

# STORMWATER MANAGEMENT PLAN

PIKE SOLAR  
EL PASO COUNTY, CO  
PPR-22-008

**Prepared for:**

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July 2022

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## **Project Description**

The following grading and erosion control report details the hydrologic assessment conducted for the proposed Pike Solar Project (the "Project"). The Project will be a 175 megawatt (MW) photovoltaic solar facility and up to 75 MW battery energy storage system consisting of photovoltaic modules aligned in arrays and affixed to a single-axis tracking system that will be constructed on an approximately 1,240-acre site in El Paso County, Colorado.

There are 3 stream crossings for the project. The first crosses Williams Creek west of Area 2. The second crosses an unnamed tributary north of Area 1 and south of Area 2. The third crosses the Williams Creek as well, east of Area 7 and west of Area 8. Each of the crossings will be constructed of concrete and no fill material will be placed in any of the streams. Temporary stream crossings will be used during construction, and then removed once the low water crossings are constructed. Refer to the Erosion and Sediment Control Measures section of this report for more information on Temporary Stream Crossings.

As shown on the Vicinity and Effective FIRM Panel Map in Appendix B, the project site lies just to the southeast of the City of Fountain and is bound by Squirrel Creek Road to the north, Hammer Road to the east, Hanover Road to the south, and Old Pueblo Road to the west (the "Site"). Specifically, the proposed Pike Solar project is located in Sections 1, 11, 12, 13, 14, 23, 24, 25, 26, 27, 35, and 36, Township 16 South, Range 65 West of the 6th Principal Meridian and Sections 6, 7, 18, 30, and 31, Township 16 South, Range 64 West of the 6th Principal Meridian, El Paso County, Colorado.

## **Existing Site Conditions**

The project is currently undeveloped with shortgrass prairies and rangelands covering the entire landscape. For this reason, the site has been primarily utilized for cattle grazing to date. Williams Creek and its tributaries weave in and out of the project boundary before exiting and flowing an additional 6 miles, before ultimately reaching its confluence with Fountain Creek. Since the site is situated towards the central portion of the Williams Creek drainage basin, the natural slopes range from 0.033 to 8.35 percent to include numerous ridges as well as more gently sloping overland flow paths.

The Project site is situated near the center of the Williams Creek subwatershed, and due to the configuration of the project, the majority of the on-site runoff enters Williams Creek before ultimately exiting the Project site. Still, the project site represents only a small portion of the total drainage area of Williams Creek, which ultimately discharges into Fountain Creek, with the total contributing area for runoff being approximately eight times greater than the total Project site area.

## **Soils**

The soils within the site vary throughout and include Ascalon Sandy Loam, Blendon Sandy Loam, Heldt Clay Loam, Midway Clay Loam, Nelson-Tassel Fine Sandy Loam, Olney Sandy Loam, Razor-Midway Complex, Ustic Torrifluvents, Wilid Silt Loam, Wiley Silt Loam, Fort Loam, Fort Sandy Loam, and Manzanola Silty Clay Loam. These soil types encompass hydrologic soil groups (HSGs) B, C, and D. Additional detail regarding the on-site soils can be found in the USDA Web Soil Survey report included in Appendix B. The Web Soil Survey also provides information on possible erosion potential using the wind erodibility group (WEG). A wind erodibility group (WEG) consists of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8

are the least susceptible. The soils at the project site WEG vary from 3 to 7 with the majority of the site being 4 or higher.

Existing cover at the site was estimated at 40%, as determined via aerial imagery inspection. Areas being stabilized with a vegetative cover will have evenly distributed perennial vegetation. The vegetation coverage will be equal to at least 70% of the existing cover throughout the site, through comparison with undisturbed reference sites established throughout the project area prior to construction.

## **Earthwork Areas and Volumes**

Earthwork for project will be split into eight different areas, each including grading activities for solar arrays, access roads, and channels. To minimize the area of disturbance grading for solar arrays will only take place in areas where the existing grade cannot sufficiently meet the solar arrays structural needs. Other construction activities will include concrete laid for low water crossings and pipe installed to allow 10-year minor storm events to pass beneath access roads.

The limits of construction encompass approximately 1,332 acres. The construction activities for Pike Solar will disturb approximately 169 acres for grading and other activities. The project is divided into 8 areas. The cut/fill for each area is as follows:

- Area 1
  - Cut: 4,432 CY
  - Fill: 4,432 CY
  - Total: 0 CY (Balanced)
- Area 2
  - Cut: 15,990 CY
  - Fill: 15,990 CY
  - Total: 0 CY (Balanced)
- Area 3
  - Cut: 12,022 CY
  - Fill: 12,022 CY
  - Total: 0 CY (Balanced)
- Area 4
  - Cut: 9,484 CY
  - Fill: 9,484 CY
  - Total: 0 CY (Balanced)
- Area 5/SUBSTATION
  - Cut: 10,000 CY
  - Fill: 10,000 CY
  - Total: 0 CY (Balanced)
- Area 6
  - Cut: 4,232 CY
  - Fill: 4,232 CY



- Total: 0 CY (Balanced)
- Area 7
  - Cut: 39,039 CY
  - Fill: 39,039 CY
  - Total: 0 CY (Balanced)
- Area 8
  - Cut: 4,308 CY
  - Fill: 4,308 CY
  - Total: 0 CY (Balanced)
- Total Site
  - Total Cut: 99,507 CY
  - Total Fill: 99,507 CY
  - Total: 0 CY (Balanced)

Final grades within the site will be stabilized once grading operations are complete. The Vicinity map is in Appendix A.

## **Erosion and Sediment Control Measures**

Several erosion and sediment control measures are being implemented as part of the proposed construction activities for the site. The structural erosion and sediment control practices for the site include the use of diversion ditches, sediment traps, sediment basins, silt fence, stabilized staging area, vehicle tracking control, concrete washout areas, and temporary stream crossings. Non-structural erosion and sediment control practices for the site include surface roughening and seeding and mulching of all disturbed areas. Installation of the erosion control measures shall conform to El Paso County Grading and Erosion Control Criteria.

The contractor will be responsible for maintaining the erosion and sediment control measures and repairing or replacing one or all the items if they should fail to function as intended. The QSM shall be required to inspect all erosion and sediment control facilities after each rainfall, snowmelt event that causes surface erosion or once every week, whichever is more frequent. Refer to the Grading and Erosion Control plans for Pike Solar for the location of all proposed grading and erosion control measures.

The QSM and contractor shall be responsible for keeping up to date records including inspection reports or any changes to the Erosion Control plans necessary due to site conditions. A suggested blank inspection form is provided in Appendix C.

### **Diversion Ditch**

Diversion ditches will be utilized throughout the site to divert runoff into different sediment basins. The contractor is responsible for removing excess sediment from the ditches.

### **Sediment Trap**

Sediment Traps will be used in low points of silt fence. The sediment traps collect the sediment and water and release the water over a riprap berm.

### **Sediment Basin**

Sediment deposits will be captured in the sediment basins with water quality features during the construction of site improvements. Sediment levels in the basin shall be monitored by the contractor after each rainfall event. The sediment basin shall be cleaned out as needed. The sediment removed from the basin shall be reused in site grading activities.

