Grate Open Area % = 70% % grate open area/total area  
Debris Clogging % = 50% %

Calculated Parameters for Overflow Weir

Height of Grate Upper Edge, H<sub>t</sub> = 1.30 feet  
Over Flow Weir Slope Length = 2.91 feet  
Grate Open Area / 100-yr Orifice Area = should be ≥ 4  
Overflow Grate Open Area w/o Debris = 5.93 ft<sup>2</sup>  
Overflow Grate Open Area w/ Debris = 2.96 ft<sup>2</sup>

User Input: Outlet Pipe w/ Flow Restriction Plate (Circular Orifice, Restrictor Plate, or Rectangular Orifice)

Depth to Invert of Outlet Pipe = Not Selected ft (distance below basin bottom at Stage = 0 ft)  
Circular Orifice Diameter = Not Selected inches

Calculated Parameters for Outlet Pipe w/ Flow Restriction Plate

Outlet Orifice Area = Not Selected ft<sup>2</sup>  
Outlet Orifice Centroid = Not Selected feet  
Half-Central Angle of Restrictor Plate on Pipe = N/A radians

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Spillway Invert Stage = 6359.75 ft (relative to basin bottom at Stage = 0 ft)  
Spillway Crest Length = 21.50 feet  
Spillway End Slopes = 3.00 H:V  
Freeboard above Max Water Surface = 1.00 feet

Calculated Parameters for Spillway

Spillway Design Flow Depth = 0.32 feet  
Stage at Top of Freeboard = 6361.07 feet  
Basin Area at Top of Freeboard = 0.08 acres

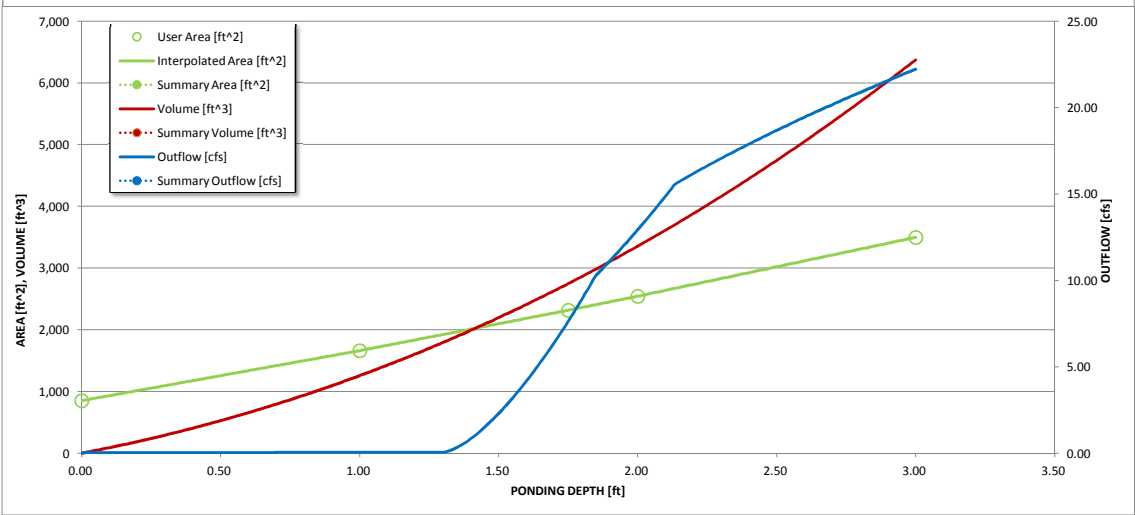
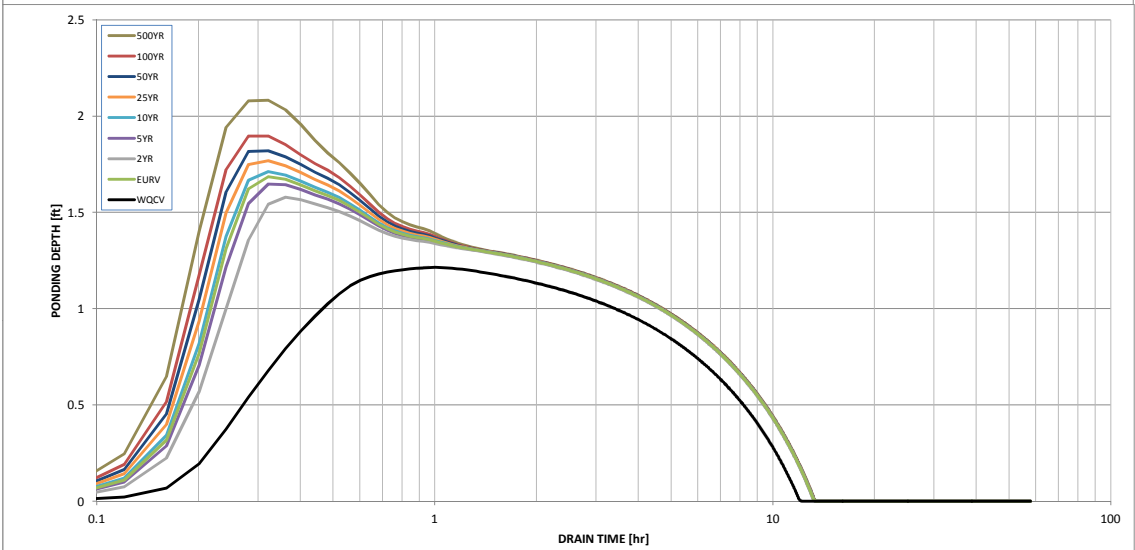
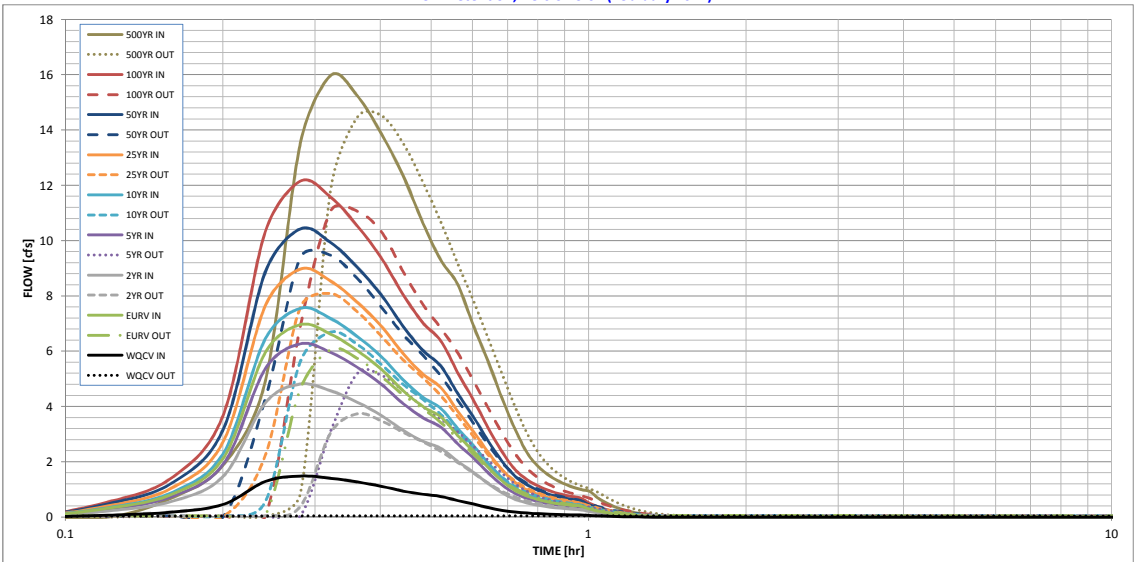
### Routed Hydrograph Results

