



Matrix Design Group, Inc.
707 17th Street, Suite 3150
Denver, CO 80202
O 303.572.0200
F 303.572.0202
matrixdesigngroup.com

November 26, 2024

Colorado Dept. of Transportation (CDOT)
Permits Unit – Region 1
Attn: Steve Loeffler
2829 W. Howard Pl., 2nd Floor
Denver, CO 80204
Via email: steven.loeffler@state.co.us

Re: Letter of Drainage Conformance – Addition of Acceleration & Deceleration Lanes on East Colfax Avenue , Rocky Mountain Rail Park (Aurora, CO)

Dear Mr. Loeffler,

The Rocky Mountain Rail Park project (Site) is situated in northeastern Aurora, Colorado, covering approximately 470 acres. The Site is in the East ½ of Section 23 and the East ½ of Section 26, Township 3 South, Range 64 West of the 6th P.M. The Site is bounded by E 30th Ave to the west, Peterson Rd (Rd 29) to the east, E 48th Ave to the north, and E Colfax Ave (Rd 36) to the south. This section of the project focuses on the intersection of Peterson Rd and E Colfax Ave, specifically the roadway improvements to East Colfax Avenue. The proposal includes the addition of an 895-foot long eastbound left-turn lane, consisting of a 600-foot deceleration lane and a 295-foot storage lane. On the west-bound side of the road, an acceleration lane will be constructed. Additionally, a 600-foot long westbound right-turn deceleration lane will be built, with a 222-foot taper along E. Colfax Avenue. On the west-bound side of the road, a deceleration lane will be constructed.

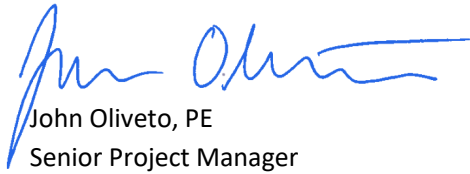
The purpose of this letter is to demonstrate drainage conformance with the addition of these acceleration / turn lanes and associated impervious coverage. The information in this letter supplements and supports the “Rocky Mountain Rail Park Preliminary Drainage Report” prepared by Matrix Design Group in November 2022 and revised November 2024 (hereafter referred to as MASTER REPORT). Both Peterson Rd and E Colfax Avenue are designed to sheet flow into roadside ditches without the use of curbs and gutters. Matrix Design Group has updated the proposed drainage basins in the City of Aurora Drainage Plan to include CFX-W and CFX-E; the additional areas which capture these new turn / acceleration lanes and their associated impervious coverage addition. It is evident that CFX-W collects runoff from the acceleration lane along the northern side of E Colfax Ave and drains it to the same outfall as drainage basin B16 from the MASTER REPORT; the pervious area to the north of Colfax Avenue (and west of Peterson Rd) where water quality will be provided per Mile High Flood District (MHFD) requirements. Also, CFX-E collects runoff from the deceleration lane along the northern side of E Colfax Ave and drains it to the same outfall as drainage basin B16-E from the MASTER REPORT; the pervious area to the north of Colfax Avenue (and east of Peterson Rd) where water quality will be provided per MHFD requirements.

Both CFX-W and CFX-E both drain towards the Union Pacific Railroad right of way. As indicated, water quality treatment will be provided to both new drainage basins within the proposed Peterson Road Roadside Ditch

Drainage Channel (refer to MASTER REPORT for additional information). It is not anticipated that the additional impervious coverage from the acceleration lanes will have any adverse effects on downstream drainage or inundating the nearby roadways and railways. Receiving pervious areas have been computed in accordance with MHFD requirements and included with this letter. Also, see the attached Proposed Drainage Map showing the new CFX-E and CFX-W.

Should you have any questions, please do not hesitate to contact me.