**Silt Fence**

Silt fence barriers will be installed along the contour of slopes so that it intercepts sheet flow. Silt Fence installed for perimeter control should be installed in a way that will not produce concentrated flows. Silt fences will be staked into place at no more than 10-foot increments, with the stakes on the down-slope side of the fence fabric. The stakes will extend approximately 18 inches below the ground surface, depending on site conditions. The toe of the fence will be buried under soil or gravel to keep sediments from being washed under the silt fencing. In areas where silt fence runs along a slope greater than 5% J-hooks will be installed. Silt Fences shall be maintained and repaired on a regular schedule, and any silt collected shall be removed and reused in site grading activities.

**Sediment Control Log**

A sediment control log is a circular bundle of materials which allow for sediment to deposit, while allowing water to pass over and through. Sediment will deposit in or upstream of the sediment control log.

**Stabilized Staging Area**

The Stabilized Staging Areas will be used for a parking, storage, unloading, loading and chemical storage, if necessary, during construction of the infrastructure and solar arrays. The stabilized staging areas will be used through construction. The laydown yard/storage yard shall consist of compacted gravel. Following project construction completion gravel will be scraped and redistributed throughout the site access roads.

**Vehicle Tracking Control**

Vehicle tracking control facilities shall be installed at each entrance/exit from the site to remove loose soil from construction equipment tires, and to prevent the accumulation of soils onto existing streets adjacent to the site. The control pads will consist of 3"-6" angular, dense, and durable stone. It shall be the responsibility of the contractor to remove any soil that is tracked onto the existing streets daily.

**Concrete Washout Area**

A Concrete Washout is an on-site area which is a shallow excavation with a small perimeter berm to isolate concrete truck washout operations. Concrete Washout Areas will be located within or adjacent to the stabilized staging area for selected solar generation areas. Concrete Washout Area must be in place prior to commencement of concrete activities.

**Temporary Stream Crossing**

A temporary stream crossing consists of a riprap layer or culverts covered with riprap to allow construction equipment to cross a stream. In either case, excavation of the existing channel banks is not allowed and, in general, disturbance is to be kept to a minimum.

**Temporary and Permanent Seeding**

Seeding shall be applied to all disturbed areas after all grading activities have ended. A proper seed mix shall be used for the site. If newly seeded areas need to be temporarily protected, a cover of mulch can provide protection for areas that will not require temporary vegetation. Areas

that have been seeded can be covered with mulch or an appropriate rolled erosion control product to promote establishment of vegetation. Ancor mulch by crimping, netting or use of a non-toxic tackifier or other appropriate spray on product can be used if windy conditions exist.

## Potential Pollutant Sources

The following potential pollutant sources which may reasonably be expected to affect the quality of stormwater discharges have been evaluated for the project.

- All disturbed and stored soils (from grading, excavating, stockpiling, etc.): See Erosion and Sediment Control Measures section of this report.
- Vehicle tracking of sediments (onto adjacent paved surfaces): See Erosion and Sediment Control Measures section of this report.
- Management of contaminated soils: Contaminated soils may occur during construction. Contaminated materials, soils, etc. shall be cleaned-up and placed in a sealed, leak-proof container and disposed of in accordance with local requirements.
- Loading and unloading operations: Designating areas (e.g., SSA) for loading and unloading; loading and unloading of materials in a manner to reduce the likelihood of spills; providing spill kits and determining appropriate measures to mitigate spills for the delivery of materials and supplies that cannot be made in the construction materials storage areas. In the event of a spill or discharge of any hazardous materials the contractor shall contact the GEC manager and if applicable contact the following agencies within twenty-four hours.
  - El Paso County Dispatch at 719-520-6460
  - Colorado Environmental Release and Incident Reporting Line (877) 518-5608
  - EPA Region 8 Emergency Response Spill Report Line (303) 293-178
  - National Response Center at (800) 424-8802
  - If the hazardous condition involves the release of an EPA regulated material or an oil as defined by the EPA, the release may also need to be reported to the National Response Center. Federal Reporting is required within 15 minutes of event occurrence or discovery. Contact the National Response Center at (800) 424-8802. The NRC is staffed twenty-four hours a day. For more information reference the following website: <https://www.epa.gov/emergency-response/when-are-you-required-report-oil-spill-and-hazardous-substance-release>
- Outdoor storage activities (erodible construction materials, fertilizers, chemicals, etc.): Storing fertilizers or chemicals on-site in the construction materials storage area; storing project materials in the construction materials storage area (i.e., SSA); containing the SSA (with, for example, silt fence and/or sediment control logs); etc.
  - Bulk (55 gallons or greater) storage for petroleum products and other liquid chemicals shall not occur on site.
- Vehicle and equipment maintenance and fueling: Construction equipment shall not have leaking fluid or hydraulic hoses; and fueling equipment shall have automatic shut-off valves to prevent overfilling and potential spills. Bulk storage of petroleum products and other liquid chemicals shall have secondary containment, or equivalent protection.
- Significant dust or particulate generating processes (e.g., saw cutting material, including dust): Periodically spraying stockpiles of stripped materials with water or a crusting agent to stabilize potentially wind-blown material; tarping trucks hauling import fill materials to control airborne dust; suspending or limiting construction activity during high wind events (20 to 30 MPH sustained) if dust cannot be controlled by wetting or similar means; etc.

- Routine maintenance activities involving fertilizers, pesticides, herbicides, detergents, fuels, solvents, oils, etc.: Designating areas (e.g., SSA) for maintenance activities involving potential pollutants that could spill; storing liquids and chemicals in secondary containment; training personnel in the proper use and storage of materials.
- On-site waste management practices (waste piles, liquid wastes, dumpsters, etc.) Waste disposal bins shall be visually inspected for leaks and overflowing capacity periodically as part of routine inspections. Waste disposal bins should be emptied when full and overfilling should be avoided. It is suggested that bins be emptied at a regular interval and supplemented as necessary.
- Concrete truck/equipment washing, including washing of the concrete truck chute and associated fixtures and equipment.: See Erosion and Sediment Control Measures section of this report.
- Dedicated asphalt, concrete batch plants and masonry mixing stations: No asphalt or concrete batch plants or masonry mixing stations are planned for use. If masonry mixing stations are used for retaining wall construction, they will be contained with silt fence, sediment control logs, or similar sediment control measures.
- Portable toilets will be located a minimum of 10ft from stormwater inlets and 50ft from state waters. They will be secured at all four corners to prevent overturning and cleaned on a weekly basis. They will be inspected daily for spills.

Non-industrial waste sources such as worker trash and portable toilets: Keeping the construction site clean and orderly; routine disposal of trash, construction site wastes, sanitary wastes, etc.; recycling or disposing of materials and/or fluids properly; providing waste disposal receptacles at the site and requiring that construction trash, debris, and wastes be disposed of in a proper manner; personnel training in good housekeeping practices; securing portable toilets to the ground to prevent tipping and locating away from waterways; etc.

## Non-Stormwater Discharges

The following is a summary of non-stormwater discharges. They are allowable if they have appropriate control measures (CMs).