	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	500 Year
Design Storm Return Period =									
One-Hour Rainfall Depth (in) =	0.53	1.07	1.19	1.50	1.75	2.00	2.25	2.52	3.14
Calculated Runoff Volume (acre-ft) =	0.041	0.199	0.138	0.179	0.216	0.258	0.300	0.349	0.462
OPTIONAL Override Runoff Volume (acre-ft) =									
Inflow Hydrograph Volume (acre-ft) =	0.041	0.199	0.137	0.179	0.216	0.258	0.300	0.350	0.462
Predevelopment Unit Peak Flow, q (cfs/acre) =	0.00	0.00	0.00	0.01	0.02	0.04	0.31	0.74	1.61
Predevelopment Peak Q (cfs) =	0.0	0.0	0.0	0.0	0.0	0.1	0.6	1.5	3.3
Peak Inflow Q (cfs) =	1.5	7.0	4.8	6.3	7.6	9.0	10.4	12.1	16.0
Peak Outflow Q (cfs) =	0.0	6.0	3.7	5.2	6.7	8.1	9.5	11.1	14.5
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	318.6	176.1	92.9	15.2	7.4	4.4
Structure Controlling Flow =	Filtration Media	Overflow Grate 1	Overflow Grate 1	Overflow Grate 1	Overflow Grate 1	Overflow Grate 1	Overflow Grate 1	Overflow Grate 1	Overflow Grate 1
Max Velocity through Grate 1 (fps) =	N/A	-0.01	-0.01	0.0	0.0	0.0	0.0	0.0	0.0
Max Velocity through Grate 2 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Time to Drain 97% of Inflow Volume (hours) =	12	11	12	12	11	11	10	10	9
Time to Drain 99% of Inflow Volume (hours) =	12	13	13	13	13	13	12	12	12
Maximum Ponding Depth (ft) =	1.21	1.69	1.58	1.65	1.71	1.77	1.82	1.90	2.08
Area at Maximum Ponding Depth (acres) =	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06
Maximum Volume Stored (acre-ft) =	0.037	0.059	0.054	0.057	0.061	0.064	0.067	0.071	0.082

PLEASE NOTE: Per Resolution 16-426 of the BOCC, on-site WQCV is required but on-site stormwater detention is not required per the FDR for Claremont Business Park Fil. 2, (See Appendix).

Detention Basin Outlet Structure Design

UD-Detention, Version 3.07 (February 2017)



S-A-V-D Chart Axis Override	X-axis	Left Y-Axis	Right Y-Axis
minimum bound			
maximum bound			



## Detention Basin Outlet Structure Design

UD-Detention, Version 3.07 (February 2017)

### Summary Stage-Area-Volume-Discharge Relationships

The user can create a summary S-A-V-D by entering the desired stage increments and the remainder of the table will populate automatically.

The user should graphically compare the summary S-A-V-D table to the full S-A-V-D table in the chart to confirm it captures all key transition points.