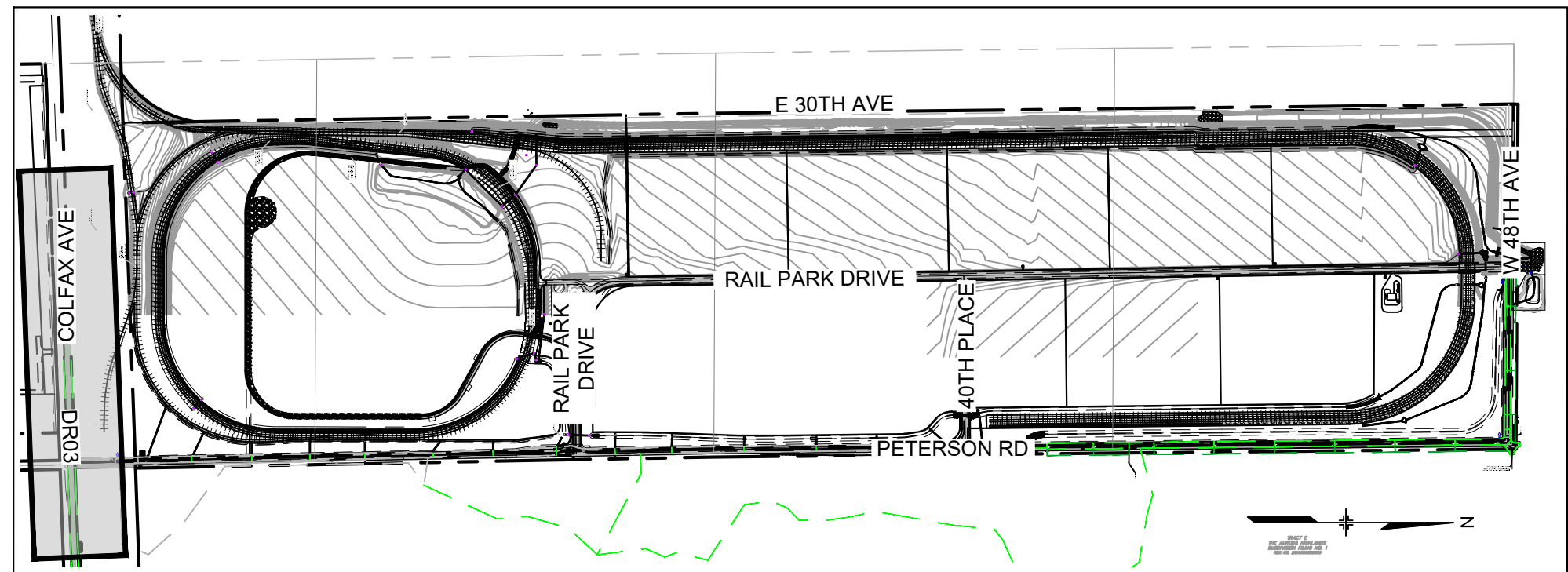
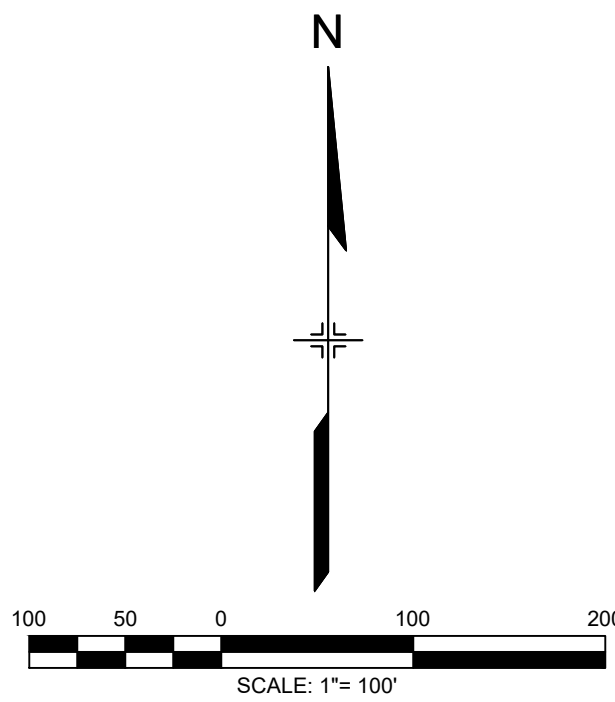
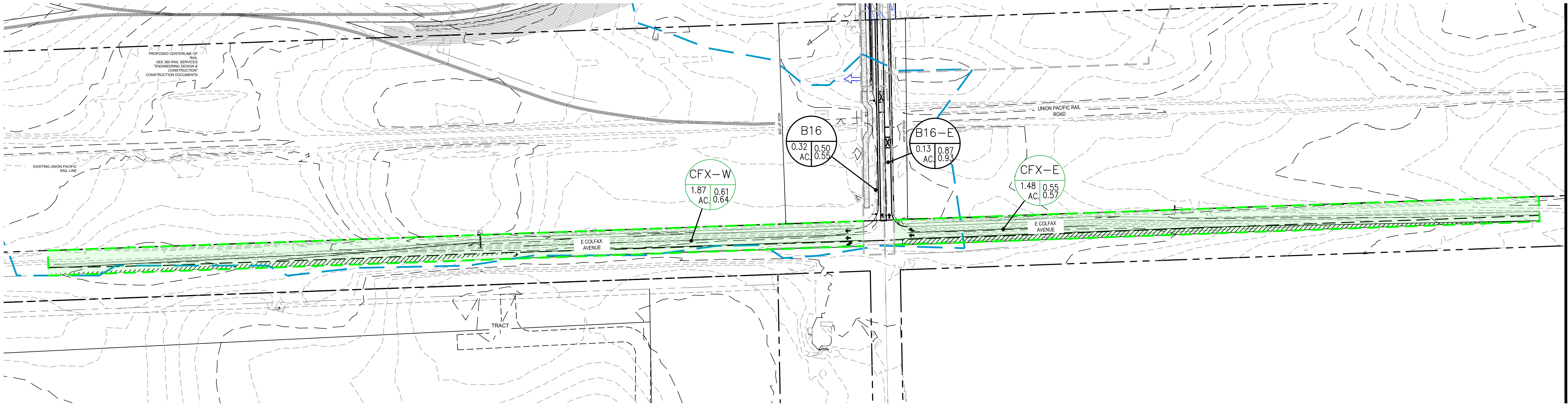
Sincerely,