- Discharges from uncontaminated springs that do not originate from an area of land disturbance. **Not anticipated for the project.**
- Discharges to the ground of concrete washout water associated with the washing of concrete tools and concrete mixer chutes. Discharges of concrete washout water must not leave the site as surface runoff or reach receiving waters as defined by the Permit. **Not anticipated for the project.**
- Discharges of landscape/agricultural irrigation return flow. **Not anticipated for the project.**
- Groundwater and/or stormwater dewatering practices. **Not anticipated for this project.**

## Timing/Phasing Schedule

Prior to the start of the grading activities, all erosion and sediment control practices outlined on the initial GEC plans will be installed. All other erosion and sediment control practices will be installed as required after grading and construction has begun. Once the grading activities are complete, all applicable final BMP's will be installed. Construction will commence in September 2022 or as soon as possible with the civil component ending in September 2023 for the project only, and a revised or new GEC will be required for activities associated with other construction

activities. Refer to the El Paso County GEC Manual for Initial and Final close-out information. Initial BMP's will be installed prior to the start of grading operations. Final BMP's will be installed after all site construction is installed.

After construction has been completed and proper vegetation has been established in accordance with the GEC plans, then all temporary BMPs shall be removed. The initial close-out inspection from the El Paso County GEC inspector shall be requested.

## **Permanent Stabilization**

All disturbed areas that are inactive for more than 14 days must be either temporarily or permanently stabilized. Permanent stabilization of land disturbed by construction activities must be accomplished after completion of construction. All areas on-site will be seeded with permanent seed mix. Application of the approved seed mix will be performed by the approved methods in the El Paso County GEC Manual.

Final vegetation coverage will be equal to at least 70% of the existing pre-disturbed cover throughout the site.

## **Stormwater Management Considerations**

Runoff will travel through the site by following the existing drainage patterns. Stormwater runoff velocities during construction must be controlled in areas of disturbed soil surface. Measures around the site are needed to control velocities such as: silt fence at the down slope of newly graded areas.

## **Maintenance**

The GEC Manager shall plan, install, and maintain all erosion control measures as indicated on the GEC plan as necessary to prevent sediment deposition off-site. The GEC Manager is responsible for cleanup of sediment or construction debris tracked onto adjacent paved areas. Paved areas are to be kept clean throughout build-out and shall be cleaned with a street sweeper or a similar device at first notice of accidental tracking or at the discretion of the El Paso County GEC inspector. All erosion and sediment control measures will be cleaned and repaired as outlined in the standard notes and details, which can be found on the GEC plans. No special maintenance requirements are needed at this time.

## **Opinion of Probable Cost for Installation of BMP's**

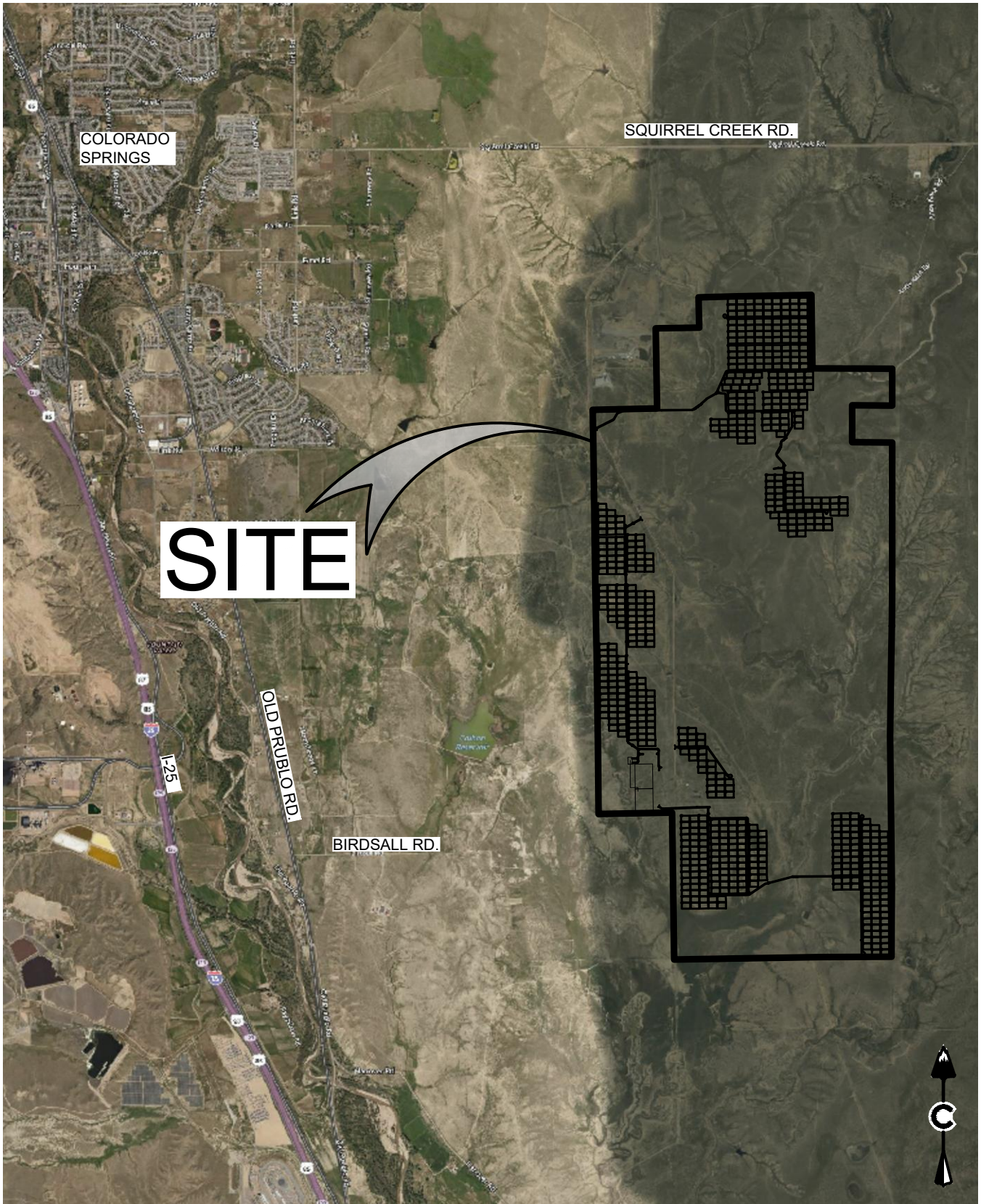
The estimated cost for the erosion control BMPs is included in Appendix B.

## **Notes**

1. The SWMP should be viewed as a "living document" that can be continuously reviewed and modified as a part of the overall process of evaluating and managing stormwater quality issues at the site. The QSM shall amend the SWMP when there is a change in design, construction, O&M of the site which would require the implementation of new or revised BMPs or if the SWMP proves to be ineffective in achieving the general objectives of controlling pollutants in SW discharges associated with construction activity or when BMPs are no longer necessary and are removed.
2. The project does not rely on control measures owned or operated by another entity.