[illegible]

# Design Procedure Form: Sand Filter (SF)

UD-BMP (Version 3.06, November 2016)

Sheet 1 of 2

Designer: Chase M. Neises  
 Company: M&S Civil Consultants Inc.  
 Date: February 6, 2018  
 Project: Lot 2 Padmark Business Park Filing No. 1  
 Location: Meadowbrook Parkway

## 1. Basin Storage Volume

- A) Effective Imperviousness of Tributary Area,  $I_a$   
 (100% if all paved and roofed areas upstream of sand filter)
- B) Tributary Area's Imperviousness Ratio ( $i = I_a/100$ )
- C) Water Quality Capture Volume (WQCV) Based on 12-hour Drain Time  
 $WQCV = 0.8 * (0.91 * i^3 - 1.19 * i^2 + 0.78 * i)$
- D) Contributing Watershed Area (including sand filter area)
- E) Water Quality Capture Volume (WQCV) Design Volume  
 $V_{WQCV} = WQCV / 12 * \text{Area}$
- 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)

$I_a = 75.7 \%$

$i = 0.757$

$WQCV = 0.24$  watershed inches

$\text{Area} = 88,360$  sq ft

$V_{WQCV} = 1,787$  cu ft

$d_e =$  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

$D_{WQCV} = 1.5$  ft

$Z = 4.00$  ft / ft

$A_{Min} = 836$  sq ft

$A_{Actual} = 850$  sq ft

$V_T = 1851$  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

$y = 1.9$  ft

$Vol_{12} = 1,787$  cu ft

$D_o = 15 / 16$  in



## Design Procedure Form: Sand Filter (SF)

Sheet 2 of 2

Designer: Chase M. Neises  
Company: M&S Civil Consultants Inc.  
Date: February 6, 2018  
Project: Lot 2 Padmark Business Park Filing No. 1  
Location: Meadowbrook Parkway

### 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

---

---

---

Notes: 

---

***Lot 2 Padmark Business Park  
DRAINAGE REPORT DRAINAGE CALCULATIONS  
(Pond Volume/Storage Calculation)***

***SAND FILTER BASIN***

Elevation	SF	CF	Storage	
			AF	Sum
6358.00	851.00			0
6359.00	1,660.00	1,255.50	0.03	0.03
6359.75	2,315.00	1,490.63	0.03	0.06

Total =            2,746 CF  
Total =            0.1 Ac-ft

At top of Outlet Box Elevation = 6359.30 , the Volume is 1851 CF  
100 Year Spillway Crest Elevation = 6359.75

Calculated by: CMN  
Date: 2/2/2018  
Checked by: \_\_\_\_\_

## **PROPOSED DRAINAGE MAP**





**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:



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

Revised November 2006



**Engineer's Statement:**

The *revisions* (changes made to the base Final Drainage Report since July, 2006) to the attached drainage plan and report were prepared under my direction and supervision and are correct to the best of my knowledge and belief. The revisions encompassed adding additional right of way to the study area at the County's request, the handling of offsite drainage due to the additional right of way, a breakdown of private drainage within lot numbers 10 through 25 of Filing No. 2 due to cross-lot drainage (contrary to note # 25 on the recorded plat), profiling additional inlets along the channel edge, and rip-rap sizing for outlet structures along the channel. The Final Drainage Report dated July, 2006 was prepared under the direct supervision of Richard G. Gallegos, Jr. in July, 2006 and stamped (see next sheet).

The Final Drainage Report was prepared according to the criteria established by the County for drainage reports and said report is in conformity with the master plan of the drainage basin. I accept responsibility for any liability caused by any negligent acts, errors or omissions on my part in preparing the *revisions* to this report.

---

Brady A. Shyrock  
Registered Professional Engineer  
State of Colorado  
No. 38164

SEAL

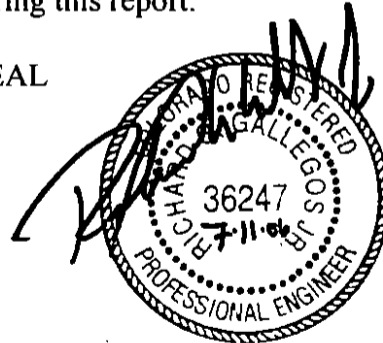


**Engineer's Statement:**

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

SEAL

Richard G. Gallegos, Jr.  
Registered Professional Engineer  
State of Colorado  
No. 36247

**Developer's Statement:**

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

Claremont Development, Inc.

Business Name

By: \_\_\_\_\_

Title: \_\_\_\_\_

Address: 3460 Capital Drive  
Colorado Springs, CO 80915

**El Paso County:**

Filed in accordance with Section 51.1 of the El Paso Land Development Code, as amended.

