ENGINEER'S STATEMENT

The attached drainage plan and report were prepared under my direction and supervision and are correct to the best of my knowledge and belief. Said drainage report has been prepared according to the criteria established by El Paso County for drainage reports and said report is in conformity with the master plan of the drainage basin. I accept responsibility for any liability caused by any negligent acts, errors, or omissions on my part in preparing this report.

Richard L. Schindler, P.E. #33997 Date
For and on Behalf of Core Engineering Group, LLC

OWNER'S STATEMENT

I, the Owner, have read and will comply with all the requirements specified in the drainage report and plan.

Lorson, LLC Date

By
Jeff Mark

Title
Manager

Address
212 N. Wahsatch Avenue, Suite 301, Colorado Springs, CO 80903

FLOODPLAIN STATEMENT

To the best of my knowledge and belief, this development is not located within a designated floodplain as shown on Flood Insurance Rate Map Panel No. 08041C0957G and 08041C0976G, dated December 7, 2018. (See Appendix A, FEMA FIRM Exhibit)

Richard L. Schindler, #33997 Date

EL PASO COUNTY

Filed in accordance with the requirements of the El Paso County Land Development Code, Drainage Criteria Manual, Volume 1 and 2, and Engineering Criteria Manual, As Amended.

Jennifer Irvine Date
County Engineer/ECM Administrator

Conditions: _____

Delete "Jennifer Irvine"

Summary of Comments on Microsoft Word - 100.065-fdr

Page: 3

Author: dsdrice Date: 6/16/2022 3:09:35 PM

Author: dsdrice Date: 6/16/2022 3:10:05 PM

Author: dsdrice Date: 6/16/2022 3:10:12 PM

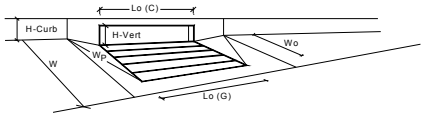
Author: dsdrice Subject: Callout Date: 6/16/2022 3:10:43 PM

Delete "Jennifer Irvine"

Author: RSchindler Subject: Sticky Note Date: 6/29/2022 9:25:14 AM
deleted

INLET IN A SUMP OR SAG LOCATION

Version 4.05 Released March 2017



Will this overtop and flow west at 3.6 inches?

		MINOR	MAJOR	
Design Information (Input) CDOT Type R Curb Opening				
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	5.5	7.2	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Area Opening Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	30.00	30.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.29	0.43	ft
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	0.52	0.68	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.75	0.85	
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	Q_a =	**13.8**	**28.9**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms(>Q PEAK)	$Q_{PEAK\ REQUIRED}$ =	10.1	28.6	cfs

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Author: dsdrice Subject: Callout Date: 6/16/2022 11:58:06 AM

Will this overtop and flow west at 3.6 inches?

Author: RSchindler Subject: Sticky Note Date: 6/29/2022 9:25:58 AM

no. added inlet to make sure this doesn't happen.

Design Procedure Form: Extended Detention Basin (EDB)

UD-BMP (Version 3.07, March 2018)

Designer:	**R. Schindler**
Company:	**Core Engineering Group**
Date:	**April 14, 2022**
Project:	**Hillside at Lorson Ranch**
Location:	**Pond E1 - WQ pond**

1. Basin Storage Volume

A) Effective Imperviousness of Tributary Area, I_a — I_a = 52.0 %

B) Tributary Area's Imperviousness Ratio ($i = I_a / 100$) — i = 0.520

C) Contributing Watershed Area — Area = 69.200 ac

D) For Watersheds Outside of the Denver Region, Depth of Average Runoff Producing Storm — d_6 = in

E) Design Concept (Select EURV when also designing for flood control)

Choose One
- (●) Water Quality Capture Volume (WQCV)
- ( ) Excess Urban Runoff Volume (EURV)

F) Design Volume (WQCV) Based on 40-hour Drain Time ($V_{DESIGN} = (1.0 * (0.91 * i^3 - 1.19 * i^2 + 0.78 * i) / 12 * Area$) — V_{DESIGN} = ac-ft

G) For Watersheds Outside of the Denver Region, Water Quality Capture Volume (WQCV) Design Volume ($V_{WQCV\ OTHER} = (d_6*(V_{DESIGN}/0.43))$) — $V_{DESIGN\ OTHER}$ = ac-ft

H) User Input of Water Quality Capture Volume (WQCV) Design Volume (Only if a different WQCV Design Volume is desired) — $V_{DESIGN\ USER}$ = 1.220 ac-ft

USE THESE CALCULATIONS ONLY FOR RECTANGULAR NOTCH IN FOREBAY FOR 18" RCP OUTLET

2. Basin Shape: Length to Width Ratio (A basin length to width ratio of at least 2:1 will improve TSS reduction.) — L : W = 2.0 : 1

3. Basin Side Slopes

A) Basin Maximum Side Slopes (Horizontal distance per unit vertical, 4:1 or flatter preferred) — Z = 3.00 ft / ft

DIFFICULT TO MAINTAIN, INCREASE WHERE POSSIBLE

4. Inlet

A) Describe means of providing energy dissipation at concentrated inflow locations:

5. Forebay

A) Minimum Forebay Volume (V_{FMIN} = 3% of the WQCV) — V_{FMIN} = 0.037 ac-ft

B) Actual Forebay Volume — V_F = 0.004 ac-ft VF < MINIMUM VF

C) Forebay Depth (D_F = 30 inch maximum) — D_F = 30.0 in

D) Forebay Discharge

i) Undetained 100-year Peak Discharge — Q_{100} = 10.30 cfs

ii) Forebay Discharge Design Flow ($Q_F = 0.02 * Q_{100}$) — Q_F = 0.21 cfs

E) Forebay Discharge Design

Choose One
- ( ) Berm With Pipe
- (●) Wall with Rect. Notch
- ( ) Wall with V-Notch Weir

F) Discharge Pipe Size (minimum 8-inches) — Calculated D_P = :

G) Rectangular Notch Width — Calculated W_N = 6.2 in

does not match what is shown on Sht C9.2 of GEC Plans. Revise to remove discrepancy.

Page: 122

Author: Glenn Reese - EPC Stormwater Subject: SW - Textbox with Arrow Date: 6/16/2022 4:37:15 PM

does not match what is shown on Sht C9.2 of GEC Plans. Revise to remove discrepancy.

Author: RSchindler Subject: Sticky Note Date: 6/29/2022 9:46:43 AM

NOTCH UPDATED

Author: Glenn Reese - EPC Stormwater Subject: SW - Rectangle Date: 6/16/2022 4:35:46 PM

Page: 126

Author: dsdrice Subject: Text Box Date: 6/16/2022 12:52:17 PM

Use updated drawings

Author: RSchindler Subject: Sticky Note Date: 6/29/2022 9:54:07 AM

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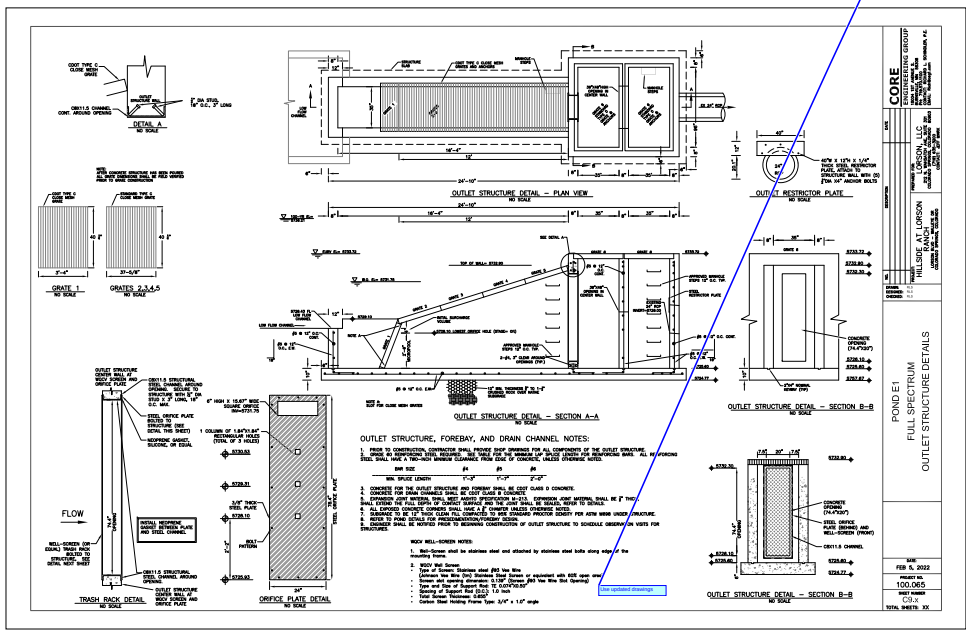