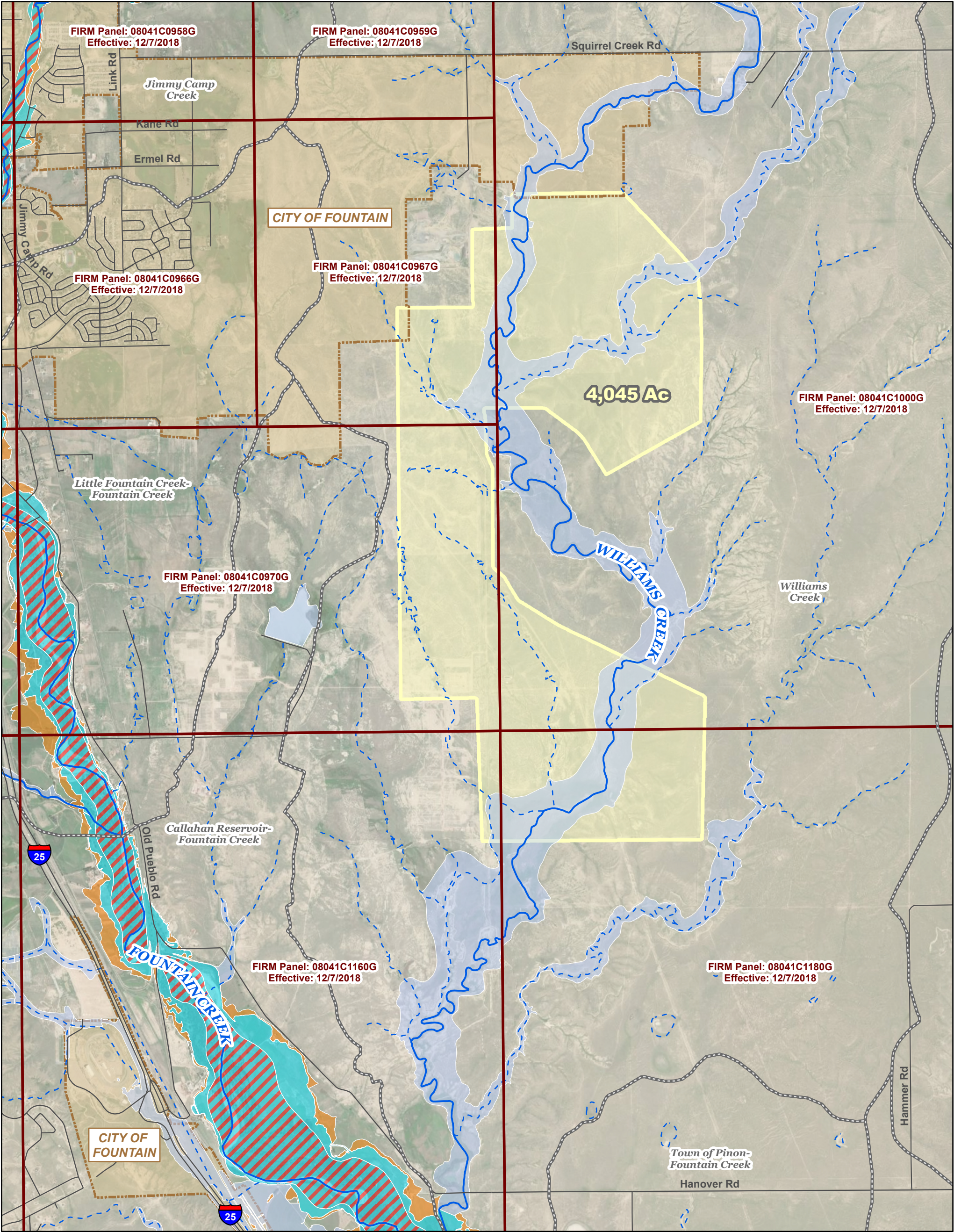
**Appendix A**  
VICINITY MAP  
FIRM MAP  
SOILS MAP





3/29/2021 8:16 AM X:\20-194\PIKE SOLAR\CH\LOCAL\HEBTS\021-02-26 VICINITY MAP\VICINITY MAP.DWG





# Pike Solar Development

## Vicinity and Effective FIRM Map

El Paso County, CO

0 2,500 5,000 10,000 Feet

1:40,000

Project #: 20-194  
Date: 3/4/2021



### Legend

- Project Site
- City Limits
- Road
- Watershed (12-digit HUC)
- FEMA Flowline**
  - Major Stream
  - Minor Tributary