*For* Mr. John McCarthy, County Engineer/Director

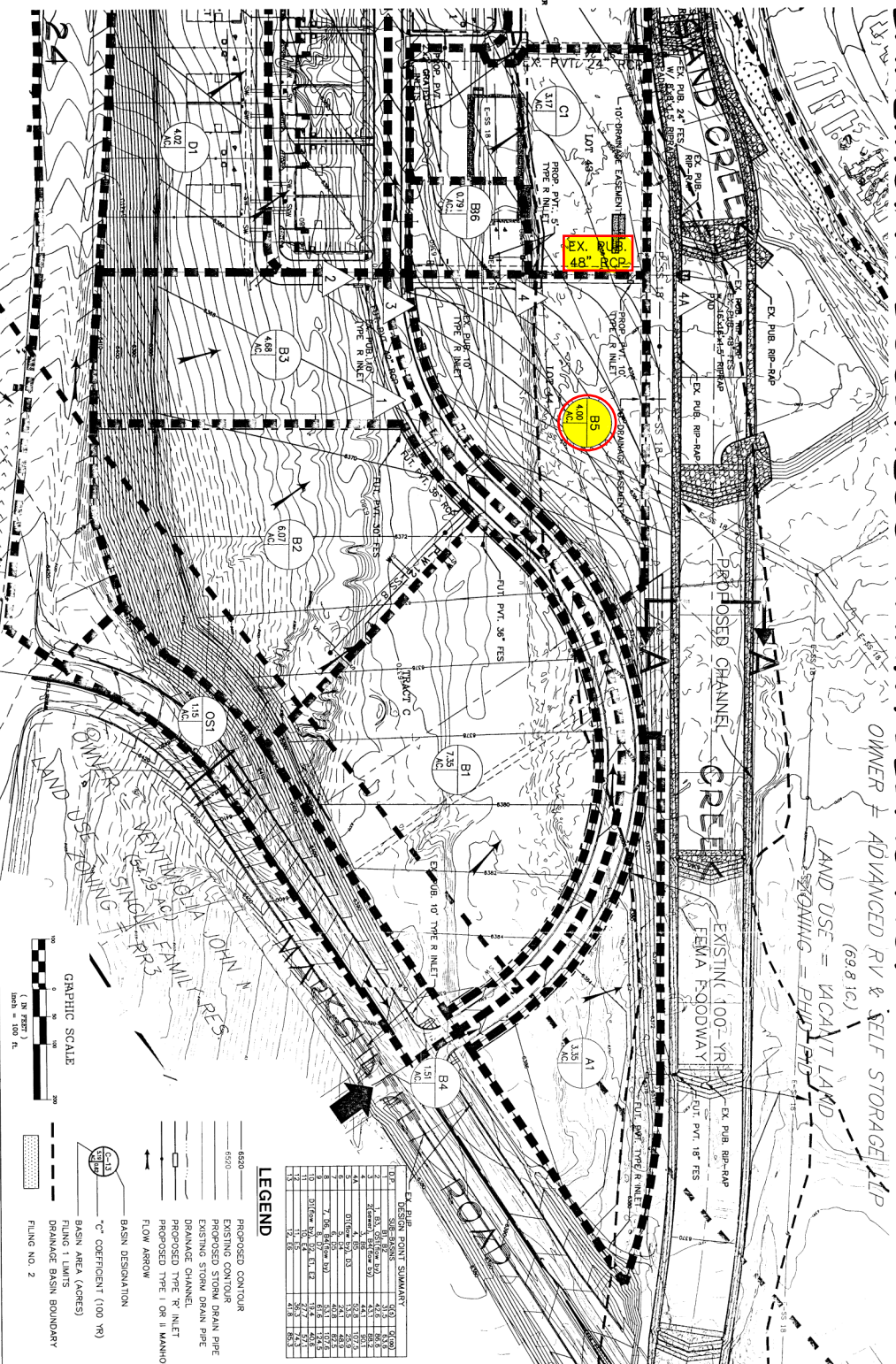
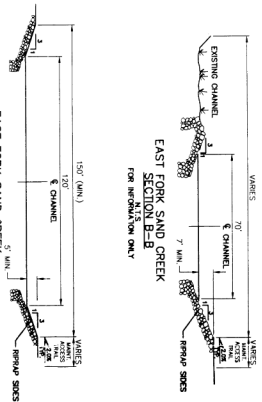
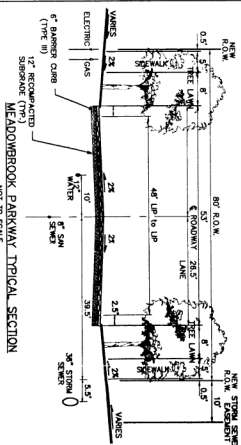
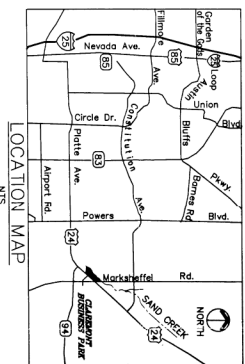
Date 4/23/07

Conditions:



OWNER ≠ ADVANCED RV & SELF STORAGE LP  
(69.8 i.c.)

