Grading, Erosion, and Sediment Control Report

Magellan Pipeline Company, L.P.

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Signatures

This *Grading, Erosion and Sediment Control (GESC)* document has been placed in the project file for this project and appears to fulfill the latest version of the *Grading, Erosion and Sediment Control Manual.* Additional grading, erosion and sediment Control Measures may be required of the owner or his/her agents, due to unforeseen erosion problems or if the submitted plan does not function as intended. The requirements of this GESC document shall run with the land and be the obligation of the land owner, or his/her designated representative(s) until such time as the plan is properly completed, modified or voided.

I hereby certify that the Grading, Erosion, and Sediment Control Measures for the Denver Expansion Project shall be constructed according to the design presented in this document. I understand that additional erosion control, sediment control and water quality enhancing measures may be required of the owner and his or her agents due to unforeseen pollutant discharges or if the submitted plan does not function as intended. The requirements of the plan shall be the obligation of the land owner and/or his successors or heirs; until such time as the plan is properly completed, modified or voided.

Owner or Authorized Agent __Erin Jennings_____

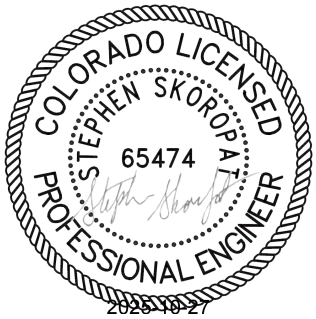
Authorized Signature ___Erin Jennings_____

I hereby attest that this Grading, Erosion, and Sediment Control document for (of subdivision/development) has been prepared by me or under my direct supervision, and to the best of my knowledge and ability has been prepared in accordance with the latest version of the GESC Manual. The signature and stamp affixed hereon certifies that this GESC document was prepared in accordance with the required regulations and criteria; however, the stamp and signature does not certify or guarantee future performance of the execution of the plan by the contractor. The contractor is responsible for executing the construction work according to the information set forth in the plan and in accordance with all applicable requirements.

Registered Professional Engineer __Stephen Skoropat_____

State of Colorado No.___65474_____

Affix Seal w/date__10/24/2025



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1 Project Description

The Denver Expansion Project (Project) consists of the installation of approximately 238 miles of new buried pipeline of varying diameter (i.e., 10-inch and 16-inch) that will be utilized to transport various transportation fuels, including aviation and sustainable aviation fuel from Scott City, Kansas to the Denver International Airport in Colorado. Of the 238 miles of pipeline, approximately 33 miles traverse Arapahoe County (the latitude and longitude of the approximate center of the Project in Arapahoe County is 39.655548°, -104.351789°). The Project also involves the installation of several aboveground rupture mitigation valves (RMVs) and trap facilities along the new pipeline.

Construction of the Project is estimated to disturb a total of 389 acres within Arapahoe County. Project construction will follow a conventional pipeline process, which progresses linearly along the right-of-way. Construction is anticipated to start with staking, clearing and grading, followed by trenching, stringing, and backfilling. Construction will be conducted to minimize the amount of time a trench is kept open. Following the completion of backfilling, the area will be restored. Temporary erosion control and stabilization measures will be implemented throughout construction and maintained until final stabilization is achieved. Following construction, a 30-foot-wide and 50-foot-wide permanent easement along the 10-inch-diamter pipeline and 16-inch diameter pipeline, respectively, will be retained. Operational impacts on land use will be limited to those areas associated with small aboveground facilities (e.g., RMV and pipeline junction sites) and the occasional mowing of the permanent pipeline right-of-way. There will be no proposed change in the existing zoning (Agricultural-1, Agricultural Estate, and Mixed Use).

Magellan Pipeline Company, L.P. (the Applicant), a subsidiary of ONEOK, Inc, intends to begin construction in December 2025, and complete construction by mid-2026.

2 Existing Site Conditions

2.1 Topography, Vegetation and Drainage of Project Location

The topography of the Project area consists of flat to gently rolling hills. Based on field surveys conducted by Perennial Environmental Services, LLC (Perennial) between July 2024 to September 2024, the dominant vegetation within the Project area in Arapahoe County consists of alfalfa (*Medicago sativa),* alyssum (*Alyssum simplex*), American licorice (*Glycyrrhiza lepidota*), American plum (*Prunus americana*), annual rabbitsfoot grass (*Polypogon monspeliensis*), arcuate barley (*Hordeum jubatum*), barnyardgrass (*Echinochloa crus-galli*), bigbract verbena (*Verbena bracteate*), broomcorn millet (*Panicum miliaceum*), buffalograss (*Bouteloua dactyloides*), burning bush (*Bassia scoparia*), Canada bluegrass (*Poa compressa*), Canada cocklebur (*Xanthium strumarium*), Canadian horseweed (*Erigeron canadensis*), Canadian thistle (*Cirsium arvense*), cereal rye (*Secale cereale*), cheatgrass (*Bromus tectorum*), common mullein (*Verbascum thaspus*), common oat (*avena sativa*), common plantain (*Plantago major*), common spikerush (*Eleocharis palustris*), common sunflower (*Helianthus annuus*), common threesquare (*Schoenoplectus pungens*), common wheat (*Tricticum aestivum*), corn (*Zea mays*), corn brome (*Bromus squarrosus*), crested wheatgrass (*Agropyron cristatum*), Cuman ragweed (*Ambrosia psilostachya*), curly dock (*Rumex crispus*), curlycup gumweed (*Grindelia squarrosa*), eastern cottonwood (*Populus deltoides*), field bindweed (*convolvulus arvensis*), green needlegrass (*Nassella viridula*), hairy evening primrose (*Oenothera villosa*), hairy false goldenaster (*Heterotheca villosa*), hoary tansyaster (*Dieteria canescens*), Idaho fescue (*Festuca idahoensis*), Indian ricegrass (*Achnatherum hymenoides*), intermediate wheatgrass (*Thinopyrum intermedium*), Kentucky bluegrass (*Poa pratensis*), lambsquarters (*Chenopodium album*), lemon scurfpea (*Psoralidium lanceolatum*), mat sandbur (*Cenchrus longispinus*), narrowleaf dock (*Rumex stenophyllus*), needle and thread (*Hesperostipa comata*), nodding plumeless

thistle (*Carduus nutans*), peachleaf willow (*Salix amygdaloides*), Pennsylvania smartweed (*Persicaria bicornis*), pitseed goosefoot (*Chenopodium berlandieri*), plains pricklypear (*Opuntia polyacantha*), Powell's amaranth (*Amaranthus retroflexus*), prairie sunflower (*Helianthus petiolaris*), prickly Russian thistle (*Salsola tragus*), prostate pigweed (*Amaranthus albus*), puncturevine (*Tribulus terrestris*), purple threeawn (*Aristida purpurea*), quackgrass (*Elymus repens*), redtop (*Agrostis gigantea*), Rocky Mountain juniper (*Juniperus scopulorum*), sand dropseed (*Sporobolus cryptandrus*), sand sagebrush (*Artemisia filifolia*), Scotch cottonthistle (*Onopordum acanthium*), sideoats grama (*Bouteloua curtipendula*), slender Russian thistle *(Salsola collina*), slimflower scurfpea (*Psoralidium tenuiflorum*), smooth brome (*Bromus inermis*), soapweed yucca (*Yucca glauca*), spreading fleabane (*Erigeron divergens*), sweetclover (*Melilotus officinalis*), tall wheatgrass (*Thinopyrum ponticum*), threadleaf snakeweed (*Gutierrezia sarothrae*), Torrey's rush (*Juncus torreyi*), upright prairie coneflower (*Ratibidia columnifera*), velvety goldenrod (*Solidago mollis*), Virginia wild rye (*Elymus virginicus*), western snowberry (*Symphoricarpos occidentalis*), western wheatgrass (*Pascopyrum smithii*), white prairie clover (*Dalea candida*), and white sagebrush (*Artemisia ludoviciana).*

According to the FEMA National Flood Hazard Layer Viewer (2024) the majority of the Project is located within Zone X, which is defined as an area of minimal flood hazard. Approximately 2.27 miles of the Project is located within a 100-year floodplain (Zone AE or Zone A). Additionally, the Projects crosses 25 drainages that meet Arapahoe County's definition of a floodplain. Installation of the new pipeline will not affect the floodplains crossed by the Project, as it will be installed subsurface. The entirety of the Project workspace, including areas located within floodplains, will be returned to pre-existing conditions following completion of construction. All permanent aboveground components proposed for the Project (i.e., the RMVs, pipeline junction site, and associated permanent access roads) are located outside of the 100-year floodplains. Therefore, there will be no permanent impacts or net effects to floodplains as a result of the Project and the Project is not expected to be impacted by flash flooding. The locations of the floodplains and associated waterbodies are provided on Project mapping in Attachment C1.