FEMA FIRM Panel

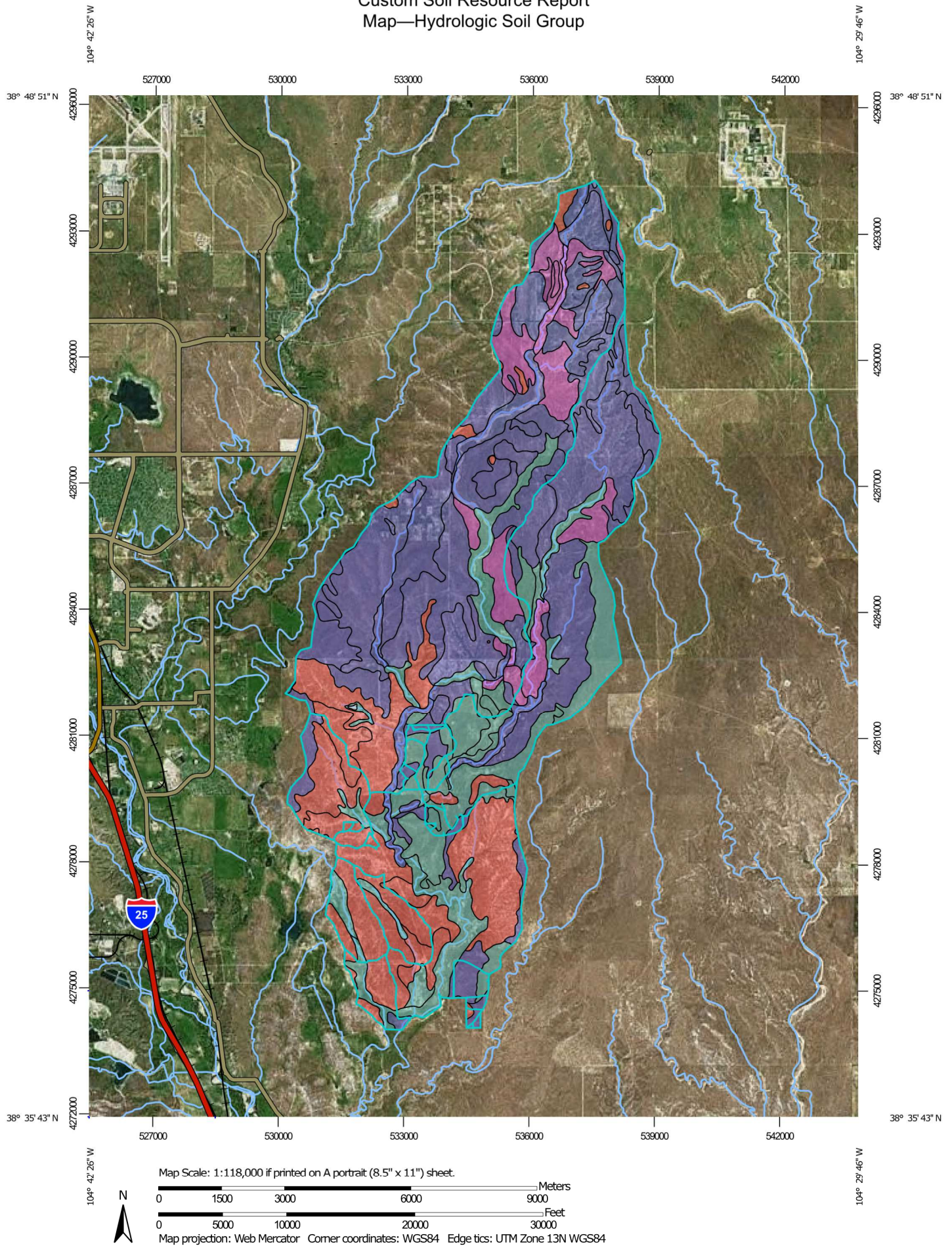
### FEMA Flood Hazard Area

- 0.2% Annual Chance Flood Hazard (Zone X)
- 1% Annual Chance Flood Hazard (Zone A)
- 1% Annual Chance Flood Hazard with BFEs (Zone AE)
- Regulatory Floodway

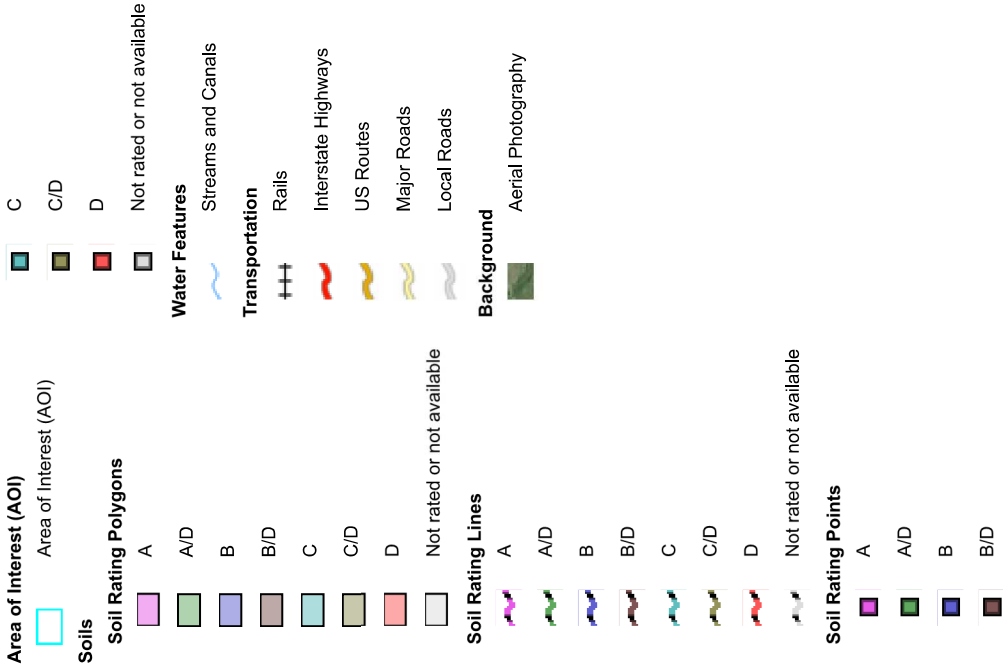


# Custom Soil Resource Report

## Map—Hydrologic Soil Group



MAP LEGEND



MAP INFORMATION

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

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 18, Jun 5, 2020

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

Date(s) aerial images were photographed: Apr 12, 2017—May 26, 2019

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.

**Table—Hydrologic Soil Group**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
2	Ascalon sandy loam, 1 to 3 percent slopes	B	223.1	1.0%
3	Ascalon sandy loam, 3 to 9 percent slopes	B	48.3	0.2%
10	Blendon sandy loam, 0 to 3 percent slopes	B	28.3	0.1%
28	Ellicott loamy coarse sand, 0 to 5 percent slopes	A	138.9	0.6%
30	Fort Collins loam, 0 to 3 percent slopes	B	193.6	0.8%
31	Fort Collins loam, 3 to 8 percent slopes	B	122.2	0.5%
33	Heldt clay loam, 0 to 3 percent slopes	C	495.8	2.2%
39	Keith silt loam, 0 to 3 percent slopes	C	827.0	3.6%
52	Manzanst clay loam, 0 to 3 percent slopes	C	784.1	3.4%
54	Midway clay loam, 3 to 25 percent slopes	D	1,959.9	8.5%
56	Nelson-Tassel fine sandy loams, 3 to 18 percent slopes	B	3,416.0	14.9%
61	Olney sandy loam, 3 to 8 percent slopes	B	50.6	0.2%
70	Pits, gravel	A	0.8	0.0%
73	Razor clay loam, 3 to 9 percent slopes	D	200.9	0.9%
75	Razor-Midway complex	D	2,779.2	12.1%
78	Sampson loam, 0 to 3 percent slopes	B	123.9	0.5%
84	Stapleton sandy loam, 8 to 15 percent slopes	B	68.2	0.3%
86	Stoneham sandy loam, 3 to 8 percent slopes	B	280.8	1.2%
89	Tassel fine sandy loam, 3 to 18 percent slopes	D	30.5	0.1%
96	Truckton sandy loam, 0 to 3 percent slopes	A	35.1	0.2%
101	Ustic Torrifluvents, loamy	B	718.5	3.1%
102	Valent sand, 1 to 12 percent slopes, dry	A	73.7	0.3%
104	Vona sandy loam, warm, 0 to 3 percent slopes	A	841.6	3.7%

## Custom Soil Resource Report

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
105	Vona sandy loam, warm, 3 to 6 percent slopes	A	960.4	4.2%
107	Wilid silt loam, 0 to 3 percent slopes	C	1,071.4	4.7%
108	Wiley silt loam, 3 to 9 percent slopes	B	4,642.7	20.2%
111	Water		4.6	0.0%
116	Udic Haplusterts	D	7.0	0.0%
118	Fort loam, 1 to 5 percent slopes, cool	C	471.3	2.1%
119	Fort sandy loam, 1 to 8 percent slopes, cool	B	938.2	4.1%
120	Fort sandy loam, 8 to 15 percent slopes, cool	B	44.7	0.2%
125	Oldest sandy loam, 3 to 8 percent slopes	B	574.6	2.5%
HeA	Chromic Haplotorrerts, 0 to 1 percent slopes, ponded	D	6.3	0.0%
MzA	Manzanola silty clay loam, saline, 0 to 2 percent slopes	C	778.6	3.4%
<b>Totals for Area of Interest</b>			<b>22,941.3</b>	<b>100.0%</b>

### Rating Options—Hydrologic Soil Group

*Aggregation Method:* Dominant Condition

*Component Percent Cutoff:* None Specified

*Tie-break Rule:* Higher

## **Appendix B**

### FINANCIAL ASSURANCE



2022 Financial Assurance Estimate Form  
(with pre-plat construction)

Updated: Section 1 only from 11/4/21 version

PROJECT INFORMATION			
Pike Solar	7/17/2022	PPR-22-008	
Project Name	Date	PCD File No.	

Description	Quantity	Units	Unit Cost		Total	(with Pre-Plat Construction) % Complete	Remaining
SECTION 1 - GRADING AND EROSION CONTROL (Construction and Permanent BMPs)							
* Earthwork							
less than 1,000; \$5,300 min		CY	\$ 8.00	=	\$ -		\$ -
1,000-5,000; \$8,000 min		CY	\$ 6.00	=	\$ -		\$ -
5,001-20,000; \$30,000 min		CY	\$ 5.00	=	\$ -		\$ -
20,001-50,000; \$100,000 min		CY	\$ 3.50	=	\$ -		\$ -
50,001-200,000; \$175,000 min	99,507	CY	\$ 2.50	=	\$ 248,767.50		\$ 248,767.50
greater than 200,000; \$500,000 min		CY	\$ 2.00	=	\$ -		\$ -
* Permanent Seeding (inc. noxious weed mgmnt.)	169	AC	\$ 828.00	=	\$ 139,932.00		\$ 139,932.00
* Mulching		AC	\$ 831.00	=	\$ -		\$ -
* Permanent Erosion Control Blanket		SY	\$ 7.00	=	\$ -		\$ -
* Permanent Pond/BMP Construction		CY	\$ 22.00	=	\$ -		\$ -
* Permanent Pond/BMP (provide engineer's estimate)		EA		=	\$ -		\$ -
		EA		=	\$ -		\$ -
Safety Fence		LF	\$ 3.00	=	\$ -		\$ -
Temporary Erosion Control Blanket	3,642	SY	\$ 3.00	=	\$ 10,926.00		\$ 10,926.00
Vehicle Tracking Control	7	EA	\$ 2,625.00	=	\$ 18,375.00		\$ 18,375.00
Silt Fence	53,581	LF	\$ 3.00	=	\$ 160,743.00		\$ 160,743.00
Temporary Seeding		AC	\$ 695.00	=	\$ -		\$ -
Temporary Mulch		AC	\$ 831.00	=	\$ -		\$ -
Erosion Bales		EA	\$ 28.00	=	\$ -		\$ -
Erosion Logs/Straw Waddle	416	LF	\$ 6.00	=	\$ 2,496.00		\$ 2,496.00
Rock Check Dams	21	EA	\$ 554.00	=	\$ 11,634.00		\$ 11,634.00
Inlet Protection		EA	\$ 185.00	=	\$ -		\$ -
Sediment Basin	4	EA	\$ 1,952.00	=	\$ 7,808.00		\$ 7,808.00
Concrete Washout Basin	3	EA	\$ 997.00	=	\$ 2,991.00		\$ 2,991.00
Diversion Ditch	1,205	LF	\$ 1.00	=	\$ 1,205.00		\$ 1,205.00
Rock Sock	96	LF	\$ 6.00	=	\$ 576.00		\$ 576.00
Sediment Traps	38	EA	\$ 300.00	=	\$ 11,400.00		\$ 11,400.00
Temporary Stream Crossings	3	EA	\$ 3,000.00		\$ 9,000.00		\$ 9,000.00
[insert items not listed but part of construction plans]				=	\$ -		\$ -
MAINTENANCE (35% of Construction BMPs)				=	\$ 83,003.90		\$ 83,003.90
* - Subject to defect warranty financial assurance. A minimum of 20% shall be retained until final acceptance (MAXIMUM OF 80% COMPLETE ALLOWED)							
Section 1 Subtotal				=	\$ 708,857.40		\$ 708,857.40
SECTION 2 - PUBLIC IMPROVEMENTS *							
NOTE: CORE Consultants had excel for 2021 version but not 2022 verions, 2021 version was updated for section for Pike Solar, other sections do not apply.							
ROADWAY IMPROVEMENTS							
Construction Traffic Control		LS		=	\$ -		\$ -
Aggregate Base Course (135 lbs/cf)		Tons	\$ 29.00	=	\$ -		\$ -
Aggregate Base Course (135 lbs/cf)		CY	\$ 52.00		\$ -		\$ -
Asphalt Pavement (3" thick)		SY	\$ 14.50		\$ -		\$ -
Asphalt Pavement (4" thick)		SY	\$ 20.00		\$ -		\$ -
Asphalt Pavement (6" thick)		SY	\$ 30.00		\$ -		\$ -
Asphalt Pavement (147 lbs/cf) _" thick		Tons	\$ 91.00	=	\$ -		\$ -
Raised Median, Paved		SF	\$ 8.30	=	\$ -		\$ -
Regulatory Sign/Advisory Sign		EA	\$ 311.00	=	\$ -		\$ -
Guide/Street Name Sign		EA		=	\$ -		\$ -
Epoxy Pavement Marking		SF	\$ 14.00	=	\$ -		\$ -
Thermoplastic Pavement Marking		SF	\$ 24.00	=	\$ -		\$ -
Barricade - Type 3		EA	\$ 207.00	=	\$ -		\$ -
Delineator - Type I		EA	\$ 25.00	=	\$ -		\$ -
Curb and Gutter, Type A (6" Vertical)		LF	\$ 31.00	=	\$ -		\$ -
Curb and Gutter, Type B (Median)		LF	\$ 31.00	=	\$ -		\$ -
Curb and Gutter, Type C (Ramp)		LF	\$ 31.00	=	\$ -		\$ -
4" Sidewalk (common areas only)		SY	\$ 50.00	=	\$ -		\$ -
5" Sidewalk		SY	\$ 62.00	=	\$ -		\$ -
6" Sidewalk		SY	\$ 75.00	=	\$ -		\$ -
8" Sidewalk		SY	\$ 99.00		\$ -		\$ -
Pedestrian Ramp		EA	\$ 1,190.00	=	\$ -		\$ -
Cross Pan, local (8" thick, 6' wide to include return)		LF	\$ 63.00	=	\$ -		\$ -
Cross Pan, collector (9" thick, 8' wide to include return)		LF	\$ 95.00		\$ -		\$ -
Curb Chase		EA	\$ 1,532.00	=	\$ -		\$ -
Guardrail Type 3 (W-Beam)		LF	\$ 51.00	=	\$ -		\$ -
Guardrail Type 7 (Concrete)		LF	\$ 75.00	=	\$ -		\$ -
Guardrail End Anchorage		EA	\$ 2,172.00	=	\$ -		\$ -
Guardrail Impact Attenuator		EA	\$ 3,899.00	=	\$ -		\$ -
Sound Barrier Fence (CMU block, 6' high)		LF	\$ 81.00		\$ -		\$ -

PROJECT INFORMATION							
Pike Solar		7/17/2022			PPR-22-008		
Project Name		Date			PCD File No.		