John Oliveto, PE
Senior Project Manager



Know what's below.
Call before you dig.



- LEGEND**
- 5480 PROPOSED MAJOR CONTOUR
 - 5484 PROPOSED MINOR CONTOUR
 - 5480 PROPOSED MAJOR CONTOUR (BY OTHERS)
 - 5484 PROPOSED MINOR CONTOUR (BY OTHERS)
 - 5480 EXISTING MAJOR CONTOUR
 - 5484 EXISTING MINOR CONTOUR
 - EXISTING EASEMENT LINE
 - PROPOSED STORM INLET
 - PROPOSED FIRE HYDRANT
 - PROPOSED MANHOLE
 - PROPOSED STORM
 - EXISTING STORM
 - EXISTING INLET
 - EXISTING MANHOLE
 - PROPOSED BASIN LINE
 - FUTURE FULL-BUILDOUT BASIN LINE
 - TRANSPORT MASTER BASIN LINE (PER MDR)
 - FLOW ARROW
 - EFFECTIVE 100-YR FLOODPLAIN
 - EFFECTIVE 100-YR FLOODWAY
 - EMERGENCY OVERFLOW ARROW
 - DESIGN POINT
 - PROPOSED ASPHALT

NOTES

- CITY OF AURORA PLAN REVIEW IS ONLY FOR GENERAL CONFORMANCE WITH CITY OF AURORA DESIGN CRITERIA AND THE CITY CODE. THE CITY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, OF DIMENSIONS AND ELEVATIONS WHICH SHALL BE CONFIRMED AND CORRELATED AT THE JOB SITE. THE CITY OF AURORA, THROUGH THE APPROVAL OF THIS DOCUMENT, ASSUMES NO RESPONSIBILITY FOR THE COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT.
- STORM DRAINAGE PIPE SYSTEMS ARE SIZED FOR THE 100-YEAR EVENT.
- FLOODPLAIN INFORMATION SHOWN TAKEN FROM PANELS 08001C0695H, EFFECTIVE 3/05/2007.
- THE STORM SEWER SYSTEM WITHIN THE PUBLIC R.O.W. IS PUBLIC AND TO BE MAINTAINED BY THE CITY OF AURORA UNLESS OTHERWISE INDICATED ON THE PLANS. THE STORM SEWER SYSTEM OUTSIDE THE PUBLIC R.O.W. IS PRIVATE AND TO BE MAINTAINED BY THE RMRPMD. THE OWNERSHIP AND MAINTENANCE RESPONSIBILITY FOR CULVERTS THAT CROSS JURISDICTIONAL BOUNDARIES SHALL BE DETERMINED AT TIME OF CIVIL PLANS.
- A FLOODPLAIN DEVELOPMENT PERMIT IS REQUIRED PRIOR TO ANY WORK WITHIN THE FLOODPLAIN. NO FILL, NO STOCKPILING OR MATERIAL, OR STORAGE OF EQUIPMENT WILL BE PERMITTED IN THE FLOODWAY.
- PRIOR TO ISSUANCE OF PAVING PERMITS, ALL REQUIRED OFF-SITE POND AND CONVEYANCE INFRASTRUCTURE SHALL BE FULLY CONSTRUCTED AND FUNCTIONAL.
- APPROVAL OF THIS DOCUMENT BY CITY OF AURORA DOES NOT IMPLY APPROVAL FOR ANY OFF-SITE WORK ON ADJACENT PRIVATE PROPERTY. IT IS THE OWNER'S RESPONSIBILITY TO COORDINATE WITH ADJACENT PROPERTY OWNERS AND OBTAIN ALL NECESSARY APPROVALS AND EASEMENTS FOR SUCH WORK.