LAND USE = VACANT LAND



DESIGN POINT SUMMARY				
D.P.	SIDE-GRASS	(d <sub>1</sub> )	(d <sub>2</sub> )	(d <sub>3</sub> )
1	B1, B2	4.5	5.6	6.6
2	1, B3, 05(flow by)	4.6	5.6	6.6
3	2, B4, 06(flow by)	4.7	5.7	6.7
4A	3, B5, 07(flow by)	4.8	5.8	6.8
4B	4, B6, 08(flow by)	4.9	5.9	6.9
5	5, B7, 09(flow by)	5.0	6.0	7.0
6	5, D4	5.1	6.1	7.1
6	6, D5	5.8	6.25	5.5
7	7, D6, B4(flow by)	5.1	6.76	6.5
8	8, D7	5.6	6.25	6.5
9	8, D7, 07, E1, E2	19.4	6.25	6.5
10	D10(flow by)	6.7	5.71	6.5
11	10, E4	2.7	5.71	6.5
12	11, E5	2.8	5.71	6.5
13	12, E6	2.8	5.71	6.5
14	13, E7	2.8	5.71	6.5
15	14, E8	2.8	5.71	6.5
16	15, E9	2.8	5.71	6.5
17	16, E10	2.8	5.71	6.5
18	17, E11	2.8	5.71	6.5
19	18, E12	2.8	5.71	6.5
20	19, E13	2.8	5.71	6.5
21	20, E14	2.8	5.71	6.5
22	21, E15	2.8	5.71	6.5
23	22, E16	2.8	5.71	6.5
24	23, E17	2.8	5.71	6.5
25	24, E18	2.8	5.71	6.5
26	25, E19	2.8	5.71	6.5
27	26, E20	2.8	5.71	6.5
28	27, E21	2.8	5.71	6.5
29	28, E22	2.8	5.71	6.5
30	29, E23	2.8	5.71	6.5
31	30, E24	2.8	5.71	6.5
32	31, E25	2.8	5.71	6.5
33	32, E26	2.8	5.71	6.5
34	33, E27	2.8	5.71	6.5
35	34, E28	2.8	5.71	6.5
36	35, E29	2.8	5.71	6.5
37	36, E30	2.8	5.71	6.5
38	37, E31	2.8	5.71	6.5
39	38, E32	2.8	5.71	6.5
40	39, E33	2.8	5.71	6.5
41	40, E34	2.8	5.71	6.5
42	41, E35	2.8	5.71	6.5
43	42, E36	2.8	5.71	6.5
44	43, E37	2.8	5.71	6.5
45	44, E38	2.8	5.71	6.5
46	45, E39	2.8	5.71	6.5
47	46, E40	2.8	5.71	6.5
48	47, E41	2.8	5.71	6.5
49	48, E42	2.8	5.71	6.5
50	49, E43	2.8	5.71	6.5
51	50, E44	2.8	5.71	6.5
52	51, E45	2.8	5.71	6.5
53	52, E46	2.8	5.71	6.5
54	53, E47	2.8	5.71	6.5
55	54, E48	2.8	5.71	6.5
56	55, E49	2.8	5.71	6.5
57	56, E50	2.8	5.71	6.5
58	57, E51	2.8	5.71	6.5
59	58, E52	2.8	5.71	6.5
60	59, E53	2.8	5.71	6.5
61	60, E54	2.8	5.71	6.5
62	61, E55	2.8	5.71	6.5
63	62, E56	2.8	5.71	6.5
64	63, E57	2.8	5.71	6.5
65	64, E58	2.8	5.71	6.5
66	65, E59	2.8	5.71	6.5
67	66, E60	2.8	5.71	6.5
68	67, E61	2.8	5.71	6.5
69	68, E62	2.8	5.71	6.5
70	69, E63	2.8	5.71	6.5
71	70, E64	2.8	5.71	6.5
72	71, E65	2.8	5.71	6.5
73	72, E66	2.8	5.71	6.5
74	73, E67	2.8	5.71	6.5
75	74, E68	2.8	5.71	6.5
76	75, E69	2.8	5.71	6.5
77	76, E70	2.8	5.71	6.5
78	77, E71	2.8	5.71	6.5
79	78, E72	2.8	5.71	6.5
80	79, E73	2.8	5.71	6.5
81	80, E74	2.8	5.71	6.5
82	81, E75	2.8	5.71	6.5
83	82, E76	2.8	5.71	6.5
84	83, E77	2.8	5.71	6.5
85	84, E78	2.8	5.71	6.5
86	85, E79	2.8	5.71	6.5
87	86, E80	2.8	5.71	6.5
88	87, E81	2.8	5.71	6.5
89	88, E82	2.8	5.71	6.5
90	89, E83	2.8	5.71	6.5
91	90, E84	2.8	5.71	6.5
92	91, E85	2.8	5.71	6.5
93	92, E86	2.8	5.71	6.5
94	93, E87	2.8	5.71	6.5
95	94, E88	2.8	5.71	6.5
96	95, E89	2.8	5.71	6.5
97	96, E90	2.8	5.71	6.5
98	97, E91	2.8	5.71	6.5
99	98, E92	2.8	5.71	6.5
100	99, E93	2.8	5.71	6.5

## LEGEND

6520  
 6520  
 PROPOSED CONTOUR  
 EXISTING CONTOUR  
 PROPOSED STORM DRAIN PIPE  
 EXISTING STORM DRAIN PIPE  
 DRAINAGE CHANNEL  
 PROPOSED TYPE 'R' INLET  
 PROPOSED TYPE 'I' OR 'II' MANHOLE  
 FLOW ARROW

CLAREMONT BUSINESS PARK

FINAL DRAINAGE PLAN

---

MASTER DEVELOPMENT DRAINAGE PLAN

---


FINAL DRAINAGE PLAN

SCALE	DATE ISSUED	SEPTEMBER 2006
WORIZ. 1" = 100'		
VERT. N/A	SHEET NO. 1	OF 2 SHEETS

[illegible]

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

FOR AND ON BEHALF OF  
MATRIX DESIGN GROUP, INC.