Description	Quantity	Units	Unit Cost		Total	(with Pre-Plat Construction)	
						% Complete	Remaining
Sound Barrier Fence (panels, 6' high)		LF	\$ 83.00	=	\$ -		\$ - *
Electrical Conduit, Size =		LF	\$ 17.00	=	\$ -		\$ - *
Traffic Signal, complete intersection		EA	\$ 439,875	=	\$ -		\$ - *
				=	\$ -		\$ -
[insert items not listed but part of construction plans]				=	\$ -		\$ - *
<b>STORM DRAIN IMPROVEMENTS</b>							
Concrete Box Culvert (M Standard), Size ( W x H )		LF		=	\$ -		\$ - *
18" Reinforced Concrete Pipe		LF	\$ 67.00	=	\$ -		\$ - *
24" Reinforced Concrete Pipe		LF	\$ 81.00	=	\$ -		\$ - *
30" Reinforced Concrete Pipe		LF	\$ 100.00	=	\$ -		\$ - *
36" Reinforced Concrete Pipe		LF	\$ 124.00	=	\$ -		\$ - *
42" Reinforced Concrete Pipe		LF	\$ 166.00	=	\$ -		\$ - *
48" Reinforced Concrete Pipe		LF	\$ 202.00	=	\$ -		\$ - *
54" Reinforced Concrete Pipe		LF	\$ 254.00	=	\$ -		\$ - *
60" Reinforced Concrete Pipe		LF	\$ 298.00	=	\$ -		\$ - *
66" Reinforced Concrete Pipe		LF	\$ 344.00	=	\$ -		\$ - *
72" Reinforced Concrete Pipe		LF	\$ 393.00	=	\$ -		\$ - *
18" Corrugated Steel Pipe		LF	\$ 87.00	=	\$ -		\$ - *
24" Corrugated Steel Pipe		LF	\$ 99.00	=	\$ -		\$ - *
30" Corrugated Steel Pipe		LF	\$ 126.00	=	\$ -		\$ - *
36" Corrugated Steel Pipe		LF	\$ 152.00	=	\$ -		\$ - *
42" Corrugated Steel Pipe		LF	\$ 174.00	=	\$ -		\$ - *
48" Corrugated Steel Pipe		LF	\$ 184.00	=	\$ -		\$ - *
54" Corrugated Steel Pipe		LF	\$ 269.00	=	\$ -		\$ - *
60" Corrugated Steel Pipe		LF	\$ 290.00	=	\$ -		\$ - *
66" Corrugated Steel Pipe		LF	\$ 352.00	=	\$ -		\$ - *
72" Corrugated Steel Pipe		LF	\$ 414.00	=	\$ -		\$ - *
78" Corrugated Steel Pipe		LF	\$ 476.00	=	\$ -		\$ - *
84" Corrugated Steel Pipe		LF	\$ 569.00	=	\$ -		\$ - *
Flared End Section (FES) RCP Size = (unit cost = 6x pipe unit cost)		EA		=	\$ -		\$ - *
Flared End Section (FES) CSP Size = (unit cost = 6x pipe unit cost)		EA		=	\$ -		\$ - *
End Treatment- Headwall		EA		=	\$ -		\$ - *
End Treatment- Wingwall		EA		=	\$ -		\$ - *
End Treatment - Cutoff Wall		EA		=	\$ -		\$ - *
Curb Inlet (Type R) L=5', Depth < 5'		EA	\$ 5,736.00	=	\$ -		\$ - *
Curb Inlet (Type R) L=5', 5' ≤ Depth < 10'		EA	\$ 7,440.00	=	\$ -		\$ - *
Curb Inlet (Type R) L=5', 10' ≤ Depth < 15'		EA	\$ 8,637.00	=	\$ -		\$ - *
Curb Inlet (Type R) L=10', Depth < 5'		EA	\$ 7,894.00	=	\$ -		\$ - *
Curb Inlet (Type R) L=10', 5' ≤ Depth < 10'		EA	\$ 8,136.00	=	\$ -		\$ - *
Curb Inlet (Type R) L=10', 10' ≤ Depth < 15'		EA	\$ 10,185.00	=	\$ -		\$ - *
Curb Inlet (Type R) L=15', Depth < 5'		EA	\$ 10,265.00	=	\$ -		\$ - *
Curb Inlet (Type R) L=15', 5' ≤ Depth < 10'		EA	\$ 11,005.00	=	\$ -		\$ - *
Curb Inlet (Type R) L=15', 10' ≤ Depth < 15'		EA	\$ 12,034.00	=	\$ -		\$ - *
Curb Inlet (Type R) L=20', Depth < 5'		EA	\$ 10,940.00	=	\$ -		\$ - *
Curb Inlet (Type R) L=20', 5' ≤ Depth < 10'		EA	\$ 12,075.00	=	\$ -		\$ - *
Grated Inlet (Type C), Depth < 5'		EA	\$ 4,802.00	=	\$ -		\$ - *
Grated Inlet (Type D), Depth < 5'		EA	\$ 5,932.00	=	\$ -		\$ - *
Storm Sewer Manhole, Box Base		EA	\$ 12,034.00	=	\$ -		\$ - *
Storm Sewer Manhole, Slab Base		EA	\$ 6,619.00	=	\$ -		\$ - *
Geotextile (Erosion Control)		SY	\$ 6.20	=	\$ -		\$ - *
Rip Rap, d50 size from 6" to 24"		Tons	\$ 83.00	=	\$ -		\$ - *
Rip Rap, Grouted		Tons	\$ 98.00	=	\$ -		\$ - *
Drainage Channel Construction, Size ( W x H )		LF		=	\$ -		\$ - *
Drainage Channel Lining, Concrete		CY	\$ 590.00	=	\$ -		\$ - *
Drainage Channel Lining, Rip Rap		CY	\$ 116.00	=	\$ -		\$ - *
Drainage Channel Lining, Grass		AC	\$ 1,520.00	=	\$ -		\$ -
Drainage Channel Lining, Other Stabilization				=	\$ -		\$ - *
				=	\$ -		\$ -
[insert items not listed but part of construction plans]				=	\$ -		\$ -
Section 2 Subtotal				=	\$ -		\$ -

\* - Subject to defect warranty financial assurance. A minimum of 20% shall be retained until final acceptance (MAXIMUM OF 80% COMPLETE ALLOWED)

PROJECT INFORMATION			
Pike Solar	7/17/2022	PPR-22-008	
Project Name	Date	PCD File No.	