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Author: dsdrice Subject: Text Box Date: 6/16/2022 12:52:33 PM

Use updated drawings

Author: RSchindler Subject: Sticky Note Date: 6/29/2022 9:54:11 AM

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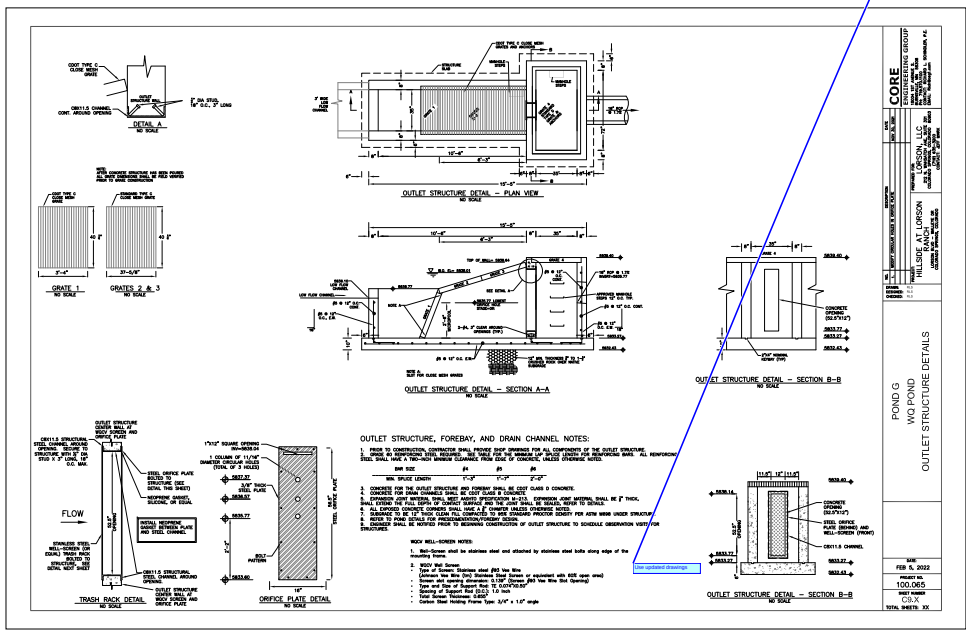

