

STORMWATER MANAGEMENT PLAN
FOR
FALCON DISTRICT 49 TRANSPORTATION FACILITY,
FALCON, CO
EPC PROJECT NUMBER: PPR-22-036

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November 18, 2022

Revised December 16, 2022

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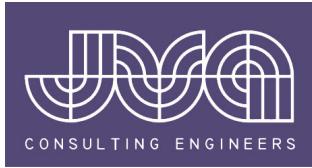


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APPENDICES

Appendix A – Site Maps

Appendix B – Design Sheets

Stormwater Management Plan Contents	SWMP Page Number or Location
Applicant (owner/designated operator), SWMP Preparer, Qualified Stormwater Manager, and Contractor Information. (On cover/title sheet)	Cover Page
Table of Contents	Page 2 of this SWMP
Site description and location to include: vicinity map with nearest street/crossroads description.	Section B
Narrative description of construction activities proposed (e.g., may include clearing and grubbing, temporary stabilization, road grading, utility / storm installation, final grading, final stabilization, and removal of temporary control measures).	Section C
Phasing plan – may require separate drawings indicating initial, interim, and final site phases for larger projects. Provide “living maps” that can be revised in the field as conditions dictate.	JVA Drawings CE1.1 – CE1.12
Proposed sequence for major activities: Provide a construction schedule of anticipated starting and completion dates for each stage of land-disturbing activity depicting conservation measures anticipated, including the expected date on which the final stabilization will be completed.	SWMP Notes on JVA drawing CE1.13
Estimates of the total site area and area to undergo disturbance; current area of disturbance must be updated on the SWMP as changes occur.	Section D
Soil erosion potential and impacts on discharge that includes a summary of the data used to determine soil erosion potential.	Section E
A description of existing vegetation at the site and percent ground cover and method used to determine ground cover.	Section E
Location and description of all potential pollution sources including but not limited to: disturbed and stored soils; vehicle tracking; management of contaminated soils; loading and unloading operations; outdoor storage of materials; vehicle and equipment maintenance and fueling; significant dust generating process; routine maintenance activities involving fertilizers, pesticides, herbicides, detergents, fuels, solvents, oils, etc.; on-site waste management; concrete truck/equipment washing; dedicated asphalt, concrete batch plants and masonry mixing stations; non-industrial waste such as trash and portable toilets.	Section F
Material handling to include spill prevention and response plan and procedures.	Section G
Spill prevention and pollution controls for dedicated batch plants.	None on site
Other SW pollutant control measures to include waste disposal and off-site soil tracking.	Section F
Location and description of any anticipated allowable non-stormwater discharge (ground water, springs, irrigation, discharge covered by CDPHE Low Risk Guidance, etc.)	Section F
Name(s) of ultimate receiving waters; size, type and location of stormwater outfall or storm sewer system discharge.	Section B-1 and JVA Drawings C1.0 & C1.6
Description of all stream crossings located within the project area or statement that no streams cross the project area.	Section F
SWMP Map	JVA Drawings CE1.1 – CE1.12

Narrative description of all structural control measures to be used. Modifications to EPC standard control measures must meet or exceed County-approved details.	Section H
Description of all non-structural control measures to be used including seeding, mulching, protection of existing vegetation, site watering, sod placement, etc.	Section I
Procedure describing how the SWMP is to be revised.	Section J
Description of Final Stabilization and Long-term Stormwater Quality (describe nonstructural and structural measures to control SW pollutants after construction operations have been completed, including detention, water quality control measure etc.)	Section K
Specification that final vegetative cover density is to be 70% of pre-disturbed levels.	SWMP Notes JVA Drawing CE1.13
Outline of permit holder inspection procedures to install, maintain, and effectively operate control measures to manage erosion and sediment.	JVA Drawings CE1.13-CE1.16
Record keeping procedures identified to include signature on inspection logs and location of SWMP records on-site.	Section K SWMP Notes JVA Drawing CE1.13
If this project relies on control measures owned or operated by another entity, a documented agreement must be included in the SWMP that identifies location, installation and design specifications, and maintenance requirements and responsibility of the control measure(s).	None on site

A. INTRODUCTION

This report is written to accompany the JVA stormwater management plan and erosion control plans as part of the engineering permit set. The report addresses proposed construction works, the sequence of the construction activities and the proposed control measures to limit pollution and curb erosion.

B. SITE DESCRIPTION AND LOCATION

1. Description of Existing Site

The existing development site area is 30.51 acres and approximately 25% of impermeable surfaces. The site comprises of an elementary school building, a running track with granular finish, a baseball field and a maintenance yard building.

The site generally falls in a north-south direction, from an existing elevation of 6,820 ft northwest of the site to 6,782 ft southwest of the site. This fall in elevation is over 2,714 ft in length or 1.4% in gradient. An internal gravel access road within the site acts as catchment divide with one basin discharging in a south easterly direction and a second in a south westerly direction.

The site is covered with soils found in hydrologic soil group A.

There is an existing creek that runs along the western boundary of the site which is a tributary to the Black Squirrel Creek and forms part of the Falcon CHWS1400 drainage basin.

The legal description is as follows: Tract in SW4 SEC 07-13-64 described as follows, commencing at SW corner of Said SEC 7, Thense S88,33'11" E 1549.33 FT, N00<03'19" W 30.0 ft to Northwesterly LN of Falcon HWY.

2. Location

District 49 (D49) Transportation Centre is in Falcon at 12050 Falcon Highway. The subject site is located east of Meridian Road, west of Chief Road and south of Highway 24.

The site is bound by Saint Benedict Church to the east, residential homes to the west and Highway 24 to the north. The site is in the jurisdiction of El Paso County. The property is accessed at two locations: via Falcon Highway south of the subject site and Swingline Road, north of the site. Refer to Figure 1 for the site location.

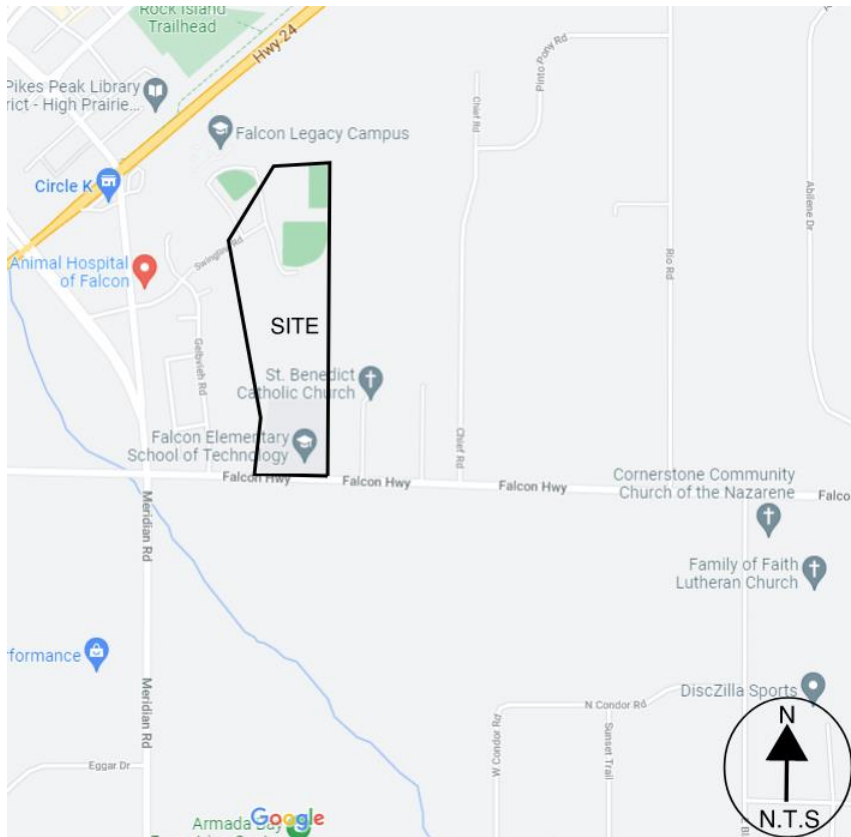


Figure 1- Site Location Map (Google © 2022 Imagery)

