



19 E. Willamette Avenue
Colorado Springs, CO 80903
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MONUMENT ACADEMY FINAL DRAINAGE REPORT - ADDENDUM NO. 1

July, 2022

The proposed MA Subdivision fully conforms to the previously approved “Master Development Drainage Plan & Final Drainage Report for Monument Academy” dated April 9, 2020 (approved by El Paso County on 4/28/20; CDR-20-001). We understand that future development in Tract A will trigger the need for an additional drainage report in conjunction with any future subdivision plat and/or site development plan process.

As discussed in the previously approved Walden Preserve MDDP, the existing 43”x27” elliptical CMP culvert crossing Walker Road on the north side of the Walden Wastewater Facility is undersized based on historic flows, and the culvert would be expected to overtop during major storm events. However, developed drainage impacts from both Walden Preserve and Monument Academy are mitigated through on-site detention ponds upstream of the Walker Road culvert, and we are not aware of any reported drainage concerns at this crossing. The Developer understands that the County may request further discussion regarding the existing Walker Road culvert during future development of Tract A.

As requested by the County, we have attached a supplemental hydraulic calculation for the roadside ditch along the north side of Highway 105 west of State Highway 83. This ditch receives concentrated flow from the existing 24-inch culvert crossing SH83, including detained flows from the upstream MA Subdivision. As noted on Sh. C2.1B of the approved “Monument Academy Phase 1B Grading & Erosion Control Plans” dated May, 2020, Erosion Control Blanket (ECB) lining has been specified for the full length of this ditch adjoining the project limits.

CDOT has acknowledged acceptance of the completed drainage improvements as part of the Monument Academy state highway improvement project, as documented in the CDOT “Conditional Letter of Acceptance for State Highway Access Permit No. 219075 – Pinehurst Circle Ramp” and “Conditional Letter of Acceptance for State Highway Access Permit No. 219076 – Walker Road” dated January 19, 2022.

MONUMENT ACADEMY
DITCH CALCULATION SUMMARY

PROPOSED ROADSIDE DITCHES

ROADWAY	FROM STA	TO STA	SIDE	SLOPE (%)	SIDE SLOPE (Z)	CHANNEL DEPTH (FT)	FRICTION FACTOR (n)	ROW WIDTH (ft)	BASIN/ DP	Q100 FLOW (CFS)	DITCH FLOW % OF BASIN	DITCH FLOW (CFS)	Q100 DEPTH (FT)	Q100 VELOCITY (FT/S)	DITCH LINING
PINEHURST CIRCLE	11+00	13+63	S	7.72	4:1/3:1	2.5	0.030	60	M5	61.2	5	3.1	0.4	4.8	GRASS / ECB
WALKER ROAD (NW)	19+20	20+20	N	5.61	4:1/3:1	2.5	0.030	60	OM3	9.0	100	9.0	0.7	5.6	GRASS / ECB
HWY 105 (W. OF SH83)	11+00	17+50	N	4.67	3:1/3:1	2.5	0.030	130	OM3.1	23.6	100	23.6	1.1	6.8	GRASS / ECB

1) Channel flow calculations based on Manning's Equation

2) n = 0.03 for grass-lined non-irrigated channels

3) Vmax = 4.0 fps for 100-year flows w/ native grass-lined channels (per ECM Table 10-4 & NRCS Companion Document 580-10)

4) Vmax = 8.0 fps for 100-year flows w/ Erosion Control Blankets (Tensor Eronet P300 or equal)

Hydraulic Analysis Report

Project Data

Project Title: Monument Academy
Designer: JPS
Project Date: Tuesday, July 26, 2022
Project Units: U.S. Customary Units
Notes:

Channel Analysis: Ditch-OM3.1 (N. side of Hwy 105; W. of SH83)

Notes:

Input Parameters

Channel Type: Triangular
Side Slope 1 (Z1): 3.0000 ft/ft
Side Slope 2 (Z2): 3.0000 ft/ft
Longitudinal Slope: 0.0467 ft/ft
Manning's n: 0.0300
Flow: 23.6000 cfs

