

CITY OF ALBUQUERQUE

Planning Department
Alan Varela, Director



Mayor Timothy M. Keller

July 19, 2022

Sheldon E. Greer, P.E.
Development Managing Consultants
9320 Menaul Blvd. NE Suite D
Albuquerque, NM 87112

**RE: Santa Barbara Subdivision Replat of Lot 2 Block 16
Grading & Drainage Plan and Drainage Calculation Report
Engineer's Stamp Date: 06/13/22
Hydrology File: D19D001F**

Dear Mr. Greer:

Based upon the information provided in your submittal received 06/13/2022, the Grading & Drainage Plan and Drainage Calculation Report are approved for Grading Permit, and for action by the DRB on Preliminary Plat.

PRIOR TO BUILDING PERMIT:

1. Pad Certification. Once lots are properly graded, a pad certification will be required for approval.
2. Building Permits. Building permits for each lot can be obtained once the Pad Certification is approved by Hydrology.

As a reminder, if the project total area of disturbance (including the staging area and any work within the adjacent Right-of-Way) is 1 acre or more, then an Erosion and Sediment Control (ESC) Plan and Owner's certified Notice of Intent (NOI) is required to be submitted to the Stormwater Quality Engineer (Dough Hughes, PE, jhughes@cabq.gov, 924-3420) 14 days prior to any earth disturbance.

If you have any questions, please contact me at 924-3995 or rbrissette@cabq.gov.

Sincerely,

Renée C. Brissette

Renée C. Brissette, P.E. CFM
Senior Engineer, Hydrology
Planning Department

DEVELOPMENT MANAGING CONSULTANTS

PROFESSIONAL CONSTRUCTION MANAGERS & CONSULTING ENGINEERS

June 13, 2022

Renée C. Brissette, P.E. CFM
Senior Engineer, Hydrology
City of Albuquerque, Planning Department

RE: Hydrology File: D19D001F, Santa Barbara Subdivision Replat – Response to Comments

Comment 1: Under the Background. Please fix the Block information. This is Block 16 and not Block 17.

Response: Revised Accordingly.

Comment 2: Under the Methodology. Please refer to Article 6-2(a) of the Development Process Manual (DPM) and not Chapter 22 (this was the old DPM).

Response: Revised Accordingly.

Comment 3: Please use the procedure for 40 acre and smaller basins as outlined in Development Process Manual (DPM) Article 6-2(a). Please provide both the existing conditions and proposed conditions for the 100 year-6 hour storm event.

Response: AHYMO Calculations are provided with the resubmittal.

Comment 4: Please also include the existing and proposed calculations for the existing concrete channel. Please use the entire watershed that goes into this channel. This being said, an aerial can be used to show the extent of the watershed. I want to ensure that the concrete channel will be able to handle the change from what is there now and when the lot is converted to townhomes.

Response: Channel Calculations are provided with the resubmittal.

Comment 5: The existing 20' Private Drainage Easement which has the existing concrete channel needs to be converted to Tract A which is owned and maintained by the HOA. This easement should not be part of Lot 2-D.

Response: A separate Tract is now being proposed for the Channel.

Comment 6: Typically, the drive pad cannot be built on a radius. Please consult Transportation Section.

Response: Discussions/coordination has alleviated any Transportation concerns.

Development Managing Consultants, LLC



Sheldon Greer P.E.
Principal

Supplemental Drainage Calculations

FOR

Santa Barbara Subdivision

Albuquerque NM

June 13, 2022

City of Albuquerque Planning Department Development Review Services HYDROLOGY SECTION	
APPROVED	
DATE:	07/19/22
BY:	<i>Renée C. Brissette</i>
HydroTrans #	D19D001F
<small>THE APPROVAL OF THESE PLANS/REPORT SHALL NOT BE CONSTRUED TO PERMIT VIOLATIONS OF ANY CITY ORDINANCE OR STATE LAW, AND SHALL NOT PREVENT THE CITY OF ALBUQUERQUE FROM REQUIRING CORRECTION, OR ERROR OR DIMENSIONS IN PLANS, SPECIFICATIONS, OR CONSTRUCTIONS. SUCH APPROVED PLANS SHALL NOT BE CHANGED, MODIFIED OR ALTERED WITHOUT AUTHORIZATION.</small>	

PREPARED BY:

DEVELOPMENT MANAGEMENT CONSULTANTS
PROFESSIONAL CONSTRUCTION MANAGERS & CONSULTING ENGINEERS

9320 Menaul Blvd. NE, Ste. D
Albuquerque, New Mexico 87112
Phone: 505-296-7100
Fax: 505-296-7105

Supplemental Drainage Calculations

FOR

Santa Barbara Subdivision

Albuquerque NM

June 13, 2022

PREPARED BY:
Development Management Consultants
Professional Construction Managers & Consulting Engineers
9320 Menaul Blvd. NE, Ste D
Albuquerque, NM 87112

I, Sheldon Greer, do hereby certify that this report was prepared by me or under my direction and that I am a duly registered Professional Engineer under the laws of the State of New Mexico.



A handwritten signature in blue ink, appearing to read "Sheldon Greer", written over a light blue horizontal line.

Sheldon Greer
NMPE No. 17154

June 13, 2022
Date

AHYMO Developed Input

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* 100 YEAR RAINFALL TABLE
RAINFALL          TYPE=12  RAIN QUARTER=1.1 IN
                   RAIN ONE=1.96 IN  RAIN SIX=2.64 IN
                   RAIN DAY=3.60 IN  DT=0.05 HR
*****
*S EXISTING SUBBASINS
*****
*S  COMPUTE HYD BASIN OFFSITE_1
COMPUTE NM HYD      ID=1  HYDNO=101  DA=0.01130 SQ MI
                   PER A=0  PER B=21  PER C=21  PER D=58
                   TP=-0.13  RAIN=-1
PRINT HYD           ID=1  CODE=5
*****
*****
*S  COMPUTE HYD EXISTING_1
COMPUTE NM HYD      ID=2  HYDNO=101  DA=0.000782 SQ MI
                   PER A=70  PER B=10  PER C=10  PER D=10
                   TP=-0.13  RAIN=-1
PRINT HYD           ID=2  CODE=5
*****
*****
*S DEVELOPED SUBBASINS
*****
*S  COMPUTE HYD DEVELOPED BASIN DEV_1
COMPUTE NM HYD      ID=3  HYDNO=102  DA=0.000782 SQ MI
                   PER A=0  PER B=21  PER C=21  PER D=58
                   TP=-0.13  RAIN=-1
PRINT HYD           ID=3  CODE=5
*****
*****
*S ADD ROUTED EXISTING_1 AND OFFSITE_1
ADD HYD             ID=10  HYDNO=110
                   ID=1 ID=2
PRINT HYD           ID=10 CODE=5
*****
*****
*S ADD ROUTED DEV_1 AND OFF_1
ADD HYD             ID=11  HYDNO=111
                   ID=1 ID=3
PRINT HYD           ID=11 CODE=5
*****
*****
FINISH

```

AHYMO Developed Output

AHYMO PROGRAM SUMMARY TABLE (AHYMO-S4)

- Ver. S4.02a,

Rel: 02a RUN DATE (MON/DAY/YR) =06/13/2022

