TABLE OF CONTENTS

Summary of Comments on Microsoft Word - 100.063-fdr

Page: 2

Author: CDurham Subject: Text Box Date: 4/25/2022 10:48:59 AM

Where did Appendix F - 2019 Annual Report of Drainage/Bridge Fee Credits go? Please add back in.

Author: RSchindler Subject: Sticky Note Date: 5/2/2022 11:27:49 AM

we have exhausted credits for drainage so we have removed this item.

built with PUD/SP 21-006 which accounts for flow from Skyline. This project will construct an additional forebay and associated low flow channel on the west side of the pond. Pond C4 is designed in the UDCF Full Spectrum spreadsheets for Water Quality and EURV volumes. The 5-year and 100-year flow rates meet the Lorson East MDDP and have been modeled in the full spectrum worksheets. The outlet structure is a standard full spectrum extended detention basin structure and will include an emergency overflow spillway. The full spectrum print outs are in the appendix of this report. See map in appendix for watershed areas.

- Watershed Area: 81.00 acres
- Watershed Imperviousness: 55%
- Hydrologic Soils Group B (40%), Group C/D (60%)
- Zone 1 WQCV: 1.488ac-ft, WSEL: 5767.97
- Zone 2 EURV: ~~4.477ac-ft, WSEL: 5770.41, Top of weir structure set at 5770.50, 6'x6' outlet structure~~
- (5-yr): 3.934ac-ft, ~~WSEL: 5770.04, 16.5cfs~~
- Zone 3 (100-yr): 10.152ac-ft, ~~WSEL: 5774.34, 43.7cfs~~
- Pipe Outlet: existing 24" RCP at 0.5%
- Overflow Spillway: 30' wide bottom, elevation=5775.00, 4:1 side slopes, ~~flow depth=1.87'~~ 1.13' freeboard
- Micropool Elevation: 5765.00

This was 6.96ac with V1, which matches UD Detention spreadsheet. Clarify in parenthesis that 6.96ac of the 81ac is for Skyline, so that this text aligns with pdf pg 36.

Highlighted items did not match UD Detention spreadsheet

Page: 11

Author: Glenn Reese - EPC Stormwater Subject: SW - Textbox with Arrow Date: 4/25/2022 3:48:19 PM
This was 6.96ac with V1, which matches UD Detention spreadsheet. Clarify in parenthesis that 6.96ac of the 81ac is for Skyline, so that this text aligns with pdf pg 36.

Author: Glenn Reese - EPC Stormwater Subject: SW - Highlight Date: 4/25/2022 3:48:32 PM
81.00 acres

Author: CDurham Subject: Callout Date: 4/21/2022 5:47:42 PM
Highlighted items did not match UD Detention spreadsheet

Author: RSchindler Subject: Sticky Note Date: 5/2/2022 2:52:36 PM
items updated

Author: CDurham Subject: Highlight Date: 4/21/2022 5:29:11 PM

Author: CDurham Subject: Highlight Date: 4/21/2022 5:34:20 PM
WSEL: 5770.41

Author: CDurham Subject: Highlight Date: 4/21/2022 5:29:20 PM
3.934ac-ft

Author: CDurham Subject: Highlight Date: 4/21/2022 5:29:26 PM
10.152ac-ft

7.0 DRAINAGE AND BRIDGE FEES

Skyline at Lorson Ranch is located within the Jimmy Camp Creek drainage basin which is currently a fee basin in El Paso County. Current El Paso County regulations require drainage and bridge fees to be paid for platting of land as part of the plat recordation process.

Skyline at Lorson Ranch Filing No. 1 contains 15.764acres. The 2022 drainage fees are $21,134, bridge fees are $989 and Drainage Surety fees are $7,285 per impervious acre per Resolution 21-468. The drainage and bridge fees are calculated when the final plat is submitted and the fees are due at plat recordation. The following table details the drainage fees for the platted and Lorson Ranch intends to use the Bridge Fee credits for the bridge fees and pay drainage/surety fees unless the Jimmy Camp Creek DBPS drainage fee structure is updated by El Paso County.

Table 1: 2022 Drainage/Bridge Fees (15.764ac)

Type of Land Use	Total Area (ac)	Imperviousness	Drainage Fee	Bridge Fee	Surety Fee
Residential Area	11.404	51%	$122,916	$5,752	$42,369
Tract D - pump station	0.707	30%	$4,482	$209	$1,545
Open Space, Landscape Tracts,	3.653	2%	$1,544	$72	$532
		Total	$128,942	$6,033	$44,446

Table 7.1: Public Drainage Facility Costs (non-reimbursable)

Item	Quantity	Unit	Unit Cost	Item Total

5 (3 inlets & 2 manholes)

Soil Rip Rap	5	CY	$50/CY	$250
Inlets/Manholes	4	EA	$3000/EA	$12,000
18" Storm	41	LF	$35	$1,435
24" Storm	58	LF	$40	$2,320
30" Storm	600	LF	$45	$27,000
Pond forebay/channel	1	EA	$8,000	$8,000
			Subtotal	$51,005
			Eng/Cont (10%)	$5,100
			Total Est. Cost	$56,105

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Author: CDurham Subject: Callout Date: 4/25/2022 10:59:35 AM
5 (3 inlets & 2 manholes)

Author: RSchindler Subject: Sticky Note Date: 5/2/2022 11:45:28 AM
updated

8.0 FOUR STEP PROCESS

The site has been developed to minimize wherever possible the rate of developed runoff that will leave the site and to provide water quality management for the runoff produced by the site as proposed on the development plan. The following four step process should be considered and incorporated into the storm water collection system and storage facilities where applicable.

Step 1: Employ Runoff Reduction Practices
Skyline at Lorson Ranch has employed several methods of reducing runoff.

- The street configuration was laid out to minimize the length of streets. Many streets are straight and perpendicular resulting in lots with less wasted space.
- There are large open space buffers under the 325' wide electric transmission easement on the east side
- Construct one Full Spectrum Detention Outlet Structure. The full spectrum detention mimics existing storm discharges and includes water quality.

Step 2: Stabilize Drainageways
East Tributary of Jimmy Camp Creek is a major drainageway located west of this site. In 2014, 2018, and through 2021 the East Tributary of JCC was reconstructed and stabilized per county criteria. The design included a natural sand bottom and armored sides.

Step 3: Provide Water Quality Capture Volume
Treatment of the water quality capture volume (WQCV) is required for all new developments. Skyline at Lorson Ranch will construct one full spectrum stormwater extended detention basin outlet structure within existing Pond C4 which include Water Quality Volumes and WQ outlet structures.

Step 4: Consider Need for Industrial and Commercial BMP's
There are no commercial or industrial areas within this site.

9.0 CONCLUSIONS

This drainage report has been prepared in accordance with the City of Colorado Springs/El Paso County Drainage Criteria Manual. The proposed development and drainage infrastructure will not cause adverse impacts to adjacent properties or properties located downstream. Several key aspects of the development discussed above are summarized as follows:

CORE ENGINEERING GROUP

Standard Form SF-2, Storm Drainage System Design (Rational Method Procedure)

Calculated By: Leonard Beasley
Date: Nov. 4, 2020
Checked By: Leonard Beasley

Job No: 100.063
Project: Skyline at Lorson Ranch
Design Storm: **5 - Year Event (Proposed)**

Street or Basin	Design Point	Direct Runoff: Area Design	Area (A)	Runoff Coeff. (C)	t_c	CA	I	Q	Total Runoff: t_c	Σ (C·A)	I	Q	Street: Slope	Street: Street Flow	Pipe: Design Flow	Pipe: Slope	Pipe: Pipe Size	Travel Time: Length	Travel Time: Velocity	Travel Time: t_t	Remarks
			ac.		min.		in/hr	cfs	min		in/hr	cfs	%	cfs	cfs	%	in	ft	ft/sec	min	
C5.1-ex			4.81	0.11	21.6	0.53	2.97	1.6													
C10.7			3.17	0.45	13.5	1.43	3.68	5.3													
C10.7 & C5.1-ex	38	7.98							15.6	1.96	3.46	6.8									
C10.8			1.89	0.45	12.5	0.85	3.80	3.2													
C10.7, C10.8 & C5.1-ex		9.87							20.6	2.81	3.05	8.5									
C10.9			3.82	0.46	15.7	1.76	3.40	6.1													
C10.6			0.56	0.49	6.1	0.27	4.88	1.3													
C10.6, C10.9 & C5.1-ex	40	14.25							20.6	4.84	3.05	14.7									
C10.10a			3.75	0.45	8.3	1.69	4.41	7.4													
C10.10a	38a	3.75							8.3	1.69	4.41	7.4									
C10.10b	38b		1.67	0.45	13.6	0.75	3.67	2.8													
C10.10a - C10.10b		5.42							13.7	2.44	3.66	8.9									
C10.10c	38c		1.54	0.45	6.9	0.69	4.70	3.3													

P:\100\100.063\drainage\ 100.063 Flows 1 of 1 3/3/2022

his line

flowby

8b do gether

Author: CDurham Subject: Text Box Date: 4/21/2022 6:41:47 PM
Remove this line

Author: RSchindler Subject: Sticky Note Date: 5/2/2022 12:02:54 PM
removed

Author: CDurham Subject: Text Box Date: 4/21/2022 6:45:37 PM
DP 40 needs to include flowby from DP 38a & DP 38b

Author: RSchindler Subject: Sticky Note Date: 5/2/2022 11:56:14 AM
we include that in the written design point summary

Author: CDurham Subject: Text Box Date: 4/21/2022 6:39:41 PM
38b

Author: CDurham Subject: Text Box Date: 4/21/2022 6:40:27 PM
DP 38a & DP 38b do not combine together

Author: RSchindler Subject: Sticky Note Date: 5/2/2022 12:02:19 PM
removed

Author: CDurham Subject: Text Box Date: 4/21/2022 6:37:51 PM
38c

Author: CDurham Subject: Text Box Date: 4/21/2022 6:47:31 PM
See comments on previous sheet

Author: RSchindler Subject: Sticky Note Date: 5/2/2022 12:02:59 PM
noted

CORE ENGINEERING GROUP

Standard Form SF-2, Storm Drainage System Design (Rational Method Procedure)

Calculated By: Leonard Beasley
Date: Nov. 4, 2019
Checked By: Leonard Beasley

Job No: 100.063
Project: Skyline at Lorson Ranch
Design Storm: **100 - Year Event (Proposed)**

Street or Basin	Design Point	Direct Runoff							Total Runoff				Street		Pipe			Travel Time			Remarks
		Area Design	Area (A)	Runoff Coeff. (C)	t_c	CA	i	Q	t_c	Σ (CA)	i	Q	Slope	Street Flow	Design Flow	Slope	Pipe Size	Length	Velocity	t_t	
		ac.			min.		in/hr	cfs	min		in/hr	cfs	%	cfs	cfs	%	in	ft	ft/sec	min	
C5.1-ex			4.81	0.40	21.6	1.92	4.99	9.6													
C10.7			3.17	0.59	13.5	1.87	6.18	11.6													
C5.1-ex & C10.7	**38**	7.98							15.6	3.79	5.82	22.1									
C10.8			1.89	0.59	12.5	1.12	6.37	7.1													
C10.7-C10.8 & C5.1-ex		9.87							20.6	4.91	5.11	25.1									
C10.9			3.82	0.53	15.7	2.02	5.79	11.7													
C10.6			0.56	0.65	6.1	0.36	8.19	3.0													
C10.6-C10.9 & C5.1-ex	**40**	14.25							20.6	7.30	5.11	37.3									
C10.10a			3.75	0.59	8.3	2.21	7.40	16.4													
C10.10a	**38a**	3.75							8.3	2.21	7.40	16.4									
C10.10b			1.67	0.60	13.6	1.00	6.17	6.2													
C10.10a - C10.10b		5.42							13.6	3.21	6.17	19.8									
C10.10c			1.54	0.59	6.9	0.91	7.89	7.2													

See comments on previous sheet

POND C4 CALCULATIONS TAKEN FROM PUD/SP 21-006

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Author: RSchindler Subject: Text Box Date: 3/2/2022 7:21:13 AM -06'00'

POND C4 CALCULATIONS TAKEN FROM PUD/SP 21-006

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line size (in)	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line slope (%)	HGL down (ft)	HGL up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns line No.
1	1	13.50	30 c	498.0	5766.90	5769.99	0.621	5768.13	5771.22	n/a	5771.22 j	End
2	2	13.50	30 c	108.2	5769.99	5770.66	0.618	5771.59	5771.89	n/a	5772.55 j	1
3	3	10.20	24 c	56.6	5771.16	5771.55	0.688	5772.55	5772.68	n/a	5773.37 i	2
4	4	7.40	18 c	36.1	5772.05	5772.34	0.803	5773.37	5773.43	n/a	5774.06 i	3
5	5	3.30	18 c	7.8	5771.66	5771.82	2.042	5772.55	5772.51	n/a	5772.86 i	2

Update storm sewer design to match information in CD's - Lengths and inverts in storm sewer model do not match those shown in construction drawings. Please revise accordingly so documents match.

100.063-5yr STM | Number of lines: 5 | Run Date: 11-19-2020

NOTES: c = cir; e = ellip; b = box; Return period = 5 Yrs. ; i - Inlet control. ; j - Line contains hyd. jump.

Author: CDurham Subject: Text Box Date: 4/25/2022 10:28:00 AM

Update storm sewer design to match information in CD's - Lengths and inverts in storm sewer model do not match those shown in construction drawings. Please revise accordingly so documents match.

Author: RSchindler Subject: Sticky Note Date: 5/2/2022 12:20:59 PM

model updated

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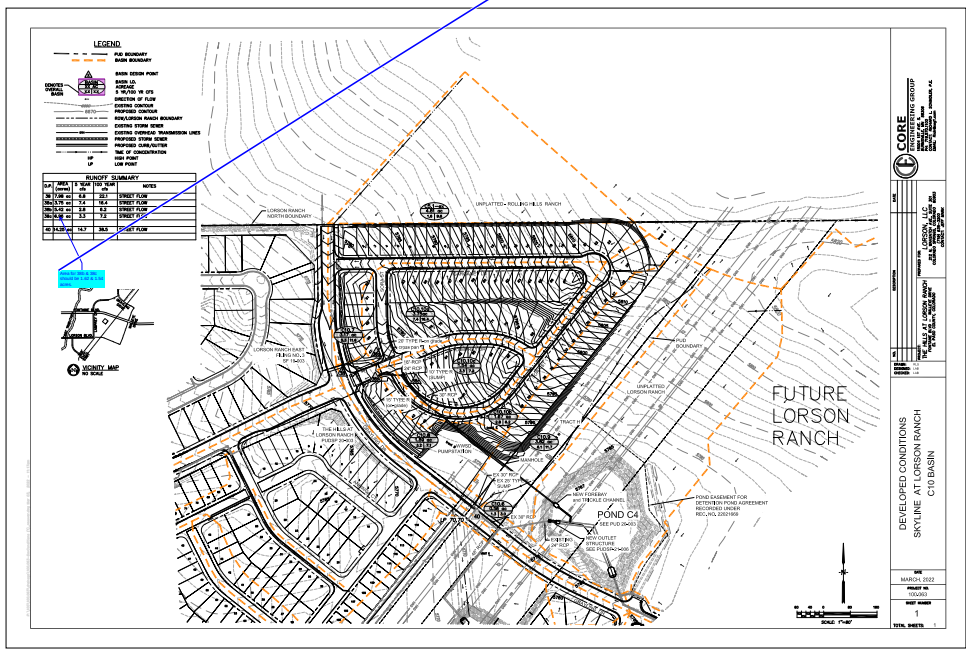
Author: CDurham Subject: Callout Date: 4/25/2022 10:54:45 AM

Area for 38b & 38c should be 1.62 & 1.54 acres.

Author: RSchindler Subject: Sticky Note Date: 5/2/2022 12:23:38 PM

updated



Author: CDurham Subject: Text Box Date: 4/25/2022 10:55:53 AM

Pipe lengths and inverts do not match storm model data. Please revise accordingly so model and construction drawings match.

Author: RSchindler Subject: Sticky Note Date: 5/2/2022 12:23:48 PM

model updated