C. DESCRIPTION OF PROPOSED CONSTRUCTION ACTIVITIES

The proposed works include the demolition of outdoor sport facilities including a running track and a baseball field to allow the construction of a transportation facility. The works also include the construction of an internal gravel road and a detention basin.

1. Pre-construction Phase

A meeting with the client representative and engineer will occur at the start of the project. At this time, dates and schedules, designation of the contractor's SWMP manager, and expectation will be discussed.

The installation and inspection of initial structural BMPs to occur. Pre-construction phase BMPs to include:

- Installation of construction fence and silt fence as needed around the perimeter of construction to provide site security.
- Installing portable vehicle tracking control and concrete washout areas.

- Preparation of stabilized staging area.
- Installation of curb socks at entry and inlet protection around all storm inlets; and
- Applicable construction and safety signage.

Refer to JVA drawings CE1.1, CE1.2, CE1.3 & CE1.4 for a graphical representation of the proposed works described above.

2. Construction Phase

The proposed works include the following:

- The construction of a bus parking lot, located north of the subject site.
- The construction of an internal gravel access road.
- The construction staff car parking lots at two locations within the site boundary.
- The construction of bus maintenance building.
- The construction of a fuel storage facility.
- The installation of storm drainage facilities including drains, swales and a detention pond.
- The installation of below ground utilities including sanitary, water supply, telecommunication and electric.

Tasks in the Construction Phase include maintaining erosion and sediment control features placed in the pre-construction phase. Stripping and stockpiling of topsoil will occur. Excavation and stockpiling of excavated materials will occur. Silt fencing will be installed around all designated stockpile areas. Stockpiled materials will be dispersed as needed to modify grades onsite. Excess or unusable fill to be disposed of off-site. Asphalt and concrete removed from existing drives is to be disposed of off-site.

Refer to JVA drawings CE1.5, CE1.6, CE1.7 & CE1.8 for a graphical representation of the proposed works described above.

3. Post Construction Phase

Post Construction Phase tasks include the continuing maintenance of the erosion control and removal of BMP's once the entire site has been stabilized by pavements, landscape cover, seed or sod.

Refer to JVA drawings CE1.9, CE1.10, CE1.11 & CE1.12 for a graphical representation of the proposed works described above.

D. SITE AREA TO UNDERGO DISTURBANCE

The total site area is 30.51 acres and 25.10 acres will undergo disturbance. Excess stockpiled or excavated material to be disposed of off-site.

E. DESCRIPTION OF SOIL EROSION POTENTIAL AND VEGETATION

The U.S. Department of Agriculture, Soil Conservation Service mapping of the site indicated that most soils found onsite are predominantly Blakeland loamy sand and Columbine gravelly sandy loam. This soil is classified as hydrological soil group A. Group A soils have a high infiltration rate and low runoff potential. Therefore, limited soil erosion potential at discharge locations using the appropriate BMP's. A copy of the NRCS soils classification map is included in Appendix A.

A review of undisturbed areas on site using available aerial and street photography, as well as a comparison of neighboring properties, indicates that the natural vegetation covers approximately 70% of the existing ground surface. Natural vegetation on site includes grasses, shrubs, and bushes. Existing vegetation outside of the construction limits will remain undisturbed to the extent possible.

F. LOCATION AND DESCRIPTION OF POTENTIAL POLLUTION SOURCES

Potential sources of pollution include stockpiles, portable toilets and vehicle fueling. Portable toilets are to be secured in place to prevent tipping and spilling. All vehicles fueling will be done offsite as much as possible. All on-site fueling operations will be performed in designated areas. Measures will be taken where necessary to reduce and minimize spills during vehicle fueling operations.

Sawcutting is a potential pollution source and must be treated as such. Dust and debris from sawcutting operations are to be vacuumed or swept immediately upon generation and disposed of properly. It is recommended to water sawcut area during sawcutting activities to minimize dust production.

Concrete batch plants are not anticipated as part of the proposed works.

Fuel Storage Facility

The proposed development includes the construction of a fuel storage facility. At the completion of the project, the storage facility will be banded by concrete walls. An operation and maintenance regime will be adopted and will include regular inspection of the area to check for spills. Where spills occur, a response plan will be triggered and it will include a licensed waste contractor employed to pump out any spills and dispose of it.

Non-stormwater Discharges

Water for dust suppression will be a source for non-stormwater components of discharge. Dust suppression will be carried out in such a manner as to prevent flow across disturbed land thus creating sediment-laden runoff to occur. It is the contractor's responsibility to control these operations and to document control for these operations.

Receiving Waters

Developed flows from the site are conveyed via a storm system to the existing creek which runs along the western boundary of the site which is a tributary to the Black Squirrel Creek. There are no other streams or water bodies which cross the project area.

G. MATERIAL HANDLING AND SPILL PREVENTION PLAN

Whenever significant quantities of fuels, raw materials, vehicle fluids, fertilizers, pesticides, ash, slag, concrete washout, paints, solvents, waste piles, or other pollutants are to be used onsite, specific procedures for material containment and spill prevention shall be developed and implemented. The following Spill Prevention and Response Plan shall be implemented during construction:

Spill Prevention and Response Plan

Introduction

The following Spill Prevention and Response Plan shall be implemented during the construction of the Falcon D49 Transportation Facility. This plan will be implemented to meet the requirements of D49, Falcon Fire Department, the City of Colorado Springs Police Department, National Response Center, Colorado Department of Public Health and Environment (CDPHE).

Materials On-Site

The contractor will store construction materials and equipment in confined areas onsite from which runoff will be contained and filtered. Materials will be stored off the ground and protected from the weather by a covered or stored in a container such as a van or trailer. Spill control procedures will be implemented when materials are stockpiles or when chemicals and/or fluids are used in the construction area.

Stockpiles of Dry Materials

All materials will be stockpiled in designated areas, with BMPs used to reduce and minimize the runoff of contaminants. BMPs, such as silt fence and sediment control logs, will be installed according to D49 criteria using the details shown in the erosion control plans. Loading and unloading operations shall be performed in a manner to limit materials from being spilled. Any spilled material shall be swept up immediately after the operations are performed.