Result Parameters

Depth: 1.0735 ft
Area of Flow: 3.4574 ft²
Wetted Perimeter: 6.7896 ft
Hydraulic Radius: 0.5092 ft
Average Velocity: 6.8259 ft/s
Top Width: 6.4412 ft
Froude Number: 1.6419
Critical Depth: 1.3090 ft
Critical Velocity: 4.5908 ft/s
Critical Slope: 0.0162 ft/ft
Critical Top Width: 7.85 ft
Calculated Max Shear Stress: 3.1284 lb/ft²
Calculated Avg Shear Stress: 1.4839 lb/ft²



COLORADO

Department of Transportation

Region 2 Permits

5615 Wills Blvd.
Pueblo, CO 81008-2349

January 19, 2022

Jennifer E. Irvine
El Paso County
3275 Akers Drive
Colorado Springs, Colorado 80922

Mark Mc Williams
Monument Academy Foundation
1150 Village Ridge Point
Monument, Colorado 80132

RE: Conditional Letter of Acceptance for State Highway Access Permit No. **219075 - Pinehurst Circle Ramp**

Dear Permittee/Applicant,

This is to notify you that the Colorado Department of Transportation has inspected the access located on the right side of State Highway 83, a distance of 1378 feet south from milepost 28 (MM28.740) and ± 1950 feet from the intersection of State Highway 83/Walker Road in El Paso County. The access permit for this access was issued on May 15, 2020 to allow for construction of a new access point to State Highway 83 to be known as the Pinehurst Circle Ramp to Monument Academy Charter School. The access will serve a 42.3 acres multi-phased land use for the ultimate Phase I - the charter school and YMCA; and Phase II - the undetermined commercial/multi-use and residential. **This access is temporary in nature and will be required to be removed by the Development once the future proposed Phase II commercial/residential subdivision on the remaining acres of this parcel are developed or secondary internal access is achieved from Pinehurst Circle, connection to the south of the school.** The access has been installed in accordance with the terms and conditions listed on the access permit therefore it is acceptable to CDOT.

It is the responsibility of the property owner and Permittee to ensure that the use of the access to the property is not in violation of the Code, permit terms and conditions or the Act. The terms and conditions of any permit are binding upon all assigns, successors-in-interest, heirs and occupants. If, in the future, any significant changes are made or will be made in the use of the property, which will affect access operations, traffic volume and/or vehicle type, the Permittee or property owner shall contact the Department to determine if a new access permit and modifications to the access are required.

Please be aware that if any construction element fails within two years from the date of this letter, due to improper construction or material specifications, the Permittee shall be responsible for all repairs.

You (the permittee/owner) are advised that the date of acceptance is January 14, 2022.

If you have any questions, please contact me in Pueblo at (719) 248-0318 or via email at teresa.guagliardo@state.co.us.

Sincerely,

Teresa Guagliardo

Teresa Guagliardo
Region II Access Construction Coordinator

XC: John Schwab, PE - JPS Engineering
Matt Dunston - Developer
Ferguson
Bauer - Patrol 83
Vigil / Gonzales / Regalado / file





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Monument, Colorado 80132

RE: Conditional Letter of Acceptance for State Highway Access Permit No. 219076 - Walker Road

Dear Permittee/Applicant,

This is to notify you that the Colorado Department of Transportation has inspected the access located on the right/east side of State Highway 83, a distance of 528 feet east of the intersection of State Highway 83/Walker Road at MM28.10, called the Jane Lundeen Drive roundabout in El Paso County. The access permit for this access was issued on May 15, 2020 to re-permit an existing access to State Highway 83. It replaces Access Permit #215017, issued in 2015. The access was previously permitted to allow access to State Highway 83 via Walker Road. The access will serve the proposed development along Walker Road to the southeast for the Monument Academy Charter School, a multi-phased land use for the charter school, YMCA, undetermined commercial/multi-use and residential on 42.3 acres at the southeast corner of the State Highway 83/Walker Road intersection. Additional intersection improvements will be required once Phase II (subdivision commercial/ residential) occur on the same acreage. The access has been installed in accordance with the terms and conditions listed on the access permit therefore it is acceptable to CDOT.

It is the responsibility of the property owner and Permittee to ensure that the use of the access to the property is not in violation of the Code, permit terms and conditions or the Act. The terms and conditions of any permit are binding upon all assigns, successors-in-interest, heirs and occupants. If, in the future, any significant changes are made or will be made in the use of the property, which will affect access operations, traffic volume and/or vehicle type, the Permittee or property owner shall contact the Department to determine if a new access permit and modifications to the access are required.

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