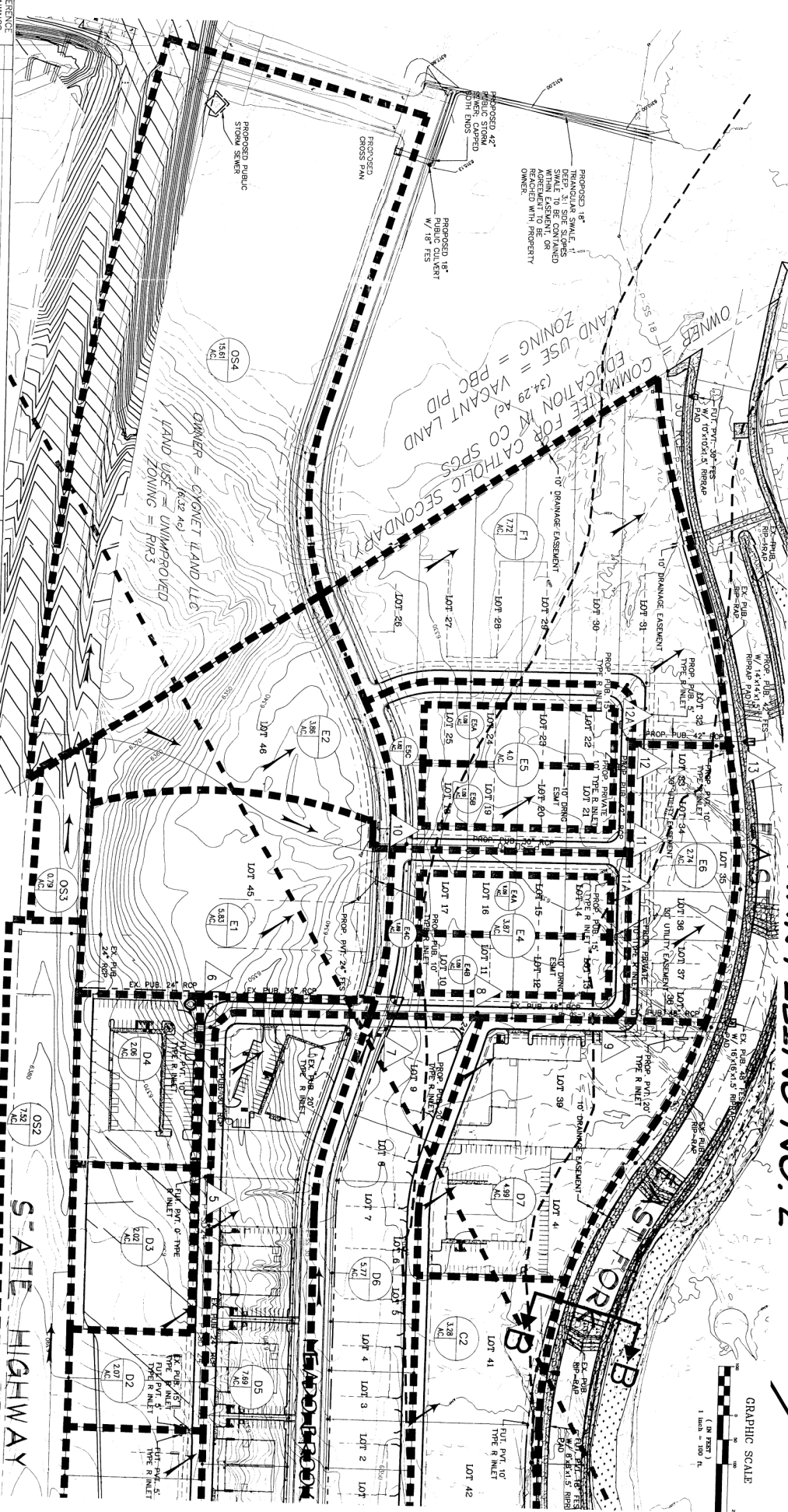
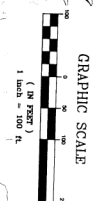
 **Matrix Design Group, Inc.**  
Integrated Design Solutions 2035 Research Parkway, Suite 200  
Colorado Springs, CO 80908  
Phone 719-575-0100  
Fax 719-575-0010

# CLAREMONT BUSINESS PARK

## FINAL DRAINAGE PLAN MASTER DEVELOPMENT DRAINAGE PLAN FINAL DRAINAGE PLAN FLING NO. 2

DESIGN POINT SUMMARY			
POINT	ELEVATION	DATE	BY
1	7200	01/15/07	MM
2	7200	01/15/07	MM
3	7200	01/15/07	MM
4	7200	01/15/07	MM
5	7200	01/15/07	MM
6	7200	01/15/07	MM
7	7200	01/15/07	MM
8	7200	01/15/07	MM
9	7200	01/15/07	MM
10	7200	01/15/07	MM

# DRAINAGE PLAN CLAREMONT BUSINESS PARK FILING NO. 2



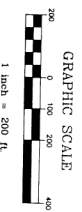
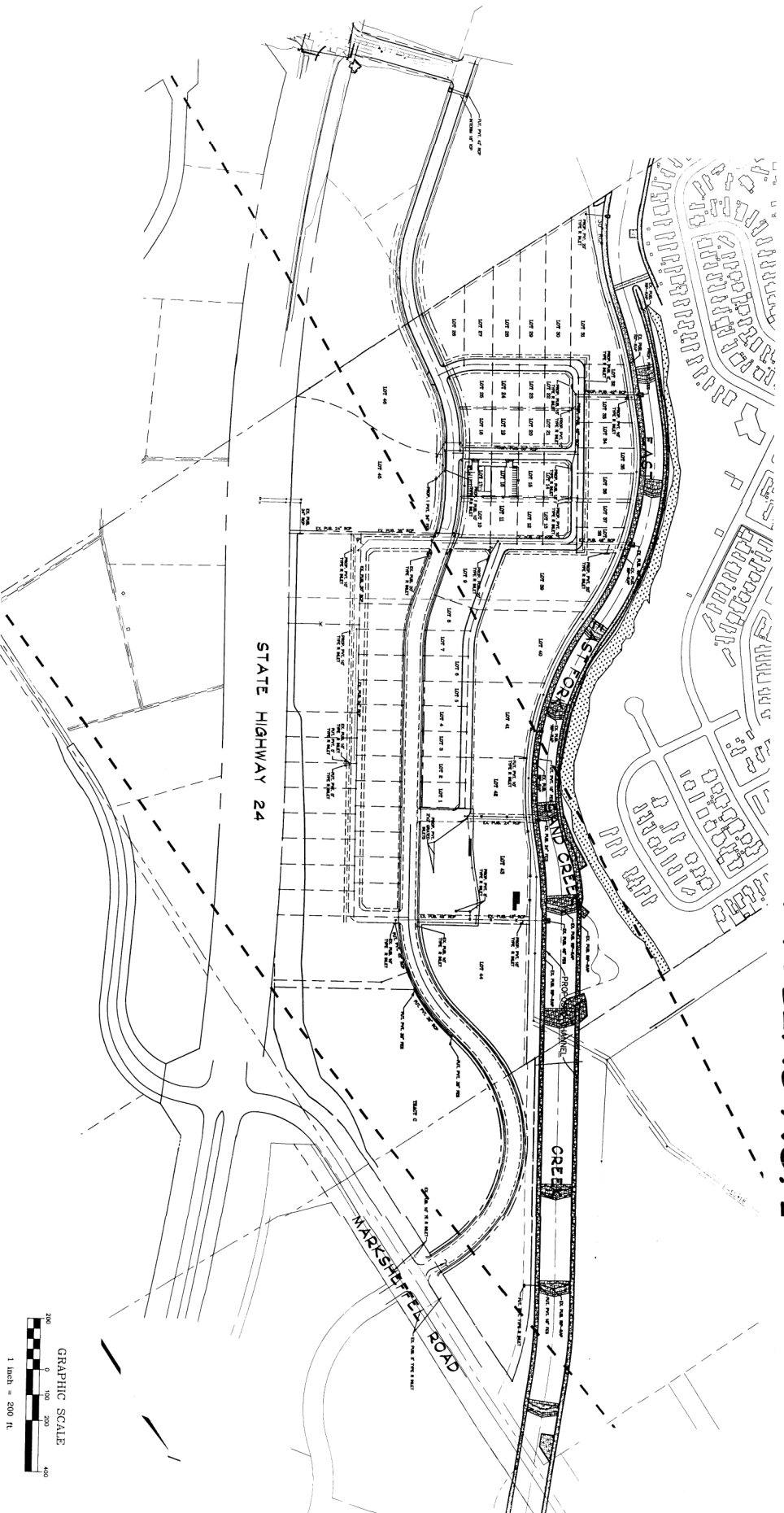
REFERENCE DRAWINGS		SUBDIVIDER		REVISIONS		BENCHMARK DATA/ELEV.		DESCRIPTION / LOCATION	
NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE
1	01/15/07	1	01/15/07	1	01/15/07	1	01/15/07	1	01/15/07
2	01/15/07	2	01/15/07	2	01/15/07	2	01/15/07	2	01/15/07
3	01/15/07	3	01/15/07	3	01/15/07	3	01/15/07	3	01/15/07
4	01/15/07	4	01/15/07	4	01/15/07	4	01/15/07	4	01/15/07
5	01/15/07	5	01/15/07	5	01/15/07	5	01/15/07	5	01/15/07
6	01/15/07	6	01/15/07	6	01/15/07	6	01/15/07	6	01/15/07
7	01/15/07	7	01/15/07	7	01/15/07	7	01/15/07	7	01/15/07
8	01/15/07	8	01/15/07	8	01/15/07	8	01/15/07	8	01/15/07
9	01/15/07	9	01/15/07	9	01/15/07	9	01/15/07	9	01/15/07
10	01/15/07	10	01/15/07	10	01/15/07	10	01/15/07	10	01/15/07

**Matrix Design Group, Inc.**  
Integrated Design Solutions 2435 Research Parkway, Suite 300  
Colorado Springs, CO 80920  
Phone 719-575-1100  
Fax 719-575-0208

**CLAREMONT BUSINESS PARK**  
REVISED FINAL DRAINAGE PLAN  
MASTER DEVELOPMENT DRAINAGE PLAN  
REVISED FINAL DRAINAGE PLAN  
FILING NO. 2

DR02

# STORM DRAINAGE DESTINATION PLAN CLAREMONT BUSINESS PARK FILING NO. 2



REFERENCE		DRAWINGS	
NO.	DATE	NO.	DATE
REVISIONS		REVISIONS	
DESCRIPTION		DESCRIPTION	
BY		BY	
SUBMITTER:		SUBMITTER:	
HAWKINS CONSTRUCTION, INC.		HAWKINS CONSTRUCTION, INC.	
3460 CAPITAL DRIVE		3460 CAPITAL DRIVE	
COLORADO SPRINGS, CO 80915		COLORADO SPRINGS, CO 80915	
FOR AND ON BEHALF OF		FOR AND ON BEHALF OF	
MATRIX DESIGN GROUP, INC.		MATRIX DESIGN GROUP, INC.	
BENCHMARK DATA/FILE		BENCHMARK DATA/FILE	
C:\BENCHMARK\BENCHMARK.DAT		C:\BENCHMARK\BENCHMARK.DAT	
DESCRIPTION/LOCATION		DESCRIPTION/LOCATION	
CLAREMONT BUSINESS PARK FILING NO. 2		CLAREMONT BUSINESS PARK FILING NO. 2	
STORM DRAINAGE DESIGNATION PLAN		STORM DRAINAGE DESIGNATION PLAN	
FILING NO. 2		FILING NO. 2	
EXH01		EXH01	

**Matrix Design Group, Inc.**  
Integrated Design Solutions 2435 Research Parkway, Suite 300  
Colorado Springs, CO 80915  
Phone: 719-575-0100  
Fax: 719-575-0208

## **GRADING EROSION CONTROL PLAN**



# LOT 2 , PADMARK BUSINESS PARK FIL. NO. 1

EL PASO COUNTY, STATE OF COLORADO  
GRADING & EROSION CONTROL PLAN

## DESIGN ENGINEER'S STATEMENT

THIS GRADING AND EROSION CONTROL PLAN WAS PREPARED UNDER MY DIRECTION AND SUPERVISION AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. SAID PLAN HAS BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR GRADING AND EROSION CONTROL PLANS. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARING THIS PLAN.

VIRGIL A. SANCHEZ, COLORADO P.E. #37160  
FOR AND ON BEHALF OF M & S CIVIL CONSULTANTS, INC. DATE

## OWNER/DEVELOPER'S STATEMENT:

I, THE OWNER/DEVELOPER HAVE READ AND WILL COMPLY WITH ALL OF THE REQUIREMENTS SPECIFIED IN THESE DETAILED PLANS AND SPECIFICATIONS.

NAME: DATE

DBA: HAMMERS CONSTRUCTION

ADDRESS: 1411 WOOLSEY HEIGHTS COLORADO SPRINGS, 80915

## EL PASO COUNTY:

COUNTY PLAN REVIEW IS PROVIDED ONLY FOR GENERAL CONFORMANCE WITH COUNTY DESIGN CRITERIA. THE COUNTY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND/OR ELEVATIONS WHICH SHALL BE CONFIRMED AT THE JOB SITE. THE COUNTY THROUGH THE APPROVAL OF THIS DOCUMENT ASSUMES NO RESPONSIBILITY FOR COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT.

FILED IN ACCORDANCE WITH THE REQUIREMENTS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE, DRAINAGE CRITERIA, AND ENGINEERING CRITERIA MANUAL AS AMENDED.

IN ACCORDANCE WITH ECM SECTION 1.12, THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS FROM THE DATE SIGNED BY THE EL PASO COUNTY ENGINEER. IF CONSTRUCTION HAS NOT STARTED WITHIN THOSE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL, INCLUDING PAYMENT OF REVIEW FEES AT THE PLANNING AND COMMUNITY DEVELOPMENT DIRECTOR'S DISCRETION.

JENNIFER IRVINE, P.E.  
COUNTY ENGINEER / ECM ADMINISTRATOR DATE

## LEGEND

	EX MAJ CONT
	EX MIN CONT
	PROP MAJ CONT
	PROP MIN CONT
	LOW POINT
	HIGH POINT
	EXISTING
	FLOWLINE
	TOP OF CURB
	FINISH GRADE
	FINISH FLOOR
	TOP OF FOOTING
	SILT FENCE
	VEHICLE TRACKING CONTROL
	CONCRETE WASH-OUT BASIN
	LIMITS OF DISTURBANCE

GRADING & EROSION CONTROL PLAN  
LOT 2, PADMARK BUSINESS PARK FIL. NO. 1  
JOB NO. 44-031  
DATE PREPARED: JUNE 13, 2018  
DATE REVISED:

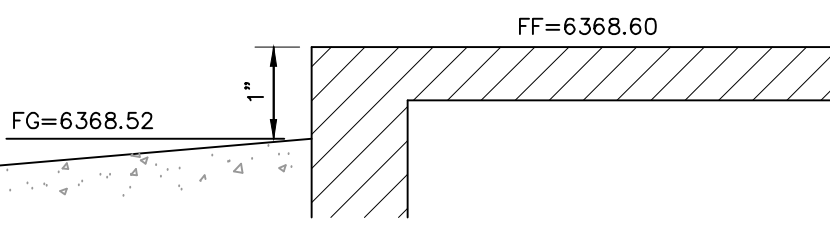
EL PASO COUNTY FILE NO. PPR 18-020



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

SHEET 3 OF 9

EAST FORK SAND CREEK



BUILDING FINISH FLOOR DETAIL



FOR BURIED UTILITY INFORMATION  
48 HRS BEFORE YOU DIG  
CALL 1-800-922-1987

FOR LOCATING & MARKING GAS,  
ELECTRIC, WATER & TELEPHONE LINES  
WATER EMERGENCIES 520-0300



1. A PRECONSTRUCTION CONFERENCE IS HELD WITH DEVELOPMENT SERVICES REPRESENTATIVES.
2. 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.
3. 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.
4. 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.
5. 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 DISINFECTIONS STAFF.
6. 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 SEEDDED. ALL TEMPORARY SOIL EROSION CONTROL MEASURES AND BMPs SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND ESTABLISHED.
7. 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.
8. 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).
9. 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.
10. 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.
11. 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.
12. 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.
13. EROSION CONTROL BLANKETING IS TO BE USED ON SLOPES STEEPER THAN 3:1.
14. 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. BMP'S MAY BE REQUIRED BY EL PASO COUNTY ENGINEERING IF DEEMED NECESSARY, BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES.
15. VEHICLE TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFFSITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.
16. 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.
17. 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.
18. 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.
19. 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.
20. 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.
21. NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE FLOW LINE OF THE CURB AND GUTTER OR IN THE DITCHLINE.
22. 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.
23. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE AT APPROVED CONSTRUCTION ACCESS POINTS.
24. PRIOR TO ACTUAL CONSTRUCTION THE PERMITEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.
25. A WATER SOURCE SHALL BE AVAILABLE ON SITE DURING EARTHWORK OPERATIONS AND UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.
26. THE SOILS REPORT FOR THIS SITE HAS BEEN PREPARED BY TERRACON # 23055071 MAY 30, 2006, AND SHALL BE CONSIDERED A PART OF THESE PLANS.
27. 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:

GRADING & EROSION CONTROL PLAN DETAILS  
LOT 2, PADMARK BUSINESS PARK FIL. NO. 1  
JOB NO. 44-031  
DATE PREPARED: JUNE 13, 2018  
DATE REVISED:

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

SHEET 5 OF 9

