

CITY OF ALBUQUERQUE

PLANNING DEPARTMENT – Development Review Services



April 4, 2016

Richard J. Berry, Mayor

Åsa M. Nilson-Webber, P.E.
Isaacson & Arfman, P.A.
128 Monroe Street N.E.
Albuquerque, NM 87108

RE: Santa Monica Estates Unit 2 (Tract 4-A-1)
Grading and Drainage Plan and Report
Stamp Date 2-26-2016 | File: D18D054F

Dear Mrs. Weber:

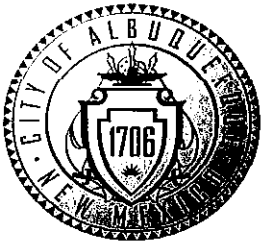
Based upon information provided in your submittal received 2-26-2016, the above-referenced Grading and Drainage Plan/Report is approved for Preliminary Platting action by the DRB. It is also approved for Grading Permit (ESC Permit); please coordinate with the Stormwater Quality Engineer regarding any ESC Plan updates that may be needed to proceed from Rough Grading to Final Grading.

If you have any questions, you can contact me at 924-3986.

Sincerely,

Abiel Carrillo, P.E.
Principal Engineer, Planning Department
Development Review Services

Orig: Drainage file



City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: Santa Monica Estates, Unit 2 Building Permit #: _____ City Drainage #: D18/

DRB#: _____ EPC#: _____ Work Order#: _____

Legal Description: Tract 4-A-1, Santa Monica Place

City Address: _____

Engineering Firm: Isaacson & Arfman, P.A. Contact: Asa Nilsson-Weber

Address: 128 Monroe Street NE - Albuquerque, NM 87108

Phone#: (505) 268-8828 Fax#: _____ E-mail: asaw@iacivil.com

Owner: Santa Monica Place Development, LLC Contact: Kurt Browning

Address: c/o Titan Development -- 6300 Riverside Plaza Lane NW, Suite 200 - Albuquerque, NM 87120

Phone#: (505) 998-0163 Fax#: _____ E-mail: _____

Architect: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Other Contact: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Check all that Apply:

DEPARTMENT:

- ☒ HYDROLOGY/ DRAINAGE
☐ TRAFFIC/ TRANSPORTATION
☐ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

- ☐ ENGINEER ARCHITECT CERTIFICATION
☐ CONCEPTUAL G & D PLAN
☒ GRADING PLAN
☐ DRAINAGE MASTER PLAN
☒ DRAINAGE REPORT
☐ CLOMR/LOMR
☐ TRAFFIC CIRCULATION LAYOUT (TCL)
☐ TRAFFIC IMPACT STUDY (TIS)
☐ EROSION & SEDIMENT CONTROL PLAN (ESC)
☐ OTHER (SPECIFY) _____

IS THIS A RESUBMITTAL?: ☐ Yes ☒ No

DATE SUBMITTED: February 26, 2016 By: Asa Nilsson-Weber

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

- ☐ BUILDING PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY
☒ PRELIMINARY PLAT APPROVAL
☐ SITE PLAN FOR SUB'D APPROVAL
☐ SITE PLAN FOR BLDG. PERMIT APPROVAL
☐ FINAL PLAT APPROVAL
☐ SIA/ RELEASE OF FINANCIAL GUARANTEE
☐ FOUNDATION PERMIT APPROVAL
☒ GRADING PERMIT APPROVAL
☐ SO-19 APPROVAL
☐ PAVING PERMIT APPROVAL
☐ GRADING/ PAD CERTIFICATION
☐ WORK ORDER APPROVAL
☐ CLOMR/LOMR
☐ PRE-DESIGN MEETING
☐ OTHER (SPECIFY) _____

COA STAFF: _____ ELECTRONIC SUBMITTAL RECEIVED: _____

FEBRUARY 26, 2016

DRAINAGE REPORT

FOR

SANTA MONICA ESTATES, UNIT 2
(Replat of Tract 4-A-1, Santa Monica Place)

Louisiana Blvd. and Santa Monica Ave. NE

BY



ISAACSON & ARFMAN, P.A.

Consulting Engineering Associates

Thomas O. Isaacson, PE & LS [Ret.]

Fred C. Arfman, PE

Åsa Nilsson-Weber, PE

I&A Project No. 2149

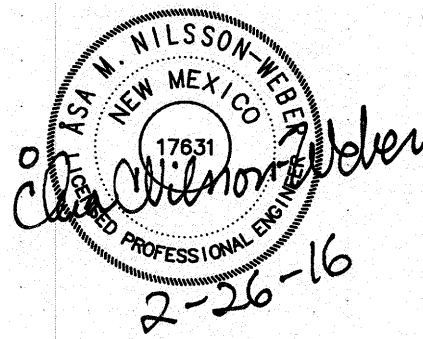
FEBRUARY 26, 2016

DRAINAGE REPORT

FOR

SANTA MONICA ESTATES, UNIT 2
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Åsa Nilsson-Weber, PE

I&A Project No. 2149

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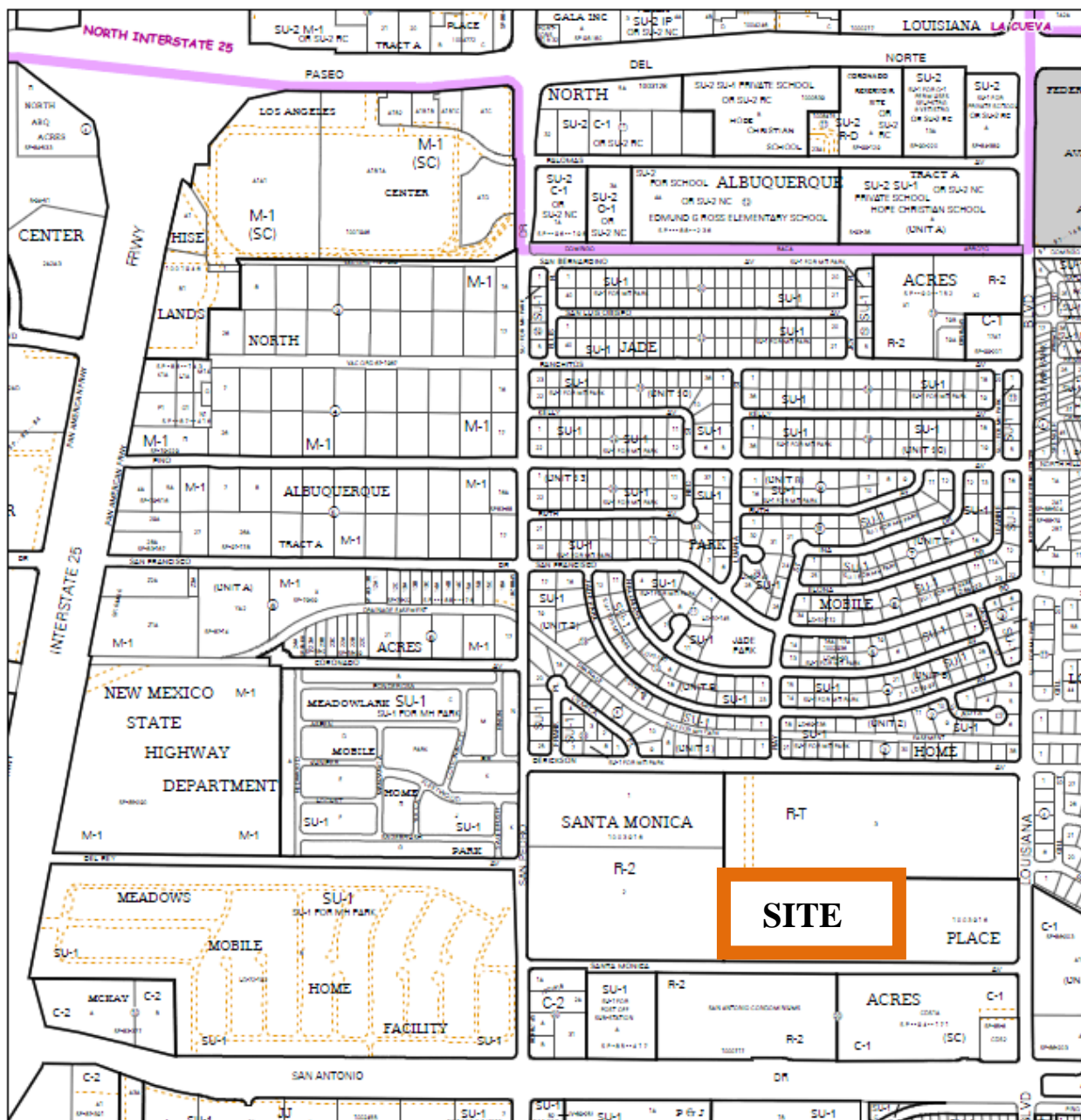
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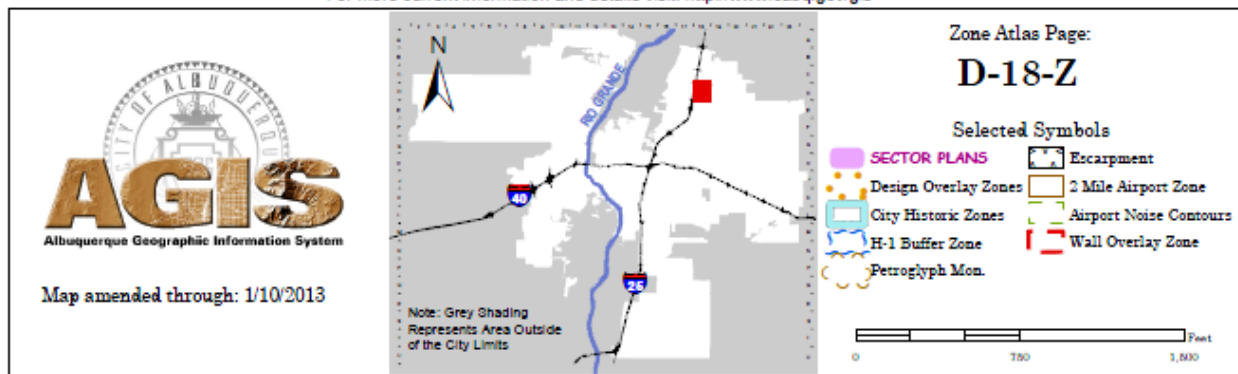
APPENDIX B: Street Capacity Calculations

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- Storm Drain Calculations (Hydraflow Storm Sewers)



For more current information and details visit: <http://www.cabq.gov/gis>



I. PROJECT INFORMATION

LEGAL DESCRIPTION:

Proposed: Santa Monica Estates, Unit 2
Existing: Tract 4-A-1, Santa Monica Place

TOTAL AREA:

4.6301 Acres

FLOOD PLAIN:

Zone X

This site lies outside the 100-year flood based on FIRM Map No. 35001C0137H
Map Revision date: August 16, 2012

ENGINEER:

Isaacson & Arfman, P.A.
128 Monroe Street NE
Albuquerque, NM 87108
(505) 268-8828
Attn: Åsa Nilsson-Weber

SURVEYOR:

Surv-Tek, Inc.
(505) 897-3366
Attn: Russ P. Hugg, NMPLS No. 9750

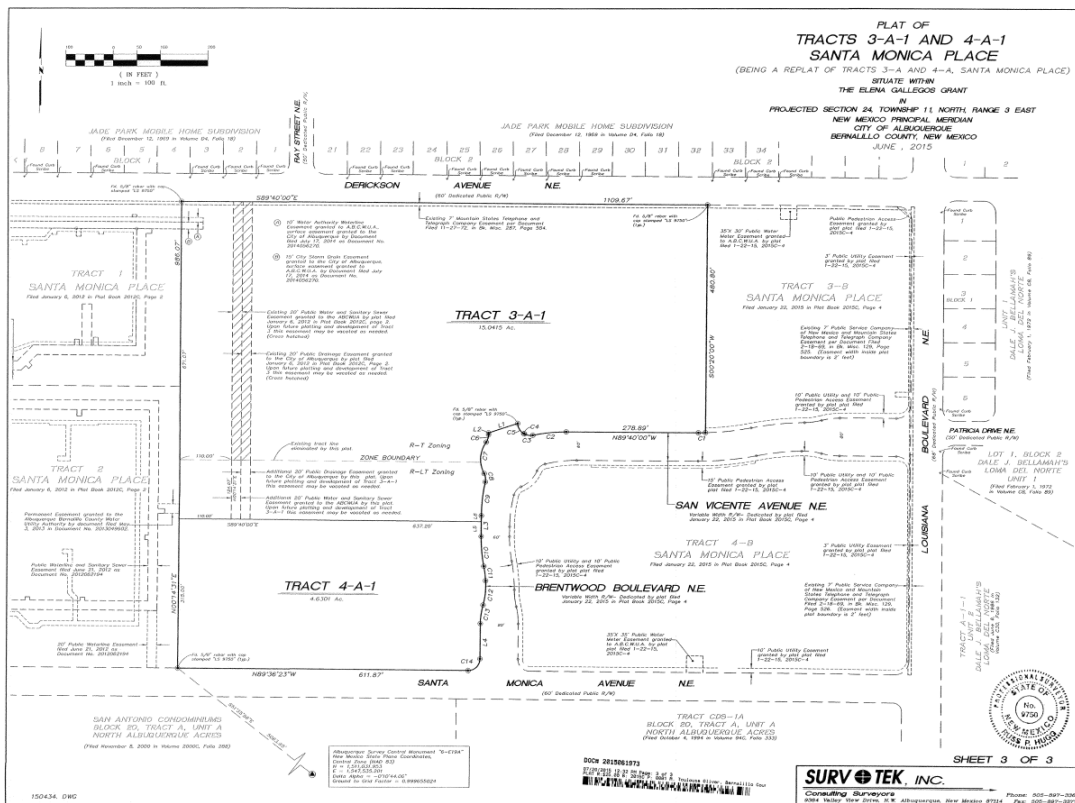
LAND OWNER:

Santa Monica Place Development, LLC
c/o Titan Development
6300 Riverside Plaza Lane NW - #200
Albuquerque, NM 87120-2617
(505) 998-0163
Attn: Kurt Browning / Brian Patterson

II. INTRODUCTION

This drainage report is for Tract 4-A-1, a proposed 24-lot residential development to be known as Santa Monica Estates and includes references to the *Master Drainage Report for Santa Monica Place* (MDR) by Isaacson & Arfman, dated October 9, 2014, and the *Drainage Report for Santa Monica Estates* (SME DR) by Isaacson & Arfman, dated October 5, 2015. The site is bound by Santa Monica Ave. NE to the south, by apartments to the west, by Brentwood Blvd to the east and by Santa Monica Estates, an 88-lot subdivision under construction, to the north. The site was previously developed as a mobile home park.

After the MDR was approved, a replat of Tracts 3-A and 4-A was filed in July 20, 2015, creating Tracts 3-A-1 and 4-A-1. The SME DR re-analyzed the allowable flows from Tract 4-A-1 based on the reduced tract size.



Plat of Tracts 3-A-1 and 4-A-1, Santa Monica Place

The purpose of this drainage report is to analyze discharge quantities and locations from Tract 4-A-1 and storm drain improvements required.

III. EXISTING CONDITIONS

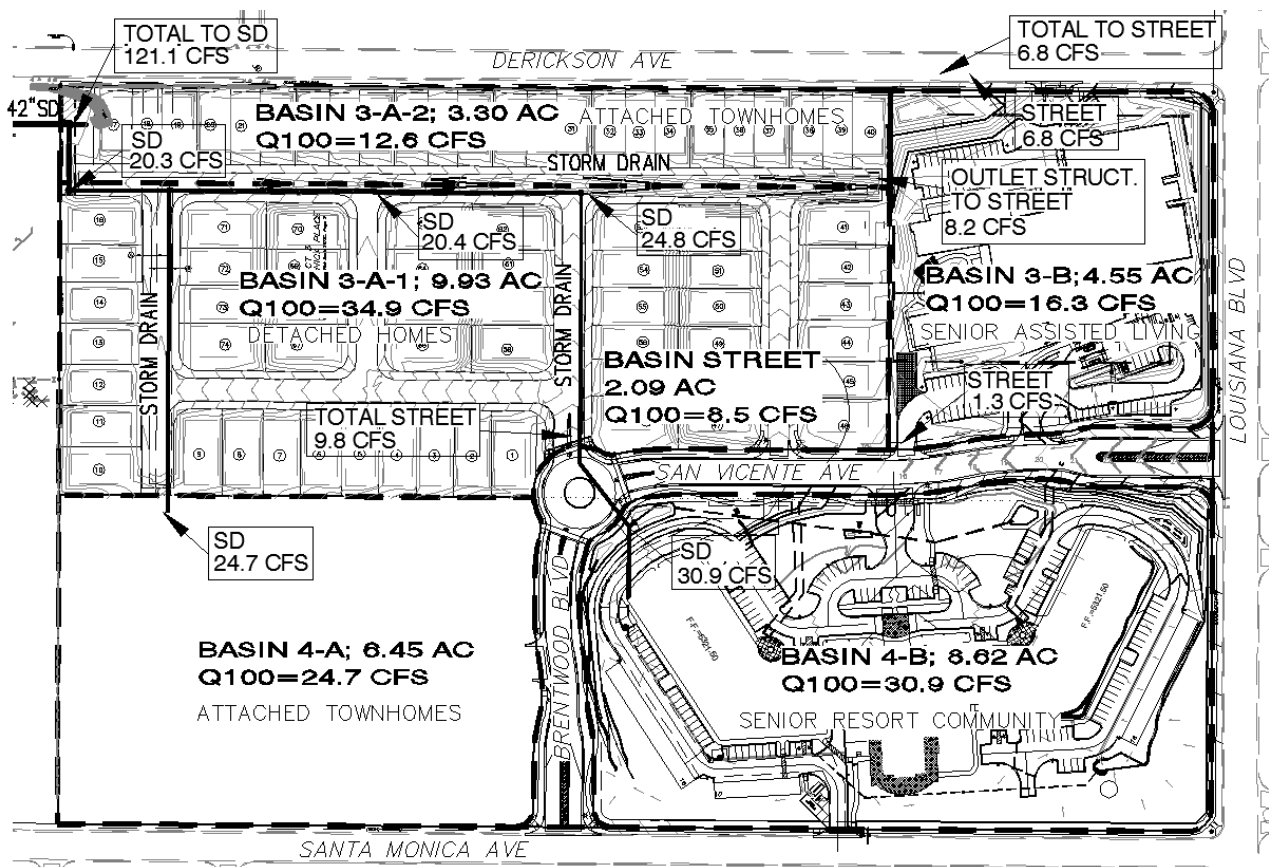
The site drains from the southeast to the northwest corner of Tract 3-A-1 (Santa Monica Estates). With the development of Santa Monica Estates (currently under construction), a storm drain system will be installed, including a 24-inch stub to Tract 4-A-1. The storm drain connects to the Derickson Ave. and San Pedro Blvd. storm drain system which discharges to the North Pino Arroyo approximately 650' north of the San Pedro Blvd. and Derickson Ave. intersection

The Tract 3-B and 4-B developments to the east and southeast will be connected to the proposed storm drain system for the Santa Monica Estates subdivision.

The San Vicente Ave. / Brentwood Blvd. improvements have been constructed, including paving, storm drain and utilities.

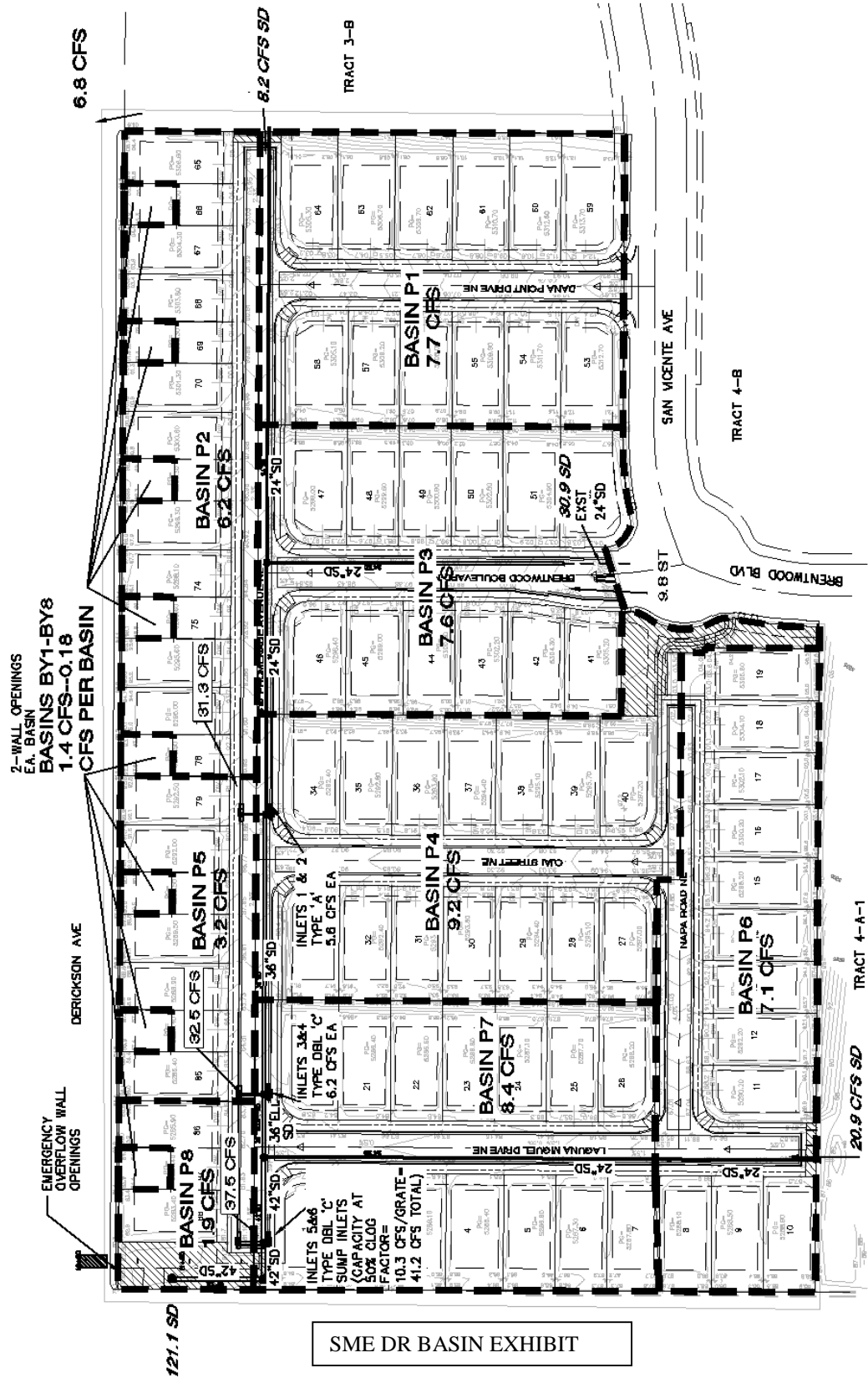
IV. BASIN EXHIBITS FROM THE MDR & SME DR

See below for the basin exhibit from the MDR dated October 9, 2014.



MDR BASIN EXHIBIT

See below for the basin exhibit from the SME DR dated October 5, 2015.



SME DR BASIN EXHIBIT

V. PROPOSED CONDITIONS

Santa Monica Estates, Unit 2 will be developed with 24 detached single-family homes.

The storm drain system for Santa Monica Estates, Unit 2, will be connected to the 24" storm drain stub that will be installed with the Santa Monica Estates project. A temporary standpipe installed with the Santa Monica Estates project shall be removed.

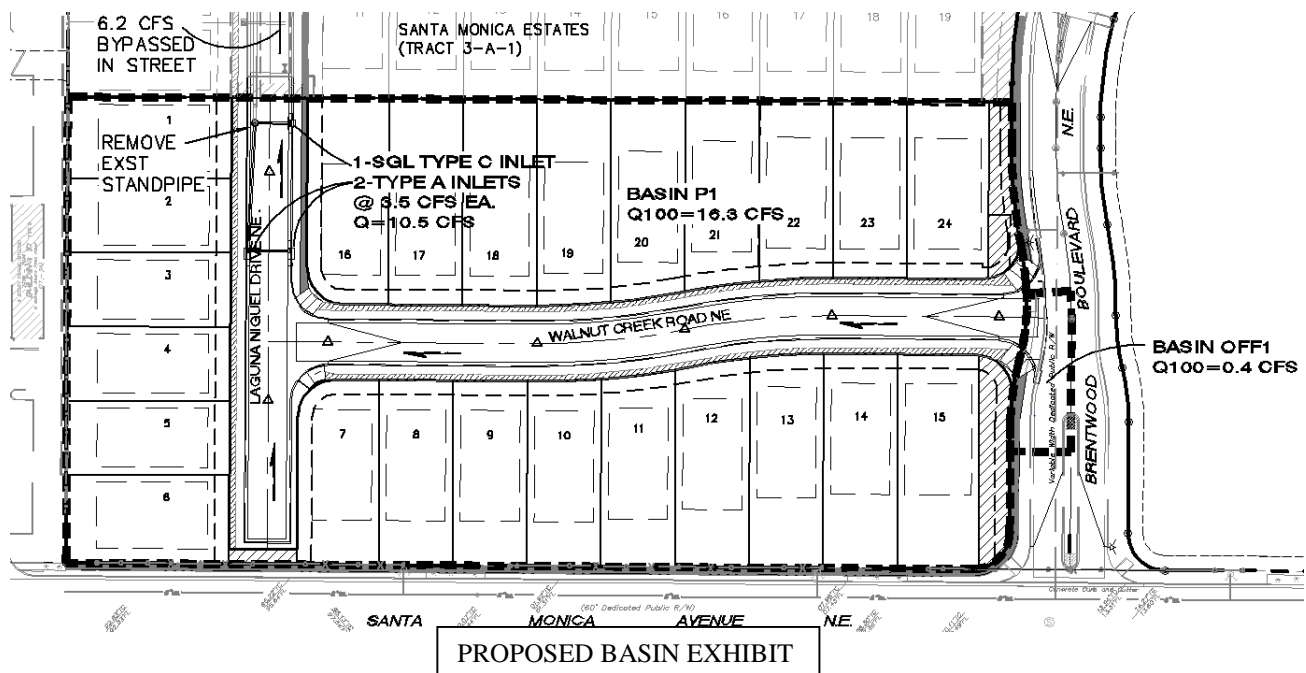
The MDR shows a total discharge to the storm drain at the northwest corner of 121.1 cfs, and the SME DR shows an allowable discharge of 20.9 from Santa Monica Estates, Unit 2.

The 100-yr, 6-hr flow rate for the site was calculated using AHYMO based on NOAA Atlas 14 rainfall data and assigned land treatments—see Appendix A. The onsite basin, Basin P1, generates 16.3 cfs, and an offsite basin, Basin OFF-1 from Brentwood Blvd. will discharge 0.4 cfs. The total discharge of 16.7 cfs is less than the allowable 20.9 cfs.

Flows will be collected in three on-grade curb inlets in Laguna Niguel Drive at the northwest end of the site. The on-grade inlet capacity was calculated from DPM Plate 22.3 D-5 based on street flow depth—see Appendix B for street capacity calculations. A total of 10.5 cfs will be captured in the inlets, and 6.2 cfs will be bypassed in Laguna Niguel Drive and be captured in the sump inlets at the west end of Promenade Ave. The two sump inlets have a full capacity of 82.4 cfs and 41.2 at 50% clogging. The total flow at the inlets including the 6.2 cfs bypassed in Laguna Niguel Dr will be 43.7 cfs—see Appendix B for street capacity calculations. Should one inlet clog 100%, the additional 2.5 cfs will be diverted to Derickson Ave. via an emergency overflow wall opening.

The area between the sidewalks and the curb and a 5-foot area in the front yards shall be depressed to allow for retention of the “first flush” storm (first .34 inches) as was done for the first phase.

See proposed basin exhibit below.



VI. SUMMARY

The following items shall be required for construction of Santa Monica Estates, Unit 2.

- Remove temporary stand pipe.
- Construct streets with curb & gutter.
- Grade first flush retention areas.
- Construct storm drain and inlets as shown on grading plan. Connect storm drain to 24-inch stub in Laguna Niguel Drive.

APPENDIX A

Hydrology Calculations

- **Land Treatment Table**
- **Noaa Atlas 14 Rainfall Data**
- **Ahymo Summary**

SANTA MONICA ESTATES UNIT 2 LAND TREATMENT TABLE

BASIN	DESCRIPTION	AREA	AREA	AREA	LAND TREATMENTS				Q100
					%				
ID		SF	AC	SQ MI	A	B	C	D	CFS
P1	Onsite Basin	201686	4.6301	0.007234	0	25	24	51	16.3
OFF1	Offsite Basin	3905	0.0896	0.000140	0	0	5	95	0.4
			4.7197						16.7

Calculations for Single Detached Homes

(Per the City of Albuquerque DPM Section 22.2, Table A-5)

Total Area	4.63	Acres
# of Lots	24	lots
N =	5.18	D.U./Ac.

Percentage of Impervious Land (Type D)

$$\%D = 7(N^2+5N)^{1/2}$$

%D= 50.86 %

LAND TREATMENTS		
Type A=	0	%
Type B=	25	%
Type C=	24	%
Type D=	51	%
$\Sigma=$	100	%



NOAA Atlas 14, Volume 1, Version 5
Location name: Albuquerque, New Mexico, US*
Latitude: 35.1625°, Longitude: -106.5741°
Elevation: 5284 ft*
* source: Google Maps



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchon

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps & aeriels](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.171 (0.145-0.204)	0.221 (0.186-0.264)	0.298 (0.251-0.356)	0.357 (0.299-0.425)	0.438 (0.365-0.520)	0.502 (0.417-0.598)	0.570 (0.469-0.676)	0.641 (0.525-0.760)	0.738 (0.599-0.877)	0.815 (0.658-0.968)
10-min	0.260 (0.220-0.311)	0.337 (0.283-0.401)	0.454 (0.382-0.541)	0.544 (0.454-0.646)	0.666 (0.556-0.792)	0.764 (0.635-0.910)	0.868 (0.714-1.03)	0.976 (0.799-1.16)	1.12 (0.912-1.34)	1.24 (1.00-1.47)
15-min	0.322 (0.273-0.385)	0.418 (0.351-0.498)	0.562 (0.473-0.671)	0.674 (0.563-0.801)	0.826 (0.689-0.982)	0.947 (0.787-1.13)	1.08 (0.884-1.28)	1.21 (0.990-1.44)	1.39 (1.13-1.66)	1.54 (1.24-1.83)
30-min	0.434 (0.368-0.519)	0.562 (0.472-0.670)	0.757 (0.637-0.903)	0.907 (0.758-1.08)	1.11 (0.928-1.32)	1.28 (1.06-1.52)	1.45 (1.19-1.72)	1.63 (1.33-1.93)	1.88 (1.52-2.23)	2.07 (1.67-2.46)
60-min	0.537 (0.455-0.642)	0.696 (0.584-0.829)	0.937 (0.789-1.12)	1.12 (0.938-1.34)	1.38 (1.15-1.64)	1.58 (1.31-1.88)	1.79 (1.47-2.13)	2.02 (1.65-2.39)	2.32 (1.89-2.76)	2.56 (2.07-3.04)
2-hr	0.649 (0.534-0.812)	0.835 (0.686-1.04)	1.11 (0.906-1.38)	1.32 (1.08-1.64)	1.63 (1.32-2.01)	1.87 (1.51-2.31)	2.13 (1.71-2.63)	2.40 (1.92-2.95)	2.79 (2.20-3.43)	3.09 (2.42-3.81)
3-hr	0.695 (0.575-0.857)	0.885 (0.729-1.09)	1.16 (0.959-1.43)	1.38 (1.14-1.70)	1.69 (1.38-2.08)	1.94 (1.57-2.37)	2.20 (1.78-2.69)	2.48 (1.98-3.03)	2.87 (2.28-3.51)	3.19 (2.51-3.91)
6-hr	0.813 (0.676-0.994)	1.03 (0.855-1.26)	1.33 (1.11-1.62)	1.56 (1.30-1.90)	1.89 (1.56-2.29)	2.14 (1.76-2.60)	2.41 (1.97-2.92)	2.69 (2.18-3.26)	3.07 (2.48-3.72)	3.39 (2.71-4.10)
12-hr	0.897 (0.758-1.07)	1.13 (0.953-1.35)	1.44 (1.21-1.71)	1.68 (1.41-1.99)	2.01 (1.68-2.37)	2.26 (1.88-2.67)	2.53 (2.10-2.98)	2.80 (2.30-3.30)	3.17 (2.58-3.74)	3.47 (2.81-4.13)
24-hr	1.01 (0.884-1.19)	1.27 (1.08-1.48)	1.60 (1.36-1.87)	1.86 (1.59-2.17)	2.21 (1.88-2.59)	2.48 (2.10-2.90)	2.77 (2.33-3.23)	3.06 (2.58-3.57)	3.45 (2.87-4.03)	3.76 (3.11-4.41)
2-day	1.06 (0.905-1.23)	1.33 (1.14-1.54)	1.68 (1.44-1.95)	1.95 (1.67-2.26)	2.32 (1.97-2.69)	2.60 (2.20-3.03)	2.90 (2.44-3.37)	3.20 (2.69-3.73)	3.62 (3.02-4.22)	3.94 (3.27-4.61)
3-day	1.17 (1.04-1.31)	1.46 (1.30-1.64)	1.81 (1.61-2.04)	2.09 (1.85-2.35)	2.47 (2.17-2.77)	2.75 (2.42-3.09)	3.05 (2.67-3.42)	3.34 (2.92-3.76)	3.74 (3.25-4.24)	4.04 (3.50-4.64)
4-day	1.28 (1.17-1.40)	1.59 (1.45-1.74)	1.95 (1.78-2.13)	2.23 (2.04-2.43)	2.61 (2.38-2.85)	2.90 (2.64-3.16)	3.19 (2.89-3.47)	3.48 (3.15-3.79)	3.86 (3.48-4.26)	4.15 (3.72-4.66)
7-day	1.47 (1.34-1.59)	1.82 (1.67-1.97)	2.21 (2.03-2.40)	2.51 (2.31-2.73)	2.92 (2.67-3.15)	3.21 (2.94-3.47)	3.51 (3.21-3.80)	3.79 (3.48-4.10)	4.16 (3.79-4.51)	4.43 (4.02-4.80)
10-day	1.62 (1.49-1.76)	2.01 (1.85-2.18)	2.46 (2.27-2.66)	2.81 (2.59-3.04)	3.27 (3.01-3.53)	3.62 (3.32-3.90)	3.96 (3.63-4.28)	4.30 (3.93-4.65)	4.74 (4.32-5.13)	5.07 (4.60-5.48)
20-day	2.03 (1.87-2.21)	2.52 (2.32-2.75)	3.06 (2.81-3.32)	3.46 (3.18-3.76)	3.98 (3.65-4.31)	4.35 (3.99-4.71)	4.71 (4.31-5.09)	5.05 (4.61-5.45)	5.46 (4.98-5.91)	5.76 (5.24-6.23)
30-day	2.43 (2.23-2.63)	3.02 (2.77-3.26)	3.63 (3.33-3.92)	4.08 (3.74-4.40)	4.64 (4.25-4.99)	5.03 (4.61-5.41)	5.41 (4.95-5.82)	5.76 (5.27-6.19)	6.17 (5.64-6.64)	6.46 (5.89-6.95)
45-day	2.98 (2.75-3.22)	3.68 (3.40-3.98)	4.39 (4.05-4.73)	4.88 (4.50-5.26)	5.49 (5.06-5.91)	5.89 (5.44-6.34)	6.26 (5.78-6.73)	6.58 (6.07-7.07)	6.93 (6.41-7.45)	7.14 (6.61-7.66)
60-day	3.43 (3.17-3.71)	4.24 (3.92-4.58)	5.05 (4.67-5.45)	5.62 (5.20-6.06)	6.31 (5.85-6.81)	6.78 (6.28-7.31)	7.21 (6.68-7.77)	7.58 (7.03-8.18)	8.00 (7.43-8.64)	8.26 (7.69-8.91)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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PF graphical

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APPENDIX B

Street Capacity

Calculations

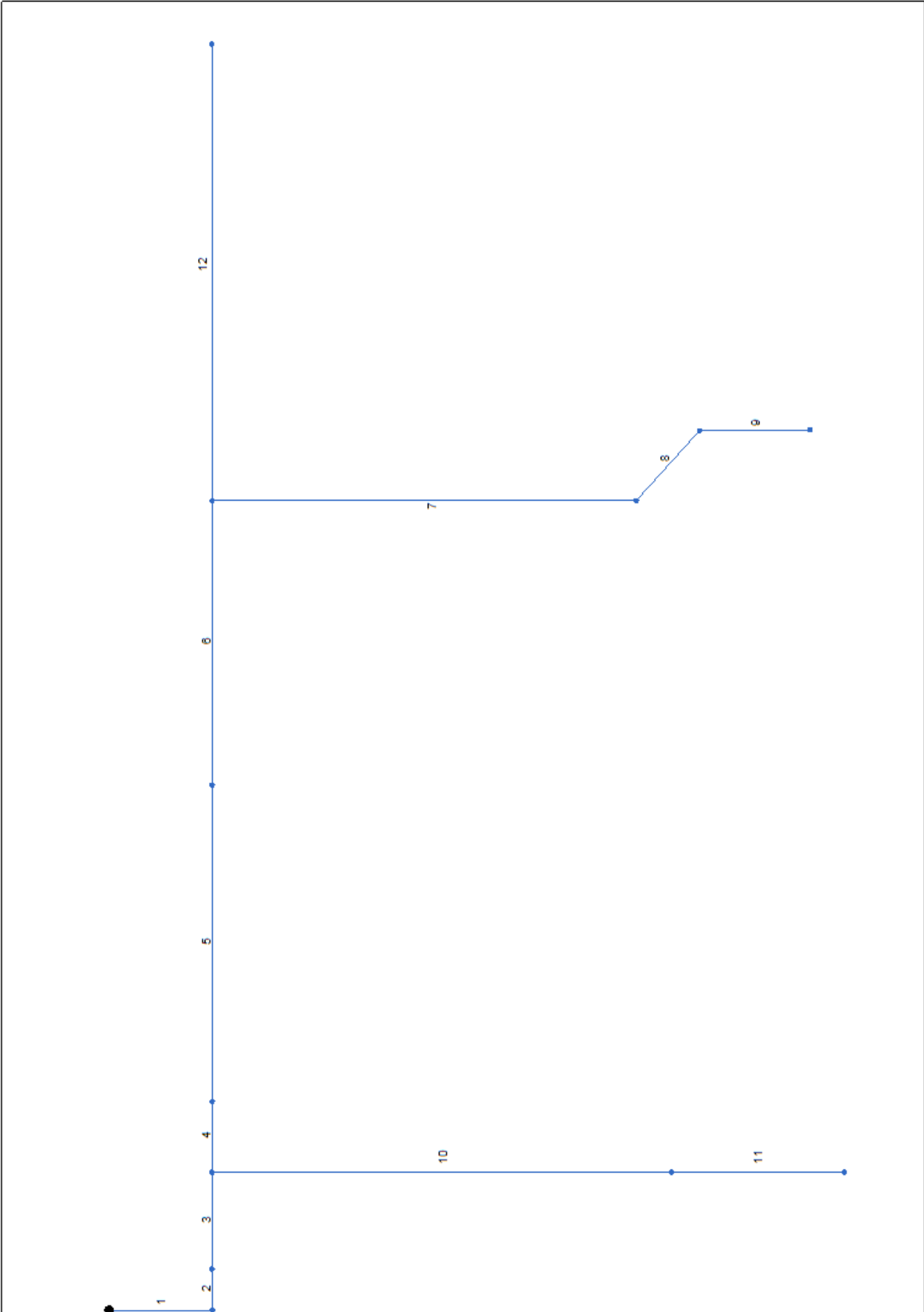
STREET FLOW CAPACITY CALCULATIONS			
STREET NAME:		PROMENADE AVE	
LOCATION:		SUMP INLET S	
STREET INFORMATION		HALF STREET CALCULATIONS	
Slope	0.015	Road Width/2	15
Q ₁₀₀	43.7	Curb Height	0.67
Right-of-way Width	51	1/2 Wetted Perimeter (P)	15.457
Road Width	30	1/2 Area(STD)	4.605
Curb Type	std	1/2 Area(MDN)	---
Road Cross Slope	0.02	1/2 Area(MTBL)	---
Manning's N	0.017	Discharge (1/2 Q)	21.903
Depth	0.457		
RESULTS			
<u>HGL</u>			
Q ₁₀₀ FLOW CAPACITY =	43.81 cfs	OK	
at an HGL Depth=	0.46 ft	<	Curb height = 0.67
		OK	
<u>EGL</u>			
Velocity	4.76 fps		
V ² /2g	0.35 ft		
EGL Depth =	0.81 ft	<	Right-of-way height = 0.87
		OK	

STREET NAME:		LAGUNA NIGUEL DR		2
LOCATION:		3 INLET S		
STREET INFORMATION		HALF STREET CALCULATIONS		
Slope	0.015	Road Width/2	15	
Q ₁₀₀	16.7	Curb Height	0.67	
Right-of-way Width	51	1/2 Wetted Perimeter (P)	15.322	
Road Width	30	1/2 Area(STD)	2.580	
Curb Type	std	1/2 Area(MDN)	---	
Road Cross Slope	0.02	1/2 Area(MTBL)	---	
Manning's N	0.017	Discharge (1/2 Q)	8.373	
Depth	0.322			
RESULTS				
<u>HGL</u>				
Q ₁₀₀ FLOW CAPACITY =	16.75 cfs	OK		
at an HGL Depth=	0.32 ft	<	Curb height = 0.67	
		OK		
<u>EGL</u>				
Velocity	3.25 fps			
V ² /2g	0.16 ft			
EGL Depth =	0.49 ft	<	Right-of-way height = 0.87	
		OK		

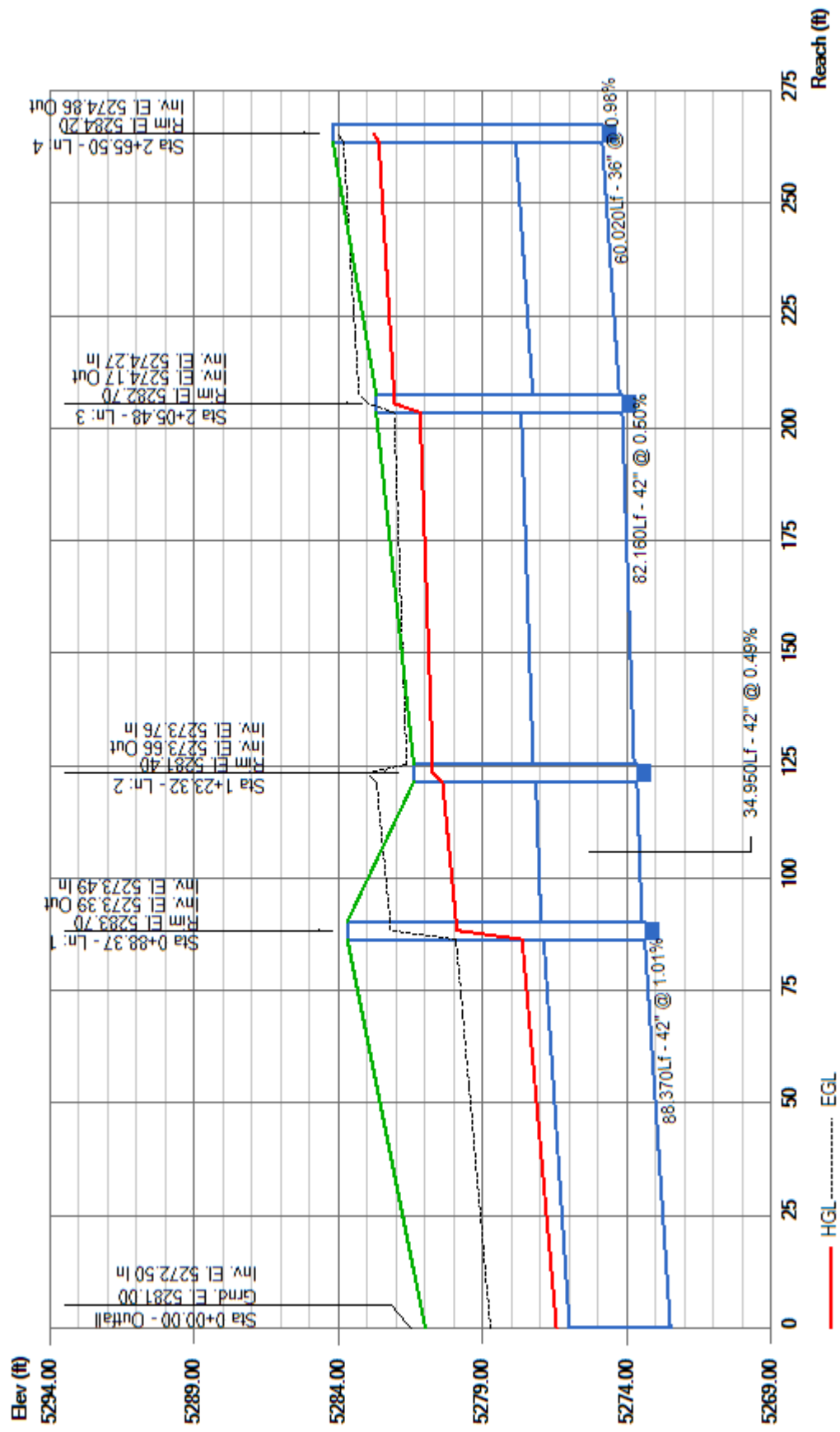
APPENDIX C

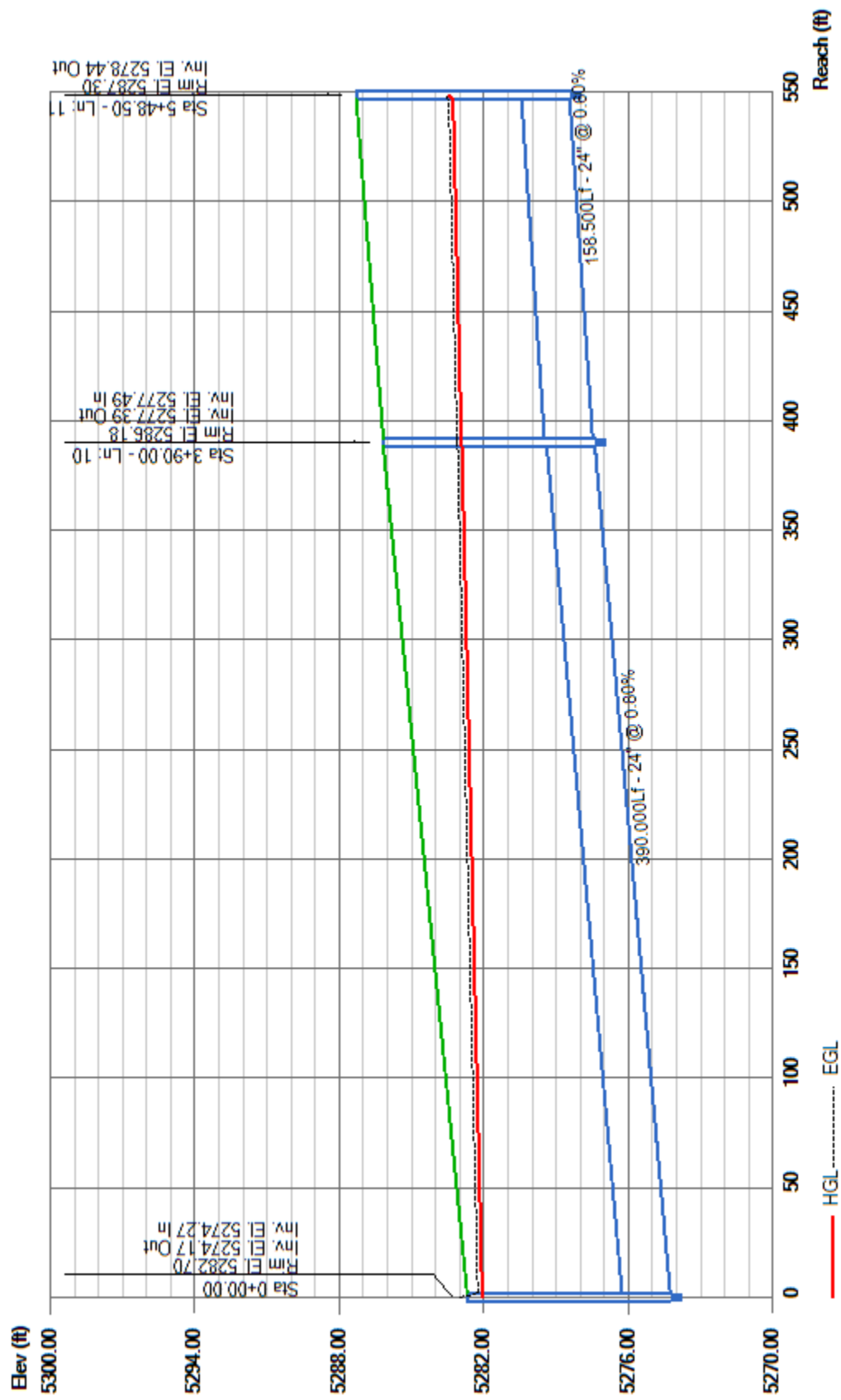
Storm Drain Calculations

Hydraflow Storm Sewers Extension for Autodesk® AutoCAD® Civil 3D® Plan



Project File: 2106 SD-R.stm	Number of lines: 12	Date: 10/5/2015
-----------------------------	---------------------	-----------------





Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data							Line ID	
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)		Inlet/ Rim El (ft)
1	End	88.370	90.000	MH	0.00	0.00	0.00	0.0	5272.50	1.01	5273.39	42	Cir	0.013	1.00	5283.70	
2	1	34.950	-90.000	MH	43.70	0.00	0.00	0.0	5273.49	0.49	5273.66	42	Cir	0.013	0.15	5281.40	
3	2	82.160	0.000	MH	0.00	0.00	0.00	0.0	5273.76	0.50	5274.17	42	Cir	0.013	1.00	5282.70	
4	3	60.020	0.000	MH	12.40	0.00	0.00	0.0	5274.27	0.98	5274.86	36	Cir	0.013	0.15	5284.20	
5	4	268.600	0.000	MH	11.20	0.00	0.00	0.0	5274.96	1.55	5279.12	36	Cir	0.013	0.15	5290.26	
6	5	241.380	0.000	MH	0.00	0.00	0.00	0.0	5284.12	1.98	5288.90	24	Cir	0.013	1.00	5298.70	
7	6	360.000	90.004	MH	0.00	0.00	0.00	0.0	5289.00	2.22	5297.00	24	Cir	0.013	0.78	5304.00	
8	7	80.000	-47.891	MH	15.40	0.00	0.00	0.0	5299.10	2.50	5301.10	24	Cir	0.013	0.78	5307.20	
9	8	94.000	47.316	MH	15.50	0.00	0.00	0.0	5301.20	7.55	5308.30	18	Cir	0.013	1.00	5319.00	
10	3	390.000	90.000	MH	0.00	0.00	0.00	0.0	5274.27	0.80	5277.39	24	Cir	0.013	0.15	5286.18	
11	10	158.500	0.000	MH	10.50	0.00	0.00	0.0	5277.49	0.60	5278.44	24	Cir	0.013	1.00	5287.30	
12	6	387.460	-0.047	MH	8.20	0.00	0.00	0.0	5289.82	2.11	5298.00	24	Cir	0.013	1.00	5304.35	
Project File: 2149 SD.stm																	
Number of lines: 12															Date: 2/24/2016		

Storm Sewer Summary Report

Page 1

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	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.	Junction Type
1		116.9	42	Cir	88.370	5272.50	5273.39	1.007	5276.46*	5277.64*	2.30	5279.94	End	Manhole
2		116.9	42	Cir	34.950	5273.49	5273.66	0.486	5279.94*	5280.41*	0.34	5280.76	1	Manhole
3		73.20	42	Cir	82.160	5273.76	5274.17	0.499	5280.76*	5281.19*	0.90	5282.09	2	Manhole
4		62.70	36	Cir	60.020	5274.27	5274.86	0.983	5282.09*	5282.62*	0.18	5282.81	3	Manhole
5		50.30	36	Cir	268.600	5274.96	5279.12	1.549	5282.81*	5284.34*	0.12	5284.45	4	Manhole
6		39.10	24	Cir	241.380	5284.12	5288.90	1.980	5286.12*	5293.34*	2.41	5295.75	5	Manhole
7		30.90	24	Cir	360.000	5289.00	5297.00	2.222	5295.75*	5302.47*	1.17	5303.64	6	Manhole
8		30.90	24	Cir	80.000	5299.10	5301.10	2.500	5303.64*	5305.13*	1.17	5306.31	7	Manhole
9		15.60	18	Cir	94.000	5301.20	5308.30	7.553	5306.31	5309.72	n/a	5309.72 j	8	Manhole
10		10.50	24	Cir	390.000	5274.27	5277.39	0.800	5282.09*	5282.93*	0.03	5282.96	3	Manhole
11		10.50	24	Cir	158.500	5277.49	5278.44	0.599	5282.96*	5283.30*	0.17	5283.47	10	Manhole
12		8.20	24	Cir	387.460	5289.82	5298.00	2.111	5295.75	5299.02	n/a	5299.02 j	6	Manhole
Project File: 2149 SD.stm										Number of lines: 12			Run Date: 2/24/2016	
NOTES: Return period = 2 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.														

Storm Sewer Tabulation

Station		Len (ft)	Dmg Area		Rnoff coeff (C)	Area x C		Tc		Rain (l)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID	
Line	To Line		Incr	Total		Inlet (min)	Syst (min)	Incr	Total					Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)		
1	End	88.370	0.00	0.00	0.00	0.00	0.00	0.0	3.8	0.0	116.9	101.0	12.15	42	1.01	5272.50	5273.39	5276.45	5277.64	5281.00	5283.70		
2	1	34.950	0.00	0.00	0.00	0.00	0.00	0.0	3.7	0.0	116.9	70.15	12.15	42	0.49	5273.49	5273.66	5279.94	5280.41	5283.70	5281.40		
3	2	82.160	0.00	0.00	0.00	0.00	0.00	0.0	3.5	0.0	73.20	71.08	7.61	42	0.50	5273.76	5274.17	5280.76	5281.19	5281.40	5282.70		
4	3	60.020	0.00	0.00	0.00	0.00	0.00	0.0	3.4	0.0	62.70	66.12	8.87	36	0.98	5274.27	5274.86	5282.09	5282.62	5282.70	5284.20		
5	4	268.600	0.00	0.00	0.00	0.00	0.00	0.0	2.8	0.0	50.30	83.00	7.12	36	1.55	5274.96	5279.12	5282.81	5284.34	5284.20	5290.26		
6	5	241.380	0.00	0.00	0.00	0.00	0.00	0.0	2.5	0.0	39.10	31.83	12.45	24	1.98	5284.12	5288.90	5286.12	5293.34	5290.26	5298.70		
7	6	360.000	0.00	0.00	0.00	0.00	0.00	0.0	0.3	0.0	30.90	33.72	9.84	24	2.22	5289.00	5297.00	5295.75	5302.47	5298.70	5304.00		
8	7	80.000	0.00	0.00	0.00	0.00	0.00	0.0	0.2	0.0	30.90	35.76	9.84	24	2.50	5299.10	5301.10	5303.64	5305.13	5304.00	5307.20		
9	8	94.000	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	15.50	28.86	8.87	18	7.55	5301.20	5308.30	5306.31	5309.72	5307.20	5319.00		
10	3	390.000	0.00	0.00	0.00	0.00	0.00	0.0	0.8	0.0	10.50	20.23	3.34	24	0.80	5274.27	5277.39	5282.09	5282.93	5282.70	5286.18		
11	10	158.500	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	10.50	17.51	3.34	24	0.60	5277.49	5278.44	5282.96	5283.30	5286.18	5287.30		
12	6	387.460	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	8.20	32.86	3.85	24	2.11	5289.82	5298.00	5295.75	5299.02	5298.70	5304.35		
Project File: 2149 SD.stm														Number of lines: 12				Run Date: 2/24/2016					
NOTES: Intensity = 69.87 / (Inlet time + 13.10) ^ 0.87; Return period = Yrs. 2 ; c = cir e = ellip b = box																							

NOTES: Intensity = 69.87 / (Inlet time + 13.10) ^ 0.87; Return period = Yrs. 2 ; c = cir e = ellip b = box

GENERAL NOTES

1. ALL WORK DETAILED ON THESE PLANS AND PERFORMED UNDER THIS CONTRACT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL REPORT. WHERE APPLICABLE AND CITY OF ALBUQUERQUE SPECIFICATIONS APPLY.

2. THE CONTRACTOR SHALL ABIDE BY ALL STATE, LOCAL, AND FEDERAL LAWS, CODES, RULES AND REGULATIONS WHICH APPLY TO THE CONSTRUCTION OF THESE IMPROVEMENTS, INCLUDING EPA AND ADA REQUIREMENTS.

3. ALL SUBGRADE, OVEREXCAVATION, BACKFILL, AND FILL SHALL BE PLACED AND / OR COMPACTED PER THE GEOTECHNICAL REPORT AND CITY OF ALBUQUERQUE SPECIFICATIONS.

4. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS FOR THE PROJECT PRIOR TO COMMENCING CONSTRUCTION, OR PRIOR TO OCCUPANCY, AS APPROPRIATE. IF PERMITS ARE DELAYED OR ISSUED WITH CONDITIONS, THE CONTRACTOR SHALL NOTIFY THE OWNER AND ARCHITECT IMMEDIATELY.

5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING OBSTRUCTIONS, AND CONDITION OF ALL EXISTING INFRASTRUCTURE PRIOR TO CONSTRUCTION. REPORT ALL DISCREPANCIES TO THE ARCHITECT / ENGINEER AND VERIFY THE ARCHITECT / ENGINEER'S INTENT BEFORE PROCEEDING.

6. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SITE SAFETY.

7. THE CONTRACTOR SHALL MAINTAIN RECORD DRAWINGS ON SITE AT ALL TIMES. THE CONTRACTOR SHALL NOT SCALE DRAWINGS. ONLY WRITTEN DIMENSIONS OR KEYED NOTES SHALL BE USED.

8. CONTRACTOR SHALL OBTAIN ALL REQUIRED INSPECTIONS OF THE WORK. CONTRACTOR SHALL REGULARLY UPDATE OWNER AND ARCHITECT REGARDING THE STATUS OF THE INSPECTIONS.

9. CONSTRUCTION ACTIVITY SHALL BE LIMITED TO THE PROPERTY AND/OR PROJECT LIMITS. ANY DAMAGE TO ADJACENT STRUCTURES RESULTING FROM THE CONSTRUCTION PROCESS SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE. CONTRACTOR SHALL BE RESPONSIBLE FOR DOCUMENTING EXISTING CONDITIONS PRIOR TO CONSTRUCTION.

10. CONSTRUCTION EQUIPMENT SHALL NOT OBSTRUCT DRIVEWAYS. EQUIPMENT SHALL ONLY OBSTRUCT DESIGNATED TRAFFIC LANES IF APPROPRIATE BARRICADING PERMITS HAVE BEEN OBTAINED. THE CONTRACTOR SHALL NOT STORE ANY EQUIPMENT OR MATERIAL IN THE RIGHT-OF-WAY.

11. THE CONTRACTOR SHALL PROVIDE A CONSTRUCTION TRAFFIC CONTROL AND SIGNING PLAN THAT CONFORMS TO THE LATEST EDITION OF THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND LOCAL REQUIREMENTS. THE CONTRACTOR SHALL OBTAIN BARRICADING PERMITS FROM THE APPROPRIATE AUTHORITIES PRIOR TO ANY CONSTRUCTION WORK ON OR ADJACENT TO EXISTING STREETS.

12. THE CONTRACTOR SHALL MAINTAIN ALL BARRICADING AND CONSTRUCTION SIGNING AT ALL TIMES. THE CONTRACTOR SHALL VERIFY THE PROPER LOCATION OF ALL BARRICADING AT THE END AND BEGINNING OF EACH DAY.

13. ALL TRASH, DEBRIS, & SURFACE VEGETATION SHALL BE CLEARED AND LEGALLY DISPOSED OF OFFSITE.

14. PROPOSED SPOT AND CONTOUR ELEVATIONS SHOWN REPRESENT TOP OF FINISH MATERIAL (I.E. TOP OF CONCRETE, TOP OF CONCRETE BUILDING PAD, TOP OF PAVEMENT MATERIAL, TOP OF LANDSCAPING MATERIAL, ETC.). CONTRACTOR SHALL GRADE, COMPACT SUBGRADE AND DETERMINE EARTHWORK ESTIMATES BASED ON ELEVATIONS SHOWN MINUS FINISH MATERIAL THICKNESSES.

15. IF FIELD GRADE ADJUSTMENTS ARE REQUIRED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER.

16. EXISTING UTILITY LINES ARE SHOWN IN AN APPROXIMATE MANNER ONLY AND MAY BE INCOMPLETE OR OBSOLETE. SUCH LINES MAY OR MAY NOT EXIST WHERE SHOWN OR NOT SHOWN. CONTRACTOR SHALL CONTACT NM-811 FOR UTILITY LINE SPOTS TWO WORKING DAYS PRIOR TO CONDUCTING SITE FIELD WORK. CONTRACTOR SHALL FIELD VERIFY AND LOCATE ALL UTILITIES PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION. CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES, AND UNDERGROUND UTILITY LINES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF NECESSARY DRY UTILITY ADJUSTMENTS.

17. SOIL TESTING AND INSPECTION SERVICES DURING EARTHWORK OPERATIONS ARE REQUIRED. CONTRACTOR SHALL ALLOW TESTING LABS TO INSPECT AND APPROVE COMPACTED SUBGRADES, BACKFILL, AND FILL LAYERS BEFORE FURTHER CONSTRUCTION WORK IS DONE. SHOULD COMPACTION TESTS INDICATE INADEQUATE DENSITY, CONTRACTOR SHALL PROVIDE ADDITIONAL COMPACTION AND TESTING AT THE CONTRACTOR'S SOLE EXPENSE.

18. CONTRACTOR SHALL PROVIDE ALL OTHER CONSTRUCTION STAKING. CONTRACTOR SHALL LOCATE AND PRESERVE ALL BOUNDARY CORNERS AND REPLACE ANY LOST OR DISTURBED CORNERS AT CONTRACTOR'S SOLE EXPENSE. PROPERTY CORNERS SHALL ONLY BE RESET BY A REGISTERED LAND SURVEYOR.

19. THE ENVIRONMENTAL PROTECTION AGENCY (EPA) AND THE CITY OF ALBUQUERQUE REQUIRE A STORM WATER POLLUTION PREVENTION PLAN (SWPPP), AN NPDES PERMIT, AND AN EROSION AND SEDIMENT CONTROL (ESC) PERMIT FOR PROJECTS WHERE CONSTRUCTION ACTIVITIES MEET THE EPA THRESHOLD. (SWPPP, NPDES PERMIT, AND ESC PLAN BY OTHERS.) A CITY-APPROVED ESC PERMIT MUST BE INCLUDED WITH THE CONTRACTOR'S SUBMITTAL FOR A ROUGH GRADING, GRADING, PAVING, BUILDING, OR WORK ORDER PERMIT.

20. A CURRENT STORMWATER CONTROL PERMIT, INCLUDING AN EROSION SEDIMENT CONTROL PLAN (E.S.C.) FOR EROSION AND SEDIMENT CONTROL IS REQUIRED FOR ALL CONSTRUCTION, DEMOLITION CLEARING, AND GRADING OPERATIONS THAT DISTURB THE SOIL ON ONE ACRE OR MORE OF LAND. OWNER WILL COORDINATE.

21. POST-CONSTRUCTION MAINTENANCE FOR PRIVATE STORMWATER FACILITIES WILL BE THE RESPONSIBILITY OF THE FACILITIES OWNER. PERIODIC INSPECTION AND CERTIFICATIONS OF THE FACILITIES MAY BE REQUIRED BY THE CITY ENGINEER.

22. STORMWATER CONTROL MEASURES SHOWN ON THIS PLAN ARE REQUIRED TO PROVIDE MANAGEMENT OF 'FIRST FLUSH' (DEFINED AS THE 90TH PERCENTILE STORM EVENT. PER THE CITY DRAINAGE ORDINANCE, THE 90TH PERCENTILE STORM EVENT, WHICH IS 44 INCHES, IS TO BE MANAGED. REDUCE 0.44 INCH BY THE 0.1 INCH FOR THE INITIAL IMPERVIOUS ABSTRACTION IN TABLE A-6 OF SECTION 22 OF THE DPM. MULTIPLY THE REMAINING 0.34 INCH BY YOUR IMPERVIOUS AREA. THIS IS THE PORTION TO RETAIN.

23. ADJUST ANY RIMS OF EXISTING UTILITY FEATURES AS NECESSARY TO MATCH NEW GRADES.

24. BUILDING PAD ELEVATION SHALL BE ±0.05' FROM PLAN ELEVATION.

25. WHERE GRADES BETWEEN NEW AND EXISTING ARE SHOWN AS 'MATCH' OR '±', TRANSITIONS SHALL BE SMOOTH.

26. CONTRACTOR SHALL COMPLY WITH LOCAL REGULATIONS FOR RESEEDING OF DISTURBED AREAS.

27. GRADING SHALL BE PERFORMED AT THE ELEVATIONS AND IN ACCORDANCE WITH THE DETAILS SHOWN ON THIS PLAN.

28. MEASURES REQUIRED FOR EROSION AND SEDIMENT CONTROL SHALL BE INCIDENTAL TO THE PROJECT COST.

VICINITY MAP

PROJECT DATA

LEGAL DESCRIPTION: Tract 4-A-1, Santa Monica Place

SITE AREA: 4.6301 AC.

FLOOD ZONE: THE SUBJECT PROPERTY (AS SHOWN HEREON) LIES WITHIN ZONE "X" (AREAS DETERMINED TO BE OUTSIDE 0.2% ANNUAL CHANCE FLOOD PLAIN) AS SHOWN ON NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAP NO. 35001C0137H, MAP REVISED AUGUST 16, 2012.

ENGINEER: ASA NILSSON-WEBER
ISAACSON & ARFMAN, P.A.
128 MONROE ST NE, ABQ, NM 87108
PHONE: (505) 268-8828

SURVEYOR: RUSS HUGG
SURV-TEK, INC.
9384 VALLEY VIEW DRIVE, ABQ, NM 87114
PHONE: (505) 897-3366

BENCHMARK: ACS MONUMENT BM 25_E18
ELEVATION: 5339.186 (NGVD 1988)

SAN ANTONIO CONDOMINIUMS
BLOCK 20, TRACT A, UNIT A
NORTH ALBUQUERQUE ACRES
(Filed November 8, 2000 in Volume 2000C, Folio 288)

ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates
128 Monroe Street N.E.
Albuquerque, New Mexico 87108
Ph. 505-268-8828 www.iacivil.com

2-26-16

2149 CG-101.dwg

Feb 26, 2016

DATE: 2/2016

DRAWN BY: ANW

CHKD BY: ANW

NO. REVISION:

DATE:

JOB NO.

2149

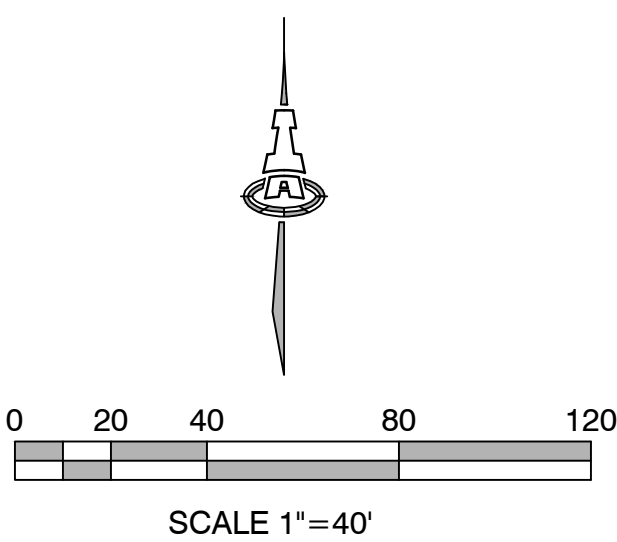
CG-101

SH. OF

SANTA MONICA ESTATES
SUBDIVISION, UNIT 2

GRADING & DRAINAGE PLAN

SEE SHEET CG-501 FOR RETAINING WALL DETAILS.



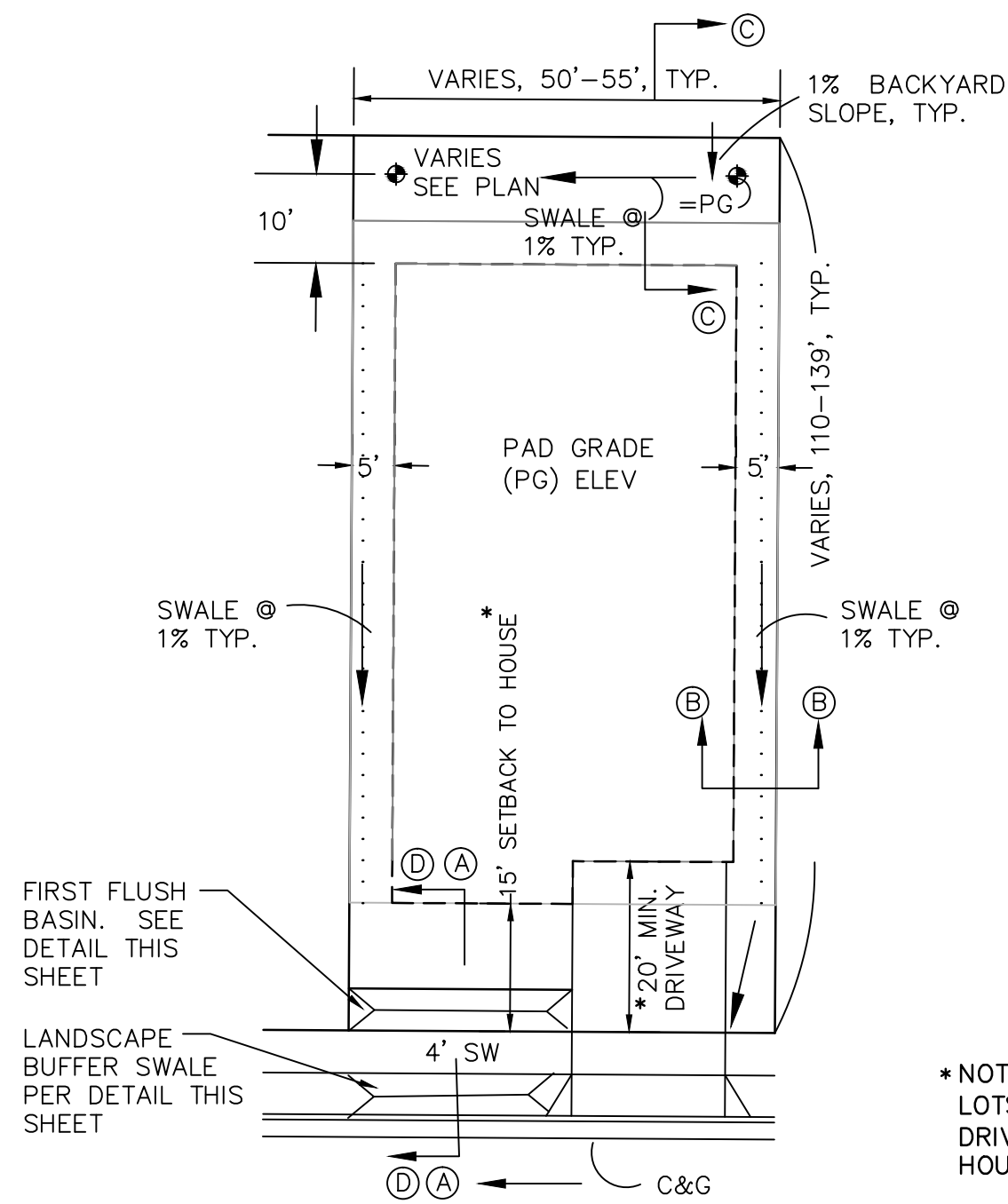
----- PROPOSED RETAINING WALL

TW=
BW= PROPOSED TOP/BOTTOM OF
RETAINING WALL



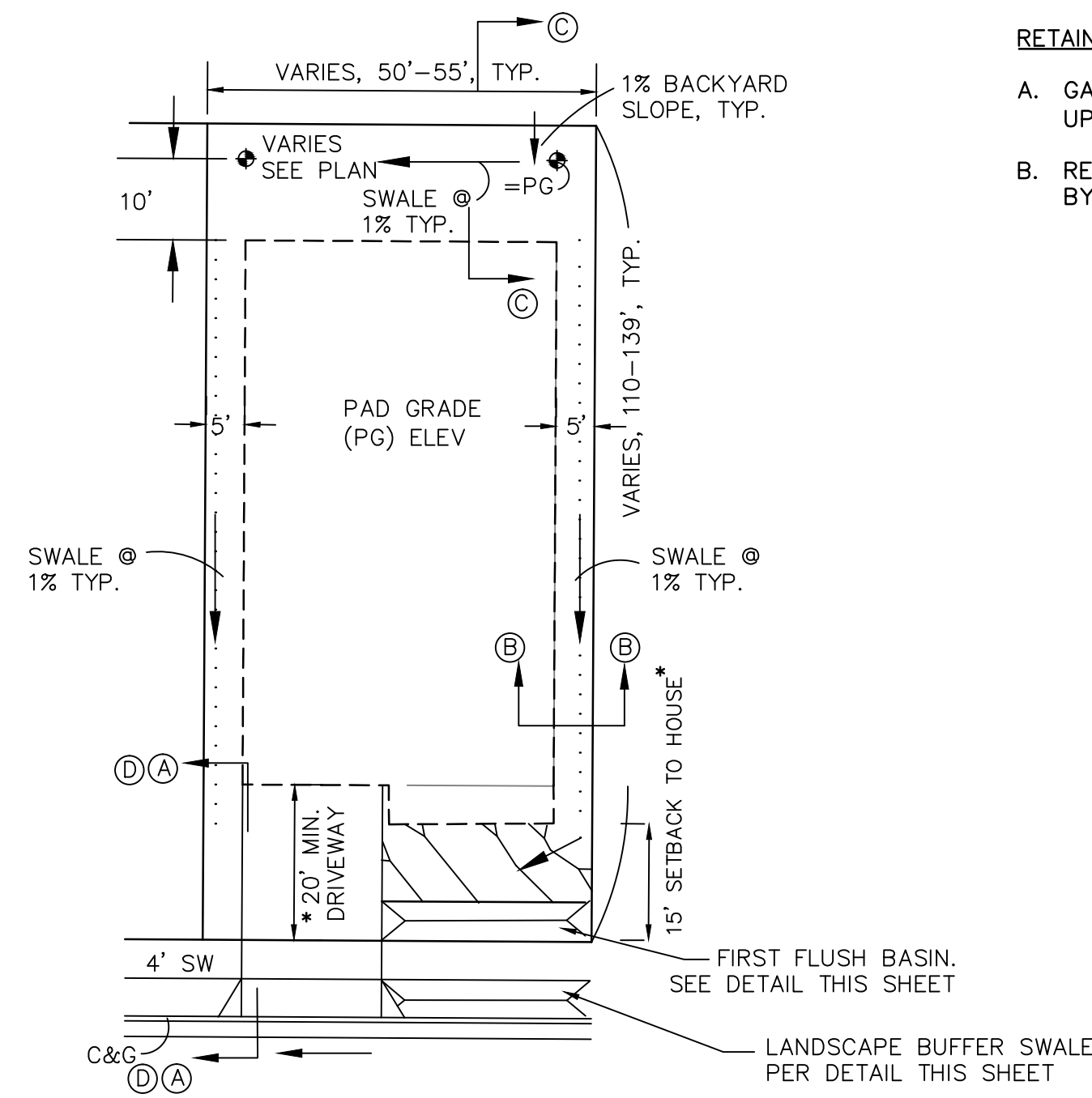
SANTA MONICA ESTATES
SUBDIVISION, UNIT 2

Date:	No.	Revision:	Date:	Job No.
2/2016				2149
Drawn By:				CG-201
ANW				
Ckd By:				SH. OF
ANW				



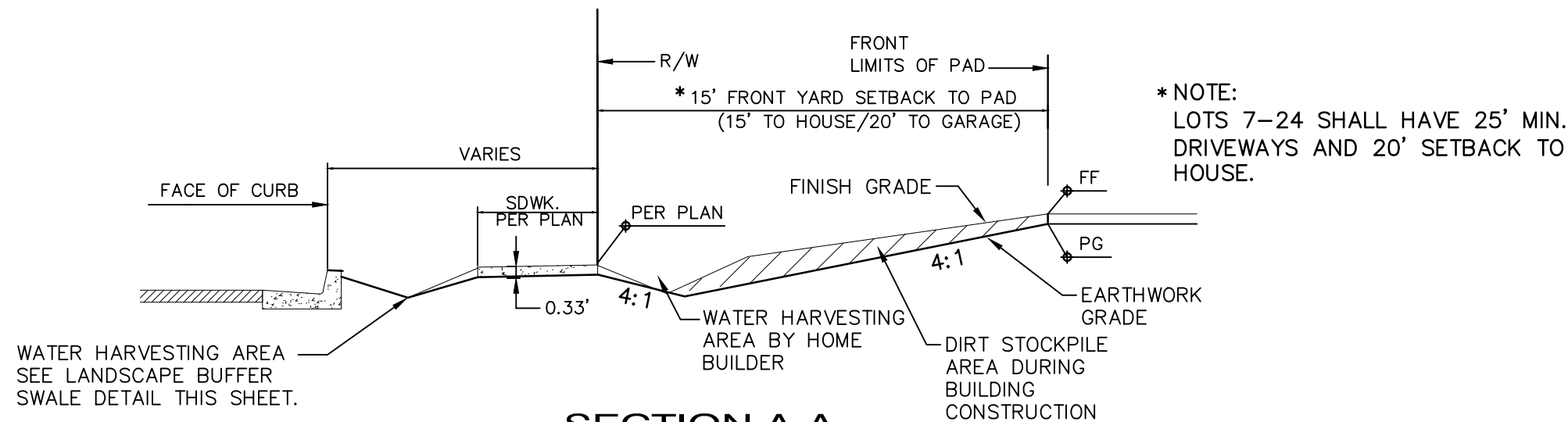
TYPICAL LOT GRADING DETAIL

SCALE: 1"=20' NOTE: 10' SIDEYARD SETBACK ADJACENT TO STREETS



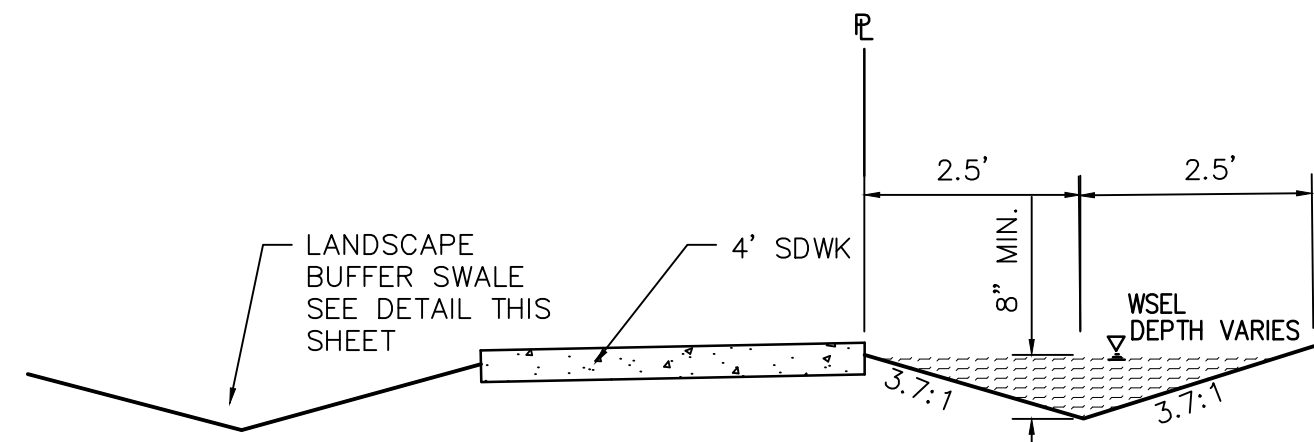
**TYPICAL LOT GRADING DETAIL
DRIVEWAY ON LOW SIDE**

SCALE: 1"=20' NOTE: 10' SIDEYARD SETBACK ADJACENT TO STREETS.



**SECTION A-A
FRONT YARD GRADING**

SCALE: 1"=5'-0"

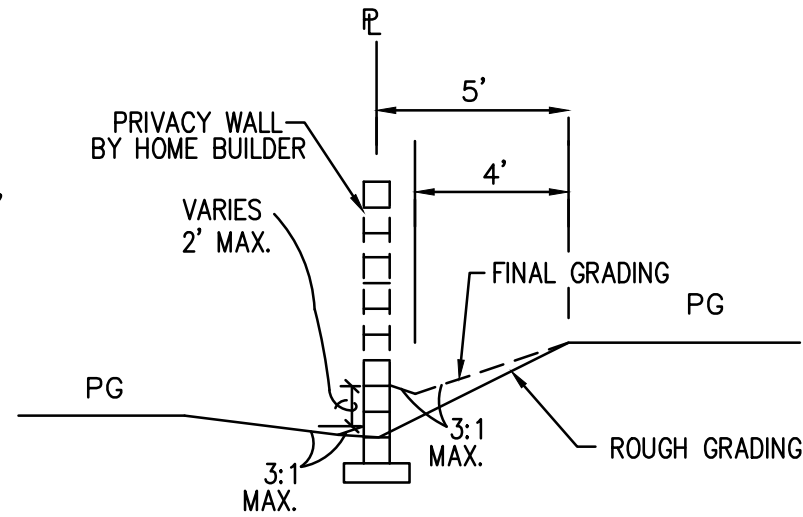


**FIRST FLUSH BASIN
SECTION D-D**

1"=2'

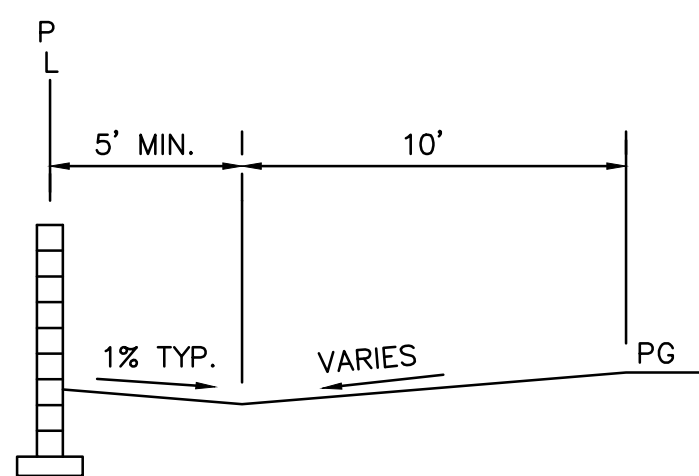
FIRST FLUSH BASIN AREAS SHALL BE GRADED TO CAPTURE "FIRST FLUSH" WATER. GRADING SHALL TRANSITION TO ENSURE WATER METERS, LIGHT POLE BASES AND INLET BOXES ARE NOT LOCATED IN THE WATER HARVESTING AREAS. FIRST FLUSH BASINS SHALL BE CONSTRUCTED BY HOME BUILDER AND ARE NOT PART OF GRADING CERTIFICATION. THE FRONT YARD GRADING DETAIL ON THIS SHEET SHOWS INTERIM GRADING THAT WILL CREATE TEMPORARY FIRST FLUSH BASINS UNTIL HOMES ARE CONSTRUCTED.

NOTE:
INTERIOR GARDEN WALLS,
(MAX. 2' RETAINING)
SHALL BE CONSTRUCTED
BY HOME BUILDER.



**SECTION B-B
TYPICAL SIDEYARD GRADING**

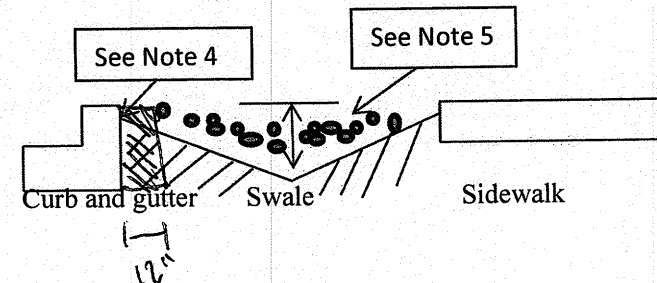
SCALE: 1"=5'



**SECTION C-C
TYPICAL BACKYARD GRADING**

SCALE: 1"=5'

Landscape Buffer Swale - Revision to City Standard Drawing 2405A and 2405B

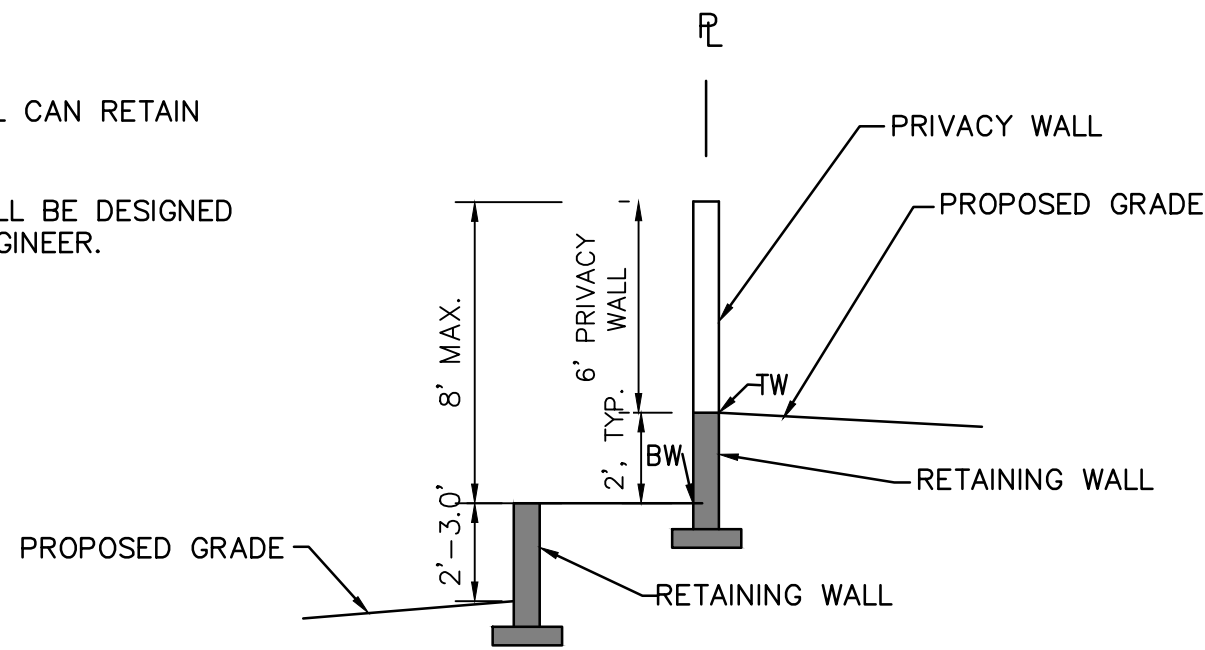


- Swale to be 6" deep when the distance between back of curb and the sidewalk is 5 feet.
- Swale to be 1" deeper than the distance in feet between the back of curb and the sidewalk for landscape buffers different than 5 feet wide.
- For wide landscape buffers, greater than 10 feet, the maximum depth is 10 inches.
- Final grade of dirt to be 1 to 2 inches below top of curb and top of sidewalk grade.
- Surface between back of curb and sidewalk to be covered with gravel mulch (minimum 3/4"), cobbles or rip-rap. Do not fill entire swale.
- A check dam will be required for swales on steeper longitudinal slopes and longer sections. The engineer will determine the location.
- Landscape fabric is recommended, but not required, between the dirt and the stone. If landscape fabric is to be used it is to be permeable.
- Detail is to be built for all new construction. In the case where the sidewalk is existing and the landscape buffer is improved with landscaping and/or some form of erosion protection, this requirement does not apply.

NOTE: LANDSCAPE BUFFER SWALE ADJACENT TO DEFERRED SIDEWALKS ARE NOT REQUIRED TO BE INCLUDED IN G&D CERTIFICATION.

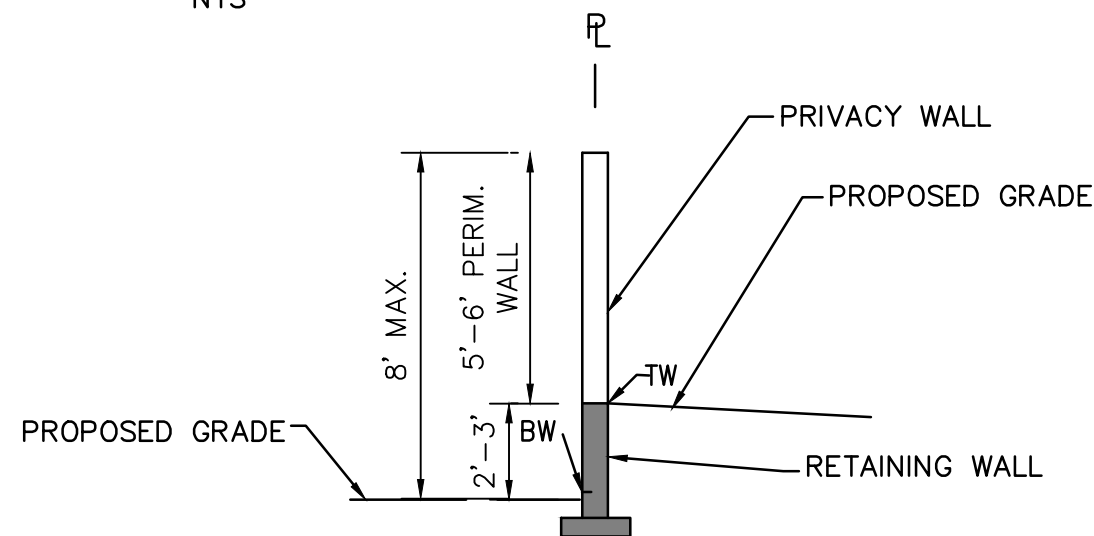
RETAINING WALL NOTES:

- GARDEN PRIVACY WALL CAN RETAIN UP TO 2.0'.
- RETAINING WALLS SHALL BE DESIGNED BY A STRUCTURAL ENGINEER.



DOUBLE RETAINING WALL

NTS



SINGLE RETAINING WALL

NTS

ISAACSON & ARFMAN, P.A.
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Albuquerque, New Mexico 87108
Ph. 505-268-8828 www.iaacivil.com

2149 CG-501.dwg Feb 26, 2016

**SANTA MONICA ESTATES
SUBDIVISION, UNIT 2**

GRADING & RETAINING WALL DETAILS

Date:	No.	Revision:	Date:	Job No.
2/2016				2149
Drawn By:				CG-501
ANW				
Chk By:				SH. OF
ANW				