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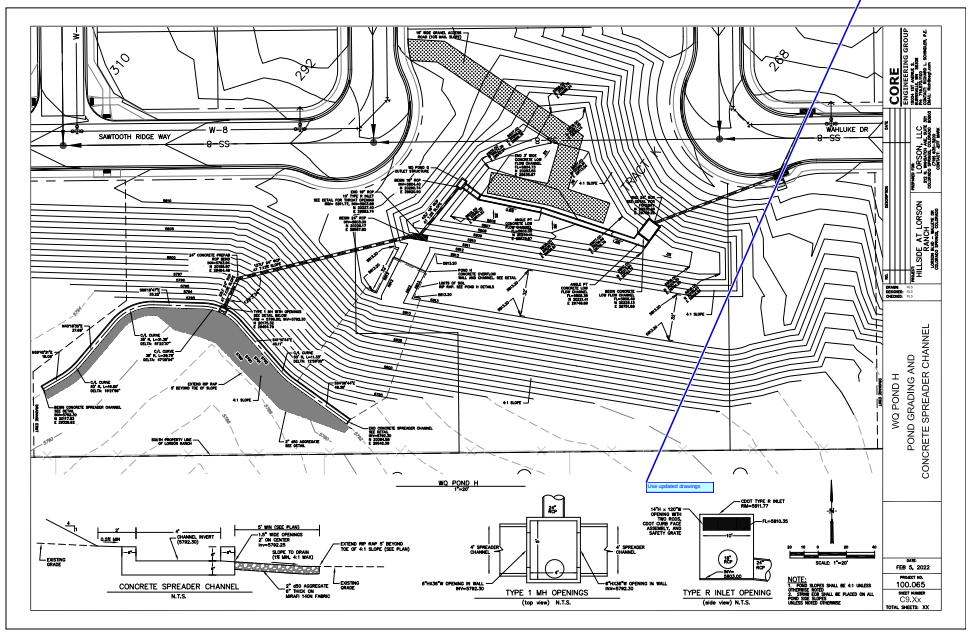
Author: dsdrice Subject: Text Box Date: 6/16/2022 1:04:32 PM

Use updated drawings

Author: RSchindler Subject: Sticky Note Date: 6/29/2022 9:54:16 AM

INSERTED



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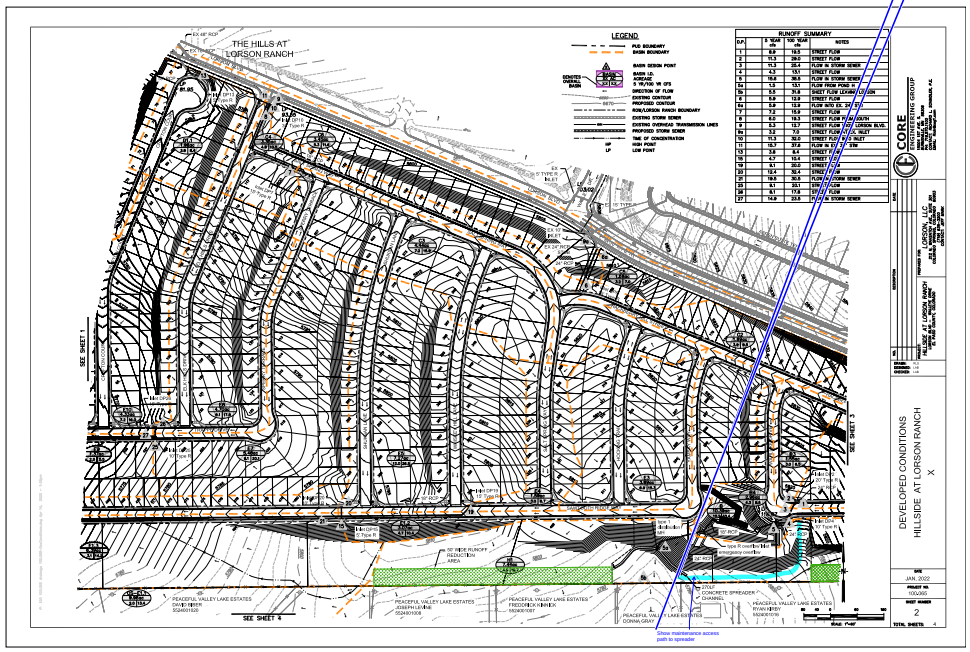
Author: dsdrice Date: 6/16/2022 2:49:08 PM

Author: dsdrice Subject: Callout Date: 6/16/2022 2:49:23 PM

Show maintenance access path to spreader

Author: RSchindler Subject: Sticky Note Date: 6/29/2022 9:54:22 AM

ADDED



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Author: dsdrice Date: 6/16/2022 2:46:24 PM

Author: dsdrice Subject: Callout Date: 6/16/2022 2:45:53 PM

Show maintenance access path to spreader

Author: RSchindler Subject: Sticky Note Date: 6/29/2022 9:54:28 AM

ADDED