Vehicle Fueling

Vehicle fueling will be done offsite as much as possible. All on-site fueling operations will be performed in designated areas. Measures will be taken where necessary to reduce and minimize spills during vehicle fueling operations. These measures may include the placement of a temporary berm around the fueling area, covering the fueling area under a temporary portable structure, and/or the placement of drip pans under valves and tank openings. Berms will be constructed around all fueling areas. An adequate supply of absorbents will also be stockpiled at each fueling area.

Routine Vehicle and Equipment Maintenance

All vehicle maintenance will be performed offsite when possible. However, there may be occasions where construction equipment and vehicles may break down at the site and onsite repairs are more feasible. Onsite vehicle and equipment maintenance, if needed, will be performed in designated areas, where practical, and enclosed by earthen berms. All maintenance areas will maintain an adequate supply of drip pans. These pans will be placed underneath vehicles as needed and absorbents will be used in the event of a minor spill or leak.

Spill Response

IN CASE OF FIRE, EVACUATE ALL PERSONNEL FROM THE IMMEDIATE AREA, RENDER FIRST AID TO ANYONE WHO IS INJURED AND DIAL 911 IMMEDIATELY. TAKE APPROPRIATE STEPS TO PROTECT HUMAN LIFE AND CONTROL FIRES FIRST. SPILL CONTROL IS A SECONDARY CONCERN.
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Cleanup and Removal Procedures

Upon detection of any spill, the first action is ensuring personal safety. All ignition sources, including running engines, electrical equipment (including cellular telephones, etc.), or other hazards will be immediately turned off or removed from the area. The extent of the spill and the nature of the spilled material will be evaluated to determine if remedial actions could result in any health hazards, escalation of the spill, or further damage that would intensify the problem. If such conditions exist, a designated employee will oversee the area of the spill and the construction supervisor will be notified immediately.

The source of the spill will be identified and if possible, the flow of pollutants stopped if it can be done safely. However, no employee will attend to the source or begin cleanup of the spill until ALL emergency priority (fire, injuries, etc.) have been addressed.

Small Spills

Small spills, usually less than 5 gallons, consists of minor quantities of gasoline, oil, anti-freeze, or other materials than can be cleaned up by a single employee using readily available materials.

The following procedures shall be used for cleanup of small spills:

1. Ensure personal safety, evaluate the spill, and if possible, stop the flow of pollutants.

2. Contain the spread of the spill using absorbents, portable berms, sandbags, or other available measures.
3. Spread absorbent materials on the area to soak up as much of the liquid as possible and to prevent or minimize infiltration into the soil.
4. Once the liquids have been absorbed, remove all absorbents from the spill and place the materials in a suitable storage container. On paved areas, wipe any remaining liquids from the surface and place the materials in a storage container. Do not spray or wash down the area using water. For open soils areas, excavate any contaminated soil as soon as possible and place the soil in a suitable storage container. All materials will then be transported offsite for disposal.
5. If immediate transfer and storage of the contaminated soil is not practical, excavate and place the contaminated soil on a double thickness sheet of 3-mil or higher polyethylene film. In addition, a small berm should be formed around the outer edges of the soil stockpile, underneath the film, to ensure that contaminants are not washed from the site during precipitation events and that materials do not seep through the berm.
6. Record all significant facts and information about the spill, including the following:
 - a. Type of pollutant
 - b. Location
 - c. Apparent source
 - d. Estimated volume
 - e. Time of discovery
 - f. Actions taken to clean up spill
7. Notify the supervisor of the spill and provide the information from Item #6. The supervisor will then contact the D49 Environmental Compliance Manager.

Medium to Large Spills

Medium to large spills consist of larger quantities, usually 5 to 25 gallons, of materials that are used onsite that cannot be controlled by a single employee. Generally, a number of facility personnel will be needed to control the spill and a response may require the suspension of other facility activities.

The following procedure shall be used for the cleanup of medium to large spills:

- 1) Ensure personal safety, evaluate the spill, and if possible, stop the flow of pollutants.
- 2) Immediately dispatch a front-end loader or similar equipment to the spill and construct a berm or berms down gradient of the spill to minimize the spread of potential pollutants. On paved surfaces, portable berms, sandbags, booms, or other measures will be used to control the lateral spread of the pollutants.

- 3) When the spread of the spill has been laterally contained, contact the supervisor or designated facility employee and provide them information on the locations, type and amount of spilled material, and a briefing on the extent of the spread and measures undertaken to contain the contaminants.
- 4) Depending on the nature of the spill, mobilize additional resources as needed to contain the contaminants.
- 5) Cleanup will commence when the lateral spread has been contained and the notification to the supervisor has been made.
- 6) Freestanding liquid will be bailed or pumped into 55-gallon storage drums, steel tanks, or other suitable storage containers. When all the liquid has been removed from the pavement or soil layer, absorbents will be applied to the surface and transferred to the storage containers when they have soaked up as much of the spill as possible.
- 7) On paved surface the remaining contaminants will be removed to the extent possible, with rags, sweeping, or similar measures. The area of the spill will not be sprayed or washed down using water. Any contaminant-soaked materials will be placed into the storage containers with the other absorbents.
- 8) The remaining contaminated soils will be excavated and loaded into a dump truck(s) for disposal offsite at a designated facility. If transport offsite is not immediately available, the remaining soils will be stockpiled on a double thickness sheet of 3-mil or higher polyethylene film. In additions, a small berm will be formed around the outer edges of the contaminated soil stockpile, underneath the polyethylene film, to ensure that contaminants are not washed from the site during precipitation and do not seep through the berm.
- 9) Record all significant facts and information about the spill, including the following:
 - a. Type of pollutant
 - b. Location
 - c. Apparent source
 - d. Estimated volume
 - e. Time of discovery
 - f. Action taken to clean up spill
- 10) Provide the supervisor or designated employee with the information from Item #9. The supervisor will then contact the D49 Environmental Compliance Manager.

Notification

Notification to the Colorado Department of Public Health & Environment (CDPHE) is required if there is any release or suspected release of any substance, including oil or other substances that spill into or threaten State waters. Unless otherwise noted, notifications are to

be made by the supervisor and only after emergency responses related to the release have been implemented. This will prevent misinformation and assures that notifications are properly conducted.

The notification requirements are as follows:

Spills into/or Threatens State Waters: Immediate notification is required for releases that occur beneath the surface of the land or impact or threaten water of the State or threaten the public health and welfare. Notifications that will be made are:

- a) For any substance, regardless of quantity, contact CDPHE at 1-877-518-5608. State as follows:
 - i. Give your name
 - ii. Give location of spill
 - iii. Describe the nature of the spill, type of product, and estimated size of spill
 - iv. Describe type of action taken thus far, type of assistance or equipment needed
- b) For any quantity of oil or other fluids, call the Nation Response Center at 1-800-424-8802. State as follows:
 - i. Give your name
 - ii. Give location of spill (name of city and state)
 - iii. Describe the nature of the spill, type of product, and estimate size of spill
 - iv. Describe type of action taken thus far, type of assistance or equipment needed

Reportable Quantity Spill on Land Surfaces: Immediate notification is required of a release upon the land surface of an oil quantity that exceeds 25 gallons, or of a hazardous substance that equals or exceeds 10 pounds or its reportable quantity under Section 101(14) of the *Comprehensive Environmental Response, Compensation Liability Act (CERCLA) of 1980* as amended (*40 CFR Part 302*) and Section 329(3) of the *Emergency Planning and Community Right to Know Act of 1986 (40 CFR Part 355)* whichever is less. The requirement does apply at a minimum to the substances listed below:

Substances Required Notification

Substance	Reportable Quantity
Motor Oil	25 Gallons
Hydraulic Oil	25 Gallons
Gasoline/Diesel Fuel	25 Gallons

The notification procedures to be followed are:

- a) Give your name

- b) Give location of spill (name of city and state)
- c) Describe nature of the spill, type of product, and estimate size of spill
- d) Describe type of action taken thus far, type of assistance or equipment needed
- e) Give name of landowner
- f) Specify department responsible for any facilities that may be impacted

Notification is not required for release of oil upon the land surface of 25 gallons or less that will not constitute a threat to public health and welfare, the environment, or a threat of entering the waters of the State.