- REQUIRED TABLES FOR SITE HYDROLOGY AND POND OWNERSHIP AND MAINTENANCE WILL BE INCLUDED ON CONSTRUCTION DOCUMENTS.
- PROPOSED CULVERT CROSSINGS OF E. 48TH AVE. AND PETERSON ROAD CROSS JURISDICTIONAL BOUNDARIES. OWNERSHIP AND MAINTENANCE RESPONSIBILITY FOR THESE SHALL BE ESTABLISHED AT THE TIME OF CONSTRUCTION DOCUMENTS.
- REQUIREMENTS FOR TRAFFIC RATED BARRIER ADJACENT TO SLOPES EXCEEDING 4:1 SLOPES TO BE EVALUATED AT TIME OF CONSTRUCTION DOCUMENTS AND NOT APPROVED WITH THIS PRELIMINARY DRAINAGE REPORT.
- FUTURE BASIN BOUNDARIES ALONG PETERSON ROAD (NORTH OF 40TH AVE.) AND 48TH AVE. ARE DELINEATED TO SIZE STORM DRAIN AND STUBS BASED ON THE TYPICAL SECTION OF ULTIMATE BUILDOUT TO BE CONSTRUCTED BY OTHERS.

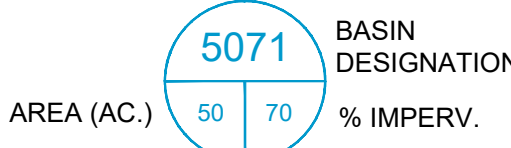
FUTURE FULL-BUILDOUT BASIN LABEL



PROPOSED BASIN LABEL



ORIGINAL TRANSPORT MASTER BASIN LABEL



GENERAL NOTES

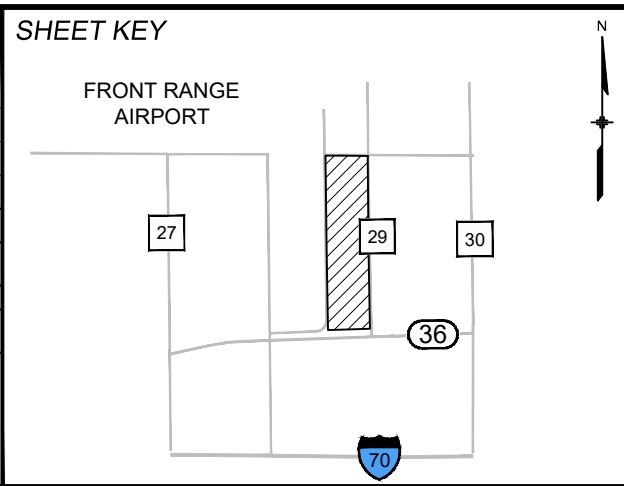
- SUMP INLET EMERGENCY OVERFLOW CROSS SECTIONS WILL BE PROVIDED ON CONSTRUCTION DOCUMENTS.

BENCHMARK:

A GPS DERIVED ELEVATION WAS ESTABLISHED AT AN ONSITE BENCHMARK, CITY OF AURORA BENCHMARK E-200 41-20 (COA ID# 356414SEU02), APPROX. 30' WEST OF THE NORTHEAST CORNER OF SECTION 35, BEING FOUND A 1/2" BRASS CAP ON A 30' LONG STEEL PIPE IN CONCRETE WITH AN ELEVATION OF 5,548.25 FEET (NAVD88). NO DIFFERENTIAL LEVELING WAS PERFORMED TO ESTABLISH THIS ELEVATION.