2.2 Wetlands

The Project's wetland and waterbody impacts subject to Section 404 of the Clean Water Act qualify for coverage under the USACE's Nationwide Permit program without pre-construction notification. In addition, the Project qualifies for a general Section 401 Water Quality Certification from the Colorado Department of Public Health and Environment.

A wetland delineation was conducted by Perennial Environmental Services, LLC (Perennial) from July 2024 to September 2024 in accordance with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region* (Version 2.0) and the routine determination guidelines provided in the U.S. Army Corps of Engineers *Wetland Delineation Manual* (Technical Report Y-87-1). Five palustrine emergent (PEM) wetlands and one palustrine forested (PFO) wetland were identified within the Project workspace. One wetland (WP6003_PEM) will be crossed via bore, thereby minimizing impacts to that feature, three wetlands will be open-cut, and two wetlands are located in the workspace only and will not be crossed by the proposed pipeline.

2.3 Waterbodies

Waterbodies were identified through the field delineations conducted by Perennial between July 2024 to September 2024. A total of 27 waterbodies will be crossed by the Project, of which 11 will be crossed via conventional bore, thereby minimizing impacts to those waterbodies, and 16 waterbodies will be open cut. Mapping exhibits identifying the location of surface waterbodies crossed by the Project are depicted on the Project mapping in Attachment C1. Construction Control Measures (CMs) for waterbody crossings are discussed in Section 4 of this GESC and referenced on the plans.

2.4 Floodplains

According to the FEMA National Flood Hazard Layer Viewer (2024), the majority of the Project is located within Zone X, which is defined as an area of minimal flood hazard. Additionally, approximately 2.27 miles of the Project is located within a 100-year floodplain (Zone AE or Zone A).

The Project also crosses 25 drainages that meet Arapahoe County's definition of a floodplain. The crossing method and installation depth beneath each of these floodplains are provided in Table 2.4-1 below.

Table 2.4-1
Floodplains crossed the Denver Expansion Project Area

Floodplain	Approximate Milepost	Proposed Crossing Method	Installation Depth (feet)	Crossing Length (feet)
100-Year Floodplain (Zone A)	416.6	Open Cut	4	1,355
County Floodplain	417.0	Open Cut	4	106
County Floodplain	418.0	Open Cut	4	469
		Bore	>4	117
County Floodplain	418.3	Open Cut	4	37
		Bore	>4	99
County Floodplain	419.4	Open Cut	4	82
County Floodplain	419.5	Open Cut	4	96
		Bore	>4	137
County Floodplain	421.1	Open Cut	4	111
County Floodplain	421.2	Open Cut	4	112
County Floodplain	423.2	Open Cut	4	599
County Floodplain	423.5	Open Cut	4	154
County Floodplain	424.6	Open Cut	4	884
100-Year Floodplain (Zone A)	426.2; 426.6	Open Cut	4	1,540
County Floodplain	427.1	Open Cut	4	116
County Floodplain	428.5	Open Cut	4	190

Floodplain	Approximate Milepost	Proposed Crossing Method	Installation Depth (feet)	Crossing Length (feet)
County Floodplain	428.8	Open Cut	4	152
County Floodplain	429.0	Open Cut	4	676
100-Year Floodplain (Zone A)	430.1	Open Cut	4	411
County Floodplain	430.6	Open Cut	4	230
		Bore	>4	29
100-Year Floodplain (Zone A)	431.7	Bore	>4	383
		Open Cut	4	1,493
County Floodplain	432.3	Open Cut	4	215
100-Year Floodplain (Zone A)	433.4	Bore	>4	530
		Open Cut	4	1,186
County Floodplain	435.1	Open Cut	4	72
County Floodplain	435.2	Open Cut	4	63
100-Year Floodplain (Zone A)	437.2; 437.48	Bore	>4	211
		Open Cut	4	1,142
County Floodplain	439.3	Open Cut	4	69
County Floodplain	440.2	Open Cut	4	130
		Bore	>4	58
County Floodplain	441.3	Open Cut	4	231
County Floodplain	441.9	Open Cut	4	86
County Floodplain	442.5	Open Cut	4	380
100-Year Floodplain (Zone AE)	444.0	Open Cut	4	940
100-Year Floodplain (Zone AE)	444.1	Open Cut	4	566
County Floodplain	445.2	Open Cut	4	374

Floodplain	Approximate Milepost	Proposed Crossing Method	Installation Depth (feet)	Crossing Length (feet)
100-Year Floodplain (Zone AE)	447.3	Bore	>4	120
		Open Cut	4	105
100-Year Floodplain (Zone A)	447.7	Bore	>4	1,103
		Open Cut	4	
County Floodplain	448.2	Open Cut	4	27

The Applicant will obtain a Floodplain Development Permit, requiring an engineer's Certification of No Impact, for Project activities located within these floodplains prior to construction.

No spoil will be placed within the floodway, all fuel will be stored at least 100 feet from any waterbody or wetland, refueling will not occur within 100 feet of a waterbody or wetland, and all boring equipment, stationary equipment, and any equipment carrying more than 115 gallons of fuel will be equipped with spill kits. Further, the Applicant will implement its SPCC Plan during construction to minimize the potential for releases of hazardous materials (Attachment C2).

2.5 Adjacent Areas

An analysis performed by Perennial determined land crossed by the Project within Arapahoe County is currently zoned for Agriculture-1, Agricultural Estate, and Mixed Use. A total of 0.52 mile of the Project in Arapahoe County will cross property owned by the Colorado State Land Board from MP 433.87 to MP 434.39 and a total of 2.17 miles will cross Arapahoe County public land from MP 425.17 to MP 427.34.

2.6 Soils

Perennial performed an analysis of the soils within the Project area. The potential for soil erosion caused by water is a concern in the construction and operation of the Project. During construction, some existing vegetation will be removed, and some soils will be temporarily destabilized, increasing the potential for erosion. Such erosion is strongly related to the permeability of a soil and to the cohesion of the soil particles that comprise a soil. Other soil properties that influence water erosion include soil texture, percent organic matter, soil structure, and soil infiltration capacity. Soils containing high proportions of silt and very fine sand are the most erodible types, whereas well drained and well graded gravels and gravel-sand mixtures with little or no silt are the least erodible. Erosion is also influenced by the slope length and gradient; the frequency, intensity, and duration of rainfall; and the amount of time bare soils are exposed.

There are two soils within the Project area that are classified as high susceptibility to water erosion, Buick loam, 5 to 9 percent slopes, and Weld silt loam, 0 to 3 percent slopes. CMs to minimize soil erosion are presented in section 4.2. Table 2.6-1 indicates the characteristics of each of the soils crossed by the Project.

Table 2.6 1
Soil Characteristics for Each Soil Map Unit within the Project Area

Map Unit Name	Map Unit Symbol [a]	Construction Impact Acreage [b]	Prime Farmland [a]	Hydric Soils [a]	Soil Rutting Hazard [a]	Compaction Potential	Water Erosion Potential (K Factor) [c]	Wind Erosion Potential [d]	Steep Slopes [a, e]	Shallow Bedrock [a, f]	Re-vegetation Potential
Adena-Colby fine sandy loams, 1 to 5 percent slopes (AcC)	AcC	2.72	Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60	No	Moderate	Moderate	Moderate	Moderate	No	No	Moderate
Adena-Colby fine sandy loams, 5 to 9 percent slopes (AcD)	AcD	0.39	Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60	No	Moderate	Moderate	Moderate	Moderate	No	No	Moderate
Adena-Colby silt loams, 1 to 5 percent slopes (AdC)	AdC	36.81	Farmland of statewide importance	No	High	Moderate	Moderate	Low	No	No	Moderate
Adena-Colby silt loams, 5 to 9 percent slopes (AdD)	AdD	6.50	Farmland of statewide importance	No	High	Moderate	Moderate	Low	No	No	Moderate
Ascalon sandy loam, 5 to 9 percent slopes (AsD)	AsD	1.73	Farmland of statewide importance	No	Moderate	Moderate	Low	Moderate	No	No	High
Beckton loam, 0 to 3 percent slopes (BkB)	BkB	2.51	Not prime farmland	No	High	Moderate	Moderate	Low	No	No	Moderate
Bijou sandy loam, 0 to 3 percent slopes (BlB)	BlB	4.03	Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60	No	Moderate	Moderate	Low	Moderate	No	No	Moderate
Bresser sandy loam, terrace, 0 to 3 percent slopes (BsB)	BsB	6.20	Prime farmland if irrigated and the product of I (soil erodibility) x C	No	Moderate	Moderate	Low	Moderate	No	No	Moderate

Map Unit Name	Map Unit Symbol [a]	Construction Impact Acreage [b]	Prime Farmland [a]	Hydric Soils [a]	Soil Rutting Hazard [a]	Compaction Potential	Water Erosion Potential (K Factor) [c]	Wind Erosion Potential [d]	Steep Slopes [a, e]	Shallow Bedrock [a, f]	Re-vegetation Potential
			(climate factor) does not exceed 60								
Bresser-Truckton sandy loams, 3 to 5 percent slopes (BvC)	BvC	50.52	Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60	No	Moderate	Moderate	Low	Moderate	No	No	Moderate
Bresser-Truckton sandy loams, 5 to 20 percent slopes (BvE)	BvE	15.01	No	No	Moderate	Moderate	Low	Moderate	Yes	No	Moderate
Buick loam, 5 to 9 percent slopes (BxD)	BxD	0.85	No	No	High	Moderate	High	Low	No	No	Moderate
Colby silt loam, 6 to 15 percent slopes (CoE)	CoE	0.57	No	No	High	Moderate	Moderate	Moderate	Yes	No	Moderate
Fondis silt loam, 1 to 3 percent slopes (FdB)	FdB	5.04	Prime farmland if irrigated	No	High	Moderate	Moderate	Low	No	No	Moderate
Fondis silt loam, 3 to 5 percent slopes (FdC)	FdC	14.89	Prime farmland if irrigated	No	High	Moderate	Moderate	Low	No	No	Moderate
Fondis-Colby silt loams, 3 to 5 percent slopes (FoC)	FoC	1.10	Prime farmland if irrigated	No	High	Moderate	Moderate	Low	No	No	Moderate
Fort Collins loam, 0 to 3 percent slopes (FrB)	FrB	0.84	Prime farmland if irrigated	No	High	Moderate	Moderate	Low	No	No	Moderate
Gravelly land (Gr)	Gr	<0.01	No	No	Low	Low	Low	Low	Yes	No	Moderate
Intermittent Water (IW)	IW	1.12	No	No	NR	NR	NR	NR	NR	NR	NR
Litle-Samsil, gypsum, silty clay loams, 3 to 9	LsD	2.73	No	No	High	Moderate	Moderate	Low	No	Yes	Low

Map Unit Name	Map Unit Symbol [a]	Construction Impact Acreage [b]	Prime Farmland [a]	Hydric Soils [a]	Soil Rutting Hazard [a]	Compaction Potential	Water Erosion Potential (K Factor) [c]	Wind Erosion Potential [d]	Steep Slopes [a, e]	Shallow Bedrock [a, f]	Re-vegetation Potential
percent slopes (LsD)											
Loamy alluvial land (Lv)	Lv	10.56	No	No	High	Moderate	Moderate	Low	No	No	Moderate
Nunn loam, 1 to 3 percent slopes (NlB)	NlB	19.34	Prime farmland if irrigated	No	High	Moderate	Moderate	Low	No	No	Moderate
Nunn-Bresser-Ascalon complex, 0 to 3 percent slopes (NrB)	NrB	80.08	Prime farmland if irrigated	No	Moderate	Moderate	Moderate	Moderate	No	No	Moderate
Renohill-Buick loams, 3 to 9 percent slopes (RhD)	Rhd	15.23	No	No	High	Moderate	Moderate	Low	No	Yes	Low
Renohill-Buick loams, 9 to 20 percent slopes (RhE)	RhE	15.87	No	No	High	Moderate	Moderate	Low	Yes	Yes	Low
Renohill-Litle-Thedalund complex, 9 to 30 percent slopes (RtE)	RtE	0.04	No	No	High	Moderate	Moderate	Low	Yes	Yes	Low
Samsil-Renohill clay loams, 3 to 20 percent slopes (SrE)	SrE	1.07	No	No	High	Moderate	Low	Moderate	Yes	Yes	Low
Sandy alluvial land (Su)	Su	9.47	No	No	Moderate	Moderate	Low	High	No	No	Moderate
Tassel-Rock outcrop complex (Ta)	Ta	1.43	No	No	Moderate	Moderate	Moderate	Moderate	Yes	Yes	Low
Terrace escarpments (Tc)	Tc	2.53	No	No	High	Moderate	Low	Moderate	Yes	Yes	Low
Terry-Olney-Thedalund sandy loams, 5 to 20	TeE	25.31	No	No	Moderate	Moderate	Low	Moderate	Yes	Yes	Low

Map Unit Name	Map Unit Symbol [a]	Construction Impact Acreage [b]	Prime Farmland [a]	Hydric Soils [a]	Soil Rutting Hazard [a]	Compaction Potential	Water Erosion Potential (K Factor) [c]	Wind Erosion Potential [d]	Steep Slopes [a, e]	Shallow Bedrock [a, f]	Re-vegetation Potential
percent slopes (TeE)											
Truckton loamy sand, 0 to 9 percent slopes (TrE)	TrE	6.21	Farmland of Statewide Importance	No	Moderate	Moderate	Low	High	No	No	High
Weld silt loam, 0 to 3 percent slopes (WeB)	WeB	11.68	Prime farmland if irrigated	No	High	Moderate	High	Low	No	No	Moderate
Weld silt loam, 3 to 5 percent slopes (WeC)	WeC	1.23	Prime farmland if irrigated	No	High	Moderate	Moderate	Low	No	No	Moderate
Weld-Deertrail silt loams, 0 to 3 percent slopes (WrB)	WrB	33.93	No	No	High	Moderate	Moderate	Low	No	No	Moderate
Wet alluvial land (Wt)	Wt	0.89	No	Yes	NR	NR	NR	Low	No	No	Low

[a] As designated by the NRCS.

[b] Consists of total land affected by Project, including temporary and new permanent impacts.

[c] The K Factor is a measure of the susceptibility of soils to water erosion. K Factor values range from 0.02 to 0.69 with soils of 0.69 having the highest susceptibility to water erosion. Soils with a K factor value of 0.02 to 0.24 are considered to have “Low” susceptibility to water erosion; K Factor values of 0.25 to 0.47 are considered to have “Moderate” susceptibility to water erosion; K Factors of 0.48 to 0.69 a “High” susceptibility to water erosion.

[d] Wind Erodibility Potential – Based on wind erodibility group classification: High (1.0-2.0), Moderate (3.0-4.0), Low (≥ 5.0)

[e] Steep Slopes – Represents soils with slopes greater than 8 percent.

[f] Shallow bedrock – Represents soils with unconsolidated rock 60 inches or less from the surface.

NR – Not Rated

Source: NRCS, 2024

All temporarily impacted areas will be restored and revegetated following the completion of Project activities; therefore, no increases in runoff coefficients are expected in areas that are revegetated following the completion of construction. To minimize impacts from land disturbance and storage of soils, CMs will be installed immediately following land disturbance where needed. The installation of the RMVs, pipeline junction site, and associated permanent access roads will permanently impact the footprint of these facilities due to the introduction of aggregate fill material and equipment; therefore, the Project area will experience an increase (approximately 3 cubic feet per second for the 100 Year – 1 hour design event) in peak runoff rate following the Project.

2.7 Haul Roads and Temporary Crossings

There is no new disturbance anticipated for the use of the project haul roads and temporary crossings at waterbodies. Proposed project haul roads are identified on Sheet 50 of Attachment C1. Temporary crossings are indicated at their proposed locations within the plans.

3 Area and Volumes

3.1 Excavation and Backfill Volumes

The Project will disturb a total of approximately 389 acres in Arapahoe County. A total of 565,000 cubic yards will be excavated for construction of the Project. Following the completion of construction, the same amount of soil will be backfilled, as no additional grading is proposed.

3.2 Backfill Material Sources

The primary source of backfill material will be the material removed from trenching activities associated with the installation of the pipeline. This same material, less the volume occupied by the piping, will be returned to the trench. It is not anticipated that off-site fill material will be required to backfill excavated areas used for instillation of the pipe.

4 Control Measures

4.1 Potential Sources of Contamination from Construction

Potential sources of pollutants associated with construction that could be discharged into stormwater during construction may include:

- **Vehicle and Equipment Fueling and Maintenance.** Fueling and minor maintenance of vehicles and equipment are conducted on some construction sites. Leaks and spills of fuel, oil, and grease are possible sources of contamination.
- **Material Handling/Loading and Unloading Areas.** Material handling/loading and unloading activities are common on construction sites. Materials may be spilled, leaked, or lost during loading and unloading, and may collect in the soil or other surfaces and be carried away in stormwater. Machines used to unload materials also may be a source of stormwater pollution.
- **Erosion.** Erosion is caused when soil is exposed to water, wind, or ice. Erosion can be caused by removing vegetation, compacting or disturbing the soil, changing natural drainage patterns, and covering the ground with impermeable surfaces (buildings, pavement, or concrete), all of which are integral parts of construction projects. Erosion is a source of sediment in stormwater.
- **Grading and Site Preparation.** Grading and site preparation can be major contributors of suspended solids concentrations in stormwater. The increased possibility of erosion exists

throughout the grading and site preparation phases of construction projects until construction is complete and site restoration is achieved.

- **Hazardous Material Storage Areas.** Hazardous material storage areas have the potential to release hazardous substances that may pose a threat to human health or the environment. Hazardous materials may be toxic, corrosive, ignitable, explosive, or chemically reactive. There is a potential for hazardous materials to be stored on construction sites.
- **Mobile Equipment**. Portable tanks and other mobile equipment are used extensively on construction sites. This equipment may generate fuel or oil leaks or spills.
- **Painting.** Painting may utilize materials that are harmful to humans and the environment and that may enter into stormwater. Pollutants may include solvents, solids, and metals.

Erosion and Sediment Control Measures

CMs are controls used to prevent, minimize, or control stormwater pollution. The following guidelines will be used in the selection, design, and implementation of CMs:

- The construction-phase CMs will be designed to retain sediment onsite to the extent practicable and to ensure that no significant changes occur in the volume or characteristics of stormwater runoff to receiving waters.
- All CMs will be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices.
- If sediment is conveyed beyond the construction site, controls will be used to minimize off-site impact.
- Litter, construction debris, and construction chemicals exposed to stormwater will be prevented from becoming a pollutant source for stormwater discharges.

CMs that will be implemented include the following:

- Vehicle Tracking Control;
- Surface Roughening;
- Silt Fence;
- Slope Intercept Ditch;
- Construction Marker/Fence;
- Seeding and Mulching (see attachment C5 for selected seed mixes);
- Erosion control blankets (ECB);
- Temporary Stream Crossing (TSC)

To minimize impacts from vehicle tracking, road surfaces will be periodically inspected and, if necessary, cleaned of any soil and other debris, in addition to implementation of the CMs listed above.

To minimize impacts from land disturbance and storage of soils, the CMs listed above will be installed immediately following land disturbing activities where needed.

TSC was determined on 29 crossings delineated by environmental survey.

The 2-year flows were determined in the floodplain study (Arapahoe County Floodplain Delineation Study for Magellan Denver Expansion Project Appendix E Flowstats Table pages 95-101, delineation maps pages 76-83) which determined the 2-year design flows for USGS StreamStat streams crossed by the Project. The following table provides the peak flows with a return frequency of every other year using the 50-percent AEP flood at the 29 delineated TSC. For those crossings where no analysis was performed, it was conservatively assumed that the 2-year design flow for that crossing is greater than 10 cfs. The table 4.1-1 below provides the 2-year design flows for the TSC.

Table 4.1-1
Design Flow for the TSC

Approx. MP	Feature Name	Floodplain Name	2-Year Design Flow (cfs)
416.58	Bore	2643.66	808.00
416.98	Open Cut	4635.44	12.70
417.00	Open Cut	5100.44	8.90
417.97	Open Cut	9865.47	191.00
418.29	Bore	11577.5	47.20
418.62	Open Cut	NA	NA
419.43	Open Cut	17250.2	20.20
419.49	Open Cut	17866.3	195.00
419.71	Open Cut	19107.3	11.20
419.75	Open Cut	19300.6	10.70
419.83	Open Cut	19809.4	9.69
419.95	Open Cut	20351	7.53
420.67	Open Cut	24156.1	8.40
422.04	Open Cut	31349.7	7.00
423.18	Open Cut	37388.9	183.00
426.61	Bore	55317.3	1,300.00
428.46	Open Cut	65204.2	83.80
430.09	Open Cut	73855.6	83.30
431.72	Bore	82501.4	349.00
433.22	Bore	90377.3	8.46
433.35	Bore	91096.4	11.70
433.42	Bore	91576.2	28.90
433.44	Bore	NA	NA

Approx. MP	Feature Name	Floodplain Name	2-Year Design Flow (cfs)
437.15	Bore	111289	713.00
437.97	Open Cut	112889	127.00
440.18	Bore	133156	24.50
444.06	Bore	147695	585.00
447.26	Bore	164482	126.00
448.19	Open Cut	166562	39.90

Of the 29 TSC, 6 have a 2-year design streamflow below 10 cfs and 23 have a 2-year design flow greater than 10 cfs.

All loading and unloading operations will be conducted within the approved Project workspace. CMs as described herein will be utilized to ensure that all impacts are contained within the workspace and sediment does not leave the Project site.

For disturbed channel banks and all slopes steeper than 4:1, Erosion Control Blankets (ECB) were selected based on the criteria set in the GESC Manual. The type, locations and the dimensions of the ECB are provided in the drawings and the area in square yards are provided in Table 4.1-2 below.

Table 4.1-2
ECB Location and Selection Summary

From Approx. Milepost	To Approx. Milepost	Area (square yards)	Approx. Slope	Type of ECB
419.68	419.69	306	3:1	100% Curlex Excelsior
419.75	419.75	171	4:1	
422.06	422.06	114	3:1	
426.37	426.37	173	4:1	
426.64	426.64	162	3:1	
426.92	426.93	436	3:1	
428.43	428.44	290	4:1	
428.80	428.82	477	5:1	
428.84	428.86	483	4:1	
437.13	437.14	257	3:1	
444.04	444.05	109	6:1	
444.09	444.10	87	6:1	

From Approx. Milepost	To Approx. Milepost	Area (square yards)	Approx. Slope	Type of ECB
448.18	448.19	182	4:1	
448.19	448.20	150	6:1	

Erosion and sediment controls that will be implemented will include the following protections:

- **Erosion Controls** (primary protection)

1. Minimize disturbed areas and protect natural features.
2. Phase construction activities to limit exposure period.
3. Control stormwater flowing onto and through the Project area.
4. Stabilize soils promptly with seed, mulch, etc.
5. Protect slopes to prevent gullying.

- **Sediment Controls** (secondary protection)

1. Protect storm drain inlets.
2. Establish perimeter controls.
3. Retain sediment on-site and control dewatering practices.
4. Establish stabilized construction exits.
5. Inspect and maintain controls.

Peripheral or border CM's to control runoff from disturbed areas will be installed or marked for preservation before general site clearing is started. Note that this requirement does not apply to earth disturbances related to initial site clearing and entry establishment, exit and access of the site, which may require that stormwater controls be installed immediately after the earth disturbance. Storm water discharges from disturbed areas which leave the site, will pass through an appropriate impediment to sediment movement, such as a sedimentation basin, sediment traps, etc., prior to leaving the land disturbance site.

All control measures identified in this GESC Report and the GESC Plan will be maintained in effective operating condition. Routine inspections, as discussed in Section 6, will be performed to confirm that the stormwater controls are effective, to identify problems with existing CMs, and to identify the need for changes in CMs. Maintenance activities will be performed as needed.

Properly operating CMs will be maintained to ensure continued effectiveness. When CMs are not operating properly, maintenance will be performed within 24 hours, if practicable, or at least before the next storm event, as necessary to maintain the continued effectiveness of stormwater controls.

For purposes of this GESC Report, a “significant” storm event is defined as one with more than 0.5 inch in a 24-hour period. When repairs to site-specific CMs are required, the repairs will be implemented before the next storm event, if practicable. If implementation before the next storm event is impractical, the situation will be documented in the inspection report and alternative CMs will be implemented as

soon as practicable. Construction typicals of CMs that may be used for this Project are included in the GESC Plan.

4.2 Stabilization

Appropriate CMs will be implemented and maintained at the construction site from the initiation of construction through final stabilization. “Final stabilization” refers to the time when all soil-disturbing activities at the site have been completed and at least one of the following criteria has been met:

- The area has been compacted, surfaced, or built upon for final use.
- A uniform, evenly distributed perennial vegetative cover with a density of 70 percent of the native background vegetative cover for the area (compared to undisturbed, adjacent areas) has been established in areas not covered by permanent structures.
- Equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been used.
- In land used for agricultural purposes (such as crop or range land), the disturbed land is returned to its pre-construction grade for potential agricultural use. This does not apply to areas that were not previously used for agricultural activities, such as buffer strips immediately adjacent to waters of the United States.

4.3 Qualified GESC Manager

A GESC Manager will be assigned during construction of the Project to help with GESC management. The GESC Manager will be responsible for ensuring that Contractors meet the goals for CMs schedule, installation, and maintenance.

5 Engineer’s Cost Estimate

A GESC Engineer’s Cost Estimate for Initial/Interim and Final GESC stages, including anticipated maintenance during the construction phase is included as Attachment C4.

6 Maintenance and Inspection Procedures

The GESC Manager will perform inspections throughout construction until all disturbed areas of the construction site reach final stabilization. Personnel will be considered to be qualified as a GESC Manager when they have received appropriate training. The GESC Manager will be a person who:

- Is knowledgeable in the principles and practice of erosion and sediment control.
- Possesses the skills needed to assess conditions at the construction site that could impact stormwater quality.
- Possesses the skills needed to assess the effectiveness of any sediment and erosion control measures selected to control the quality of stormwater discharges from the construction activity.

6.1 Areas to be Inspected

Inspections will include all areas of the Project disturbed by construction activities and areas used for storage of materials. This includes but is not limited to: construction areas that have not reached final stabilization, areas used for storage of materials that are exposed to precipitation (prevents inspection at a warehouse site), staging areas, access roads, structural controls, locations where vehicles enter or exit the site, and locations of hydrostatic discharges to the extent practicable.

If part of the construction area has reached final stabilization, the site will be logged and mapped as final. Inspections will be discontinued upon confirmation of final stabilization.

6.2 Inspection Schedule

Inspections of CMs will be completed on a daily basis in active areas of construction. In inactive construction areas, inspections will be completed every 7 days and within 24 hours of 0.5-inch of rain or greater. Inspections will be performed until stabilization is achieved in all disturbed areas.

6.3 Disturbed Areas

The GESC Manager will inspect storage areas that are exposed to precipitation events, structural control measures, and high-traffic areas. Sediment and erosion control measures will be inspected to confirm that they are operating properly. Areas of entrance and egress for Project traffic will be inspected for evidence of offsite sediment tracking.

6.4 Inspection Content and Activities

Inspections will be conducted as follows:

- Inspect all CMs. All CMs will be maintained in good working order. When repair is necessary, it should begin within 24 hours after the deficiency is noted. If weather or other factors prevent initiation of corrective actions within 24 hours, the corrective action will be completed as soon as practicable.
- Inspect all disturbed areas for evidence of, or potential for, pollutants entering the drainage system. Sediment from silt fences should be removed regularly and the fences inspected to ensure that the bottom remains embedded in the ground. Damaged hay/straw bales will be replaced with new bales, as necessary.
- Inspect all material storage areas, where materials are exposed to precipitation, for evidence of, or potential for, pollutants entering the drainage system.
- Inspect areas of vehicle entrance and egress for evidence of offsite sediment tracking.
- Inspect all discharge points, if accessible, to determine if erosion control measures are effective in preventing significant impacts on receiving waters. If these points are inaccessible, inspect nearby downstream locations.
- Inspect vegetation to determine the success of revegetation. Revegetation will be considered successful when conditions of the revegetated area are similar in density and cover to adjacent undisturbed areas.
- Document each inspection with an inspection report completed after each inspection.
- Update the site diagrams to show current CMs.

7 Required Reports, Documents, and Record Keeping

A copy of this GESC Report will be maintained at the Project construction office. Construction activity records, including inspection and maintenance reports and erosion control maintenance records, will be maintained as well. At a minimum, records of the following will be kept:

- Date(s) when major grading activities occur.
- Date(s) when temporary or permanent construction activities are complete.

Attachment C1 - Mapping

The referenced mapping is provided in Appendix D to the overall Use by Special Review Major Permit Application.

Attachment C2 - Spill Prevention and Response Procedures Plan

The referenced plan is provided in Appendix F to the overall Use by Special Review Major Permit Application.

Attachment C3 - Grading, Erosion, and Sediment Control Report Checklist

This checklist must be filled out and included in the Appendix of the GESC Report

Revised February 2019

Yes	No	N/A	GESC Requirements
I. GESC REPORT			
			A. COVER PAGE
X			1. Project name and complete address
X			2. Contact information of the applicant
X			3. Contact information of the Professional Engineer preparing (or supervising the preparation of) the GESC Documents
			B. SIGNATURE PAGE
			1. The following note (above Certification Statements)
X			"This *Grading, Erosion and Sediment Control (GESC)* document has been placed in the project file for this project and appears to fulfill the latest version of the *Grading, Erosion and Sediment Control Manual*. Additional grading, erosion and sediment Control Measures may be required of the owner or his/her agents, due to unforeseen erosion problems or if the submitted plan does not function as intended. The requirements of this GESC document shall run with the land and be the obligation of the land owner, or his/her designated representative(s) until such time as the plan is properly completed, modified or voided."
			2. Landowner Certification Statement (For landowner/ authorized agent acknowledging the review and acceptance of responsibility)
X			"I hereby certify that the Grading, Erosion, and Sediment Control Measures for (Name of Subdivision/Development/address) shall be constructed according to the design presented in this document. I understand that additional erosion control, sediment control and water quality enhancing measures may be required of the owner and his or her agents due to unforeseen pollutant discharges or if the submitted plan does not function as intended. The requirements of the plan shall be the obligation of the land owner and/or his successors or heirs; until such time as the plan is properly completed, modified or voided." Owner or Authorized Agent_____ Authorized Signature_____
			3. Professional Engineer Certification Statement (for the professional engineer acknowledging responsibility for the preparation of the GESC documents)
X			"I hereby attest that this Grading, Erosion, and Sediment Control (GESC) document for (name of subdivision/development) has been prepared by me or under my direct supervision, and to the best of my knowledge and ability has been prepared in accordance with the latest version of the GESC Manual. The signature and stamp affixed hereon certifies that this GESC document was prepared in accordance with the required regulations and criteria; however, the stamp and signature does not certify or guarantee future performance of the execution of the plan by the contractor. The contractor is responsible for executing the

Yes	No	N/A	GESC Requirements
			construction work according to the information set forth in the plan and in accordance with all applicable requirements." Registered Professional Engineer _____ State of Colorado No. _____ Affix Seal w/date
			C. GESC REPORT
			1. Project Description
X			a. Describe the nature and purpose of the land disturbing activity
X			b. Total area of the site
X			c. Total area of disturbance
X			d. Project location – including township, range, section and quarter-section (or the latitude and longitude of the approximate center of the project
X			e. Vicinity Map
			2. Existing Site Conditions
X			a. Description of the existing topography, vegetation and drainage (Pictures of the existing vegetation are encouraged)
X			b. Description of any wetlands on the site
		X	c. Description of any other unique features of the property.
X			3. Adjacent Areas - Description of neighboring areas such as streams, lakes, Floodplain, residential areas, roads, etc., which might be affected by the land disturbance.
X			4. Soils - A brief description of the soils on the site including information on soil type and names, mapping unit, erodibility, permeability, hydrologic soil group, depth, texture, and soil structure. This information may be obtained from the soil report for the site or the applicable Soil Survey prepared by the Natural Resources Conservation Service (NRCS). Include relevant portions of soil report or NRCS Soil Survey in an appendix.
			5. Area and Volumes
X			a. An estimate of the quantity (in cubic yards) of excavation and fill involved (attempting to achieve an earthwork balance)
X			b. Haul road information
X			c. Surface area (in acres) of the proposed disturbance
			6. Control Measures – A summary of the Control Measures selected, designed, installed, implemented and maintained on site, including the timing of installation and removal.
X			a. All sediment and erosion Control Measures as shown on GESC Plans.
X			b. Land disturbance and storage of soils
X			c. Vehicle Tracking
X			d. Loading and unloading operations

Yes	No	N/A	GESC Requirements
X			e. Outdoor storage or construction site materials, building materials, fertilizers, and chemicals
X			f. Bulk storage of materials
X			g. Vehicle and equipment maintenance and fueling
		X	h. Significant dust or particulate generating processes
X			i. Routine maintenance activities involving fertilizers, pesticides, detergents, fuels, solvents and oils
		X	j. Concrete truck chute and associated fixtures and equipment washing
		X	k. Dedicated asphalt and concrete batch plants
		X	l. Other areas or operations where spills can occur
		X	m. Other non-stormwater discharges including construction dewatering not covered under the Construction Dewatering Discharges General Permit and wash water that may contribute pollutants to the MS4
X			7. Permanent Stabilization - A brief description, including applicable specifications, of how the site will be stabilized after construction is complete
X			8. Stormwater Management Considerations - Explain how stormwater runoff from and through the site will be handled during construction
		X	9. Maintenance - Any special maintenance requirements over and above what is identified in the Standard Notes and Details.
			10. Calculations – include in an appendix
		X	a. Sediment Basin Design Calculations
		X	b. Diversion Ditch Calculations
X			c. Erosion Control Blanket/Matting selection
			D. ENGINEERS COST ESTIMATE
X			A GESC Engineer's Cost Estimate, for Initial/Interim and Final GESC stages, including anticipated maintenance during the construction phase, shall be submitted in the GESC Report. Units shall be consistent between cost estimate and plans. Unit costs used to develop probable erosion and sediment control costs shall be those shown in the spreadsheet and shall not be modified.
			E. GESC PLAN AND REPORT CHECKLIST
X			A copy of this GESC Plan and Report Checklist must be completely filled out, signed by the designer, and submitted with the GESC Report.

Yes	No	N/A	GESC Requirements
II. GESC PLANS (shall be a stand-alone document and not included in the Construction Drawings)			
			A. GESC PLAN COVER SHEET
X			1. Name of Project/Site Name
X			2. Project Address
X			3. Owner Contact Information (Name, Company, Address, Phone)
X			4. Engineer Contact Information (Name, Company, Address, Phone)
X			5. Plan Sheet Index
X			6. Case Number(s) in the lower left-hand corner
X			7. The following note: "This *Grading, Erosion and Sediment Control (GESC)* document has been placed in the project file for this project and appears to fulfill the latest version of the *Grading, Erosion and Sediment Control Manual*. Additional grading, erosion and sediment Control Measures may be required of the owner or his/her agents, due to unforeseen erosion problems or if the submitted plan does not function as intended. The requirements of this GESC document shall run with the land and be the obligation of the land owner, or his/her designated representative(s) until such time as the plan is properly completed, modified or voided."
X			8. GESC Drawing Design Engineer's signature block with name, date, and Professional Engineer registration number. Signature block shall include the following certification statement: "I hereby attest that this Grading, Erosion, and Sediment Control (GESC) document for (*name of subdivision/development*) has been prepared by me or under my direct supervision, and to the best of my knowledge and ability has been prepared in accordance with the latest version of the GESC Manual. The signature and stamp affixed hereon certifies that this GESC document was prepared in accordance with the required regulations and criteria; however, the stamp and signature does not certify or guarantee future performance of the execution of the plan by the Contractor. The Contractor is responsible for executing the construction work according to the information set forth in the plan and in accordance with all applicable requirements." Registered Professional Engineer_____ State of Colorado No. _____ Affix Seal w/date
X			9. Landowner/authorized agent acknowledging GESC review and the acceptance of GESC responsibility. Signature block shall include the following certification statement: "I hereby certify that the Grading, Erosion, and Sediment Control Measures for (*Name of Subdivision/Development*) shall be constructed according to the design presented in this document. I understand that additional

Yes	No	N/A	GESC Requirements
X			erosion control, sediment control and water quality enhancing measures may be required of the owner and his or her agents due to unforeseen pollutant discharges or if the submitted plan does not function as intended. The requirements of the plan shall be the obligation of the land owner and/or his successors or heirs; until such time as the plan is properly completed, modified or voided." Owner or Authorized Agent_____ Authorized Signature _____ Date _____
X			10. Approval Block (see Appendix G) 4.5" x 5.5"
X			11. General Location Map at a Scale of 1-inch to 1000-feet to 8000-feet indicating:
X			a. General vicinity of the site location
X			b. Major roadway names and drainageways
X			c. North arrow and scale
			B. GESC DRAWING INDEX SHEET
X			For projects that require multiple plan-view sheets to adequately show the project area (based on the specified scale ranges), a single plan-view sheet shall be provided at a scale appropriate to show the entire site on one sheet. Areas of coverage of the multiple blow-up sheets are to be indicated as rectangles on the index sheet.
			C. INITIAL GESC DRAWING
This plan sheet shall provide grading, erosion and sediment Control Measures for the initial clearing, grubbing and preparation of a project. At a minimum, it shall contain:			
X			1. Property lines, adjacent roads and drainageways
X			2. Existing and proposed easements
X			3. Existing topography at 1- or 2-foot contour intervals, extending a minimum of 100 feet beyond the property line or the limits of construction if the project goes beyond property lines
X			4. Labeled location of any existing structures or hydrologic features within the mapping boundary
X			5. Flow arrows
X			6. Labeled floodplain delineation including Control Measures to delineate and protect floodplain (e.g. construction fence, construction markers, wire-backed silt fence)
X			7. North arrow and scale
X			8. Approval Block (see Appendix G) 4.5" x 2"
X			9. Limits of construction encompassing all areas of work access points, storage and staging areas, borrow areas, stockpiles, construction trailer, and utility tie-in location in on-site and off-site locations.
X			10. Stream corridors and other resource areas to be preserved and all other areas outside the limits of construction shall be lightly shaded to clearly show area not to be disturbed

Yes	No	N/A	GESC Requirements
	X		11. Location of stockpiles, including topsoil, imported aggregates, and excess material
	X		12. Location of storage and staging areas for equipment, equipment maintenance, fuel, lubricant, chemical (and other materials) and waste storage
		X	13. Location of borrow or disposal areas
X			14. Location of temporary roads, including haul roads
X			15. Location, map symbol, and letter callouts of all initial erosion and sediment Control Measures
X			16. Location, map symbol, and letter callouts of Vehicle Tracking Control(s) (VTC)
		X	17. Location, map symbol, and letter callouts of Concrete Washout Area(s) (CWA)
		X	18. Location, map symbol, and letter callouts of dedicated asphalt and concrete batch plants.
		X	19. Locations of other areas or operations where spills can occur – Refer to Chapter 10.
X			20. Location, map symbol, and letter callouts for any anticipated Dewatering (DW) activities. Note: Dewatering of groundwater is covered by State permits. **The Permittee is responsible for obtaining and complying with State-issued permits**
X			21. Information to be specified for each Control Measure, such as type and dimensions as called for in Chapter 11 of the GESC Manual.
			22. The following notes:
X			a. Appropriate Control Measures must be implemented prior to the start of land disturbance activity, must control potential pollutants during each phase of construction, and must be continued through final stabilization. Appropriate structural and non-structural Control Measures must be maintained in operational condition.
X			b. See Standard Notes and Details (Sheet 1) for legend of Control Measures names and symbols.
X			c. Any Control Measures shown that require grading, (e.g. sediment basins, sediment traps, concrete washout areas, etc.), shall not be placed until after the pre-construction meeting and issuance of the GESC permit, but must be fully functional prior to any large-scale grading. The initial plan illustrates existing conditions. No proposed infrastructure is shown.
			D. INTERIM GESC DRAWING
This plan sheet shows Control Measures to control grading, erosion and sediment during the initial over lot grading, site construction and site re-vegetation process. The Interim GESC Plan shall show all the information included on the Initial GESC Plan, as noted below. At a minimum, it shall contain the following information:			

Yes	No	N/A	GESC Requirements
			1. Existing topography and location of all existing erosion and sediment Control Measures on site, as shown on the Initial GESC Plan shall be screened/shaded back.
			2. **Dimension and quantity information for Initial stage Control Measures shall not be shown.**
			3. Items from the Initial GESC Plan (except #20 and #21).
			4. Proposed topography at 1- or 2-foot contour intervals, showing elevations, dimensions, locations, and slope of all proposed grading with flow arrows.
			5. Outlines of cut and fill areas. Summary of cut and fill volumes. If export occurs, note location where export will likely be transported to. Separate cut/fill sheet is permittable.
			6. Location of all interim erosion and sediment Control Measures designed in conjunction with the proposed site topography and implementing the Control Measures installed in the Initial GESC Plan.
			7. Locations of all improvements, drainage features and facilities, and other permanent features to be constructed in connection with, or as a part of, the proposed work, per approved plat or land use plan.
			8. The following notes:
			a. Appropriate Control Measures must be implemented prior to the start of land disturbance activity, must control potential pollutants during each phase of construction, and must be continued through final stabilization. Appropriate structural and non-structural Control Measures must be maintained in operational condition.
			b. See Standard Notes and Details (Sheet 1) for legend of names and symbols.
			c. Screened/shaded back Control Measures were installed in the Initial stage and shall be left in place in the Interim stage unless otherwise noted.
			d. Control Measures, including seeding and mulching of disturbed areas, must be completed within 14 days, if the area will remain undisturbed for a period greater than 30 days.
			e. All proposed slopes on this plan have a maximum slope of 3:1. Any slopes between 3:1 and 4:1 will require the use of erosion control blankets or flexible growth medium, as approved by the GESC Inspector.
			f. See Construction Plans for details of permanent drainage facilities such as detention facilities, water quality facilities, culverts, storm drains, and inlet and outlet protection.
			g. If site runoff enters the post-construction permanent Control Measure(s), sediment contamination of the materials may result in the post-construction permanent Control Measures(s) having to be reconstructed in its entirety. (Where applicable) Removal of sediment basin on site shall only occur after **all** areas tributary to

Yes	No	N/A	GESC Requirements
			the sediment basin have been stabilized. Removal must be approved by the GESC Inspector.
			E. FINAL GESC DRAWING
This plan sheet shows controls for final completion of the site. The Final GESC Plan shall include all information shown on the Initial and Interim Plans, as noted below. At a minimum, this plan sheet shall contain the following information:			
X			1. Existing topography in areas of proposed contours need not be shown.
X			2. Existing Initial and Interim Control Measures shall be shown, **(screened/shaded back).** Dimension and quantity information shall not be shown for Initial and Interim Control Measures except for Control Measures to remain during final stabilization.
X			3. Directional flow arrows on all drainage features.
X			4. Items from the Interim GESC Plan (except #5 and #8).
X			5. Label all Initial or Interim Control Measures (e.g. SSA, VTC, DW, etc.) that are to be removed and any resulting disturbed areas to be stabilized.
X			6. Location of all Final erosion and sediment Control Measures (including seeding and mulching of any areas not stabilized in the Interim Plan), permanent landscaping, and any Control Measures necessary to minimize the movement of sediment off site until permanent vegetation can be established.
	X		7. Show and label areas of sod and permanent landscaping classifications per approved land use plan.
			8. The following notes:
X			a. Appropriate Control Measures must be implemented prior to the start of land disturbance activity, must control potential pollutants during each phase of construction, and must be continued through final stabilization. Appropriate structural and non-structural Control Measures must be maintained in operational condition.
X			b. See Standard Notes and Details (Sheet 1) for legend of names and symbols.
X			c. Screened/shaded back Control Measures were installed in the Initial or Interim stage and, unless otherwise indicated, shall be left in place until approved by the GESC Inspector.
X			d. All Interim Control Measures, including seeding and mulching or disturbed areas, must be completed within 14 days if the areas will remain undisturbed for a period greater than 30 days.
X			e. All proposed slopes on this plan have a maximum slope of 3:1. Any slopes between 3:1 and 4:1 will require the use of erosion control blankets or flexible growth medium, as approved by the GESC Inspector
X			f. See Construction Plans for details of permanent drainage facilities such as detention facilities, water quality facilities, culverts, storm drains, and inlet and outlet protection.

Yes	No	N/A	GESC Requirements
X			g. Acceptance of the post-construction permanent Control Measures will not occur until all tributary areas to the permanent Control Measures are final stabilized.
X			F. GESC PLAN - STANDARD NOTES AND DETAILS
A copy of the GESC Plan - Standard Notes and Details (included in Appendix F) shall be bound into each set of GESC Plans.			

Signature of Designer

Attachment C4 - GESC Engineer's Cost Estimate

Arapahoe County GESC Permit

Engineer's Cost Estimate Spreadsheet for Initial and Interim BMPs

Note: *Initial* and *Interim* BMPs shall be added together for the Cost Estimate

Project Name: Denver Expansion Project - Scott City to Denver Pipeline Date: 10/24/2025

BMP No.	BMP	ID	Unit	Installation Unit Cost	Initial / Interim Quantity	Initial / Interim Cost
1	Check Dam	CD	LF	$ 24.00		$ -
2	Compost Blanket	CB	SF	$ 0.36		$ -
3	Compost Filter Berm	CFB	LF	$ 2.00		$ -
4	Concrete Washout Area	CWA	EA	$ 100.00	1	$ 100.00
5	Construction Fence	CF	LF	$ 2.00	5,107	$ 10,214.00
6	Construction Markers	CM	LF	$ 0.20	3,680	$ 736.00
7	Curb Sock	CS	LF	$ 16.00		$ -
8	Dewatering	DW	EA	$ 600.00	5	$ 3,000.00
9	Diversion Ditch (2-yr flow less than 10 cfs)	DD	LF	$ 1.60	46,885	$ 75,016.00
	(2-yr flow greater than 10 cfs)	DD	LF	$ 3.00		$ -
10	Erosion Control Blanket	ECB	SY	$ 5.00		$ -
11	Flexible Growth Medium	FGM	SY	$ -		$ -
12	Inlet Protection	IP	EA	$ 200.00		$ -
13	Reinforced Check Dam	RCD	LF	$ 36.00		$ -
14	Reinforced Rock Berm	RRB	LF	$ 9.00		$ -
15	RRB for Culvert Protection	RRC	LF	$ 9.00	16	$ 144.00
16	Sediment Basin	SB	AC	$ 1,000.00		$ -
17	Sediment Control Log	SCL	LF	$ 2.00		$ -
18	Sediment Trap	ST	EA	$ 600.00		$ -
19	Seeding & Mulching (Less than 10 Acres)	SM	AC	$ 2,500.00		$ -
	(Greater than 10 Acres)	SM	AC	$ 1,500.00		$ -
20	Silt Fence	SF	LF	$ 2.00	18,655	$ 37,310.00
21	Stabilized Staging Area	SSA	SY	$ 2.00		$ -
22	Surface Roughening	SR	AC	$ 600.00	389.52	$ 233,712.00
23	Temporary Slope Drain	TSD	LF	$ 30.00		$ -
24	Temporary Stream Crossing (2-yr flow less than 10 cfs)	TSC	EA	$ 1,000.00	6	$ 6,000.00
	(2-yr flow greater than 10 cfs)	TSC	EA	$ 2,000.00	23	$ 46,000.00
25	Terracing	TER		$ -		$ -
26	Vehicle Tracking Control	VTC	EA	$ 1,000.00	42	$ 42,000.00
27	VTC with Wheel Wash	WW	EA	$ 1,500.00		$ -
28	Mobilization (required on all projects)	MB	LS	$ 5,000.00	1	$ 5,000.00
29	Pond Maintenance/Sediment Removal (Based on area tributary to the pond)	PM	AC	$ 1,000.00		$ -
30	Street Maintenance (Based on lane miles of streets within project and frontage)	SM	LM	$ 500.00	0.446	$ 223.00
31	Other:_____			$ -		$ -
				Total Cost of *Initial and Interim* BMPs		$ 459,455.00