Notification, as required in paragraphs 1 and 2 above, will be made to the CDPHE using the 24-hour telephone number to report environmental spills. All information known about the release at the time of discovery is to be included, such as the time of occurrence, quantity and type of material, location and any corrective or cleanup actions presently being taken. The table below lists these phone numbers:

Emergency Notification Contacts

Name/Agency	Number
Falcon Fire Department	911
Colorado Springs Police Department	911
Ambulance	911
Hospital	911
National Response Center	1-800-424-8802
CDPHE-24-hour Report Line	1-877-518-5608
Colorado Emergency Planning Committee	303-273-1622

It is the responsibility of the supervisor to contact District 49, CDPHE, and/or the National Response Center.

Reports

The CDPHE requires written notification of a spill or discharge of oil or other substance that may cause pollution of the waters of the State of Colorado. A written report must be submitted to the Water Quality Control District (WQCD) within five days after becoming aware of the spill or discharge.

The CDPHE requires a written final report within 15 days for all releases of an oil or hazardous substance that require implementation of a contingency plan. The CDPHE may also require additional reports on the status of the cleanup until any required remedial action has been completed.

Written notification of reports must contain at a minimum:

- a) Date, time, and duration of the release
- b) Location of the release
- c) Person or persons causing and responsible for the release
- d) Type and amount of oil or substance released
- e) Cause of the release
- f) Environmental damage caused by the release
- g) Actions taken to respond, contain, and clean up the release
- h) Location and method of ultimate disposal of the oil or other fluids
- i) Actions taken to prevent a reoccurrence of the release
- j) Any known or anticipated acute or chronic health risks associated with the release
- k) When appropriate, advice regarding medical attention necessary for exposed individuals

H. DESCRIPTION OF STRUCTURAL CONTROL MEASURES

Temporary BMPs can be broken into erosion or sediment control types. Erosion controls are surface treatments that stabilize soil exposed by excavating or grading. Erosion control measures include seeding and mulching.

Erosion control measures need to begin in advance of all major soil disturbance activities on the construction site. Erosion Control Details can be found on JVA drawing CE1.14, CE1.15 and CE1.16.

Silt Fence

Silt fences consist of a woven geotextile fabric attached to wooden posts and trenched into the ground. Silt fence will be used where runoff is conveyed from a disturbed area as sheet flow. The silt fences will be installed along the contour of slopes so that it intercepts sheet flow. For maintenance, inspection of silt fence includes observing the material for tears or holes and checking for slumping fence and undercut areas bypassing flows. Where repair is required, the silt fence or part of it will be replaced with a new. Sediment accumulated behind silt fence shall be removed, as needed to maintain BMP effectiveness, typically before it reaches a depth of 6 inches. Silt fence may be removed when the upstream area has reached final stabilization.

Temporary Sediment Basin

A temporary sediment basin will be used to capture eroded or disturbed soil transported in storm runoff prior to discharge from the site. The proposed temporary sediment basin is designed to capture site runoff and slowly release it to allow time for settling of sediment

prior to discharge. This sediment basin will also serve as post-construction stormwater basin. Therefore, the basin is installed in the same location as the permanent detention pond. The proposed basin provides a storage volume of 3,862 cubic feet per acre, above the 3,600 cubic feet per acre recommendation. The basin geometry meets the requirement of 2:1 length to width ratio. The embankment is not steeper than 3:1(H:V) in any location. An interim water quality plate will be used as an outlet control measure for a temporary 72 hour drain time. An emergency spillway and a riprap apron are provided as outlet protection.

Maintenance activities include the following:

- Dredge sediment from the basin, as needed to maintain BMP effectiveness, typically when the design storage volume is no more than one-third filled with sediment.
- Inspect the sediment basin embankments for stability and seepage.
- Inspect the inlet and outlet of the basin, repair damage, and remove debris. Remove, clean and replace the gravel around the outlet on a regular basis to remove the accumulated sediment within it and keep the outlet functioning.

The proposed sediment basin will be in place until the upstream area has been stabilized with vegetation.

Construction Fence

Construction fences consists of orange plastic fencing and/or chain-link fencing. Construction fencing will be used to delineate the limits of construction and to control access to the construction site. Construction fence may also be used for tree or other vegetation protection. Construction fence is to be monitored for proper installation and repaired or replaced, as necessary. Construction fence may be removed once construction control is no longer necessary and/or at the end of construction.

Concrete Washout Areas

The purpose of a concrete washout area is to isolate concrete truck washout operations. The concrete washout area is a designated, shallow excavation with a perimeter berm to contain waste from concrete trucks, small concrete mixers, and other washout operations. No concrete waste or washout is to be discharged from a delivery truck, pump truck, or small batch mixer onto the ground outside of a designated washout area. The concrete washout area is combined with the vehicle tracking control pad to control tracking of mud. Signs will be placed at the construction entrance, at the concrete washout area, and elsewhere as necessary to clearly indicate the location of the concrete washout area to operators of concrete trucks and other contractors. The washout area may not be in such a way that a spill or overflow will be allowed to enter a drainage way or swale. Watertight manufactured bins may be used in place or an earthen excavation. The concrete washout area will be repaired, enlarged, or cleaned out as necessary to maintain capacity for waste concrete and other liquid wastes. Concrete waste from the washout area shall be removed from the site in a watertight container and disposed of at an approved waste site. Solids will be disposed of separately from liquids. When concrete operations are complete, the concrete washout area shall be removed and the disturbed area restored.

Rock Socks

Rock socks are used as perimeter control and installed in the curb line at an angle pointing uphill. They are intended to trap sediment from stormwater runoff that flows onto roadways as a result of construction activity. The rock socks consist of wire mesh with a maximum opening of ½” to ¾” with 1-1/2” crushed rock fill formed into wattles 10” minimum in diameter and typically 48” in length. Rock socks are to be monitored for correct placement or rupture and adjusted, replaced, or repaired as needed. Sediment accumulated upstream of the rock sock shall be removed when the sediment depth upstream is within 5” of the crest.

Sediment Control Log

Sediment control logs are used as perimeter control and are installed prior to any land disturbing activities. The sediment control logs consist of straw, compost, coconut fiber and shall be free of any noxious weed seeds or defects. The logs will be trenched into the ground to a depth of approximately 1/3 of the diameter of the log. The sediment control logs will be removed at the end of construction.

