

FINAL STORM REPORT

ADDENDUM

Cobey Creek, Phase 1

Mixed Use Development

Lee's Summit, MO

PREPARED FOR

JCM DEVELOPMENT, LLC

PREPARED BY

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7/1/19

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This addendum to the final storm report for Cobey Creek, Phase 1, is prepared to address comments from the City of Lee's Summit staff from a letter dated May 25th, 2019 in regard to specific stormwater issues. The three sections are intended to provide additional information to the first three comments of said letter.

1. 40 Hour Extended Detention

The 8" skimmer used for erosion control will be permanent and the coupling will be capped. After final construction, if it is determined the North Detention Pond does not drain in 48 hours; the cap will be removed to drain the detention pond.

2. Effective Height

TR-60 states the following for the effective height of the dam.

"Effective height of dam. The difference in elevation in feet between the lowest open channel auxiliary spillway crest and the lowest point in the original cross section on the centerline of the dam. If there is no open channel auxiliary spillway, the top of the dam becomes the upper limit."

The top of the auxiliary spillway is at El. 977.0. The lowest point in the original cross section on the centerline of the dam is El. 968.0. Therefore, TR-60 does not apply to this detention pond.

3. Energy Dissipation

Additional energy dissipation has been added to the outlet structure at the request of the City of Lee's Summit. The outlet rip rap pad is fitted with a Contra Costa Design from HEC 14. The design details are included in the plans. The original 100-year outlet velocity is ~12.0 ft/s and the proposed 100-year outlet velocity is expected to be ~8.7 ft/s. Calculations are included in this Addendum.

HY-8 Energy Dissipation Report

External Energy Dissipator

Parameter	Value	Units
Select Culvert and Flow		
Crossing	Crossing 1	
Culvert	Culvert 1	
Flow	280.00	cfs
Culvert Data		
Culvert Width (including multiple barrels)	8.0	ft
Culvert Height	4.0	ft
Outlet Depth	3.51	ft
Outlet Velocity	11.98	ft/s
Froude Number	1.13	
Tailwater Depth	0.00	ft
Tailwater Velocity	0.00	ft/s
Tailwater Slope (SO)	0.0049	
External Dissipator Data		
External Dissipator Category	Streambed Level Structures	
External Dissipator Type	Contra Costa	
Restrictions		
Froude Number	<3	
TailWater	<.5D	
Input Data		
Baffle Block Height Ratio		
Note:	2.5 < Baffle Block Height Ratio < 7	
Note:	Optimum Baffle Block Height Ratio = 3.5	
Ratio of Baffle Block Height to Block Distance from the Culvert	3.500	
End Sill Height to Maximum Depth Ratio		
Note:	Maximum Depth in the Dissipator is 4.794 feet	
Note:	0.06 < End Sill Height to Max Depth Ratio < 0.1	
Note:	0.1 is Recommended for End Sill Height to Max Depth Ratio	
Ratio to Determine End Sill Height from Maximum Depth	0.100	
Basin Width		
Note:	Channel Width is 8.000 feet	ft
Note:	4.000 < Basin Width < 12.000	ft
Note:	Channel Width is Recommended for Basin Width	
Basin Width	8.000	ft
Results		
Basin Depth (Y2)	4.794	ft
Basin Length (LB)	21.373	ft
Basin Width (WB)	8.000	ft
Exit Width (W3)	8.000	ft
Exit Depth (YC)	2.954	ft

Exit Velocity (VB=VC)	8.653	ft/s
First Baffle		
Height (H1)	1.174	ft
Width (WB)	8.000	ft
Space (L1)	4.111	ft
Second Baffle		
Height (H2)	2.349	ft
Width (WB)	8.000	ft
Space (L2)	8.221	ft
End Sill		
Height (H3)	0.479	ft
Top Width (W3)	8.000	ft
Location (L3)	13.152	ft

