Add a cover sheet and insert the attached signature blocks after the coversheet.
Contact the review engineer if you're unable to open the attachment.
Gilbert LaForce
gilbertlaforce@elpasoco.com
719-520-7945

Strategic Land Solutions, Inc
Civil Engineering & Land Development Consultants

Monday – October 19, 2020

EPC Planning and Community Development

Sent Via: ☐ 1st Class ☐ FEDEX ☐ Courier ☐ Hand Delivery
☐ Facsimile to:
☒ Deliver

~~**PIKES PEAK REGIONAL BUILDING**~~
2880 International circle,
Colorado Springs, CO **80910**

Attention: El Paso County Engineering

Re: Drainage Letter

CROSSROADS CHAPEL SBC
840 North Gate Boulevard
Colorado Springs, CO

SLS JN: 20-0033-01

To whom it may concern:

Crossroads Chapel SBS is currently planning a 3,200 square foot addition to their existing facility. As part of this project an existing 2,500 S.F. of building space is being removed for a net increase of 700 S.F. of impervious area.

The proposed addition consists of a new building connected to the existing buildings by an enclosed corridor. The building addition will replace two existing modular buildings, which will be removed exposing unpaved pervious area. The proposed building and the existing modular buildings are located within the same drainage basin, so the net increase in impervious area of the drainage basin is approximately 700 S.F. Furthermore, the existing drainage basin will not be altered beyond what is described in the letter, and the outfall location will not change.

Evaluating the site for the difference in impervious shows that the proposed improvements will increase site runoff 0.06 CFS during the 5-year reoccurring storm, and 0.07 CFS for the 100-year reoccurring storm. That equates to a 1.19% increase in runoff for the 5-year reoccurring storm, and a 0.27% increase for the 100-year reoccurring storm. Therefore, the proposed improvements should not have a negative impact on the existing drainage facilities serving the site.

As described in this drainage letter, The Crossroads Chapel SBS is planning to remove two modular buildings and replace them with a new building connected to the existing buildings by an enclosed corridor. As part of this project none of the existing drainage patterns will be modified, and the expected increase in runoff is statistically insignificant. Therefore, the project will have no measurable adverse effects on the downstream drainage facilities nor the surrounding developments.

If you have questions regarding what is proposed, please feel free to call me. Thank you!

Sincerely,

STRATEGIC LAND SOLUTIONS, INC.

Robert J Palmer

Robert J. Palmer, PE (CO, NM, AZ, WY, MT)

Add a section regarding the 4-step process identified in the Engineering Criteria Manual Appendix I Section I.7.1.A. by listing each step and provide a narrative under each step regarding how it was implemented or considered.

Add a vicinity map and soils map

PREPARED UNDER THE DIRECT SUPERVISION OF:

SEAL: COLORADO REGISTERED ROBERT J. PALMER 36320 10/19/2020 PROFESSIONAL ENGINEER

BY Robert J. Palmer, PE
Licensed Professional Engineer (CO PE #36320),
AS PRESIDENT FOR STRATEGIC LAND SOLUTIONS, INC.

2595 Ponderosa Road – Franktown, CO 80116
ROBERT PALMER, PE: 720.384.7661 phone • rpalmer@strategicls • **WEBSITE**: http://www.strategicls.net

Crossroads Chapel SBC

LAND USAGE FOR EACH SUB-BASIN

LAND USAGE	PERCENT IMPERVIOUS (%)	5-YR RUNOFF COEFF. C_5	100-YR RUNOFF COEFF. C_{100}	AREA							SUM OF AREA (ACRE)
				A	B	C					
LANDSCAPE	0	0.08	0.35	0.017		9.404					9.421
ROOF	90	0.73	0.81		0.017	0.191					0.208
DRIVES AND WALKS (IMPERVIOUS)	100	0.90	0.96			0.405					0.405
Total				0.0172	0.0172	10.000	0.0000	0.0000	0.0000	0.0000	

COMPOSITE % IMPERVIOUSNESS AND RUNOFF COEFFICIENTS

SUB-BASIN	EFFECTIVE % IMPERVIOUS		COMPOSITE C_5	COMPOSITE C_{100}	AREA acres
A Landscaping	0.00		0.08	0.35	0.017
B Roof Top	90.00		0.73	0.81	0.017
C Total Site	5.77		0.13	0.38	10.000

Per comment on the site plan update calculation. The new parking lot must be paved.