Grass Buffers

Grass buffers are used to accept sheet flow from the gravel car park, located south of the development. Grass buffers will provide filtration of sediment. This BMP is chosen as it will accept overland sheet flow from the car park. The proposed grass buffer is 20ft wide and 442 ft long. The grass buffer will be placed 1-3 inches below the adjacent gravel finished elevations to allow runoff to enter the buffer. Soil amending, fine grading and seeding will be performed when all disturbance in this area is complete. To maintain existing infiltration capacity, compacting of soil will not be carried out. Design sheet from the Urban Drainage and Flood Control District is included in Appendix B.

Materials Staging

No materials will be stored offsite in the public right-of-ways for this project at any time. Control features will be utilized to provide containment for existing stockpiles. Sandbags, poly liners, and anchored poly tarps should be utilized to protect material from rain, wind, and other events.

I. DESCRIPTION OF NON-STRUCTURAL CONTROL MEASURES

Nonstructural BMPs will be implemented to the maximum extent possible. The utilization of nonstructural BMPs will be an ongoing process directed at preventing erosion, controlling sediment, and addressing other environmental concerns. Nonstructural BMPs will consist primarily of planning and scheduling construction activities aimed at achieving the goal of minimizing erosion. Furthermore, construction personnel will be instructed and supervised in construction methods consistent with erosion prevention practices.

Minimize Disturbance to Existing Vegetation

Primarily, construction personnel will be directed to preserve as much of the established vegetation as possible. Vegetative buffer strips especially along the site boundaries should be maintained when possible and planning for disturbance followed by temporary seeding and mulching should be employed.

Seeding and Mulching

Stockpiles will be seeded and mulched once specified volume is achieved. Seeding should only be applied after appropriate seedbed and soil preparations have occurred to ensure the seedbed is conducive to plant growth. The seedbed shall be well settled and firm, but friable enough that seed can be placed at the appropriate depth. The seedbed shall be reasonably free of weeds. Soils that have been over-compacted by traffic or equipment shall be tilled to breakup rooting restrictive layers and then harrowed, rolled, or packed to prepare the required firm seedbed. Seed shall be applied by drill seeding equipment. Seeded areas shall be covered with crimped straw mulch or erosion control blankets on the same day as the seeding to protect the seedbed and facilitate germination.

Mulching consists of evenly distributing straw over a disturbed area for temporary stabilization. The straw shall be clean, weed and seed free, long-stemmed grass or hay, or long-stemmed straw of oats, wheat, or rye. At least 50% of mulch, by weight, shall be 10 inches or longer. The straw must be secured by crimping the mulch into the ground to provide immediate protection against rain and wind erosion for exposed soils and promote the growth of vegetation by providing moisture retention and protection of seedbeds against extremes in temperatures. Mulch shall not be bunched and should be applied along the contour of the grade or slope and mechanically anchored using a v-type wheel land packer or a scalloped-disk land packer design to force mulch to a depth of at least 3-inches. Mulch should be at a rate of coverage that will allow no more that 10% of the surface to be exposed, 2-1/2 tons per acres minimum. Hydro-mulching is not appropriate unless an irrigation systems id operated to facilitate germination. Seeded and mulched areas shall be inspected to verify germination, vegetative growth, and adequate cover. Seeded areas that fail to develop uniform, established cover shall be reseeded and re-mulched. Final soil stabilization shall be the final ground cover defined by the site plan, landscaping plan, and/or associated documents. The seed mix and rate of application shall be as follows:

Good Housekeeping/Good Neighbor Policy

Construction personnel will be directed to maintain a clean and orderly work environment. Good housekeeping is to consist of improved operation and maintenance of machinery and processes, material storage practices, material inventory controls, routine and regular clean-up schedules, maintaining well-organized work areas, signage, and educational programs for employees and the general public about these practices. Trash and construction debris will be contained and disposed of as generated. This site is located adjacent to a residential neighborhood and will have an active school building adjacent to the construction. It is the contractor's responsibility to prevent trash and construction debris from entering adjacent properties, the existing school building area, or the public right-of-ways.

Toilet Facilities

Temporary toilet facilities will be provided for the convenience of the construction personnel. Portable toilets are to be located adjacent to the vehicle tracking control pads in such a way that trucks maintaining the facilities do not track mud and other debris. Portable toilets are to be securely tied down to prevent tipping. Any seepage or spillage is to be handled as a spill and requirements described in the Spill Prevention and Response Plan will be followed.

Street Sweeping

Street sweeping for mud and sediment will be employed for the public streets bounding the site. No tracking of mud on to public streets is allowed. Any tracking of mud from the job site will be immediately cleaned by the contractor.

J. REVISION OF THE STORMWATER MANAGEMENT PLAN

This Stormwater Management Plan (SWMP) is to be retained and maintained onsite including final landscaping plans and any other erosion control documentation. A SWMP administrator will be designated by the contractor and is responsible for developing, implementing, maintaining, and revising this SWMP. The SWMP administrator is the contact for all SWMP-related issues and is responsible for its accuracy, completeness, and implementation.

K. FINAL STABILIZATION AND LONG-TERM STORMWATER QUALITY

Final stabilization is reached when all soil disturbing activities at the site have been 70% completed, uniform vegetative cover has been established, physical erosion reduction methods have been employed, and utility trenches have been capped with asphalt. Final stabilization will be achieved using sod, native seeding, permanent BMP's, and other methods. Contractor shall be responsible for final stabilization.

Inspections and Maintenance

The intent of the BMPs is to stabilize the site from the early stages of construction until permanent erosion control is established as part of the final stage of construction. At the start of construction, the contractor will establish all BMPs and other control measures as indicated as initial phase erosion and sediment control items. Before any land disturbing activities occur, BMPs will be inspected by a specialist for correct installation and intent of each BMP. Once initial BMPs have been accepted, construction may begin.

The designated SWMP manager will be responsible for the inspection of each BMP feature every 7 days and within 24-hours of a precipitation event (at a minimum) or snowmelt event that causes surface erosion. Inspections will also occur during snow melt events. All

necessary maintenance and repairs shall be initiated and completed on an ongoing basis, as features are required to operate continuously. The purpose of the inspection is to determine the state of the feature, and to take corrective action if the feature is being bypassed, has failed, needs cleaning, or has become no longer effective. A weekly inspection report is to be completed by the SWMP manager reporting state and findings of each BMP.

Once a temporary BMP is no longer needed, an inspection by the contractor will occur to determine when the BMP can be removed. Inspections will also occur prior to moving to another phase of the SWMP.

Following initial closeout acceptance by EPC, the contractor shall inspect the site at least every 30 calendar days, and within 24-hours after the end of any precipitation event or snowmelt event that results in runoff and causes erosion until final stabilization has been achieved. Action will be taken by the contractor to ensure the effectiveness of any temporary and permanent BMPs.

Please note that this project does not rely on control measures owned or operated by another entity.

Appendix A - FEMA Floodplain Map Information

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations (BFEs)** and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The projection used in the preparation of this map was Universal Transverse Mercator (UTM) zone 13. The horizontal datum was NAD83, GRS80 spheroid. Differences in datum, spheroid, projection or UTM zones zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the **North American Vertical Datum of 1988 (NAVD88)**. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov/> or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, NUNCS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, MD 20910-3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242 or visit its website at <http://www.ngs.noaa.gov/>.

Base Map information shown on this FIRM was provided in digital format by El Paso County, Colorado Springs Utilities, City of Fountain, Bureau of Land Management, National Oceanic and Atmospheric Administration, United States Geological Survey, and Anderson Consulting Engineers, Inc. These data are current as of 2006.

This map reflects more detailed and up-to-date **stream channel configurations and floodplain delineations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map. The profile baselines depicted on this map represent the hydraulic modeling baselines that match the flood profiles and Floodway Data Tables if applicable, in the FIS report. As a result, the profile baselines may deviate significantly from the new base map channel representation and may appear outside of the floodplain.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

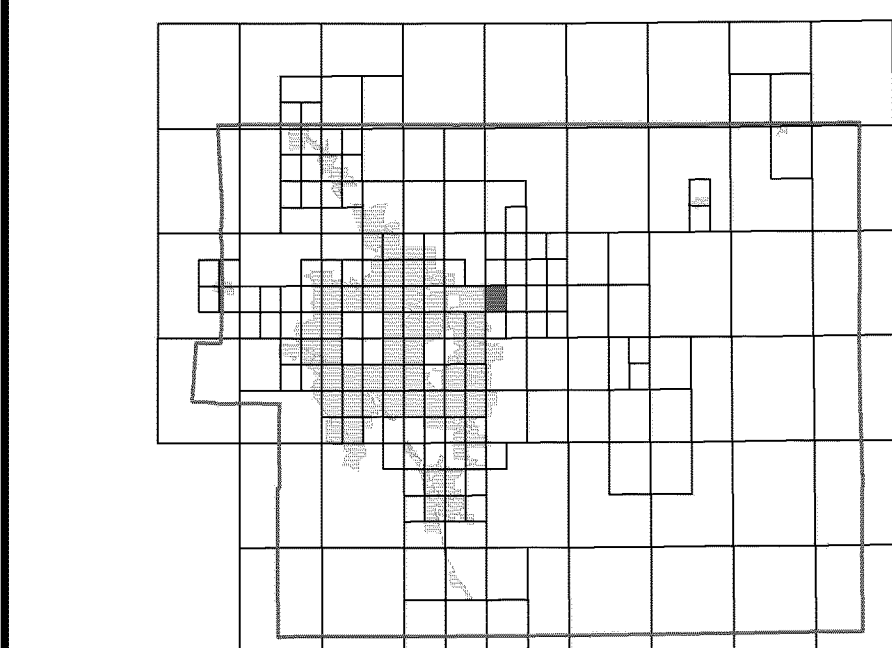
Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact **FEMA Map Service Center (MSC)** via the FEMA Map Information eXchange (FMIX) 1-877-336-2627 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. The MSC may also be reached by Fax at 1-800-358-9620 and its website at <http://www.msc.fema.gov/>.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call 1-877-FEMA MAP (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov/business/nfip>.

El Paso County Vertical Datum Offset Table	
Flooding Source	Vertical Datum Offset (ft)
REFER TO SECTION 3.3 OF THE EL PASO COUNTY FLOOD INSURANCE STUDY FOR STREAM BY STREAM VERTICAL DATUM CONVERSION INFORMATION	

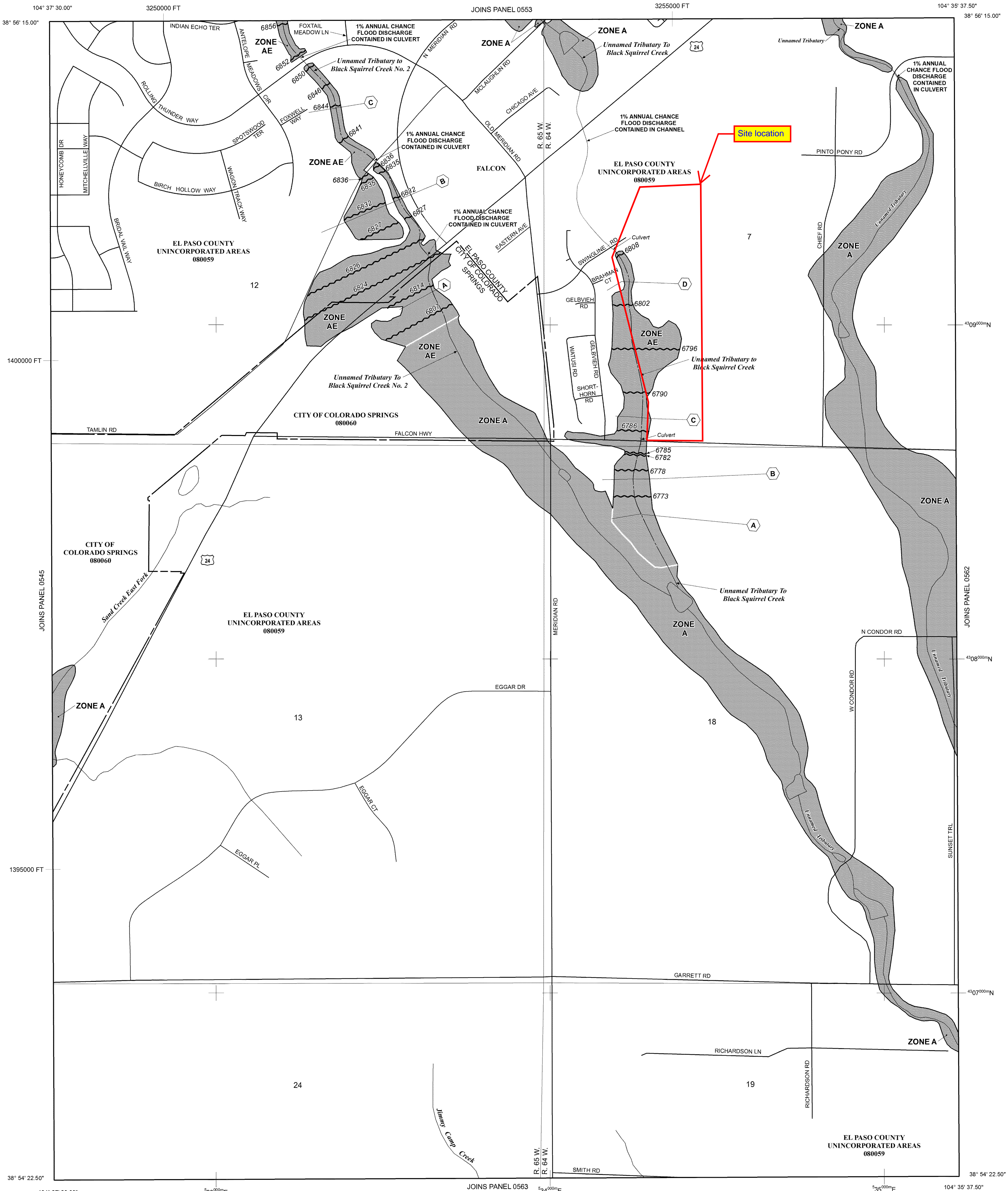
Panel Location Map



This Digital Flood Insurance Rate Map (DFIRM) was produced through a Cooperating Technical Partner (CTP) agreement between the State of Colorado Water Conservation Board (CWCB) and the Federal Emergency Management Agency (FEMA).