INPUT FILE = N:\CDS Library\Engineering Tools\AHYMO-S4\AHYMO.HMI

USER NO.= AHYMO-S4TempUser05901704

RUNOFF COMMAND (INCHES)	TIME TO PEAK (HOURS)	CFS HYDROGRAPH PER IDENTIFICATION ACRE	FROM PAGE = ID	TO ID	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)
RAINFALL TYPE=12							
			RAIN6=	2.640			
*S EXISTING SUBBASINS							
*S COMPUTE HYD BASIN OFFSITE_1							
1.81083	1.500	101.00 3.857 PER	-	1 IMP= 58.00	0.01130	27.89	1.091
*S COMPUTE HYD EXISTING_1							
0.86750	1.500	101.00 2.324 PER	-	2 IMP= 10.00	0.00078	1.16	0.036
*S DEVELOPED SUBBASINS							
*S COMPUTE HYD DEVELOPED BASIN DEV_1							
1.81083	1.500	102.00 3.887 PER	-	3 IMP= 58.00	0.00078	1.95	0.076
*S ADD ROUTED EXISTING_1 AND OFFSITE_1							
1.74975	1.500	110.00 3.758	1& 2	10	0.01208	29.06	1.127
*S ADD ROUTED DEV_1 AND OFF_1							
1.81080	1.500	111.00 3.859	1& 3	11	0.01208	29.84	1.167
FINISH							

AHYMO PROGRAM (AHYMO-S4) - Version: S4.02a - Rel: 02a
 RUN DATE (MON/DAY/YR) = 06/13/2022
 START TIME (HR:MIN:SEC) = 07:59:13 USER NO.=
 AHYMO-S4TempUser05901704
 INPUT FILE = N:\CDS Library\Engineering Tools\AHYMO-S4\AHYMO.HMI

* 100 YEAR RAINFALL TABLE

RAINFALL TYPE=12 RAIN QUARTER=1.1 IN
 RAIN ONE=1.96 IN RAIN SIX=2.64 IN
 RAIN DAY=3.60 IN DT=0.05 HR

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 -
 PEAK AT 1.40 HR.

DT = 0.050000 HOURS				END TIME = 6.000000 HOURS			
0.0000	0.0095	0.0194	0.0295	0.0399	0.0507	0.0618	
0.0734	0.0853	0.0977	0.1107	0.1241	0.1382	0.1530	
0.1684	0.1848	0.2020	0.2203	0.2399	0.2608	0.2834	
0.2916	0.3008	0.3272	0.3897	0.4972	0.6635	0.9028	
1.2301	1.4882	1.6048	1.7022	1.7875	1.8638	1.9329	
1.9959	2.0537	2.1069	2.1560	2.2014	2.2434	2.2538	
2.2636	2.2730	2.2819	2.2905	2.2987	2.3067	2.3144	
2.3219	2.3291	2.3361	2.3430	2.3497	2.3562	2.3626	
2.3689	2.3750	2.3810	2.3868	2.3926	2.3983	2.4039	
2.4093	2.4147	2.4200	2.4253	2.4304	2.4355	2.4405	
2.4455	2.4503	2.4551	2.4599	2.4646	2.4692	2.4738	
2.4784	2.4828	2.4873	2.4917	2.4960	2.5003	2.5046	
2.5088	2.5130	2.5171	2.5212	2.5253	2.5293	2.5333	
2.5372	2.5411	2.5450	2.5489	2.5527	2.5565	2.5603	
2.5640	2.5677	2.5714	2.5751	2.5787	2.5823	2.5859	
2.5894	2.5929	2.5964	2.5999	2.6034	2.6068	2.6102	
2.6136	2.6170	2.6203	2.6237	2.6270	2.6302	2.6335	
2.6368	2.6400						