Description	Quantity	Units	Unit Cost		Total	(with Pre-Plat Construction) % Complete	Remaining
SECTION 3 - COMMON DEVELOPMENT IMPROVEMENTS (Private or District and NOT Maintained by EPC)**							
ROADWAY IMPROVEMENTS							
				=	\$ -		\$ -
				=	\$ -		\$ -
				=	\$ -		\$ -
				=	\$ -		\$ -
				=	\$ -		\$ -
				=	\$ -		\$ -
STORM DRAIN IMPROVEMENTS (Exception: Permanent Pond/BMP shall be itemized under Section 1)							
				=	\$ -		\$ -
				=	\$ -		\$ -
				=	\$ -		\$ -
				=	\$ -		\$ -
				=	\$ -		\$ -
				=	\$ -		\$ -
				=	\$ -		\$ -
WATER SYSTEM IMPROVEMENTS							
Water Main Pipe (PVC), Size 8"		LF	\$ 66.00	=	\$ -		\$ -
Water Main Pipe (Ductile Iron), Size 8"		LF	\$ 78.00	=	\$ -		\$ -
Gate Valves, 8"		EA	\$ 1,923.00	=	\$ -		\$ -
Fire Hydrant Assembly, w/ all valves		EA	\$ 6,828.00	=	\$ -		\$ -
Water Service Line Installation, inc. tap and valves		EA	\$ 1,370.00	=	\$ -		\$ -
Fire Cistern Installation, complete		EA		=	\$ -		\$ -
				=	\$ -		\$ -
[insert items not listed but part of construction plans]				=	\$ -		\$ -
SANITARY SEWER IMPROVEMENTS							
Sewer Main Pipe (PVC), Size 8"		LF	\$ 66.00	=	\$ -		\$ -
Sanitary Sewer Manhole, Depth < 15 feet		EA	\$ 4,540.00	=	\$ -		\$ -
Sanitary Service Line Installation, complete		EA	\$ 1,451.00	=	\$ -		\$ -
Sanitary Sewer Lift Station, complete		EA		=	\$ -		\$ -
				=	\$ -		\$ -
[insert items not listed but part of construction plans]				=	\$ -		\$ -
LANDSCAPING IMPROVEMENTS (For subdivision specific condition of approval, or PUD)							
		EA		=	\$ -		\$ -
		EA		=	\$ -		\$ -
		EA		=	\$ -		\$ -
		EA		=	\$ -		\$ -
		EA		=	\$ -		\$ -
Section 3 Subtotal				=	\$ -		\$ -
** - Section 3 is not subject to defect warranty requirements							

\*\* - Section 3 is not subject to defect warranty requirements



PROJECT INFORMATION		
Pike Solar	7/17/2022	PPR-22-008
Project Name	Date	PCD File No.

Description	Quantity	Units	Unit Cost		Total	(with Pre-Plat Construction)	
						% Complete	Remaining
AS-BUILT PLANS (Public Improvements inc. Permanent WQCV BMPs)		LS		=	\$ -		\$ -
POND/BMP CERTIFICATION (inc. elevations and volume calculations)		LS		=	\$ -		\$ -
						Total Construction Financial Assurance	
						\$ 708,857.40	
						(Sum of all section subtotals plus as-builts and pond/BMP certification)	
						Total Remaining Construction Financial Assurance (with Pre-Plat Construction)	
						\$ 708,857.40	
						(Sum of all section totals less credit for items complete plus as-builts and pond/BMP certification)	
						Total Defect Warranty Financial Assurance	
						\$ 77,739.90	
						(20% of all items identified as (*). To be collateralized at time of preliminary acceptance)	

Approvals

I hereby certify that this is an accurate and complete estimate of costs for the work as shown on the Grading and Erosion Control Plan and Construction Drawings associated with the Project.

Engineer (P.E. Seal Required)

Approved by Owner / Applicant

Approved by El Paso County Engineer / ECM Administrator

Date

Date

Date

## **Appendix C**

### SELF-INSPECTION FORM

# CITY OF COLORADO SPRINGS

DATE/TIME:
INSPECTOR:
TYPE OF INSPECTION: Self-Monitoring_____
Initial _____ Compliance_____ Follow-Up_____
Reconnaissance_____ Complaint_____ Final_____

SITE:	DATE OF PERMIT:
ADDRESS:	
CONTRACTOR:	OWNER/OWNER'S REPRESENTATIVE:
CONTACT:	CONTACT:
PHONE:	PHONE:
STAGE OF CONSTRUCTION: Initial BMP Installation/Prior to Construction_____ Clearing & Grubbing_____	
Rough Grading_____ Finish Grading_____ Utility Construction_____ Building Construction_____	
Final Stabilization_____	

OVERALL SITE INSPECTION	YES/NO/N.A.	REMARKS/ACTIONS
Is there any evidence of sediment leaving the construction site? If so, note areas.		
Have any adverse impacts such as flooding, structural damage, erosion, spillage, or accumulation of sediment, debris or litter occurred on or within public or private property, wetlands or surface waters –to include intermittent drainageways and the City's stormwater system (storm sewers, gutters, ditches, etc.)?		
Are the BMPs properly installed and maintained?		
Have the BMPs been placed as shown on approved plans?		
Are the BMPs functioning as intended?		
Is work being done according to approved plans and any phased construction schedule?		
Is the construction schedule on track?		
Are drainage channels and outlets adequately stabilized?		
Is there any evidence of discharges or spills of fuels, lubricants, chemicals, etc.?		

<b>BMP MAINTENANCE CHECKLIST</b>	<b>YES/NO/N.A.</b>	<b>REMARKS/ACTIONS NECESSARY</b>
<b>CHECK DAM</b>  Has accumulated sediment and debris been removed per maintenance requirements?		
<b>EROSION CONTROL BLANKET</b>  Is fabric damaged, loose or in need of repairs?		
<b>INLET PROTECTION</b>  Is the inlet protection damaged, ineffective or in need of repairs?  Has sediment been removed per maintenance requirements?		
<b>MULCHING</b>  Distributed uniformly on all disturbed areas?  Is the application rate adequate?  Any evidence of mulch being blown or washed away?  Has the mulched area been seeded, if necessary?		
<b>SEDIMENT BASIN</b>  Is the sediment basin properly constructed and operational?  Has sediment and debris been cleaned out of the basin?		
<b>SILT FENCE</b>  Is the fence damaged, collapsed, unentrenched or ineffective?  Has sediment been removed per maintenance requirements?  Is the silt fence properly located?		
<b>SLOPE DRAIN</b>  Is water bypassing or undercutting the inlet or pipe?  Is erosion occurring at the outlet of the pipe?		
<b>STRAW BALE BARRIER</b>  Are the straw bales damaged, ineffective or unentrenched?  Has sediment been removed per maintenance requirements?  Are the bales installed and positioned correctly?		

BMP MAINTENANCE CHECKLIST	YES/NO/N.A.	REMARKS/ACTIONS NECESSARY
<p><b>SURFACE ROUGHENING</b></p> <p>Is the roughening consistent/uniform on slopes??</p> <p>Any evidence of erosion?</p>		
<p><b>TEMPORARY SEEDING</b></p> <p>Are the seedbeds protected by mulch?</p> <p>Has any erosion occurred in the seeded area?</p> <p>Any evidence of vehicle tracking on seeded areas?</p>		
<p><b>TEMPORARY SWALES</b></p> <p>Has any sediment or debris been deposited within the swales?</p> <p>Have the slopes of the swale eroded or has damage occurred to the lining?</p> <p>Are the swales properly located?</p>		
<p><b>VEHICLE TRACKING</b></p> <p>Is gravel surface clogged with mud or sediment?</p> <p>Is the gravel surface sinking into the ground?</p> <p>Has sediment been tracked onto any roads and has it been cleaned up?</p> <p>Is inlet protection placed around curb inlets near construction entrance?</p>		
<p><b>OTHER</b></p>		



## **Appendix D**

### GRADING AND EROSION CONTROL PLANS

To be added after  
approval