Additional Flood Hazard information and resources are available from local communities and the Colorado Water Conservation Board.



NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 13 SOUTH, RANGE 64 WEST, AND TOWNSHIP 13 SOUTH, RANGE 65 WEST.

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAS) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equalled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard are Zones A, AE, AH, AO, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- ZONE A** No Base Flood Elevations determined. Base Flood Elevations determined.
- ZONE AE** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR** Special Flood Hazard Area Formerly protected from the 1% annual chance flood by a flood control system that was subsequently dewatered. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE A99** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- Floodplain boundary
- Floodway boundary
- Zone D Boundary
- CBRS and OPA boundary

Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

Base Flood Elevation line and value; elevation in feet* (EL 987)

Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

A Cross section line

23 Transsect line

Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)

1000-meter Universal Transverse Mercator grid ticks, zone 13

5000-foot grid ticks: Colorado State Plane coordinate system, central zone (FIPSZONE 0502), Lambert Conformal Conic Projection

Bench mark (see explanation in Notes to Users section of this FIRM panel)

River Mile

MAP REPOSITORIES

Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP

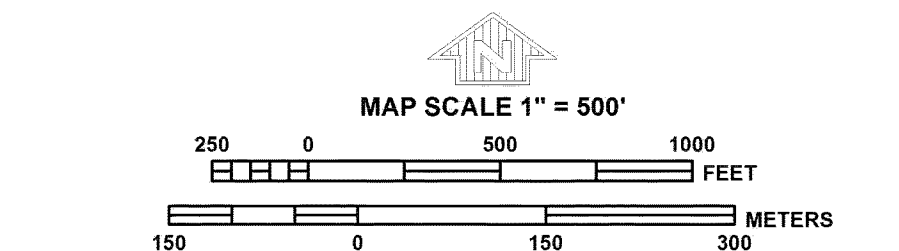
MARCH 17, 1997

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

DECEMBER 7, 2018 - to update corporate limits, to change Base Flood Elevations and Special Flood Hazard Areas, to update map format, to add roads and road names, and to incorporate previously issued Letters of Map Revision

For community map revision history prior to countywide mapping, refer to the Community Map History Table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.



PANEL 0561G

FIRM
FLOOD INSURANCE RATE MAP
EL PASO COUNTY,
COLORADO
AND INCORPORATED AREAS

PANEL 561 OF 1300
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
COLORADO SPRINGS, CITY OF	08060	0561	G
EL PASO COUNTY	08059	0561	G

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

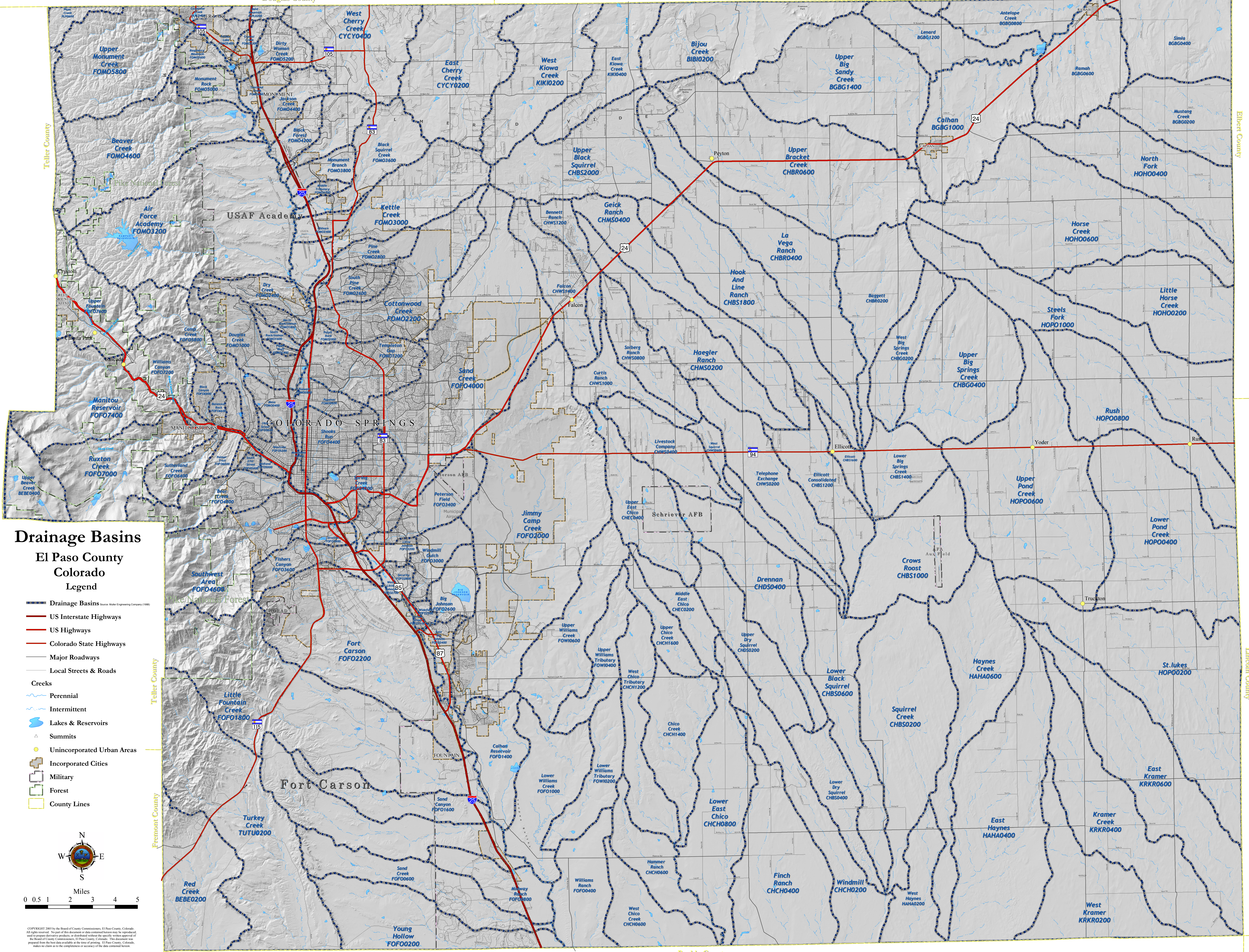
MAP NUMBER
08041C0561G

MAP REVISED
DECEMBER 7, 2018
Federal Emergency Management Agency

Appendix A - Drainage Basins El Paso County , Co.