*S EXISTING SUBBASINS

*S COMPUTE HYD BASIN OFFSITE_1

COMPUTE NM HYD ID=1 HYDNO=101 DA=0.01130 SQ MI

PER A=0 PER B=21 PER C=21 PER D=58

TP=-0.13 RAIN=-1

K = 0.070850HR TP = 0.130000HR K/TP RATIO = 0.545000 SHAPE
CONSTANT, N = 7.106428
UNIT PEAK = 26.532 CFS UNIT VOLUME = 0.9989 B = 526.28
P60 = 1.9600
AREA = 0.006554 SQ MI IA = 0.10000 INCHES INF = 0.04000
INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
0.050000

K = 0.116233HR TP = 0.130000HR K/TP RATIO = 0.894098 SHAPE
CONSTANT, N = 3.965387
UNIT PEAK = 12.882 CFS UNIT VOLUME = 1.001 B = 352.86
P60 = 1.9600
AREA = 0.004746 SQ MI IA = 0.42500 INCHES INF = 1.04000
INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
0.050000

PRINT HYD ID=1 CODE=5

PARTIAL HYDROGRAPH 101.00

TIME	TIME	FLOW	TIME	FLOW	TIME	FLOW
	FLOW					
HRS	HRS	CFS	HRS	HRS	HRS	CFS
	CFS		HRS	CFS		
	0.000	0.0	1.500	27.9	3.000	0.4
4.500	0.3	0.0	6.000	0.3		
	0.250	0.0	1.750	10.3	3.250	0.3
4.750	0.3	0.0	6.250	0.0		
	0.500	0.0	2.000	5.5	3.500	0.3
5.000	0.3	0.0	6.500	0.0		
	0.750	0.9	2.250	1.7	3.750	0.3
5.250	0.3	0.0	6.750	0.0		
	1.000	1.4	2.500	0.9	4.000	0.3
5.500	0.3	0.0	7.000	0.0		
	1.250	2.8	2.750	0.6	4.250	0.3
5.750	0.3	0.0				

RUNOFF VOLUME = 1.81083 INCHES = 1.0913 ACRE-FEET
PEAK DISCHARGE RATE = 27.89 CFS AT 1.500 HOURS BASIN AREA =
0.0113 SQ. MI.

*S COMPUTE HYD EXISTING_1

COMPUTE NM HYD ID=2 HYDNO=101 DA=0.000782 SQ MI
 PER A=70 PER B=10 PER C=10 PER D=10
 TP=-0.13 RAIN=-1

K = 0.070850HR TP = 0.130000HR K/TP RATIO = 0.545000 SHAPE
 CONSTANT, N = 7.106428
 UNIT PEAK = 0.31657 CFS UNIT VOLUME = 0.9621 B = 526.28
 P60 = 1.9600
 AREA = 0.000078 SQ MI IA = 0.10000 INCHES INF = 0.04000
 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
 0.050000

K = 0.148266HR TP = 0.130000HR K/TP RATIO = 1.140511 SHAPE
 CONSTANT, N = 3.104498
 UNIT PEAK = 1.5713 CFS UNIT VOLUME = 0.9908 B = 290.24
 P60 = 1.9600
 AREA = 0.000704 SQ MI IA = 0.60000 INCHES INF = 1.53000
 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
 0.050000

PRINT HYD ID=2 CODE=5

PARTIAL HYDROGRAPH 101.00

TIME	TIME	FLOW	TIME	TIME	FLOW	TIME	FLOW
	FLOW			FLOW			
HRS	HRS	CFS	HRS	HRS	CFS	HRS	CFS
	0.000	0.0		1.250	0.0	2.500	0.0
3.750	0.0		5.000	0.0			
	0.250	0.0		1.500	1.2	2.750	0.0
4.000	0.0		5.250	0.0			