WATER QUALITY VOLUME

POND A

VOLUME =	740	CUBIC FEET	FROM UDFCD SPREADSHEET
Actual WQ PondVolume=	850	CUBIC FEET	

ALLOWABLE RELEASE RATES (HYDROLOGIC SOIL GROUP B)

EURV

Release Rate=	0.018	CUBIC FEET
Type B Soil		
$EURV_B$=1.1(1.28(I/100)-0.0461)		
$EURV_B$=	-0.051	WATERSHED INCHES
Wateershed Area=	0.000	Acres
EURV (FSD) volume=	0	CUBIC FEET

Explain in the narrative. Is this an existing WQ pond on site or required pond to be constructed. If this needs to be constructed then construction drawings are required for review/approval.

Contact the review engineer before resubmittal. Additional submittal documents are required if this project proposes pond construction.

STANDARD FORM SF-3

STORM DRAINAGE SYSTEM DESIGN

(Rational Method Procedure)

SUBDIVISION: 840 North Gate Boulevard - Colorado Springs, CO

CALCULATED BY: Robert Palmer **DATE:** 10/19/20

DESIGN STORM: 5-Yr

	STREET	DESIGN POINT	DIRECT RUNOFF							TOTAL RUNOFF				STREET		PIPE			TRAVEL TIME			REMARKS
			AREA DESIGN	AREA (AC)	RUNOFF COEFF	t_c (MIN)	C*A (AC)	i (IN/HR)	Q (CFS)	t_c (MIN)	$\sum$ (C*A) (AC)	i (IN/HR)	Q (CFS)	SLOPE (%)	STREET FLOW (CFS)	DESIGN FLOW (CFS)	SLOPE (%)	PIPE SIZE	LENGTH (FT)	VELOCITY (FPS)	t_t (MIN)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
1	Landscaped	1	A	0.02	0.08	5.0	0.00	5.20	0.01				0.01									
2	Roof Top	2	B	0.02	0.73	5.0	0.01	5.20	0.07				0.07									
3	Ex. Total Site	3	C	10.00	0.13	10.0	1.26	4.00	5.03				5.03									
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						
13																						
14																						
15																						

Provide a drainage map

STANDARD FORM SF-3

STORM DRAINAGE SYSTEM DESIGN

(Rational Method Procedure)

SUBDIVISION: 840 North Gate Boulevard - Colorado Springs, CO

CALCULATED BY: Robert Palmer **DATE:** 10/19/20

DESIGN STORM: 100-Yr

	STREET	DESIGN POINT	DIRECT RUNOFF							TOTAL RUNOFF				STREET		PIPE			TRAVEL TIME			REMARKS
			AREA DESIGN	AREA (AC)	RUNOFF COEFF	t_c (MIN)	C*A (AC)	i (IN/HR)	Q (CFS)	t_c (MIN)	$\sum$ (C*A) (AC)	i (IN/HR)	Q (CFS)	SLOPE (%)	STREET FLOW (CFS)	DESIGN FLOW (CFS)	SLOPE (%)	PIPE SIZE	LENGTH (FT)	VELOCITY (FPS)	t_t (MIN)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
1	Basin A	1	A	0.02	0.35	5.0	0.01	8.80	0.05				0.05									
2	Basin B	2	B	0.02	0.81	5.0	0.01	8.80	0.12				0.12									
	Ex. Total Site	3	C	10.00	0.38	10.0	3.83	6.80	26.08				26.08									
3																						
4																						
5																						
6																						
7																						
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