Douglas County

Elbert County



Drainage Basins

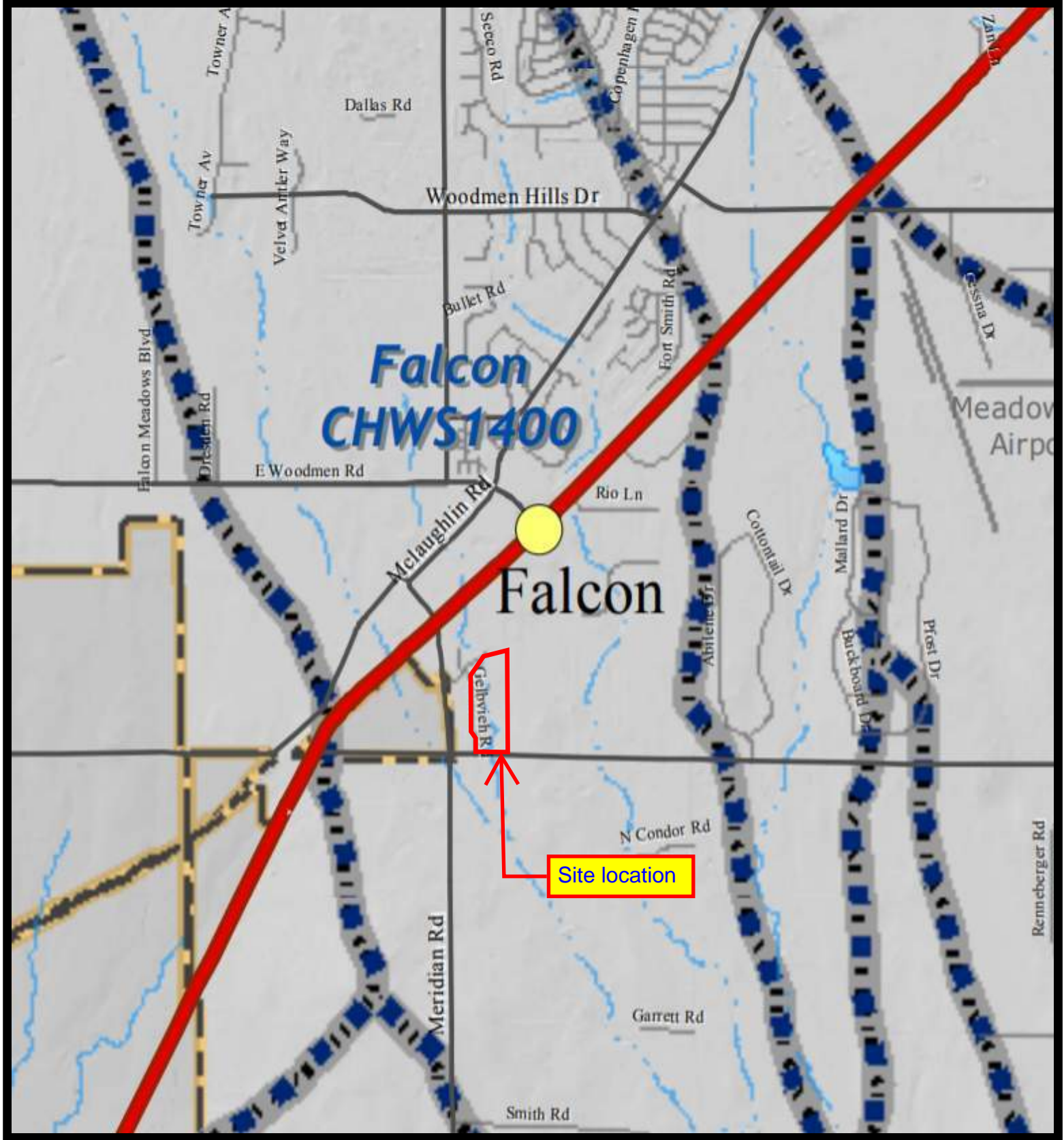
El Paso County Colorado Legend

- Drainage Basins (Source: Muler Engineering Company 1988)
- US Interstate Highways
- US Highways
- Colorado State Highways
- Major Roadways
- Local Streets & Roads
- Creeks**
- Perennial
- Intermittent
- Lakes & Reservoirs
- Summits
- Unincorporated Urban Areas
- Incorporated Cities
- Military
- Forest
- County Lines



Miles
0 0.5 1 2 3 4 5

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Drainage Basins

El Paso County
Colorado
Legend

- | | | | |
|--|---|---|----------------------------|
|  | Drainage Basins <small>Source: Water Engineering Company (1986)</small> |  | Creeks |
|  | US Interstate Highways |  | Perennial |
|  | US Highways |  | Intermittent |
|  | Colorado State Highways |  | Lakes & Reservoirs |
|  | Major Roadways |  | Summits |
|  | Local Streets & Roads |  | Unincorporated Urban Areas |
| | |  | Incorporated Cities |
| | |  | Military |
| | | | Forest |
| | | | County Lines |



Appendix B - Grass Buffer Design Sheet

Design Procedure Form: Grass Buffer (GB)

UD-BMP (Version 3.07, March 2018)

Sheet 1 of 1

Designer: AMB
Company: JVA
Date: September 16, 2022
Project: D49 Transportation Center
Location: South Staff Car Park

1. Design Discharge A) 2-Year Peak Flow Rate of the Area Draining to the Grass Buffer	$Q_2 = $ <input style="width: 50px;" type="text" value="1.0"/> cfs
2. Minimum Width of Grass Buffer	$W_G = $ <input style="width: 50px;" type="text" value="20"/> ft
3. Length of Grass Buffer (14' or greater recommended)	$L_G = $ <input style="width: 50px;" type="text" value="442"/> ft
4. Buffer Slope (in the direction of flow, not to exceed 0.1 ft / ft)	$S_G = $ <input style="width: 50px;" type="text" value="0.007"/> ft / ft
5. Flow Characteristics (sheet or concentrated) A) Does runoff flow into the grass buffer across the entire width of the buffer? B) Watershed Flow Length C) Interface Slope (normal to flow) D) Type of Flow Sheet Flow: $F_L * S_i \leq 1$ Concentrated Flow: $F_L * S_i > 1$	Choose One <input type="checkbox"/> Yes <input type="checkbox"/> No $F_L = $ <input style="width: 50px;" type="text" value="465"/> ft $S_i = $ <input style="width: 50px;" type="text" value="0.030"/> ft / ft CONCENTRATED FLOW
6. Flow Distribution for Concentrated Flows	Choose One <input type="checkbox"/> None (sheet flow) <input type="checkbox"/> Slotted Curbing <input type="checkbox"/> Level Spreader <input checked="" type="checkbox"/> Other (Explain): Majority gravel surface. cross slope runoff to discharge onto grass buffer
7. Soil Preparation (Describe soil amendment)	_____ _____ _____
8. Vegetation (Check the type used or describe "Other")	Choose One <input checked="" type="checkbox"/> Existing Xeric Turf Grass <input type="checkbox"/> Irrigated Turf Grass <input type="checkbox"/> Other (Explain): _____ _____
9. Irrigation (*Select None if existing buffer area has 80% vegetation AND will not be disturbed during construction.)	Choose One <input type="checkbox"/> Temporary <input type="checkbox"/> Permanent <input checked="" type="checkbox"/> None*
10. Outflow Collection (Check the type used or describe "Other")	Choose One <input type="checkbox"/> Grass Swale <input type="checkbox"/> Street Gutter <input type="checkbox"/> Storm Sewer Inlet <input checked="" type="checkbox"/> Other (Explain): Sheet flows onto adjacent wetland
Notes: _____ _____ _____ _____	