	0.500	0.0		1.750	0.4	3.000	0.0
4.250	0.0		5.500	0.0			
	0.750	0.0		2.000	0.1	3.250	0.0
4.500	0.0		5.750	0.0			

	1.000	0.0	2.250	0.1	3.500	0.0
4.750	0.0	6.000	0.0			

RUNOFF VOLUME = 0.86750 INCHES = 0.0362 ACRE-FEET
 PEAK DISCHARGE RATE = 1.16 CFS AT 1.500 HOURS BASIN AREA =
 0.0008 SQ. MI.

*S DEVELOPED SUBBASINS

*S COMPUTE HYD DEVELOPED BASIN DEV_1

COMPUTE NM HYD ID=3 HYDNO=102 DA=0.000782 SQ MI

PER A=0 PER B=21 PER C=21 PER D=58

TP=-0.13 RAIN=-1

K = 0.070850HR TP = 0.130000HR K/TP RATIO = 0.545000 SHAPE
 CONSTANT, N = 7.106428
 UNIT PEAK = 1.8361 CFS UNIT VOLUME = 0.9937 B = 526.28
 P60 = 1.9600
 AREA = 0.000454 SQ MI IA = 0.10000 INCHES INF = 0.04000
 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
 0.050000

K = 0.116233HR TP = 0.130000HR K/TP RATIO = 0.894098 SHAPE
 CONSTANT, N = 3.965387
 UNIT PEAK = 0.89149 CFS UNIT VOLUME = 0.9873 B = 352.86
 P60 = 1.9600
 AREA = 0.000328 SQ MI IA = 0.42500 INCHES INF = 1.04000
 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
 0.050000

PRINT HYD ID=3 CODE=5

PARTIAL HYDROGRAPH 102.00

TIME	TIME	FLOW	TIME	TIME	FLOW	TIME	FLOW
	FLOW			FLOW			
HRS	HRS	CFS	HRS	HRS	CFS	HRS	CFS
	0.000	0.0		1.500	1.9	3.000	0.0
4.500	0.0		6.000	0.0			
	0.250	0.0		1.750	0.7	3.250	0.0
4.750	0.0		6.250	0.0			
	0.500	0.0		2.000	0.4	3.500	0.0
5.000	0.0			2.250	0.1	3.750	0.0
	0.750	0.1		2.500	0.1	4.000	0.0
5.250	0.0			2.750	0.0	4.250	0.0
	1.000	0.1					
5.500	0.0						
	1.250	0.2					
5.750	0.0						

RUNOFF VOLUME = 1.81083 INCHES = 0.0755 ACRE-FEET
 PEAK DISCHARGE RATE = 1.95 CFS AT 1.500 HOURS BASIN AREA = 0.0008 SQ. MI.

*S ADD ROUTED EXISTING_1 AND OFFSITE_1

ADD HYD ID=10 HYDNO=110

ID=1 ID=2

PRINT HYD ID=10 CODE=5

PARTIAL HYDROGRAPH 110.00

TIME	TIME	FLOW	TIME	TIME	FLOW	TIME	FLOW
	FLOW			FLOW			
HRS	HRS	CFS	HRS	HRS	CFS	HRS	CFS
	0.000	0.0		1.500	29.1	3.000	0.4
4.500	0.3		6.000	0.3			
	0.250	0.0		1.750	10.6	3.250	0.3
4.750	0.3		6.250	0.0			
	0.500	0.0		2.000	5.7	3.500	0.3
5.000	0.3		6.500	0.0			
	0.750	1.0		2.250	1.8	3.750	0.3
5.250	0.3		6.750	0.0			

	1.000	1.4	2.500	0.9	4.000	0.3
5.500	0.3	7.000	0.0			
	1.250	2.9	2.750	0.6	4.250	0.3
5.750	0.3					

RUNOFF VOLUME = 1.74975 INCHES = 1.1275 ACRE-FEET
 PEAK DISCHARGE RATE = 29.06 CFS AT 1.500 HOURS BASIN AREA =