ELEVATION = 5548.25 (NAVD88)

REFERENCE DRAWINGS		#	#		#
		#	#		#
		#	#		#
	1280_PP-UTIL		#		#
	1280_EX-BNDY		#		#
	1280_PP-BNDY		#		#
	1280_PP-SITE		#		#
	1280_EX-SITE	####	####	####	####
	1280_CD-BRDR	No.	DATE	DESCRIPTION	BY
	1280_BASINS	REVISIONS			
1280_TB-CD_MDG24x36					
COMPUTER FILE MANAGEMENT					
FILE NAME: R:\21.1280.001 22.1305.003 (Rocky Mtn Rail Park)\Drainage\Drainage Maps\Aurora\2 Drainage Plan_Proposed.dwg					
CTB FILE: ---					
PLOT DATE: November 26, 2024 10:33:50 AM					
THIS DRAWING IS CURRENT AS OF PLOT DATE AND MAY BE SUBJECT TO CHANGE.					



PREPARED BY:



SEAL

PETERSON RD AND E 48TH AVENUE

ROCKY MOUNTAIN RESOURCES
PETERSON RD AND E 48TH AVENUE

**CITY OF AURORA
DRAINAGE PLAN**

FOR AND ON BEHALF OF MATRIX DESIGN GROUP, INC. PROJECT No. 21.1280.001		DESIGNED BY: ##	SCALE: 1"=50'	DATE ISSUED: NOVEMBER 2024	DRAWING No. DR03
		DRAWN BY: ##	HORIZ. 1"=50'	SHEET 3 OF 8	
		CHECKED BY: ##	VERT. 1"=50'		

Site Layout

SCM Design, Version 4.00 (April 2024)

Designer: Cory Keyes

Company: Matrix Design Group

Date: November 26, 2024

Project: Rocky Mountain Rail Park

Location: Aurora, CO

SITE LAYOUT INFO (User Input in Blue Cells)

Water Quality Event (WQE) 0.60 inches

Outfall ID	CFX-W	CFX-E										
Total Tributary Area (ft ²)	81,322	64,344										
Imperviousness (%)	62.6%	53.4%										
MS4 Design Standard	Runoff	Runoff										
SCM Type	RPA	RPA										

Notes:

OUTFALL RESULTS

SCM Worksheet Name	RPA_CFX-W	RPA_CFX-E										
Untreated Area (ft ³)	#REF!	#REF!										
Default WQCV (ft ³)	1,662	1,157										
WQCV Reduction (ft ³)	#REF!	#REF!										
Remaining WQCV (ft ³)	#REF!	#REF!										
WQCV Reduction (%)	#REF!	#REF!										
Design WQCV of SCM (ft ³)	0	0										
Pollutant Removal (ft ³)	0	0										
Untreated WQCV (ft ³)	#REF!	#REF!										

TOTAL SITE RESULTS (Sums results from all Outfalls)

Total Site Area	145,666	ft ²	3.34	acres
Treated Area	#REF!	ft ²	#REF!	acres
Untreated Area	#REF!	ft ²	#REF!	acres
Total Site Imperviousness	58.5%	%		
Default WQCV	2,818	ft ³	0.065	acre-feet
Remaining WQCV		ft ³		acre-feet
WQCV Reduction		%		
Design WQCV	0	ft ³	0.000	acre-feet
Untreated WQCV		ft ³		acre-feet

Receiving Pervious Areas (Including Grass Buffers and Grass Swales)

SCM Design, Version 4.00 (April 2024)

Designer: Cory Keyes

Company: Matrix Design Group

Date: November 26, 2024

Project: Rocky Mountain Rail Park

Location: Aurora, CO

Outfall ID: CFX-W

DESIGN PROCEDURE AND CRITERIA FOR ALL RPAs (User Input in Blue Cells)

1. Apply Four-Cover Land Use Model to Site Layout

Design Point ID	CFX-W	UCFX-W	PCFX-W								
Area Type	RPA	UIA	RPA_Buffer								
Downstream Design Point ID	--	PCFX-W									
DCIA (ft ²)	--	--	--								
UIA (ft ²)	--	50,053	--								
RPA (ft ²)	--	--	29,947								
SPA (ft ²)	--	--	--								

2. Protect the RPA from Traffic

RPA Protection Type	--	--	None								
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3. Characterize On-site Topsoil and Determine Suitability for the RPA

HSG A (%)	--	--	50.0%								
HSG B (%)	--	--	50.0%								
HSG C/D (%)	--	--	0.0%								

4. Select Appropriate Vegetation

RPA Vegetation Type	--	--	Seed								
Irrigation Type	--	--	None								

Notes:

GRASS BUFFER ADDITIONAL DESIGN PROCEDURE AND CRITERIA (User Input in Blue Cells)