Arapahoe County GESC Permit

Engineer's Cost Estimate Spreadsheet for Initial and Interim BMPs

Note: *Initial* and *Interim* BMPs shall be added together for the Cost Estimate

Project Name: Denver Expansion Project - Scott City to Denver Pipeline Date: 10/24/2025

Agreed and Accepted By:

Applicant/Developer:

By: Erin Jennings

Name: Erin Jennings

Title: _ Project Manager Engineer

Date: _ 10/24/2025

Engineer for Applicant:

By: _____

Name: Stephen Skoropat

Title: _ Director, Operations, Project Management and Engineering

Date: _ 10/24/2025

Case Engineer:

By: _____

Name: _____

Title: _____

Date: _____

Arapahoe County GESC Permit

Engineer's Cost Estimate Spreadsheet for Final BMPs

Project Name: Denver Expansion Project - Scott City to Denver Pipeline Date: 10/24/2025

BMP No.	BMP	ID	Unit	Installation Unit Cost	Initial / Interim Quantity	Initial / Interim Cost
1	Check Dam	CD	LF	$ 24.00		$ -
2	Compost Blanket	CB	SF	$ 0.36		$ -
3	Compost Filter Berm	CFB	LF	$ 2.00		$ -
4	Concrete Washout Area	CWA	EA	$ 100.00	1	$ 100.00
5	Construction Fence	CF	LF	$ 2.00		$ -
6	Construction Markers	CM	LF	$ 0.20	3,680	$ 736.00
7	Curb Sock	CS	LF	$ 16.00		$ -
8	Dewatering	DW	EA	$ 600.00		$ -
9	Diversion Ditch (2-yr flow less than 10 cfs)	DD	LF	$ 1.60		$ -
	(2-yr flow greater than 10 cfs)	DD	LF	$ 3.00		$ -
10	Erosion Control Blanket	ECB	SY	$ 5.00	3,397	$ 16,985.00
11	Flexible Growth Medium	FGM	SY	$ -		$ -
12	Inlet Protection	IP	EA	$ 200.00		$ -
13	Reinforced Check Dam	RCD	LF	$ 36.00		$ -
14	Reinforced Rock Berm	RRB	LF	$ 9.00	16	$ 144.00
15	RRB for Culvert Protection	RRC	LF	$ 9.00	1	$ 9.00
16	Sediment Basin	SB	AC	$ 1,000.00		$ -
17	Sediment Control Log	SCL	LF	$ 2.00		$ -
18	Sediment Trap	ST	EA	$ 600.00		$ -
19	Seeding & Mulching (Less than 10 Acres)	SM	AC	$ 2,500.00		$ -
	(Greater than 10 Acres)	SM	AC	$ 1,500.00	389.52	$ 584,280.00
20	Silt Fence	SF	LF	$ 2.00	17,693	$ 35,386.00
21	Stabilized Staging Area	SSA	SY	$ 2.00		$ -
22	Surface Roughening	SR	AC	$ 600.00		$ -
23	Temporary Slope Drain	TSD	LF	$ 30.00		$ -
24	Temporary Stream Crossing (2-yr flow less than 10 cfs)	TSC	EA	$ 1,000.00		$ -
	(2-yr flow greater than 10 cfs)	TSC	EA	$ 2,000.00		$ -
25	Terracing	TER		$ -		$ -
26	Vehicle Tracking Control	VTC	EA	$ 1,000.00		$ -
27	VTC with Wheel Wash	WW	EA	$ 1,500.00		$ -
28	Mobilization (required on all projects)	MB	LS	$ 5,000.00	1	$ 5,000.00
29	Pond Maintenance/Sediment Removal (Based on area tributary to the pond)	PM	AC	$ 1,000.00		$ -
30	Street Maintenance (Based on lane miles of streets within project and frontage)	SM	LM	$ 500.00		$ -
31	Other:_____			$ -		$ -
				Total Cost of *Final* BMPs		$ 642,640.00

Arapahoe County GESC Permit

Engineer's Cost Estimate Spreadsheet for Final BMPs

Project Name: Denver Expansion Project - Scott City to Denver Pipeline Date: 10/24/2025

Agreed and Accepted By:

Applicant/Developer:

By: Erin Jennings

Name: Erin Jennings

Title: Project Manager Engineer

Date: 10/24/2025

Engineer for Applicant:

By: Stephen A. Skoropat

Name: Stephen Skoropat

Title: Director, Operations, Project Management and Engineering

Date: 10/24/2025

Case Engineer:

By: _____

Name: _____

Title: _____

Date: _____

Attachment C5 – Selected Seed Mix

Appendix H: Denver International Airport Approved Grass Species and Sample Submittal Documentation

Grasses for Aircraft Operating Area and Landside Use:

Dry/Upland Grasses

Scientific Name	Common Name	Soil Conditions	lbs PLS/acre*	%of mix**
Pascopyrum smithii	Western Wheatgrass	Universal Upland	3.75	25.00
Agropyron cristatum	Crested Wheatgrass	Universal Upland	3.75	25.00
Buchloe dactyloides	Buffalograss	Universal Upland	3	20.00
Elymus trachycaulus	Slender Wheatgrass	Non-Saline Upland	2.25	15.00
Bouteloua gracilis	Blue Grama	Non-Saline Upland	1.5	10.00
Sporobolus airoides	Alkali Sacaton	Saline Upland	0.75	5.00
	TOTAL		**15**	**100**

Wet/Drainage Grasses

Scientific Name	Common Name	Soil Conditions	lbs PLS/acre*	%of mix**
Panicum virgatum	Switchgrass	Non-Saline Upland/Pond	2.5	25.00
Elymus lanceolatus	Steambank Wheatgrass	Non-Saline Upland	2	20.00
Puccinellia distans	Alkaligrass	Saline Upland	2	20.00
Puccinellia airoides	Nuttall Alkaligrass	Saline Upland	2	20.00
Carex nebrascensis	Nebraska sedge	Non-Saline Pond	0.7	7.00
Juncus balticus	Baltic Rush	Non-Saline Pond	0.4	4.00
Scirpus paludosus	Alkali Bulrush	Saline Pond	0.4	4.00
	TOTAL		**10**	**100**

* PLS means Pure Live Seed; rates shown are for drill seeding, if broadcast, rates should be doubled.

** Percent by seed number

*** Wetland mixes to be used only where wetland hydrology exists.

Letter of Certification

This letter is written to certify that the below listed seed mix is accurate to its label.

The seed contained in this mix has been duly tested by a fully accredited seed testing lab following rules authorized by the AOSA (Assoc. of Official Seed Analysts).
Please find the specifications for the individual seed species listed below.

Mix DIA SALINE UPLAND MIX **Lot #** G-181651
Total Acres 7.00

SPECIES - VARIETY	LOT #	Cert	Common	PLS LBS PER ACRE	TOTAL LBS NEEDED PLS	TOTAL LBS NEEDED BULK	SEED PURCHASED TEST DATE:	PURITY %	GERM %	PLS LBS	BULK LBS	ORIGIN
Western Wheatgrass, Arriba	SF2-23-Cert.	X		2.100	14.70	16.43	12/2017	98.23%	98.00%	14.70	16.43	WY
Buffalograss, Cody	JBTK-6078..KNO3.6th		X	1.400	9.80	10.15	2/2018	99.54%	98.00%	9.8#	10.15	KS
Buffalograss, Texoka	09017-1.		X	0.400	2.80	3.87	10/2017	97.88%	74.00%	2.8#	3.87	UT
Gardner Saltbush, VNS	NBS-LV6-SEA-1.Cert	X		0.400	2.80	2.99	2/2018	99.87%	94.00%	2.8#	2.99	WA
Alkaligrass, Sea Salt	ESF-170410..		X	0.100	0.70	0.76	4/2018	97.49%	95.00%	0.7#	0.76	WY
Alkaligrass, Nuttall	OTA		X	1.000	7.00	7.60				40.6#	46.20	

PRELIMINARY COPY

PRELIMINARY COPY

The above listed species were mixed and bagged as follows....

2 *Bags* @ 23.10 lbs

Please feel free to contact us directly if you have any questions or comments.

We appreciate your business !!