 0.0121 SQ. MI.

*S ADD ROUTED DEV_1 AND OFF_1

ADD HYD ID=11 HYDNO=111

ID=1 ID=3

PRINT HYD ID=11 CODE=5

PARTIAL HYDROGRAPH 111.00

TIME	TIME	FLOW	TIME	TIME	FLOW	TIME	FLOW
	FLOW			FLOW			
HRS	CFS	CFS	HRS	CFS	CFS	HRS	CFS
	0.000	0.0	1.500	29.8		3.000	0.4
4.500	0.3		6.000	0.3		3.250	0.4
	0.250	0.0	1.750	11.0		3.500	0.3
4.750	0.3		6.250	0.0		3.750	0.3
	0.500	0.0	2.000	5.9		4.000	0.3
5.000	0.3		6.500	0.0		4.250	0.3
	0.750	1.0	2.250	1.8			
5.250	0.3		6.750	0.0			
	1.000	1.5	2.500	1.0			
5.500	0.3		7.000	0.0			
	1.250	3.0	2.750	0.6			
5.750	0.3						

RUNOFF VOLUME = 1.81080 INCHES = 1.1668 ACRE-FEET
 PEAK DISCHARGE RATE = 29.84 CFS AT 1.500 HOURS BASIN AREA =
 0.0121 SQ. MI.

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 07:59:13

Existing Channel Capacity Calculations

Manning Formula:

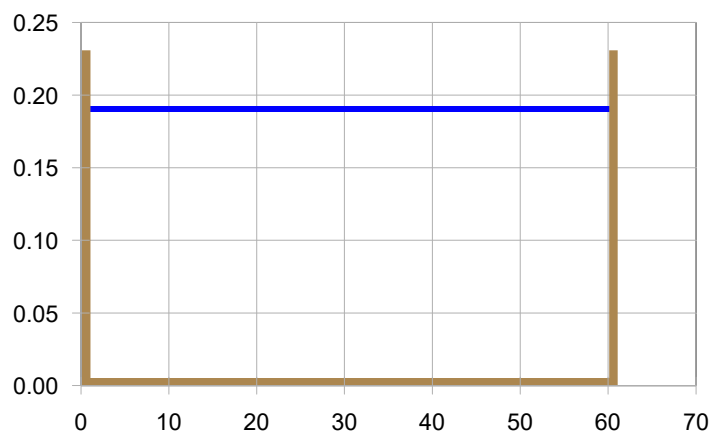
Rectangular Channel

Input

Flow	29.84 cfs
Slope	0.005 ft/ft
Manning's n	0.013
Base Width	60 ft
Right Side Slope	0:1
Left Side Slope	0:1

Output

Depth	0.188 ft
Flow Area	11.3 sf
Velocity	2.64 fps
Velocity Head	0.109 ft
Top Width	60.0 ft
Froude Number	1.07
Critical Depth	0.197 ft
Critical Slope	0.00427 ft/ft



Manning Formula:

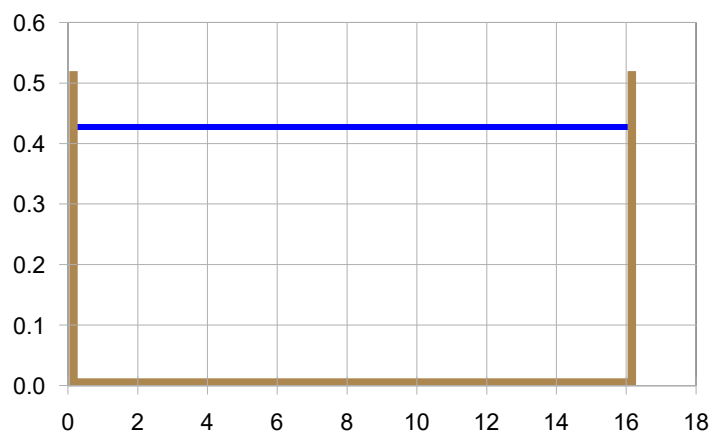
Rectangular Channel

Input

Flow	29.84 cfs
Slope	0.005 ft/ft
Manning's n	0.013
Base Width	16 ft
Right Side Slope	0:1
Left Side Slope	0:1

Output

Depth	0.423 ft
Flow Area	6.78 sf
Velocity	4.40 fps
Velocity Head	0.301 ft
Top Width	16.0 ft
Froude Number	1.19
Critical Depth	0.476 ft
Critical Slope	0.00341 ft/ft



Manning Formula:

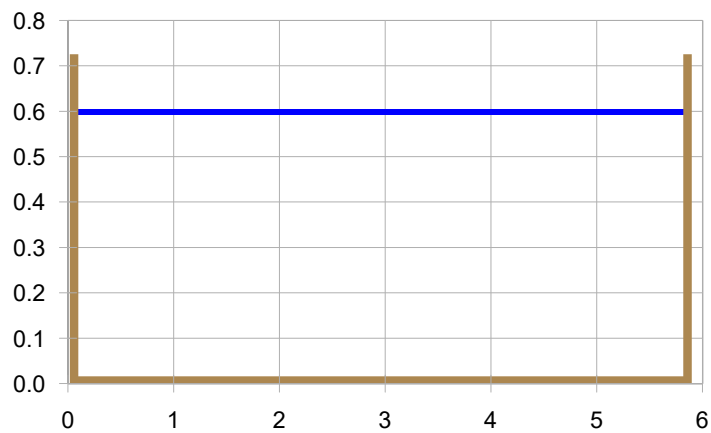
Rectangular Channel

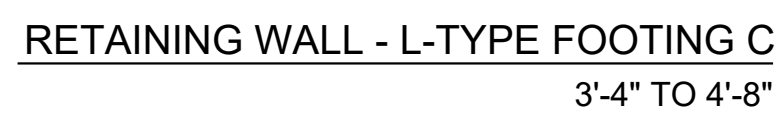
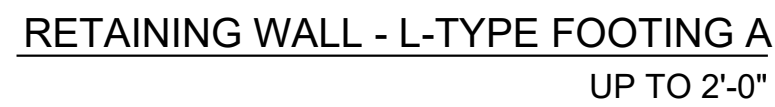
Input

Flow	29.84 cfs
Slope	0.015 ft/ft
Manning's n	0.013
Base Width	5.8 ft
Right Side Slope	0:1
Left Side Slope	0:1

Output

Depth	0.591 ft
Flow Area	3.43 sf
Velocity	8.71 fps
Velocity Head	1.18 ft
Top Width	5.80 ft
Froude Number	2.00
Critical Depth	0.937 ft
Critical Slope	0.00366 ft/ft





RETAINING WALL - L-TYPE FOOTING B
2'-8" TO 3'-4"



nm811
Know what's below.
Call before you dig.

NAME: N:\CDS Library\RESPEC CAD\Archive Do Not Use\Santa Barbara\3. DWG\3. Sheets\Santa Barbara G&D.dwg PLOT DATE: Jul 18, 2022 3:32pm LSB: Sid.Gariss