1. Define the UIA:RPA pair, Ratio, and Interface Width

Sheet Flow Inflow Feature	--	--	Curbless								
Is Concrete Edger used?	--	--	NO								
Spacing between slots (ft)	--	--	--								
Slot Opening Length (in)	--	--	--								
Blind Swale Type	--	--	--								
Spreader Energy Dissipation	--	--	--								
Total Area of UIA:RPA (ft ²)	--	--	80,000								
UIA:RPA Ratio	--	--	1.7								
UIA:RPA Interface Width (ft)	--	--	1,000								
L / W Ratio of UIA:RPA	--	--	0.08								

2. Buffer Length

Average Buffer Length (ft)	--	--	30								
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3. Buffer Slope

Average Buffer Slope (ft/ft)	--	--	0.020								
Effective Distance (ft)	--	--	50								
Number of Level Spreaders	--	--	1								

4. Provide a Vertical Drop

Vertical Drop (in)	--	--	0.00								
Mowing Strip Provided?	--	--	NO								

5. Calculate Runoff for UIA and RPA Pair

Imperviousness (%)	--	--	62.6%								
UIA:RPA Runoff (in)	--	--	0.00								
UIA:RPA Runoff (ft ³)	--	--	0								

6. Compare Runoff from UIA:RPA Pair to Runoff from UIA Only

UIA Runoff (ft ³)	--	--	2,086								
Runoff Reduction (ft ³)	--	--	2,086								
Runoff Reduction (%)	--	--	100.0%								

Notes:

Receiving Pervious Areas (Including Grass Buffers and Grass Swales)

SCM Design, Version 4.00 (April 2024)

Designer: Cory Keyes

Company: Matrix Design Group

Date: November 26, 2024

Project: Rocky Mountain Rail Park

Location: Aurora, CO

Outfall ID: CFX-E

DESIGN PROCEDURE AND CRITERIA FOR ALL RPAs (User Input in Blue Cells)

1. Apply Four-Cover Land Use Model to Site Layout

Design Point ID	CFX-E	UCFX-E	PCFX-E								
Area Type	RPA	UIA	RPA_Buffer								
Downstream Design Point ID	--	PCFX-E									
DCIA (ft ²)	--	--	--								
UIA (ft ²)	--	42,702	--								
RPA (ft ²)	--	--	37,297								
SPA (ft ²)	--	--	--								

2. Protect the RPA from Traffic

RPA Protection Type	--	--	None								
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3. Characterize On-site Topsoil and Determine Suitability for the RPA

HSG A (%)	--	--	50.0%								
HSG B (%)	--	--	50.0%								
HSG C/D (%)	--	--	0.0%								

4. Select Appropriate Vegetation

RPA Vegetation Type	--	--	Seed								
Irrigation Type	--	--	None								

Notes:

GRASS BUFFER ADDITIONAL DESIGN PROCEDURE AND CRITERIA (User Input in Blue Cells)

1. Define the UIA:RPA pair, Ratio, and Interface Width

Sheet Flow Inflow Feature	--	--	Curbless								
Is Concrete Edger used?	--	--	NO								
Spacing between slots (ft)	--	--	--								
Slot Opening Length (in)	--	--	--								
Blind Swale Type	--	--	--								
Spreader Energy Dissipation	--	--	--								
Total Area of UIA:RPA (ft ²)	--	--	79,999								
UIA:RPA Ratio	--	--	1.1								
UIA:RPA Interface Width (ft)	--	--	1,000								
L / W Ratio of UIA:RPA	--	--	0.08								

2. Buffer Length

Average Buffer Length (ft)	--	--	37								
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3. Buffer Slope

Average Buffer Slope (ft/ft)	--	--	0.020								
Effective Distance (ft)	--	--	50								
Number of Level Spreaders	--	--	1								

4. Provide a Vertical Drop

Vertical Drop (in)	--	--	0.00								
Mowing Strip Provided?	--	--	NO								

5. Calculate Runoff for UIA and RPA Pair

Imperviousness (%)	--	--	53.4%								
UIA:RPA Runoff (in)	--	--	0.00								
UIA:RPA Runoff (ft ³)	--	--	0								

6. Compare Runoff from UIA:RPA Pair to Runoff from UIA Only

UIA Runoff (ft ³)	--	--	1,779								
Runoff Reduction (ft ³)	--	--	1,779								
Runoff Reduction (%)	--	--	100.0%								

Notes:
