CITY OF ALBUQUERQUE

February 10, 2017

Richard J. Berry, Mayor

Åsa Nilsson-Weber, P.E.
Isaacson & Arfman, P.A.
128 Monroe St. N.E
Albuquerque, NM, 87108

RE: **Santa Monica Estates**
Release of Financial Guarantee
Grading Plan Certification Engineer's Stamp Date 1/20/2017
Hydrology File: D18D054E

Dear Ms. Nilsson-Weber:

Based upon the information provided in the submittal received on 1/23/2017 and corrective actions provided via email on 2/10/17, the above-referenced plan is approved for Grading and Drainage Certification for Release of Financial Guaranty.

If you have any questions, please contact me at 924-3695 or dpeterson@cabq.gov.

Sincerely,

Dana Peterson, P.E.
Senior Engineer, Planning Dept.
Development Review Services

Orig: Drainage file

PO Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

Peterson, Dana M.

From:	Åsa Weber <asaw@iacivil.com>
Sent:	Friday, February 10, 2017 1:40 PM
To:	Peterson, Dana M.; Cherne, Curtis
Cc:	Biazar, Shahab; Brian Patterson
Subject:	Fwd: Santa Monica Estates- ROFG comments
Attachments:	D18D054E_ROFG_CMMT.pdf; IMG_0035.JPG; IMG_0038.JPG; IMG_0041.JPG; IMG_0046.JPG; IMG_0047.JPG

Hi Dana & Curtis,

See attached photos showing that your comments have been addressed. If all looks OK, please email me the approval letter so we can deliver it to Muhanned.

Thank you.

Åsa Nilsson-Weber, P.E.
Principal / Vice President
Isaacson & Arfman, P.A.
128 Monroe St. N.E.
Albuquerque, NM 87108
Phone: (505)266-1688
asaw@iacivil.com

---------- Forwarded message ----------
From: **Peterson, Dana M.** <dpeterson@cabq.gov>
Date: Mon, Feb 6, 2017 at 12:12 PM
Subject: Santa Monica Estates- ROFG comments
To: Åsa Weber <asaw@iacivil.com>
Cc: "Cherne, Curtis" <CCherne@cabq.gov>

Åsa-

Please find attached the comments letter for Santa Monica.

v/r,

Dana

Dana M. Peterson, P.E.

Senior Engineer- Hydrology

Planning Department

CITY OF ALBUQUERQUE

February 6, 2017

Richard J. Berry, Mayor

Åsa Nilsson-Weber, P.E.
Isaacson & Arfman, P.A.
128 Monroe St. N.E
Albuquerque, NM, 87108

RE: **Santa Monica Estates**
Release of Financial Guarantee
Grading Plan Certification Engineer's Stamp Date 1/20/2017
Hydrology File: D18D054E

Dear Ms. Nilsson-Weber:

Based upon the information provided in the submittal received on 1/23/2017 the above-referenced plan not approved for Grading and Drainage Certification for Release of Financial Guaranty. The following comments need to be addressed prior to approval:

1. The retaining wall in the southeast corner of Lot 59 is incomplete.
2. The east terminus of Promenade Avenue, adjacent to Lots 65 and 66 needs to be swept and cleaned.
3. The pond and standpipe at the southern terminus of Laguna Niguel Drive is silted-in and no longer functioning as intended. Several measures need to be taken:
    a. The pond bottom needs to be excavated to leave 18" of the standpipe exposed. If the standpipe cannot be exposed 18", please provide an alternative that will restore system function.
    b. Restore the 4:1 side slopes.
    c. Erosion protection is needed to slow erosion around the edge of the pond, especially on the eastern side.

Once the above issues have been addressed, provide site photos showing the corrected areas. If you have any questions, please contact me at 924-3695 or dpeterson@cabq.gov.

Sincerely,

Dana Peterson, P.E.
Senior Engineer, Planning Dept.
Development Review Services

Orig: Drainage file

PO Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: Santa Monica Estates Building Permit #: _____ City Drainage #: D18/D054E

DRB#: 1010144 EPC#: _____ Work Order#: 689986

Legal Description: Tract 3-A-1

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 - 6000 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: ALS, Inc. Contact: Tim Aldrich

Address: _____

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

Check all that Apply:

DEPARTMENT:

____ HYDROLOGY/ DRAINAGE
____ TRAFFIC/ TRANSPORTATION
____ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

X 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) _____

RECEIVED
JAN 23 2017
LAND DEVELOPMENT SECTION

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
X SIA/ RELEASE OF FINANCIAL GUARANTEE
____ FOUNDATION PERMIT APPROVAL
____ GRADING PERMIT APPROVAL
____ SO-19 APPROVAL
____ PAVING PERMIT APPROVAL
X GRADING/ PAD CERTIFICATION
____ WORK ORDER APPROVAL
____ CLOMR/LOMR

____ PRE-DESIGN MEETING
____ OTHER (SPECIFY) _____

IS THIS A RESUBMITTAL?: ____ Yes X No

DATE SUBMITTED: January 20, 2017 By: Åsa Nilsson-Weber

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: ___

dig out standpipe
resize for 10 yr
~86' for standpipe
- riprap east slope
- 18" BP to Top SP
- Video SD Laguna
- 4:1 restore

- finish wall
- clean east end of st

Current DRC
Project Number:

FIGURE 12

Date Submitted: October 2, 2015
Date Site Plan Approved:
Date Preliminary Plat Approved:
Date Preliminary Plat Expires:
DRB Project No.: 1010144
DRB Application No.:

***

INFRAST. LIST

INFRASTRUCTURE LIST

(Rev. 9-20-05)

EXHIBIT "A"

TO SUBDIVISION IMPROVEMENTS AGREEMENT

DEVELOPMENT REVIEW BOARD (D.R.B.) REQUIRED INFRASTRUCTURE LIST

SANTA MONICA ESTATES
PROPOSED NAME OF PLAT

TRACT 3-A-1 and a PORTION OF TRACT 4-A-1, SANTA MONICA PLACE
EXISTING LEGAL DESCRIPTION PRIOR TO PLATTING ACTION

Following is a summary of PUBLIC/PRIVATE Infrastructure required to be constructed or financially guaranteed for the above development. This Listing is not necessarily a complete listing. During the SIA process and/or in the review of the construction drawings, if the DRC Chair determines that appurtenant items and/or unforeseen items have not been included in the infrastructure listing, the DRC Chair may include those items in the listing and related financial guarantee. Likewise, if the DRC Chair determines that appurtenant or non-essential items can be deleted from the listing, those items may be deleted as well as the related portions of the financial guarantees. All such revisions require approval by the DRC Chair, the User Department and agent/owner. If such approvals are obtained, these revisions to the listing will be incorporated administratively. In addition, any unforeseen items which arise during construction which are necessary to complete the project and which normally are the Subdivider's responsibility will be required as a condition of project acceptance and close out by the City.

Financially Guaranteed DRC #	Constructed Under DRC #	Size	Type of Improvement	Location	From	To	Construction Certification: Private Inspector	Private P.E.	City Cnst Engineer
			WATERLINE						
		8"	Waterline PVC C-900	Tract B Easement	Existing 8" Waterline	Promenade Av	/	/	/
		8"	Waterline PVC C-900	Promenade Av	West Terminus	Laguna Niguel Dr	/	/	/
		6"	Waterline PVC C-900	Promenade Av	Laguna Niguel Dr	Brentwood Blvd	/	/	/
		8"	Waterline PVC C-900	Promenade Av	Brentwood Blvd	Dana Point Dr	/	/	/
		4"	Waterline PVC C-900	Promenade Av	Dana Point Dr	East Terminus	/	/	/
		8"	Waterline PVC C-900	Laguna Niguel Dr	Promenade Av	South Property Line	/	/	/
		6"	Waterline PVC C-900	Ojai St	Promenade Av	Napa Rd	/	/	/
		8"	Waterline PVC C-900	Brentwood Blvd	Promenade Av	San Vicente Av	/	/	/
		8"	Waterline PVC C-900	Dana Point Dr	Promenade Av	San Vicente Av	/	/	/

Financially Guaranteed DRC #	Constructed Under DRC #	Size	Type of Improvement	Location	From	To	Construction Certification: Private Inspector	Construction Certification: Private P.E.	Construction Certification: City Cnst Engineer
		6"	Waterline PVC C-900	Napa Rd	Laguna Niguel Dr	Ojai St	/	/	/
		4"	Waterline PVC C-900	Napa Rd	Ojai St	East Terminus	/	/	/
			SANTARY SEWER						
		8"	Sanitary Sewer Line SDR-35	Tract B Easement	Derickson Av Existing 8" SAS	Promenade Av	/	/	/
		8"	Sanitary Sewer Line SDR-35	Promenade Av	West Terminus	East Terminus	/	/	/
		8"	Sanitary Sewer Line SDR-35	Laguna Niguel Dr	Promenade Av	South Property Line	/	/	/
		8"	Sanitary Sewer Line SDR-35	Ojai St	Promenade Av	290' South	/	/	/
		8"	Sanitary Sewer Line SDR-35	Brentwood Blvd	Promenade Av	310' South	/	/	/
		8"	Sanitary Sewer Line SDR-35	Dana Point Dr	Promenade Av	308' South	/	/	/
		8"	Sanitary Sewer Line SDR-35	Napa Rd	Laguna Niguel Dr	East Terminus	/	/	/
			PAVING						
		30' F-F	Residential Paving C&G on Both Sides 4' Wide PCC Sidewalk North Side **	Promenade Av	West Terminus	East Terminus	/	/	/
		4' Wide	PCC Sidewalk on South Side **	Promenade Av	Laguna Niguel Dr	Dana Point Dr	/	/	/
		30' F-F	Residential Paving C&G on Both Sides 4' Wide PCC Sidewalk ** Both Sides	Laguna Niguel Dr	Promenade Av	Napa Rd	/	/	/

Financially Guaranteed DRC #	Constructed Under DRC #	Size	Type of Improvement	Location	From	To	Construction Certification: Private Inspector	Construction Certification: Private P.E.	Construction Certification: City Cnst Engineer
		30' F-F	Residential Paving C&G on Both Sides 4' Wide PCC Sidewalk ** Both Sides	Laguna Niguel Dr	Napa Rd	South Terminus	/	/	/
		28' F-F	Residential Paving C&G on Both Sides 4' Wide PCC Sidewalk ** Both Sides	Ojai St	Promenade Av	Napa Rd	/	/	/
		32' F-F	Residential Paving C&G on Both Sides 4' Wide PCC Sidewalk ** Both Sides	Brentwood Blvd	Promenade Av	San Vicente Av	/	/	/
		28' F-F	Residential Paving C&G on Both Sides 4' Wide PCC Sidewalk ** Both Sides	Dana Point Dr	Promenade Av	San Vicente Av	/	/	/
		26' F-F	Residential Paving C&G on Both Sides 4' Wide PCC Sidewalk ** Both Sides	Napa Rd	Laguna Niguel Dr	East Terminus	/	/	/
		6' Wide	PCC Sidewalk on North Side Only	San Vicente Av	Brentwood Blvd	East Property Line	/	/	/
		6' Wide	PCC Sidewalk on West Side Only	Brentwood Blvd	San Vicente Av	South Property Line	/	/	/
		5' Wide	PCC Sidewalk on South Side Only	Derickson Av	West Property Line	East Property Line	/	/	/
		4' Wide	PCC Sidewalk	Tract A	Napa Rd	Brentwood Blvd	/	/	/
			STORM SEWER						
		42"	Storm Sewer Pipe	Promenade Av	West Terminus	Laguna Niguel Dr	/	/	/
		24"	Storm Sewer Pipe	Laguna Niguel Dr	Promenade Av	South Terminus	/	/	/
		24"	Storm Sewer Pipe	Brentwood Blvd	Promenade Av	286' South to Existing 24" Storm Sewer	/	/	/

Financially Guaranteed DRC #	Constructed Under DRC #	Size	Type of Improvement	Location	From	To	Construction Certification: Private Inspector	Private P.E.	City Cnst Engineer
		42"	Storm Sewer Pipe	Tract B Easement	Existing 42" Storm Sewer	Promenade Av	/	/	/
		36"	Storm Sewer Pipe	Promenade Av	Laguna Niguel Dr	Ojai St	/	/	/
		24"	Storm Sewer Pipe	Promenade Av	Ojai St	East Terminus	/	/	/
		24"	Temporary Standpipe and Detention Pond	Tract 4-A-1	24" SD in Laguna Niguel Dr	~ 20' South of Laguna Niguel Dr	/	/	/
							/	/	/

The items listed below are on the CCIP and approved for Impact Fee credits. Signatures from the Impact Fee Administrator and the City User Department is required prior to DRB approval of this listing. The items listed below are subject to the standard SIA requirements.

Financially Guaranteed DRC #	Constructed Under DRC #	Size	Type of Improvement	Location	From	To	Construction Certification: Private Inspector	Private P.E.	City Cnst Engineer
							/	/	/
							/	/	/

Approval of Creditable Items:	Approval of Creditable Items:
Impact Fee Administrator Signature Date	City User Dept. Signature Date

NOTES

If the site is located in a floodplain, then the financial guarantee will not be released until the LOMR is approved by FEMA.

Street lights per City requirements.

1. Water infrastructure to include services, valves, fittings, valve boxes, and fire hydrants as required.
2. Catch basin and manholes connection included with storm sewer pipe.
3. Sanitary sewer to include manholes and service connections as required.
4. Signage and striping per DRC.

**5. Sidewalks which front the lots will be deferred and built during the construction of the individual houses.

AGENT / OWNER	DEVELOPMENT REVIEW BOARD MEMBER APPROVALS	
Asa Nilsson-Weber NAME (print)	DRB CHAIR - date	PARKS & GENERAL RECREATION - date
Isaacson & Arfman, P.A. FIRM	TRANSPORTATION DEVELOPMENT - date	AMAFCA - date
Asa Nilsson-Weber 10/2/15 SIGNATURE - date	UTILITY DEVELOPMENT - date	_____ - date
	CITY ENGINEER - date	_____ - date

DESIGN REVIEW COMMITTEE REVISIONS

REVISION	DATE	DRC CHAIR	USER DEPARTMENT	AGENT /OWNER

(rev. 9-20-05)

CITY OF ALBUQUERQUE

January 23, 2017

Asa Nilsson-Weber, P.E.
Isaacson & Arfman, PA
128 Monroe St NE
Albuquerque, NM 87108

Re: Santa Monica Estates Lots 59-65
Request for Engineer Pad Certification - Accepted
Engineer's Stamp dated: 5-2-16 (D18D054E)
Certification dated: 1-20-17

Dear Ms. Nilsson-Weber,

Based upon the information provided in your submittal received 1/19/2017, the above referenced Certification is acceptable for building permit.

If you have any questions, you can contact me at 924-3999 or Totten Elliott at 924-3982.

Sincerely,

Shahab Biazar, P.E.
City Engineer, Planning Dept.
Development Review Services

TE/SB
C: email

PO Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: Santa Monica Estates Building Permit #: _____ City Drainage #: D18/D05AE

DRB#: 1010144 EPC#: _____ Work Order#: 689986

Legal Description: Tract 3-A-1

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 - 6000 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: ALS, Inc. Contact: Tim Aldrich

Address: _____

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

Check all that Apply:

DEPARTMENT:

____ HYDROLOGY/ DRAINAGE
____ TRAFFIC/ TRANSPORTATION
____ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL: PARTIAL/FINAL

X ENGINEER/ ARCHITECT CERTIFICATION

____ CONCEPTUAL G & D PLAN
____ GRADING PLAN
____ DRAINAGE MASTER PLAN
____ DRAINAGE REPORT
____ CLOMR/LOMR

RECEIVED
JAN 19 2017
LAND DEVELOPMENT SECTION

____ TRAFFIC CIRCULATION LAYOUT (TCL)
____ TRAFFIC IMPACT STUDY (TIS)
____ EROSION & SEDIMENT CONTROL PLAN (ESC)

____ OTHER (SPECIFY) _____

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

X 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
X GRADING/ PAD CERTIFICATION
____ WORK ORDER APPROVAL
____ CLOMR/LOMR

____ PRE-DESIGN MEETING
____ OTHER (SPECIFY) _____

IS THIS A RESUBMITTAL?: ____ Yes X No

DATE SUBMITTED: January 20, 2017 By: Åsa Nilsson-Weber

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: ___

CITY OF ALBUQUERQUE

November 15, 2016

Asa Nilsson-Weber, P.E.
Isaacson & Arfman, PA
128 Monroe St NE
Albuquerque, NM 87108

Re: Santa Monica Estates Lots 1, 2, 4-19, 22-33, 36-40, 45-46, 58, 66-85
Request for Engineer Pad Certification - Accepted
Engineer's Stamp dated: 5-2-16 (D18D054~~A~~)E
Certification dated: 11-14-16

Dear Ms. Nilsson-Weber,

Based upon the information provided in your submittal received 11/14/2016, the above referenced Certification is acceptable for building permit.

If you have any questions, you can contact me at 924-3986 or Totten Elliott at 924-3982.

Sincerely,

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

TE/AC
C: email

PO Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: Santa Monica Estates Building Permit #: _____ City Drainage #: D18/D05AE

DRB#: 1010144 EPC#: _____ Work Order#: 689986

Legal Description: Tract 3-A-1

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 - 6000 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: ALS, Inc. Contact: Tim Aldrich

Address: _____

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

Check all that Apply:

DEPARTMENT:

____ HYDROLOGY/ DRAINAGE
____ TRAFFIC/ TRANSPORTATION
____ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

X ENGINEER/ ARCHITECT PARTIAL 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) _____

RECEIVED NOV 14 2016 LAND DEVELOPMENT SECTION

$50.00

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

X 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
X GRADING/ PAD CERTIFICATION
____ WORK ORDER APPROVAL
____ CLOMR/LOMR

____ PRE-DESIGN MEETING
____ OTHER (SPECIFY) _____

IS THIS A RESUBMITTAL?: ____ Yes ____ No

DATE SUBMITTED: November 14, 2016 By: Åsa Nilsson-Weber

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: ___

ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates

Åsa Weber <asaw@iacivil.com>

Santa Monica Estates - D18D054E

1 message

Åsa Weber <asaw@iacivil.com> Mon, Nov 14, 2016 at 11:40 AM
To: PLNDRS@cabq.gov

Please see attached for a drainage cert submittal for lots 1, 2, 4-19, 22-33, 36-40, 45-46, 58, and 66-85. Hard copy will be delivered this afternoon.

Thank you.

Åsa Nilsson-Weber, P.E.
Principal / Vice President
Isaacson & Arfman, P.A.
128 Monroe St. N.E.
Albuquerque, NM 87108
Phone: (505)266-1688
asaw@iacivil.com

D18D054E Santa Monica Estates Partial Cert 2016 11-14.pdf
8395K

RECEIVED
NOV 14 2016
LAND DEVELOPMENT SECTION

CITY OF ALBUQUERQUE

September 1, 2016

Asa Nilsson-Weber, P.E.
Isaacson & Arfman, PA
128 Monroe St NE
Albuquerque, NM 87108

Re: Santa Monica Estates Lots 3, 20, 21, 34, 35, 44, 47-49, 53-57
Request for Engineer Pad Certification - Accepted
Engineer's Stamp dated: 5-2-16 (D18D054~~W~~)E
Certification dated: 8-30-16

Dear Ms. Nilsson-Weber,

Based upon the information provided in your submittal received 8/30/2016, the above referenced Certification is acceptable for building permit.

If you have any questions, you can contact me at 924-3986 or Totten Elliott at 924-3982.

Sincerely,

Rita Harmon, P.E.
Senior Engineer, Planning Dept.
Development Review Services

TE/RH
C: email

PO Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: Santa Monica Estates Building Permit #: _____ City Drainage #: D18/D05E

DRB#: 1010144 EPC#: _____ Work Order#: 689986

Legal Description: Tract 3-A-1

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 - 6000 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: ALS, Inc. Contact: Tim Aldrich

Address: _____

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

Check all that Apply:

DEPARTMENT:

____ HYDROLOGY/ DRAINAGE
____ TRAFFIC/ TRANSPORTATION
____ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

X ENGINEER/ ARCHITECT PARTIAL 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) _____

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

X 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
X GRADING/ PAD CERTIFICATION
____ WORK ORDER APPROVAL
____ CLOMR/LOMR

____ PRE-DESIGN MEETING
____ OTHER (SPECIFY) _____

RECEIVED AUG 30 2016 LAND DEVELOPMENT SECTION

Paid $50.00

IS THIS A RESUBMITTAL?: _____ Yes _____ No

DATE SUBMITTED: August 30, 2016 By: Åsa Nilsson-Weber

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: ___

ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates

Åsa Weber <asaw@iacivil.com>

Santa Monica Estates Drainage Cert

1 message

Åsa Weber <asaw@iacivil.com> Tue, Aug 30, 2016 at 2:59 PM
To: PLNDRS@cabq.gov
Cc: Brian Patterson <bpatterson@titan-development.com>

Please see attached for a partial drainage certification for the following lots:

3, 20, 21, 34, 35, 44, 47-49, and 53-57

Thank you.

Åsa Nilsson-Weber, P.E.
Principal / Vice President
Isaacson & Arfman, P.A.
128 Monroe St. N.E.
Albuquerque, NM 87108
Phone: (505)266-1688
asaw@iacivil.com

2 attachments

D18D054E Santa Monica Estates DrainageInfoSheet 2016 08-30 .pdf
128K

D18D054E Santa Monica Estates Partial Cert 2016 08-30.pdf
8314K

RECEIVED
AUG 30 2016
LAND DEVELOPMENT SECTION

CITY OF ALBUQUERQUE

August 17, 2016

Asa Nilsson-Weber, P.E.
Isaacson & Arfman, PA
128 Monroe St NE
Albuquerque, NM 87108

Re: Santa Monica Estates Lots 41-43 & 50-5~~1~~2
Request for Engineer Pad Certification - Accepted
Engineer's Stamp dated: 5-2-16 (D18D054~~A~~) E
Certification dated: 8-15-16

Dear Ms. Nilsson-Weber,

Based upon the information provided in your submittal received 8/15/2016, the above referenced Certification is acceptable for building permit.

If you have any questions, you can contact me at 924-3986 or Totten Elliott at 924-3982.

Sincerely,

Rita Harmon, P.E.
Senior Engineer, Planning Dept.
Development Review Services

TE/RH
C: email

PO Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: Santa Monica Estates Building Permit #: _____ City Drainage #: D18/D054E

DRB#: 1010144 EPC#: _____ Work Order#: 689986

Legal Description: Tract 3-A-1

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 - 6000 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: Surv-Tek, Inc Contact: Russ Hugg

Address: _____

Phone#: (505) 897-3366 Fax#: _____ E-mail: Hugg@survtek.comtony@harrissurveying.comcastbiz.net

Check all that Apply:

DEPARTMENT:

____ HYDROLOGY/ DRAINAGE
____ TRAFFIC/ TRANSPORTATION
____ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

X 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) _____

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

X 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
X GRADING/ PAD CERTIFICATION
____ WORK ORDER APPROVAL
____ CLOMR/LOMR

____ PRE-DESIGN MEETING
____ OTHER (SPECIFY) _____

RECEIVED
AUG 15 2016
LAND DEVELOPMENT SECTION

IS THIS A RESUBMITTAL?: ____ Yes ____ No

DATE SUBMITTED: August 15, 2016 By: Åsa Nilsson-Weber

Pad $100.00

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: ___

ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates

Åsa Weber <asaw@iacivil.com>

Santa Monica Estates--Partial Drainage Cert

1 message

Åsa Weber <asaw@iacivil.com> Mon, Aug 15, 2016 at 1:26 PM
To: PLNDRS@cabq.gov
Cc: Brian Patterson <bpatterson@titan-development.com>

Please see attached for a partial drainage/pad cert. for Lots 41-43 and 50-54.

Åsa Nilsson-Weber, P.E.
Principal / Vice President
Isaacson & Arfman, P.A.
128 Monroe St. N.E.
Albuquerque, NM 87108
Phone: (505)266-1688
asaw@iacivil.com

2 attachments

D18D054E Santa Monica Estates Partial Cert 2016 08-15.pdf
8326K

D18D054E Santa Monica Estates DrainageInfoSheet 2016 08-15 .pdf
128K

RECEIVED
AUG 15 2016
LAND DEVELOPMENT SECTION

Get
[illegible]
from 3rd
flr

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

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

DRB#: 1010144 EPC#: _____ Work Order#: _____

Legal Description: Tract 3-A-1

City Address: _____

Engineering Firm: Isaacson & Arfman, P.A. Contact: Åsa 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 - 6000 Riverside Plaza Lane NW, Suite 200, Albuquerque, NM 87120

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

Architect: _____ Contact: _____

Address: _____

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

Surveyor: Surv-Tek, Inc Contact: Russ Hugg

Address: _____

Phone#: (505) 897-3366 Fax#: _____ E-mail: Hugg@survtek.comtony@harrissurveying.comcastbiz.net

Contractor: _____ Contact: _____

Address: _____

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

TYPE OF SUBMITTAL:

- X DRAINAGE REPORT
- ___ DRAINAGE PLAN 1st SUBMITTAL
- X DRAINAGE PLAN RESUBMITTAL
- ___ CONCEPTUAL G & D PLAN
- X GRADING PLAN
- ___ EROSION & SEDIMENT CONTROL PLAN (ESC)
- ___ ENGINEER'S CERT (HYDROLOGY)
- ___ CLOMR/LOMR
- ___ TRAFFIC CIRCULATION LAYOUT (TCL)
- ___ ENGINEER'S CERT (TCL)
- ___ ENGINEER'S CERT (DRB SITE PLAN)
- ___ ENGINEER'S CERT (ESC)
- ___ SO-19
- ___ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

- ___ SIA/FINANCIAL GUARANTEE RELEASE
- X PRELIMINARY PLAT APPROVAL
- ___ S. DEV. PLAN FOR SUB'D APPROVAL
- ___ S. DEV. FOR BLDG. PERMIT APPROVAL
- ___ SECTOR PLAN APPROVAL
- ___ FINAL PLAT APPROVAL
- ___ CERTIFICATE OF OCCUPANCY (PERM)
- ___ CERTIFICATE OF OCCUPANCY (TCL TEMP)
- ___ FOUNDATION PERMIT APPROVAL
- ___ BUILDING PERMIT APPROVAL
- X GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- X WORK ORDER APPROVAL
- ___ GRADING CERTIFICATION
- ___ SO-19 APPROVAL
- ___ ESC PERMIT APPROVAL
- ___ ESC CERT. ACCEPTANCE
- ___ OTHER (SPECIFY)

RECEIVED OCT 05 2015 LAND DEVELOPMENT SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED: ___ Yes ___ No ___ Copy Provided

DATE SUBMITTED: October 5, 2015 By: Åsa Nilsson-Weber
Isaacson & Afrman, P.A.

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location, anc scope to the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the followin

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres
3. **Drainage Report**: Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more
4. **Erosion and Sediment Control Plan:** Required for any new development and redevelopment site with 1-acre or more of land disturbing area, including project less than 1-acre than are part of a larger common plan of development

SANTA MONICA ESTATES (TRACT 3-A-1, SANTA MONICA PLACE)
FIRST FLUSH - RETAIN FIRST 0.34" OF RAINSTORM (0.44" LESS 0.1" INITIAL ABSTRACTION)

BASIN	DESCRIPTION	AREA	AREA	AREA	LAND TREATMENTS %				Q100	AREA D	FIRST FLUSH
ID		SF	AC	SQ MI	A	B	C	D	CFS	SF	VOLUME CF
P1	Single Detached	98432	2.2597	0.003531	0	28	28	44	7.7	43310	**1227**
P2	Attached Townhomes	70648	1.6218	0.002534	0	15	15	70	6.2	49453	**1401**
P3	Single Detached	96967	2.2261	0.003478	0	28	28	44	7.6	42666	**1209**
P4	Single Detached	117565	2.6989	0.004217	0	28	28	44	9.2	51728	**1466**
P5	Attached Townhomes	36587	0.8399	0.001312	0	15	15	70	3.2	25611	**726**
P6	Single Detached	90288	2.0727	0.003239	0	28	28	44	7.1	39727	**1126**
P7	Single Detached	107155	2.4599	0.003844	0	28	28	44	8.4	47148	**1336**
P8	Attached Townhomes	21564	0.4950	0.000773	0	15	15	70	1.9	15095	**428**
BY1-BY8	Attached Townhomes	16000	0.3673	0.000574	0	15	15	70	1.4	11200	**317**
			15.0414						**52.7**	325938	**9235**

NOTE:
SEE SHEETS 2 & 3 FOR DETAILS AND SECTIONS.

EMAIL COMMENT FIRST FLUSH

AREA		FIRST FLUSH VOLUMES REQ'D	FIRST FLUSH VOLUMES PROVIDED	COMMENTS
Backyards to Derickson		317 cf	317 cf	Contained in swale at Derickson landscape area.
Roads	94421 sf	2675 cf	0 cf	
Sideyard sidewalks	11940 sf	338 cf	338 cf	Contained in swale between sidewalk and curb.
Lot areas & adjacent sidewalks		5904 cf	4165 cf	Contained in swale between sidewalk and curb and frontyard swale.
	Total	**9235 cf**	**4820** cf	
			2788 cf	Excess first flush ponding on Tract 4B - Cameron Retirement Community (approved)
			1700 cf	Excess first flush ponding on Tract 3B - Elan Assisted Living (under design)
	Total including offsite excess		**9308 cf**	

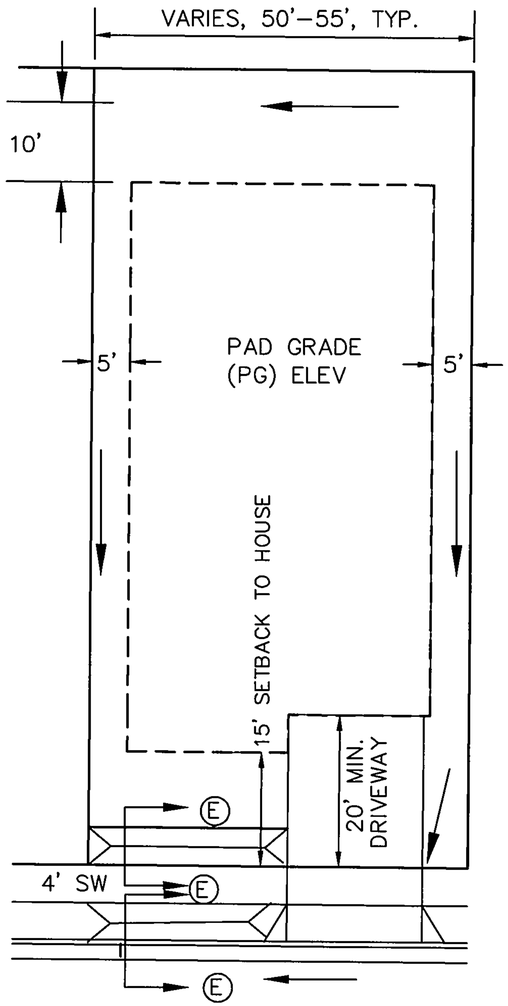
SHOWN ON G+D PLANS

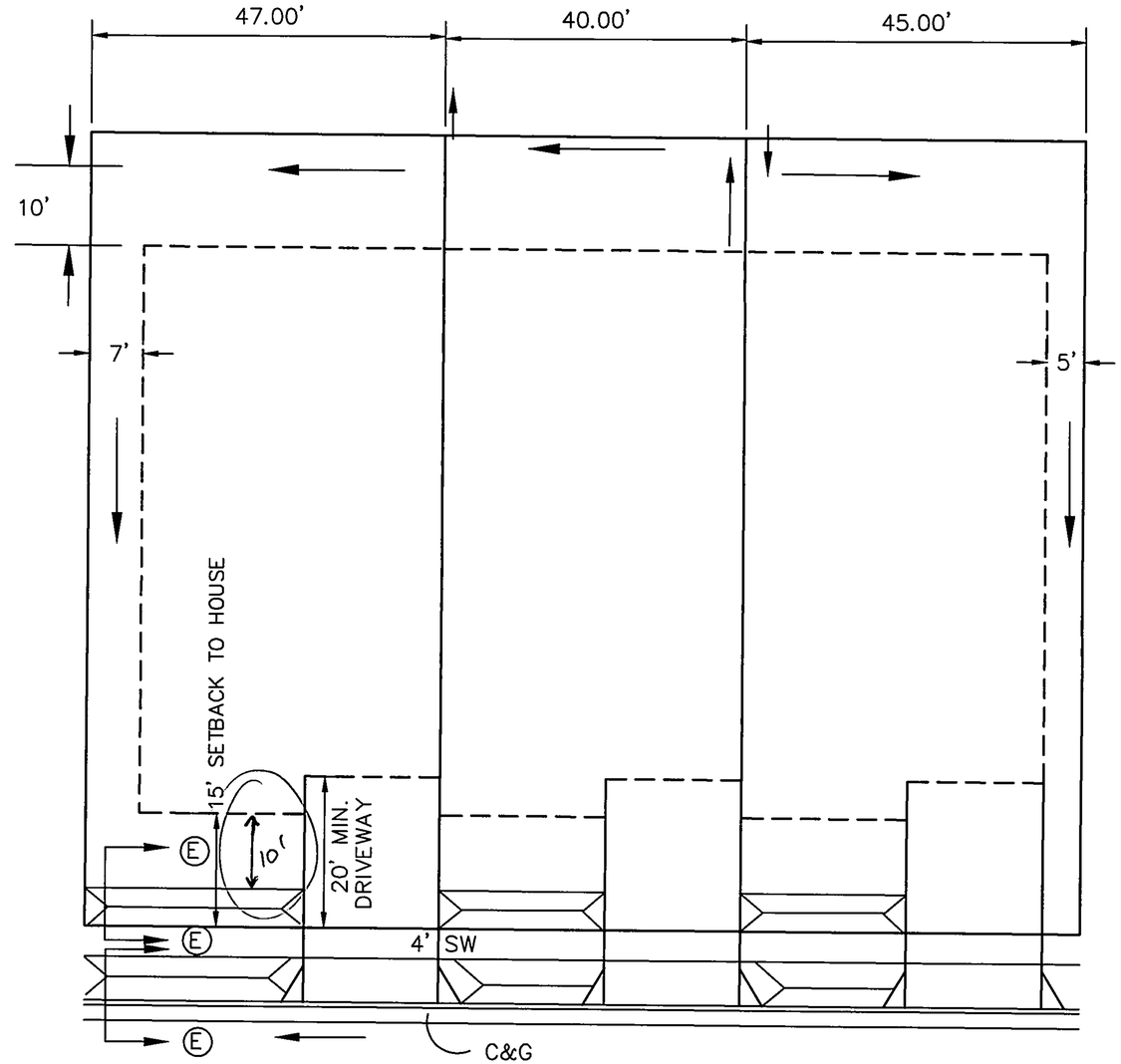
ASA M. NILSSON-WEBER
NEW MEXICO
17631
LICENSED PROFESSIONAL ENGINEER
Asa Nilsson-Weber
10-5-15

ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates
Ph. 505-268-8828 www.iacivil.com

SANTA MONICA ESTATES FIRST FLUSH DETAILS AND CALCULATIONS

OCTOBER 1, 2015





NOTE:
SEE SHEET 3 FOR SECTIONS.

50' LOT	23.0 CF	55' LOT 27.2 CF	60' LOT 31.5 CF	24.7	19.7 CF	19.7 CF
	23.0 CF	27.2 CF	31.5 CF	24.7	19.7 CF	19.7 CF
	46.0 CF	54.4 CF	63.0 CF	49.4	39.4 CF	39.4 CF

SINGLE DETACHED HOME

SCALE: 1"=20'

7 60' LOTS = 441 CF
9 55' LOTS = 490 CF
48 50' LOTS = 2,208 CF
TOTAL = 3,139 CF

VOLUME=AREA/2 * LENGTH

AREA=1.7 SF

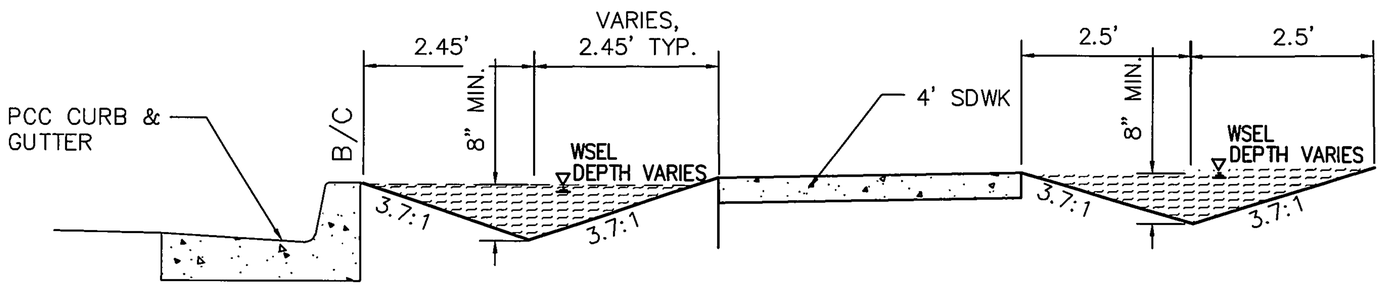
ATTACHED HOMES

SCALE: 1"=20'

8 EA 3–LOT ATTACHED
=8*(49.4+39.4+39.4)=1,026 CF

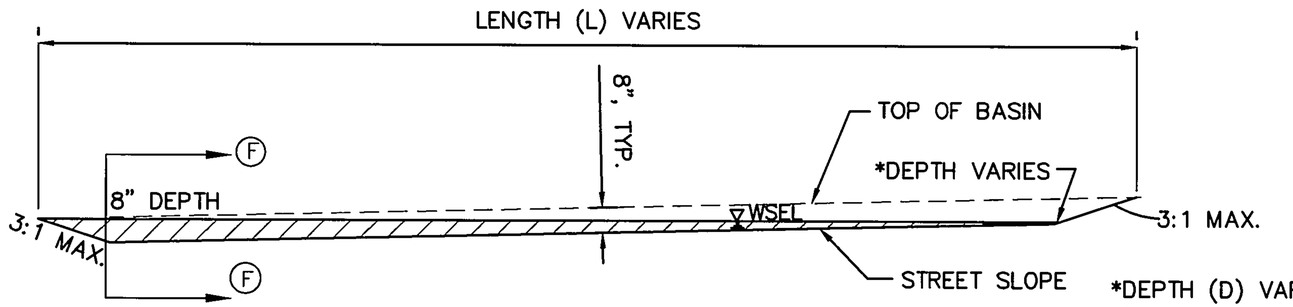
SANTA MONICA ESTATES FIRST FLUSH DETAILS AND CALCULATIONS

OCTOBER 1, 2015



SECTION F-F

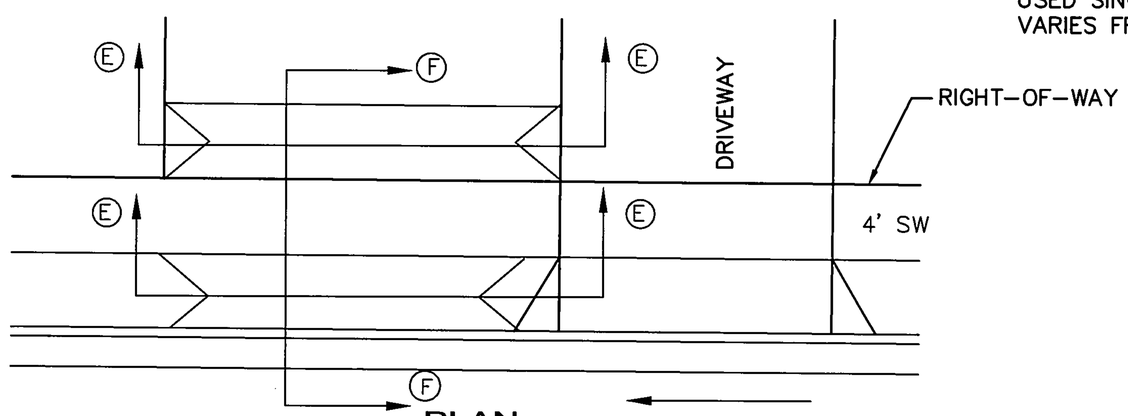
1"=2'



SECTION E-E

1"=4'

*DEPTH (D) VARIES DEPENDING ON STREET SLOPE. S=2.3%; D=0'
FOR CALCULATIONS, S=2.3% WAS USED SINCE STREET SLOPES VARIES FROM 0.5% TO 4%.



PLAN

1"=10'

FIRST FLUSH BASIN DETAILS

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 ARE NOT INCLUDED IN GRADING CERTIFICATION.

SANTA MONICA ESTATES FIRST FLUSH DETAILS AND CALCULATIONS

OCTOBER 1, 2015

OCTOBER 5, 2015

DRAINAGE REPORT

FOR

SANTA MONICA ESTATES
(Replat of Tract 3-A-1, Santa Monica Place)

Louisiana Blvd. and Derickson 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. 2109

OCTOBER 5, 2015

DRAINAGE REPORT

FOR

SANTA MONICA ESTATES
(Replat of Tract 3-A-1, Santa Monica Place)

Louisiana Blvd. and Derickson Ave. NE

ÅSA M. NILSSON-WEBER
NEW MEXICO
17631
LICENSED PROFESSIONAL ENGINEER

Åsa Nilsson-Weber
10-5-15

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. 2109

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III. EXISTING CONDITIONS
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V. PROPOSED CONDITIONS
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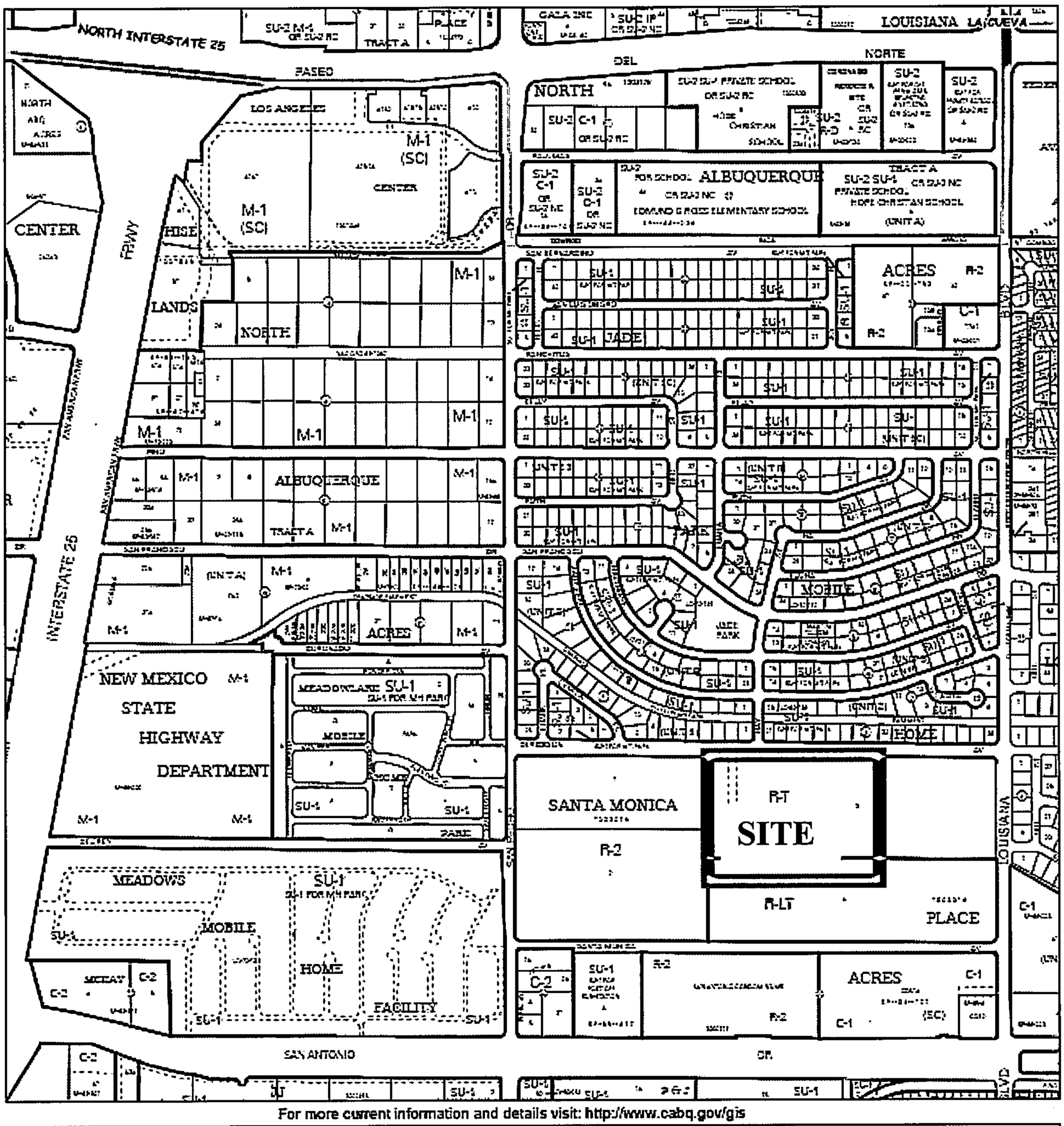
Land Treatment Table
NOAA Atlas 14 Rainfall Data
AHYMO Summary

APPENDIX B: Street Capacity Calculations

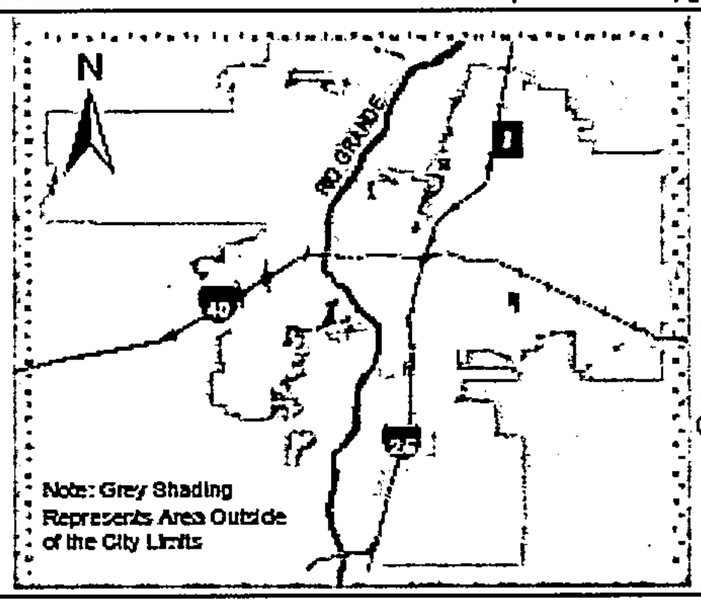
APPENDIX C: Storm Drain Calculations
Storm Drain Calculations (Hydraflow Storm Sewers)
Sump Inlet Capacity Calculations



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

Albuquerque Geographic Information System

Map amended through: 1/10/2013



Zone Atlas Page:

D-18-Z

Selected Symbols

- SECTOR PLANS
- Design Overlay Zones
- City Historic Zones
- H-1 Buffer Zone
- Petroglyph Mon.
- Escarpment
- 2 Mile Airport Zone
- Airport Noise Contours
- Wall Overlay Zone

0 — 500 — 1,000 Feet

I. PROJECT INFORMATION

LEGAL DESCRIPTION:
Proposed: Santa Monica Estates
Existing: Tract 3-A-1, Santa Monica Place

TOTAL AREA:
15.0415 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

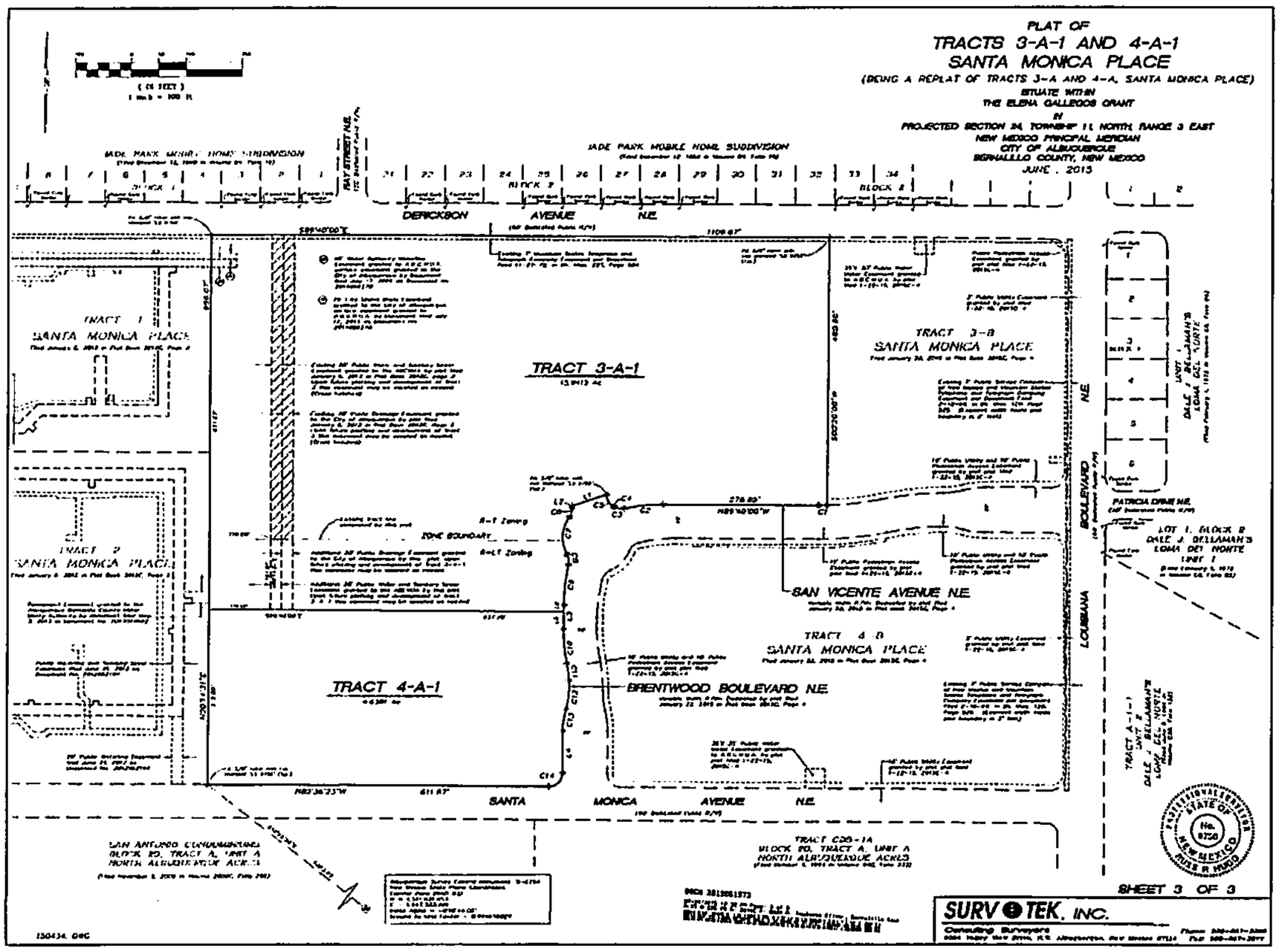
SURVEYOR:
Surv-Tek, Inc.
(505) 897-3366
Attn: Russ P. Hugg, NMPLS No. 9750

LAND OWNER:
Santa Monica Place Development, LLC
c/o Titan Development
6300 Riverside Plaza Lane NW - #200
Albuquerque, NM 87120-2617
Attn: Kurt Browning

II. INTRODUCTION

This drainage report is for Tracts 3-A-1, a proposed 88-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. The site is bound by Derickson Ave. NE to the north, by apartments to the southwest and apartments to the northwest (under construction), by Brentwood Blvd/San Vicente Ave to the south. The site was previously developed as a mobile home park.

A replat of Tracts 3-A and 4-A was filed in July 20, 2015, creating Tracts 3-A-1 and 4-A-1.



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 3-A-1 and storm drain sizes required.

III. EXISTING CONDITIONS

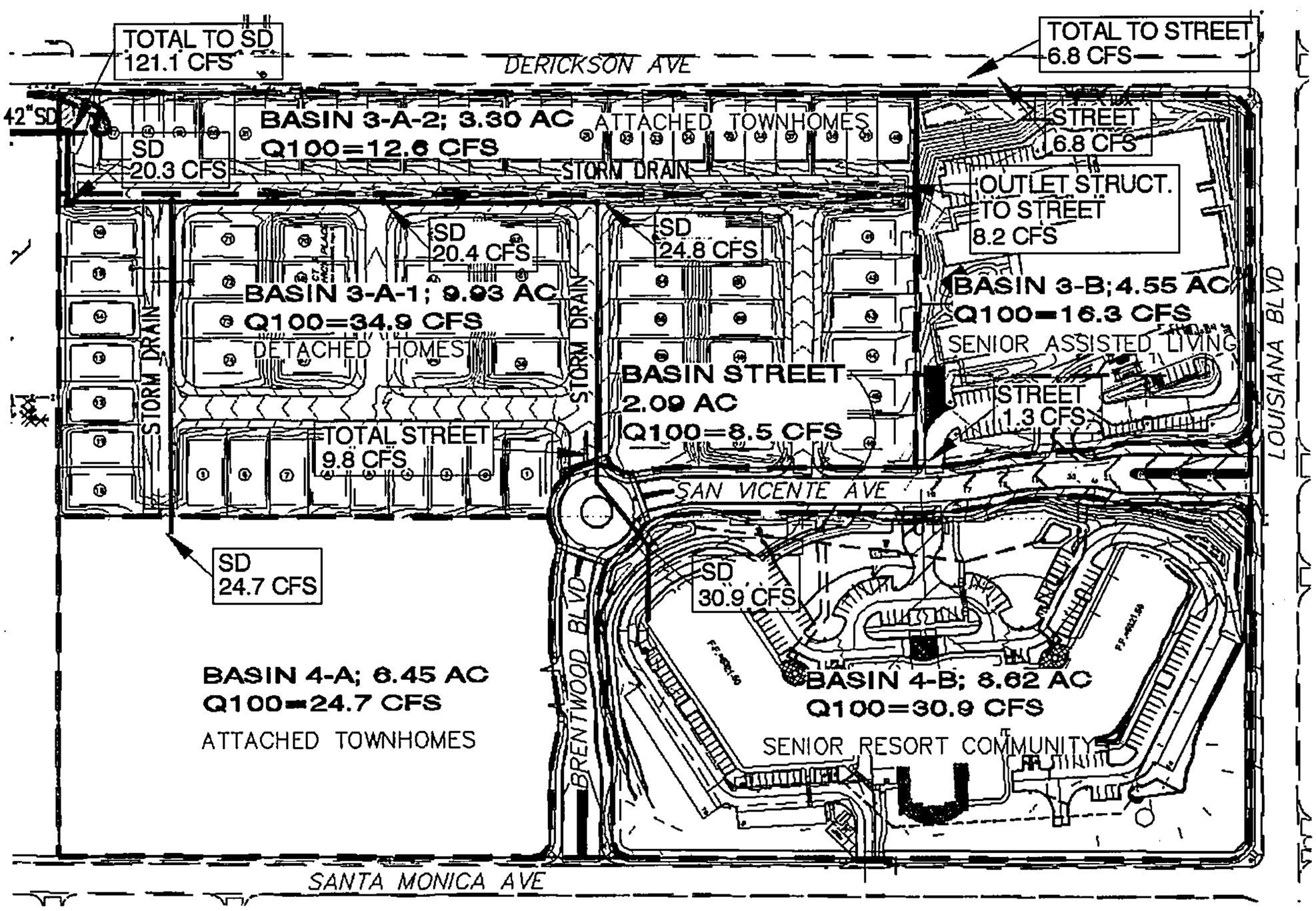
The site drains from the southeast to the northwest corner of Tract 3-A-1. With the development of the apartments on Tract 1 (currently under construction), a 42" storm drain was stubbed to the northwest corner of Tract 3-A-1. The storm drain connects to the Derickson Ave. and San Pedro Blvd. storm drain 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 which currently discharges to temporary ponds on Tract 3-A-1 will discharge into the proposed storm drain system for the proposed Santa Monica Estates subdivision (Tract 3-A-1).

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

IV. BASIN EXHIBIT FROM THE MDR

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



V. PROPOSED CONDITIONS

Santa Monica Estates (Tract 3-A-1) will be developed with a mixture of attached townhomes (24 units) and detached single-family homes (64 units). The adjacent Tract 3-B will be developed as an assisted living facility and Tract 4-B as a senior resort. Site plans and preliminary grading plans have been developed for Tract 3-B and Tract 4-B is currently under construction. There is currently no site plan for Tract 4-A-1.

The storm drain system for the Santa Monica Estates will be connected to the existing storm drain in Brentwood Blvd. and discharge to the northwest 42" storm drain stub.

The 100-yr, 6-hr flow rates for each tract were calculated using AHYMO based on NOAA Atlas 14 rainfall data and assigned land treatments—see Appendix A.

The MDR shows a total discharge to the storm drain at the northwest corner of 121.1 cfs and 6.8 cfs to Derickson Ave. The allowable discharge to Derickson Ave. is 10 cfs.

The attached home units are triplexes, and the middle unit shall be allowed to discharge backyard flows to Derickson Ave. This will allow the middle unit to independently discharge flows without relying on the downstream home owner to accept flows and maintain a cross-lot drainage easement. The total discharge to Derickson Ave. is 1.4 cfs (0.18 cfs from each of the middle attached unit. The total discharge to Derickson Ave. is 8.2 cfs (6.8+1.4), which is less than the allowable 10 cfs.

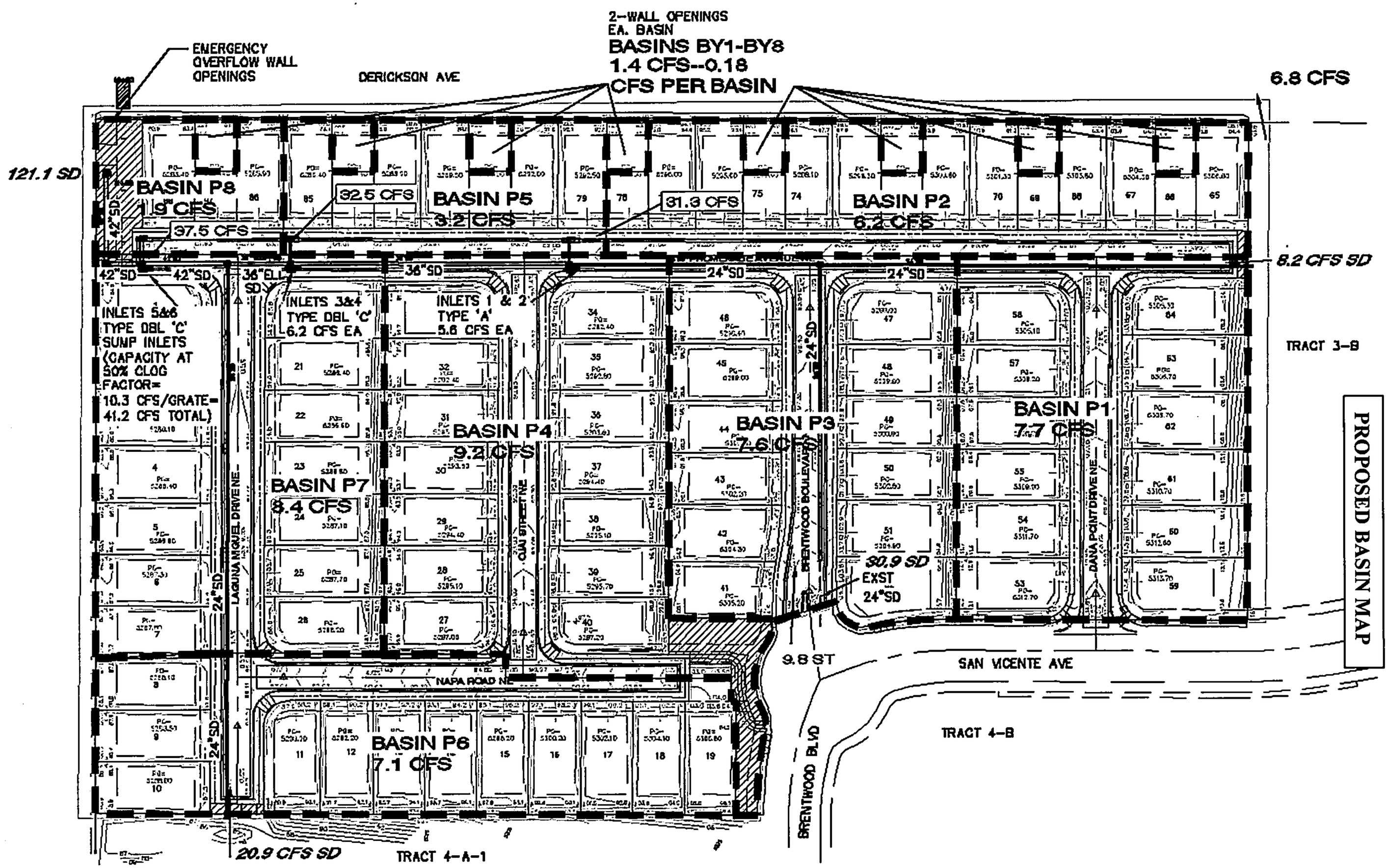
Discharge from the subdivision will be collected in on-grade curb inlets and two double grate sump inlets at the northwest corner in Promenade Avenue. A clogging factor of 50% was applied to the sump inlets as a safety factor. Emergency overflow wall openings at Tract B shall be installed as an additional safety measure. See Appendix C for sump inlet capacity calculations and storm drain calculations. The ongrade inlet capacity was calculated from DPM Plates 22.3 D-5 & D-6 based on street flow depth—see Appendix B for street capacity calculations.

100.2 cfs from the subdivision and from offsite tracts 3-B & 4-B will be discharged to the 42" storm drain at the northwest corner. This leaves 20.9 cfs allowable discharge for Tract 4-A-1.

The area between the sidewalks and the curb and a 5-foot area in the front yards shall be depressed 8 inches to allow for some retention of the "first flush" storm (first .34 inches).

See a basin exhibit on the next page.

INTERIM DRAINAGE IMPROVEMENTS:
An interim pond with a 24" standpipe connected to the storm drain system shall be located south of Laguna Niguel Dr. on Tract 4-A-1 to capture 7.0 cfs of undeveloped flows (4.6 acres * 1.53 cfs/acre).


PROPOSED BASIN MAP
2-WALL OPENINGS
EA. BASIN
BASINS BY1-BY8
1.4 CFS--0.18
CFS PER BASIN
ENERGENCY
OVERFLOW WALL
OPENINGS
DERICKSON AVE
6.8 CFS
121.1 SD
BASIN P8
1.9 CFS
32.5 CFS
BASIN P5
3.2 CFS
31.3 CFS
BASIN P2
6.2 CFS
37.5 CFS
8.2 CFS SD
42"SD
36"SD
24"SD
INLETS 5&6
TYPE DBL 'C'
SUMP INLETS
(CAPACITY AT
50% CLOG
FACTOR=
10.3 CFS/GRATE=
41.2 CFS TOTAL)
INLETS 3&4
TYPE DBL 'C'
6.2 CFS EA
INLETS 1 & 2
TYPE 'A'
5.6 CFS EA
TRACT 3-B
BASIN P4
9.2 CFS
BASIN P3
7.6 CFS
BASIN P1
7.7 CFS
BASIN P7
8.4 CFS
LAGUNA MIGUEL DRIVE NE
QUAY STREET NE
BRENTWOOD BOULEVARD
DANA POINT DRIVE NE
30.9 SD
EXST
24"SD
9.8 ST
SAN VICENTE AVE
NAPA ROAD NE
BASIN P6
7.1 CFS
TRACT 4-B
BRENTWOOD BLVD
20.9 CFS SD
TRACT 4-A-1

VI. SUMMARY

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

- Remove temporary ponds and erosion control.
- Construct streets with curb & gutter.
- Construct storm drain and inlets as shown on grading plan. Connect storm drain to stubs at Brentwood Blvd and the Tract 3-B development and provide a stub to the future Tract 4-A-1 development.
- Construct wall openings at middle attached home units for discharge to Derickson Ave.
- Construct wall openings at Tract B for emergency overflow to Derickson Ave.
- Construct a temporary pond on Tract 4-A-1 with a 24" standpipe connected to the storm drain in Laguna Niguel Dr.

TRACT 4-A-1

Allowable discharge from Tract 4-A-1 shall be 20.9 cfs.

APPENDIX A

Hydrology Calculations

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

LAND TREATMENT TABLE

BASIN	DESCRIPTION	AREA	AREA	AREA	LAND TREATMENTS %				Q100
ID		SF	AC	SQ MI	A	B	C	D	CFS
P1	Single Detached	98432	2.2597	0.003531	0	28	28	44	7.7
P2	Attached homes	70648	1.6218	0.002534	0	15	15	70	6.2
P3	Single Detached	96967	2.2261	0.003478	0	28	28	44	7.6
P4	Single Detached	117565	2.6989	0.004217	0	28	28	44	9.2
P5	Attached homes	36587	0.8399	0.001312	0	15	15	70	3.2
P6	Single Detached	90288	2.0727	0.003239	0	28	28	44	7.1
P7	Single Detached	107155	2.4599	0.003844	0	28	28	44	8.4
P8	Attached homes	21564	0.4950	0.000773	0	15	15	70	1.9
BY1-BY8	Attached homes	16000	0.3673	0.000574	0	15	15	70	1.4
			15.0414						**52.7**

Calculations for Single Detached Homes

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

Total Area		15.0415	Acres
# of Lots		64	lots
	N =	4.25	D.U./Ac.

Percentage of Impervious Land (Type D)

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

%D= 43.93 %

LAND TREATMENTS		
Type A=	**0**	**%**
Type B=	**28**	**%**
Type C=	**28**	**%**
Type D=	**44**	**%**
Σ=	100	%

Attached homes

70% D per the City of Albuquerque DPM Section 22.2, Table A-5

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 Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

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 (0.188-0.264)	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 (0.469-0.678)	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 (2.56-3.57)	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 (3.46-4.10)	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 (5.20-6.05)	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

```
AHYMO PROGRAM SUMMARY TABLE (AHYMO-S4)                        - Ver. S4.01a, Rel: 01a      RUN DATE (MON/DAY/YR) =08/27/2015
  INPUT FILE = M:\PROJECTS\2100-2199\2109\CALCS\AHYMO\2109DEV.DAT                          USER NO.= AHYMO_Temp_User:20122010

                                FROM  TO                    PEAK        RUNOFF                TIME TO    CFS      PAGE =   1
                   HYDROGRAPH   ID    ID        AREA     DISCHARGE     VOLUME      RUNOFF      PEAK     PER
  COMMAND        IDENTIFICATION  NO.  NO.      (SQ MI)     (CFS)       (AC-FT)    (INCHES)   (HOURS)   ACRE     NOTATION

  *S*********************************************************************
  *S           SANTA MONICA ESTATES
  *S           88-LOT SUBDIVISION
  *S           100-YEAR, 6-HOUR STORM
  *S           2109DEV.DAT
  *S
  *S           BY ASA NILSSON WEBER
  *S           ISAACSON & ARFMAN, P.A.
  *S           AUGUST, 2015
  *S*********************************************************************
  *S
  *S    Rainfall distribution based on NOAA Atlas 14 maps
  *S      Latitude=35.1625   Longitude=-106.5741
  *S
  *S*********************************************************************
  START                                                                                                   TIME=      0.00
  RAINFALL  TYPE= 1 NOAA 14                                                                               RAIN6=    2.410
  *S      BASIN P1 SINGLE DETACHED HOMES
  COMPUTE NM HYD        100.00   -     1       0.00353        7.73       0.276      1.46712     1.533    3.420 PER IMP=  44.00
  *S      BASIN P2 ATTACHED HOMES
  COMPUTE NM HYD        102.00   -     2       0.00253        6.22       0.241      1.78578     1.533    3.836 PER IMP=  70.00
  *S      BASIN P3 SINGLE DETACHED HOMES
  COMPUTE NM HYD        103.00   -     3       0.00348        7.61       0.272      1.46712     1.533    3.421 PER IMP=  44.00
  *S      BASIN P4 SINGLE DETACHED HOMES
  COMPUTE NM HYD        104.00   -     4       0.00422        9.23       0.330      1.46712     1.533    3.420 PER IMP=  44.00
  *S      BASIN P5 ATTACHED HOMES
  COMPUTE NM HYD        105.00   -     5       0.00131        3.23       0.125      1.78578     1.533    3.847 PER IMP=  70.00
  *S      BASIN P6 SINGLE DETACHED HOMES
  COMPUTE NM HYD        106.00   -     6       0.00324        7.09       0.253      1.46712     1.533    3.421 PER IMP=  44.00
  *S      BASIN P7 SINGLE DETACHED HOMES
  COMPUTE NM HYD        107.00   -     7       0.00384        8.41       0.301      1.46712     1.533    3.420 PER IMP=  44.00
  *S      BASIN P8 ATTACHED HOMES
  COMPUTE NM HYD        108.00   -     8       0.00077        1.91       0.074      1.78578     1.533    3.860 PER IMP=  70.00
  *S      BASINS BY1-8 BACKYARDS OF 8 MIDDLE ATTACHED HOME UNITS
  COMPUTE NM HYD        109.00   -     9       0.00057        1.42       0.055      1.78578     1.533    3.871 PER IMP=  70.00
  FINISH

  FINISH
```

APPENDIX B

Street Capacity Calculations

STREET FLOW CAPACITY CALCULATIONS

STREET NAME: **PROMENADE AVE** 1

LOCATION: **INLETS 1&2**

STREET INFORMATION		**HALF STREET CALCULATIONS**	
Slope	0.023	Road Width/2	15
Q_{100}	31.3	Curb Height	0.67
Right-of-way Width	51	1/2 Wetted Perimeter (P)	15.371
Road Width	30	1/2 Area(STD)	3.315
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)	15.724

Depth 0.371

RESULTS

HGL

Q_{100} FLOW CAPACITY =	**31.45**	**cfs**		OK		
at an HGL Depth=	**0.37**	**ft**	<		Curb height =	0.67
				OK		

EGL

Velocity	4.74	fps				
$V^2/2g$	0.35	ft				
EGL Depth =	**0.72**	**ft**	<		Right-of-way height =	0.87
				OK		

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STREET NAME:	**PROMENADE AVE**		2
LOCATION:	**INLETS 3&4**		
STREET INFORMATION		**HALF STREET CALCULATIONS**	
Slope	0.023	Road Width/2	15
Q_{100}	32.5	Curb Height	0.67
Right-of-way Width	51	1/2 Wetted Perimeter (P)	15.376
Road Width	30	1/2 Area(STD)	3.390
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)	16.319
Depth	0.376		

RESULTS

HGL

Q_{100} FLOW CAPACITY =	**32.64**	**cfs**		OK		
at an HGL Depth=	**0.38**	**ft**	<		Curb height =	0.67
				OK		

EGL

Velocity	4.81	fps				
$V^2/2g$	0.36	ft				
EGL Depth =	**0.74**	**ft**	<		Right-of-way height =	0.87
				OK		
~~~~~~

STREET NAME:	PROMENADE AVE	3
LOCATION:	INLETS 5&6	

STREET INFORMATION		HALF STREET CALCULATIONS	
Slope	0.015	Road Width/2	15
Q_{100}	37.5	Curb Height	0.67
Right-of-way Width	51	1/2 Wetted Perimeter (P)	15.430
Road Width	30	1/2 Area(STD)	4.200
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)	18.803

Depth 0.430

RESULTS

HGL

Q_{100} FLOW CAPACITY =	**37.61**	**cfs**		OK		
at an HGL Depth=	**0.43**	**ft**	<	**OK**	Curb height =	0.67

EGL

Velocity	4.48	fps				
$V^2/2g$	0.31	ft				
EGL Depth =	**0.74**	**ft**	<	**OK**	Right-of-way height =	0.87

APPENDIX C

Sump Inlet Capacity Calculations

Storm Drain Calculations

ANALYZE SUMP INLETS

GRATE OPEN AREA:
(per COA std dwg #2220, single grate)

GROSS AREA FOR ONE GRATE =	(25 in/12)(40 in/12) =	6.94	SF
LESS BEARING BARS =	(0.5 in/12)(3.33 ft)(13) =	1.80	SF
LESS CROSS BARS =	(0.5 in/12)(7)[(25 in/12)-(13)(0.5 in/12)] =	0.45	SF
	NET GRATE OPEN AREA =	**4.69**	**SF**
	GRATE OPEN AREA (assuming 50% clogging factor) =	**2.35**	**SF**

ORIFICE EQUATION:

$$Q = CA(2gh)^{1/2}$$

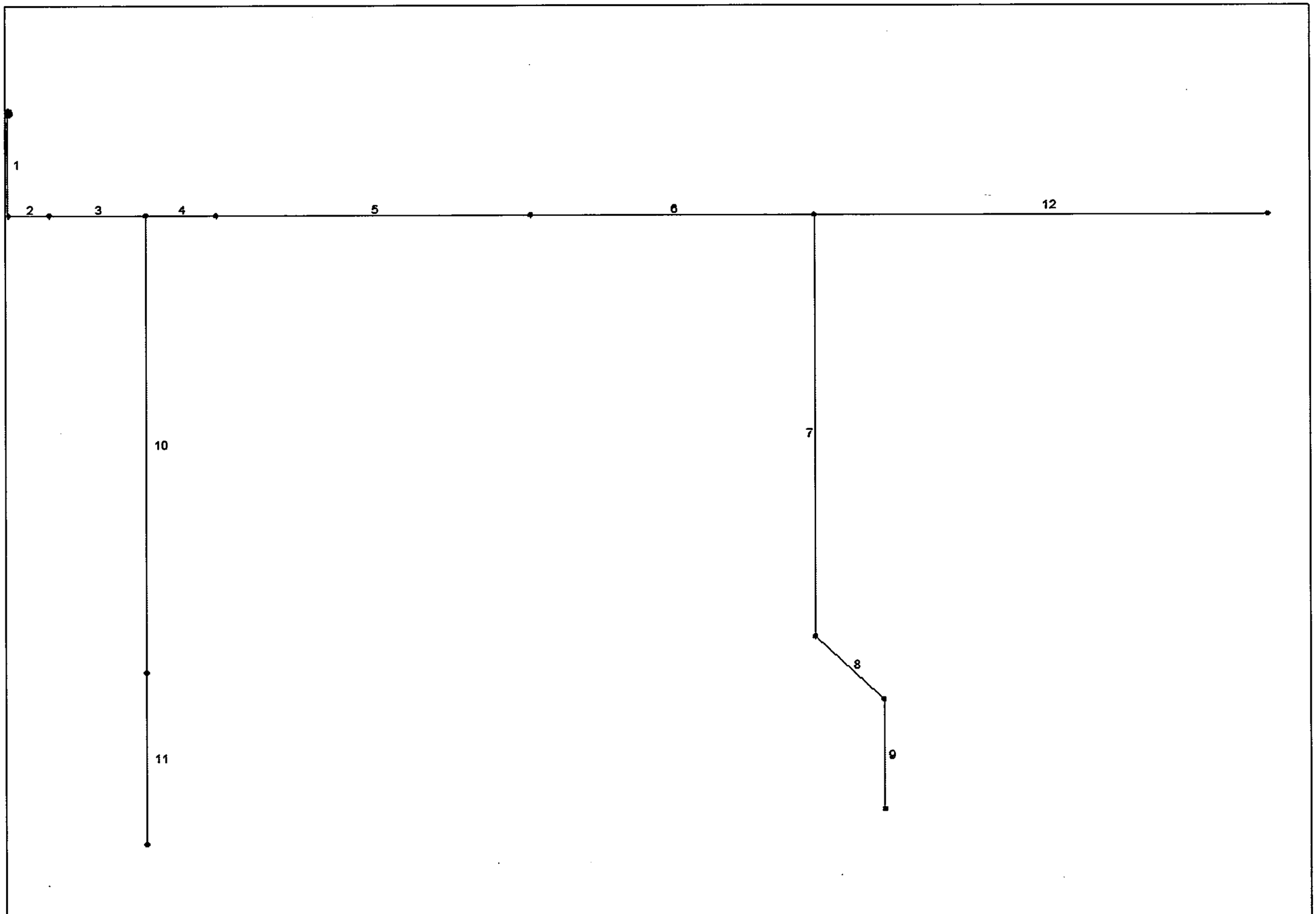
Where:

C =	0.67	
A =	2.35	ft^2
g =	32.2	ft/sec^2
h =	height of the water surface above the grate	

CAPACITY CALCULATIONS:

INLET #	5&6				
LOCATION:	PROMENADE AVE WEST END				
h =	0.67	ft			
$Q_{(capacity)}$ =	10.32273	cfs	REQUIRED Q =	37.5	cfs
NUMBER OF GRATES REQUIRED =			4		

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

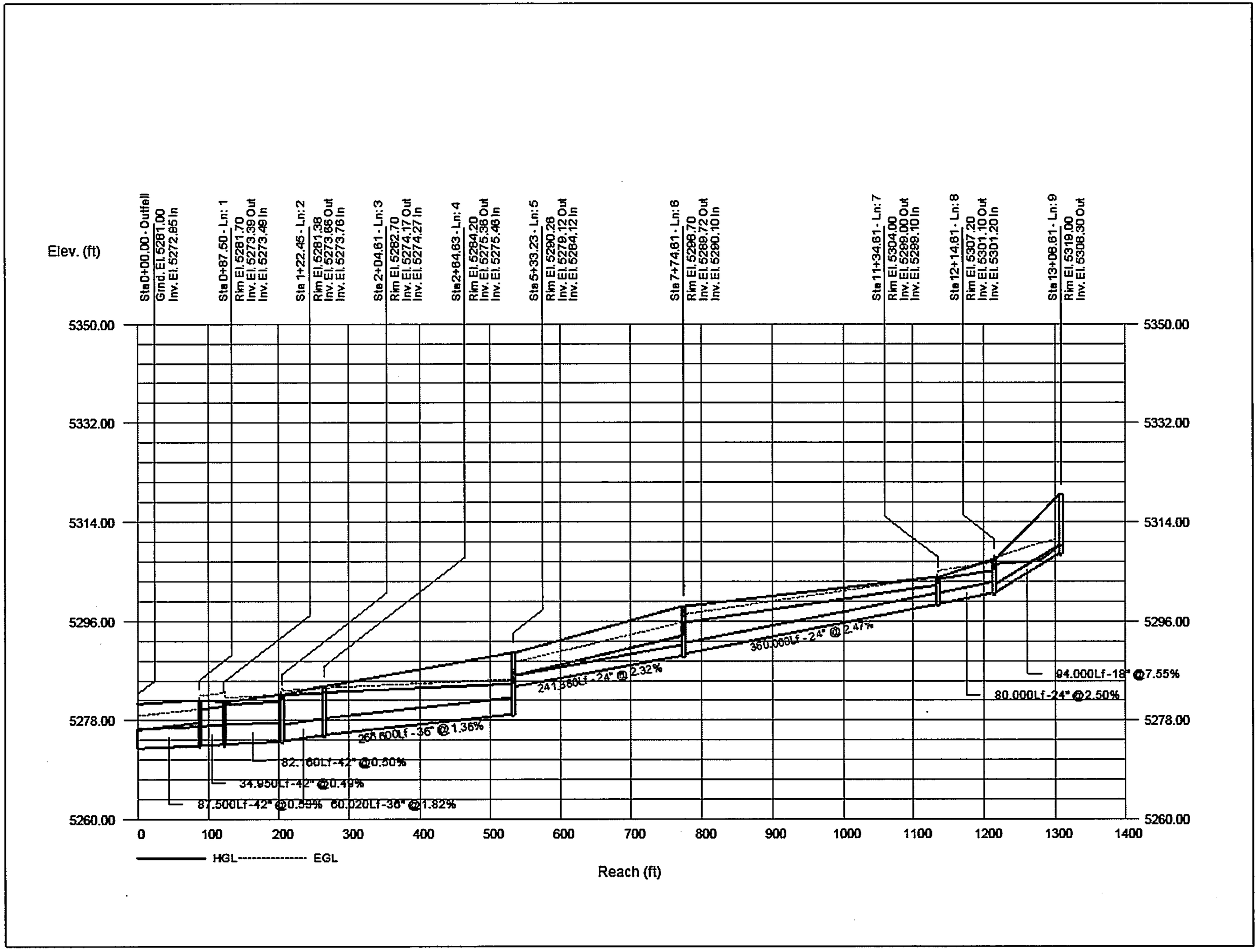


Project File: 2109 SD-R.stm	Number of lines: 12	Date: 10/5/2015

Storm Sewers v10.30

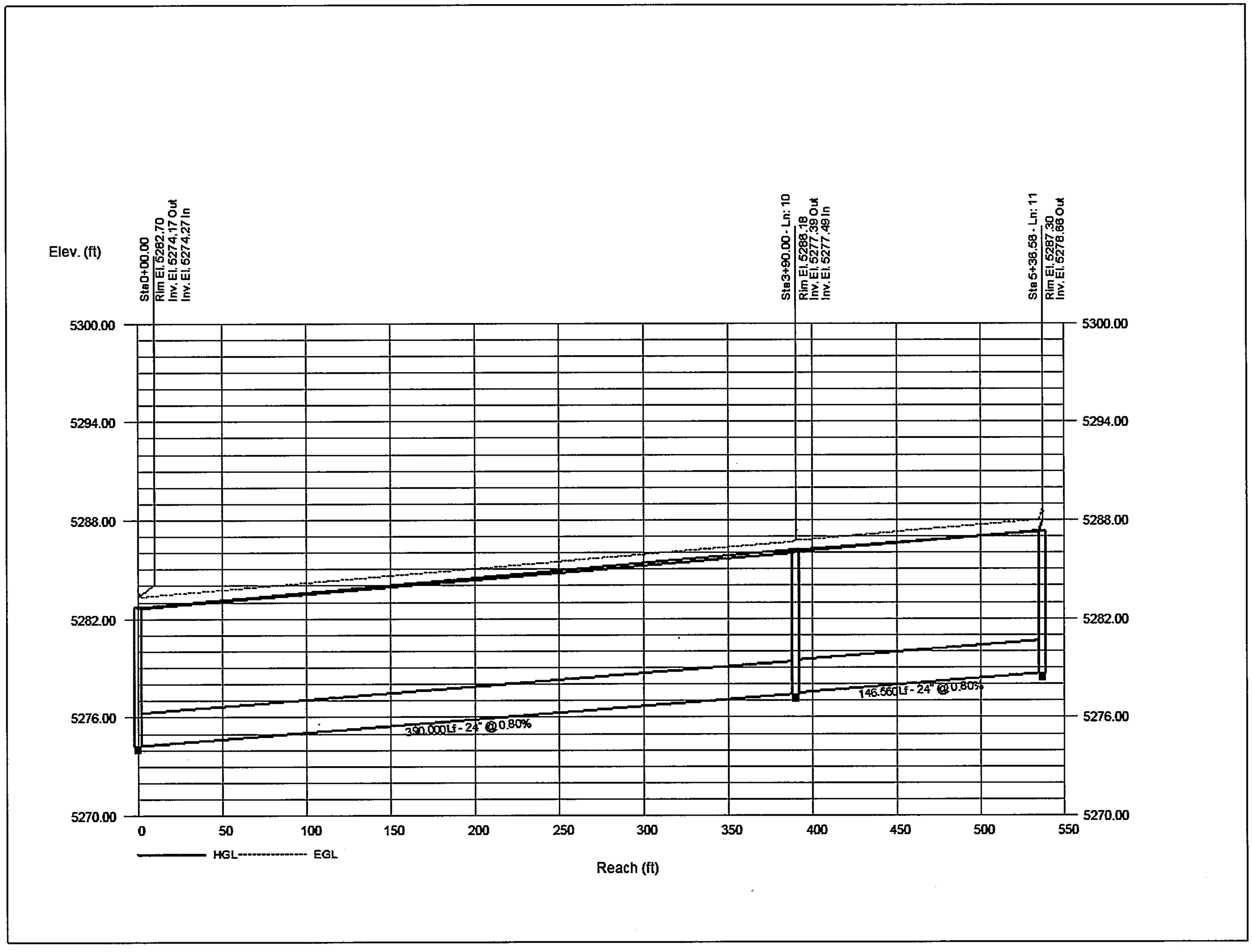
Storm Sewer Profile

Proj. file: 2109 SD-R.stm



Storm Sewer Profile

Proj. file: 2109 SD-R.stm



Storm Sewer Profile

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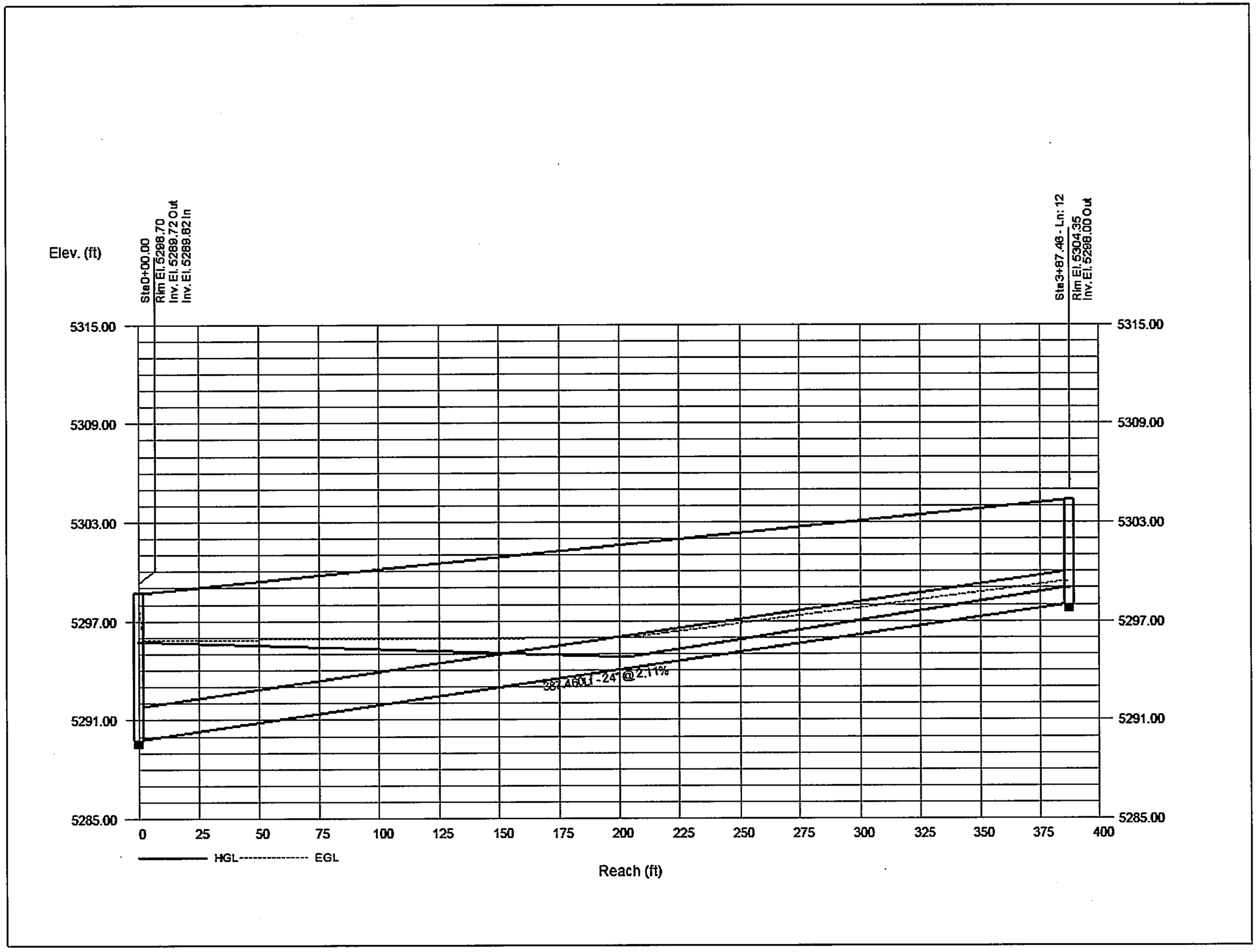


Storm Sewer Inventory Report

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	87.500	90.000	MH	0.00	0.00	0.00	0.0	5272.95	0.50	5273.39	42	Cir	0.013	1.00	5281.70	
2	1	34.950	-90.000	MH	37.50	0.00	0.00	0.0	5273.49	0.49	5273.66	42	Cir	0.013	0.15	5281.38	
3	2	82.160	0.000	MH	12.40	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	0.00	0.00	0.00	0.0	5274.27	1.82	5275.36	36	Cir	0.013	0.15	5284.20	
5	4	268.600	0.000	MH	11.20	0.00	0.00	0.0	5275.46	1.36	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	2.32	5289.72	24	Cir	0.013	1.00	5298.70	
7	6	360.000	90.004	MH	0.00	0.00	0.00	0.0	5290.10	2.47	5299.00	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	146.560	0.000	MH	20.90	0.00	0.00	0.0	5277.49	0.80	5278.66	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	

Storm Sewer Summary Report

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		121.1	42	Cir	87.500	5272.95	5273.39	0.503	5276.31*	5277.56*	2.46	5280.03	End	Manhole
2		121.1	42	Cir	34.950	5273.49	5273.66	0.486	5280.03*	5280.53*	0.37	5280.90	1	Manhole
3		83.60	42	Cir	82.160	5273.76	5274.17	0.499	5280.90*	5281.47*	1.17	5282.65	2	Manhole
4		50.30	36	Cir	60.020	5274.27	5275.36	1.816	5282.65*	5282.99*	0.12	5283.11	3	Manhole
5		50.30	36	Cir	268.600	5275.46	5279.12	1.363	5283.11*	5284.63*	0.12	5284.75	4	Manhole
6		39.10	24	Cir	241.380	5284.12	5289.72	2.320	5286.12*	5293.34*	2.41	5295.75	5	Manhole
7		30.90	24	Cir	360.000	5290.10	5299.00	2.472	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		15.50	18	Cir	94.000	5301.20	5308.30	7.553	5306.31	5309.72	n/a	5309.72 j	8	Manhole
10		20.90	24	Cir	390.000	5274.27	5277.39	0.800	5282.65*	5285.98*	0.10	5286.08	3	Manhole
11		20.90	24	Cir	146.560	5277.49	5278.66	0.798	5286.08*	5287.33*	0.69	5288.02	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

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	87.500	0.00	0.00	0.00	0.00	0.00	0.0	3.8	0.0	121.1	71.34	12.67	42	0.50	5272.95	5273.39	5276.31	5277.56	5281.00	5281.70	
2	1	34.950	0.00	0.00	0.00	0.00	0.00	0.0	3.7	0.0	121.1	70.15	12.59	42	0.49	5273.49	5273.66	5280.03	5280.53	5281.70	5281.38	
3	2	82.160	0.00	0.00	0.00	0.00	0.00	0.0	3.6	0.0	83.60	71.08	8.69	42	0.50	5273.76	5274.17	5280.90	5281.47	5281.38	5282.70	
4	3	60.020	0.00	0.00	0.00	0.00	0.00	0.0	3.4	0.0	50.30	89.87	7.12	36	1.82	5274.27	5275.36	5282.65	5282.99	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	77.85	7.12	36	1.36	5275.46	5279.12	5283.11	5284.63	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	34.45	12.45	24	2.32	5284.12	5289.72	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	35.56	9.84	24	2.47	5290.10	5299.00	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	0.4	0.0	20.90	20.23	6.65	24	0.80	5274.27	5277.39	5282.65	5285.98	5282.70	5286.18	
11	10	146.560	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	20.90	20.21	6.65	24	0.80	5277.49	5278.66	5286.08	5287.33	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: 2109 SD-R.stm | Number of lines: 12 | Run Date: 10/5/2015

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

CITY OF ALBUQUERQUE

PLANNING DEPARTMENT – Development Review Services

Richard J. Berry, Mayor

May 11, 2016 (RTH)
~~December 18, 2015~~

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

RE: Tract 3-A-1 and a Portion of Tract 4-A-1
Drainage and Grading Plan
Engineer's Stamp Date 5-2-2016 (File: D18D054E)

Dear Mrs. Weber:

Based upon the information provided in your submittal received 5-4-2015, the above referenced plan, which includes revisions to the proposed grading, is approved for Grading Permit and Work Order.

Please attach a copy of this approved plan in the construction sets when submitting for a building permit. This letter replaces the approval given for the Grading and Drainage Plan with a stamp date of 10-19-2015, and the revised Grading and Drainage Plan with a stamp date of 11-19-2015.

Prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.

If you have any questions, you can contact me at 924-3695.

Sincerely,

Rita Harmon, P.E.
Senior Engineer, Planning Dept.
Development Review Services

Orig: Drainage file

D18D054E_GP_WO_Appr3.doc.docx

PO Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: Santa Monica Estates Building Permit #: _____ City Drainage #: D18/D054E

DRB#: 1010144 EPC#: _____ Work Order#: 689986

Legal Description: Tract 3-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: anw@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: Surv-Tek, Inc. Contact: Russ P Hugg

Address: 9384 Valley View Drive NW - Albuquerque, NM 87114

Phone#: (505) 897-3366 Fax#: _____ E-mail: _____

Check all that Apply:

DEPARTMENT:

X HYDROLOGY/ DRAINAGE
____ TRAFFIC/ TRANSPORTATION
____ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

____ ENGINEER/ ARCHITECT CERTIFICATION

____ CONCEPTUAL G & D PLAN
X GRADING PLAN
____ DRAINAGE MASTER PLAN
____ DRAINAGE REPORT
____ CLOMR/LOMR

____ TRAFFIC CIRCULATION LAYOUT (TCL)
____ TRAFFIC IMPACT STUDY (TIS)
____ EROSION & SEDIMENT CONTROL PLAN (ESC)

____ OTHER (SPECIFY) _____

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
X WORK ORDER APPROVAL
____ CLOMR/LOMR

____ PRE-DESIGN MEETING
____ OTHER (SPECIFY) _____

RECEIVED
MAY 04 2016
LAND DEVELOPMENT SECTION

IS THIS A RESUBMITTAL?: X Yes ____ No

DATE SUBMITTED: May 4, 2016 By: Åsa Nilsson-Weber

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: ___

ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates

Åsa Weber <asaw@iacivil.com>

Santa Monica Estates D18/D045E

1 message

Åsa Weber <asaw@iacivil.com> Wed, May 4, 2016 at 1:42 PM
To: PLNDRS@cabq.gov
Cc: Brian Patterson <bpatterson@titan-development.com>

Here is a revised grading plan with changes as outlined below.

- 24 townhome lots along Derickson were replaced with 21 detached homes.
- The entire site has been lowered 0.3' to reduce dirt import.
- Lower retaining walls were added (originally home builder's responsibility)
- The original grading & drainage scheme will remain the same. Runoff is not increased because DU/acre was decreased, % impervious decreased.
- The infrastructure list will remain the same.

Please let me know if you have questions.

Thank you.

Åsa Nilsson-Weber, P.E.
Principal / Vice President
Isaacson & Arfman, P.A.
128 Monroe St. N.E.
Albuquerque, NM 87108
Phone: (505)268-8828

asaw@iacivil.com

2109 GRADING SIGNED 05-02-16.pdf
3987K

RECEIVED
MAY 04 2016
LAND DEVELOPMENT SECTION

Harmon Rita T.

From: Harmon Rita T.
Sent: Monday, April 18, 2016 2:49 PM
To: 'Åsa Weber'
Subject: RE: Santa Monica Estates--DRB #1010144

Asa,

I concur that an amended grading and drainage plan will not be required for DRB action on the amended preliminary plat since the infrastructure is the same.
However, an amended Grading and Drainage plan will be required for building permit and Work Order.

Rita Harmon, P.E.
Senior Engineer, Hydrology
COA, Planning Department
505-924-3695

From: Åsa Weber [mailto:asaw@iacivil.com]
Sent: Monday, April 18, 2016 2:35 PM
To: Harmon Rita T.
Cc: Abiel X. Carrillo; Brian Patterson; Wolfenbarger, Jeanne
Subject: Santa Monica Estates--DRB #1010144

Hi Rita,

Per our phone conversation, here is a summary of the changes for this project that will require a preliminary plat amendment at DRB.

- 24 townhome lots along Derickson will be replaced with 21 detached homes.
- The entire site will be lowered 0.3' to reduce dirt import.
- The original grading & drainage scheme will remain the same.
- The infrastructure list will remain the same.

We will submit a revised grading & drainage plan and also a revised public work order set.

Please confirm that approval of the revised grading plan will not be required for DRB approval of the amended preliminary plat.

Thank you.

Åsa Nilsson-Weber, P.E.
Principal / Vice President
Isaacson & Arfman, P.A.
128 Monroe St. N.E.
Albuquerque, NM 87108

CITY OF ALBUQUERQUE

PLANNING DEPARTMENT – Development Review Services

Richard J. Berry, Mayor

December 18, 2015

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

RE: Tract 3-A-1 and a Portion of Tract 4-A-1
Drainage and Grading Plan
Engineer's Stamp Date 11-19-2015 (File: D18/D054E)

Dear Mrs. Weber:

Based upon the information provided in your submittal received 11-19-2015, the above referenced plan, which includes minor revisions to the proposed grading of the north westernmost lots, is approved for Grading Permit and Work Order.

PO Box 1293

Please attach a copy of this approved plan in the construction sets when submitting for a building permit. This letter replaces the approval given on October 30, 2015, for the Grading and Drainage plan with a stamp date of 10-19-2015.

Albuquerque

Prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.

New Mexico 87103

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

Sincerely,

www.cabq.gov

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

Orig: Drainage file

D18D054E_GP_WO_Appr22.docx

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

D18D054E

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

DRB#: 1010144 EPC#: _____ Work Order#: _____

Legal Description: Tract 3-A-1

City Address: _____

Engineering Firm: Isaacson & Arfman, P.A. Contact: Åsa 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 - 6000 Riverside Plaza Lane NW, Suite 200, Albuquerque, NM 87120

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

Architect: _____ Contact: _____

Address: _____

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

Surveyor: Surv-Tek, Inc Contact: Russ Hugg

Address: _____

Phone#: (505) 897-3366 Fax#: _____ E-mail: Hugg@survtek.comtony@harrissurveying.comcastbiz.net

Contractor: _____ Contact: _____

Address: _____

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

TYPE OF SUBMITTAL:

- ____ DRAINAGE REPORT
- ____ DRAINAGE PLAN 1st SUBMITTAL
- X DRAINAGE PLAN RESUBMITTAL
- ____ CONCEPTUAL G & D PLAN
- X GRADING PLAN
- ____ EROSION & SEDIMENT CONTROL PLAN (ESC)
- ____ ENGINEER'S CERT (HYDROLOGY)
- ____ CLOMR/LOMR
- ____ TRAFFIC CIRCULATION LAYOUT (TCL)
- ____ ENGINEER'S CERT (TCL)
- ____ ENGINEER'S CERT (DRB SITE PLAN)
- ____ ENGINEER'S CERT (ESC)
- ____ SO-19
- ____ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

- ____ SIA/FINANCIAL GUARANTEE RELEASE
- X PRELIMINARY PLAT APPROVAL
- ____ S. DEV. PLAN FOR SUB'D APPROVAL
- ____ S. DEV. FOR BLDG. PERMIT APPROVAL
- ____ SECTOR PLAN APPROVAL
- ____ FINAL PLAT APPROVAL
- ____ CERTIFICATE OF OCCUPANCY (PERM)
- ____ CERTIFICATE OF OCCUPANCY (TCL TEMP)
- ____ FOUNDATION PERMIT APPROVAL
- ____ BUILDING PERMIT APPROVAL
- X GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- X WORK ORDER APPROVAL
- ____ GRADING CERTIFICATION
- ____ SO-19 APPROVAL
- ____ ESC PERMIT APPROVAL
- ____ ESC CERT. ACCEPTANCE
- ____ OTHER (SPECIFY)

RECEIVED
NOV 19 2015
LAND DEVELOPMENT SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED: _____ Yes _____ No _____ Copy Provided

DATE SUBMITTED: November 19, 2015 By: Åsa Nilsson-Weber
Isaacson & Afrman, P.A.

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location, anc scope to the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the followin

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres
3. **Drainage Report**: Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more
4. **Erosion and Sediment Control Plan:** Required for any new development and redevelopment site with 1-acre or more of land disturbing area, including project less than 1-acre than are part of a larger common plan of development

CITY OF ALBUQUERQUE

PLANNING DEPARTMENT – Development Review Services

Richard J. Berry, Mayor

October 30, 2015

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

RE: **Tract 3-A-1 and a Portion of Tract 4-A-1**
Drainage and Grading Plan
Engineer's Stamp Date 10-19-2015 (File: D18/D054E)

Dear Mrs. Weber:

Based upon the information provided in your submittal received 10-19-2015, the above referenced plan is approved for Grading Permit and Work Order. Please attach a copy of this approved plan in the construction sets when submitting for a building permit.

For future submittals, please note that your standard General Note #16 can be combined with Note #18 for clarity regarding maximum slopes. Also, ensure to remove references to the NMDOT for projects entirely in the City (Note #34).

Prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.

If you have any questions, you can contact me at 924-3999.

Sincerely,

Shahab Biazar, P.E.
City Engineer, Planning Dept.
Development Review Services

Orig: Drainage file
CAC

D18D054E_GP_WO_Appr.docx

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: Santa Monica Estates Building Permit #: _____ City Drainage #: D18/D054E

DRB#: 1010144 EPC#: _____ Work Order#: _____

Legal Description: Tract 3-A-1

City Address: _____

Engineering Firm: Isaacson & Arfman, P.A. Contact: Åsa 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 - 6000 Riverside Plaza Lane NW, Suite 200, Albuquerque, NM 87120

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

Architect: _____ Contact: _____

Address: _____

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

Surveyor: Surv-Tek, Inc Contact: Russ Hugg

Address: _____

Phone#: (505) 897-3366 Fax#: _____ E-mail: Hugg@survtek.comtony@harrissurveying.comcastbiz.net

Contractor: _____ Contact: _____

Address: _____

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

TYPE OF SUBMITTAL:

X DRAINAGE REPORT SUPPLEMENTAL
___ DRAINAGE PLAN 1st SUBMITTAL
X DRAINAGE PLAN RESUBMITTAL
___ CONCEPTUAL G & D PLAN
X GRADING PLAN
___ EROSION & SEDIMENT CONTROL PLAN (ESC)
___ ENGINEER'S CERT (HYDROLOGY)
___ CLOMR/LOMR
___ TRAFFIC CIRCULATION LAYOUT (TCL)
___ ENGINEER'S CERT (TCL)
___ ENGINEER'S CERT (DRB SITE PLAN)
___ ENGINEER'S CERT (ESC)
___ SO-19
___ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

___ SIA/FINANCIAL GUARANTEE RELEASE
___ PRELIMINARY PLAT APPROVAL
___ S. DEV. PLAN FOR SUB'D APPROVAL
___ S. DEV. FOR BLDG. PERMIT APPROVAL
___ SECTOR PLAN APPROVAL
X FINAL PLAT APPROVAL
___ CERTIFICATE OF OCCUPANCY (PERM)
___ CERTIFICATE OF OCCUPANCY (TEMP)
___ FOUNDATION PERMIT APPROVAL
___ BUILDING PERMIT APPROVAL
X GRADING PERMIT APPROVAL
___ PAVING PERMIT APPROVAL
X WORK ORDER APPROVAL
___ GRADING CERTIFICATION
___ SO-19 APPROVAL
___ ESC PERMIT APPROVAL
___ ESC CERT. ACCEPTANCE
___ OTHER (SPECIFY)

RECEIVED
OCT 19 2015
AND DEVELOPMENT SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED: ___ Yes ___ No ___ Copy Provided

DATE SUBMITTED: October 19, 2015 By: Åsa Nilsson-Weber
Isaacson & Afrman, P.A.

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location, anc scope to the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the followin

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres
3. **Drainage Report**: Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more
4. **Erosion and Sediment Control Plan:** Required for any new development and redevelopment site with 1-acre or more of land disturbing area, including project less than 1-acre than are part of a larger common plan of development

OCTOBER 19, 2015

SUPPLEMENTAL CALCULATIONS

FOR

SANTA MONICA ESTATES
(Replat of Tract 3-A-1, Santa Monica Place)

Louisiana Blvd. and Derickson Ave. NE

RECEIVED
OCT 19 2015
LAND DEVELOPMENT SECTION

ÅSA M. NILSSON-WEBER
NEW MEXICO
17631
LICENSED PROFESSIONAL ENGINEER
10/19/15

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. 2109

ANALYSIS OF SUMP CONDITION AT WEST END OF PROMENADE AVE.

There is a sump condition at the west end of Promenade Ave. where 37.5 cfs enters two double-grate Type C inlets.

The inlets have capacity for 87 cfs—more than twice of the 100-year flows of 37.5 cfs. Four 2.67-foot wall openings at Tract B by Derickson Ave. shall be constructed for emergency overflow as an additional safety factor. These wall openings have a total capacity of 19.4 cfs (4.84 cfs/opening). Rock shall be installed adjacent to Tract B in the 2-foot space between the sidewalk in Derickson and the perimeter wall.

The flows falling on Tract B shall be retained in a water harvesting basin on the tract. Tract B 100-year flow is 0.5 cfs; 100-year volume is 627 cf. The water harvesting basin in Tract B has a volume of 850 cf (top elev = 80.0; bottom elev = 79.0).

See Appendix for calculations and attached Grading & Drainage Plan (Sheets 1-4).

APPENDIX

- Sump Inlet Calculations
- Wall Opening Calculations
- Tract B Hydrology Calculations

ANALYZE SUMP INLETS

GRATE OPEN AREA:
(per COA std dwg #2220, single grate)

GROSS AREA FOR ONE GRATE =	(25 in/12)(40 in/12) =	6.94 ✓
LESS BEARING BARS =	(0.5 in/12)(3.33 ft)(13) =	1.80
LESS CROSS BARS =	(0.5 in/12)(7)[(25 in/12)-(13)(0.5 in/12)] =	~~0.45~~ .58
	NET GRATE OPEN AREA =	~~4.69~~ 4.56
	GRATE OPEN AREA (assuming 50% clogging factor) =	**2.35**

ORIFICE EQUATION:

$$Q = CA(2gh)^{1/2}$$

$$\left(\frac{.5\text{ in}}{12}\right) \times 1 \left[\frac{25}{12} - 13\left(\frac{.5}{12}\right)\right] \times \underline{7 \text{ bars}}$$

thick × (crossbar length minus overlap)

Where:
C = 0.67
A = 2.35 ft²
g = 32.2 ft/sec²
h = height of the water surface above the grate

CAPACITY CALCULATIONS:

Need to subtract end bars too,

$$\left(\frac{.5}{12}\right)\left[\frac{25}{12} - 13\frac{(.5)}{12}\right] 9$$

$$= 0.58 \text{ SF}$$

$$Q = 0.67(2.28)(2gh)^{1/2}$$

$$= 10.03 \text{ CFS}$$

INLET # 5&6
LOCATION: PROMENADE AVE WEST END

50% clogging = 4* 10.3 cfs = ~~41.2~~ cfs 40.1 still ok

h = 0.67 ft
$Q_{(capacity)}$ = 10.32273 cfs REQUIRED Q = 37.5 cfs

NUMBER OF GRATES REQUIRED = 4

Full capacity = 4*20.6 cfs = 82.4 cfs

h = 0.67 ft
$Q_{(capacity)}$ = 20.64545 cfs REQUIRED Q = 37.5 cfs

NUMBER OF GRATES REQUIRED = 2

Weir Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Friday, Oct 16 2015

2.67-FOOT WALL OPENING

Rectangular Weir

Crest	= Sharp
Bottom Length (ft)	= 2.67
Total Depth (ft)	= 0.67

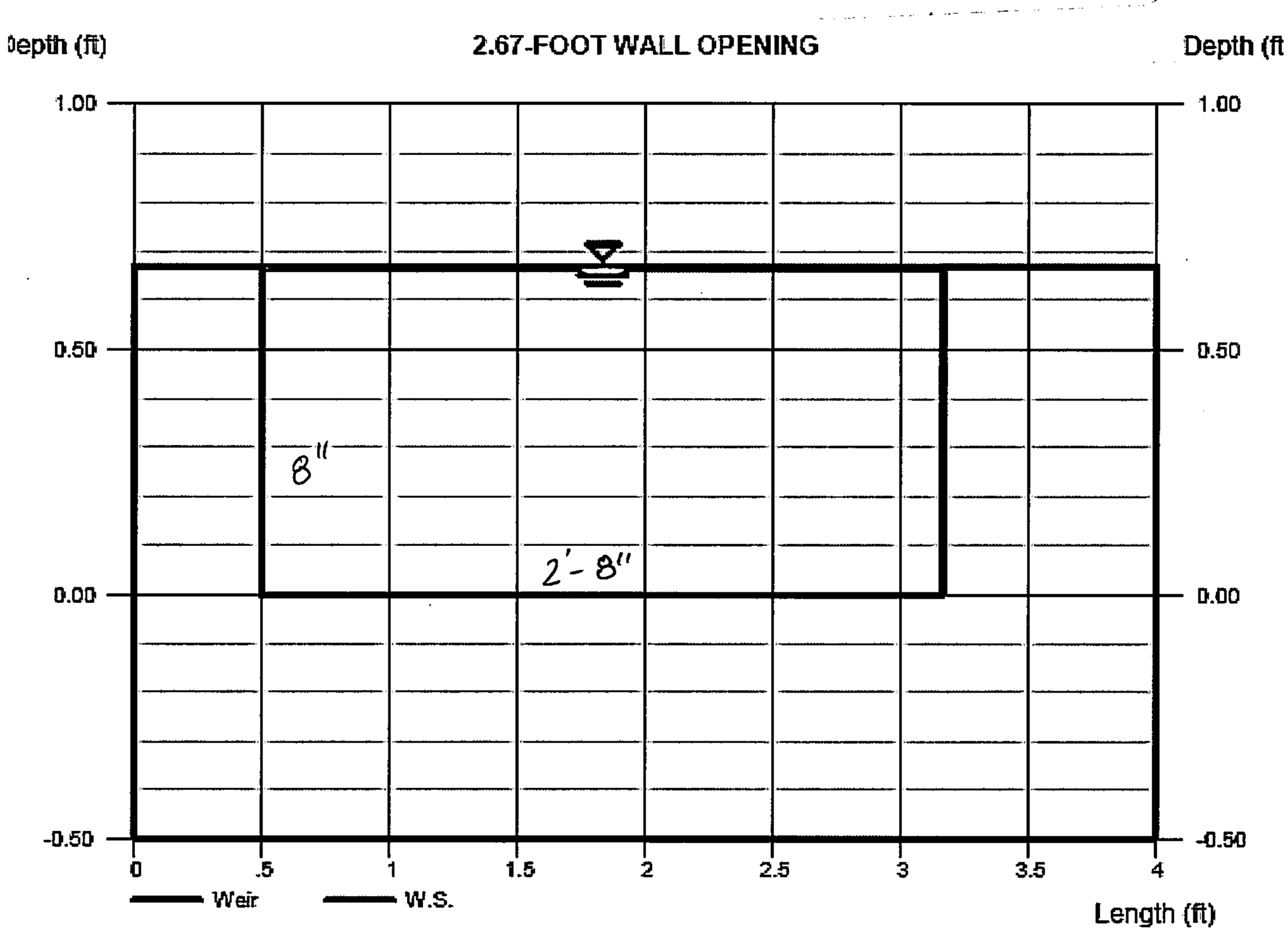
Calculations

Weir Coeff. Cw	= 3.33
Compute by:	Known Depth
Known Depth (ft)	= 0.67

Highlighted

Depth (ft)	= 0.67
Q (cfs)	= 4.835
Area (sqft)	= 1.78
Velocity (ft/s)	= 2.72
Top Width (ft)	= 2.67

1



Job Name:		SANTA MONICA ESTATES							
		TRACT B DRAINAGE CALCS							
Date Prepared:		10/20/2015							
Date Modified:		0							
Precipitation Zone:		3							
		For Zone 3							
		EA =	0.66			QpA =	1.87		
		EB =	0.92			QpB =	2.60		
		EC =	1.29			QpC =	3.45		
		ED =	2.36			QpD =	5.02		
TRACT B	1			DESCRIPTION					
Area of basin flows =		6318	SF		=	0.1	Ac		
The following calculations are based on Treatment areas as shown in table to the right							LAND TREATMENT		
		Sub-basin Weighted Excess Precipitation (see formula above)					A =	0%	
		Weighted E	=	1.29	in		B =	0%	
		Sub-basin Volume of Runoff (see formula above)					C =	100%	
		V_{360}	=	679	CF		D =	0%	
		Sub-basin Peak Discharge Rate: (see formula above)							
		Q_p	=	0.5	cfs				

A Transmittal From

Isaacson & Arfman, P.A.

Consulting Engineering Associates

TO: Shahab Biazar, City Engineer

DATE: 10-19-15
JOB NO: 2109

FROM: Åsa Nilsson-Weber

REFERENCE: Santa Monica Estates - D18/D054E

WE ARE SENDING YOU ATTACHED THE FOLLOWING ITEMS:

Grading & Drainage Plan-added 4-2.67' curb openings at Tract B; added details

Supplemental Calculations-analyze sump condition at west end of Promenade Ave.

THIS INFORMATION IS TRANSMITTED:

☐ As per your request	☐ For your files
☒ For your review and approval	☐ For your use
☐ For your information	☐ Please review and return
☐ For your attention	☐ For return to your files
☐ For your signature	☐ Please advise
☐	☐

COMMENTS

RECEIVED
OCT 19 2015
LAND DEVELOPMENT SECTION

RECEIVED BY: _____

DATE: _____ TIME: _____

COPIES TO: file

128 Monroe St. N.E. • Albuquerque, NM 87108 • (505) 268-8828 • ~~Fax: (505) 268-2632~~ • www.iacivil.com

CITY OF ALBUQUERQUE

October 6, 2015

ASA M. Nilsson-Weber, P.E.
Isaacson & Arfman, P.A.
128 Monroe St NE
Albuquerque, NM 87108

Re: Santa Monica Estates
Tract 3-A-1 and a Portion of Tract 4-A-1
Drainage and Grading Plan
Engineer's Stamp Date 10/05/2015 (D18/D054E)

Dear Mrs. Nilsson-Weber,

Based upon the information provided in your submittal received 10-05-15, the Grading and Drainage Plan is approved for Preliminary Plat approval. The following conditions must be addressed prior to workorder and grading permit.

1) Please provide calculations for the wall opening for the emergency spillway. Install the emergency spillway opening above the finished grade elevation (few inches) to retain some of the runoff that is generated by the proposed Tract B.
2) Place the wall openings higher the finished grade elevation (few inches) for the back yard of the townhomes which drain to Derickson Avenue.
3) An Erosion and Sediment Control plan must be submitted and approved.

If you have any questions, you can contact me at 924-3999.

Sincerely,

Shahab Biazar, P.E.
City Engineer, Planning Dept.
Development Review Services

C: e-mail

PO Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: Santa Monica Estates Building Permit #: City Drainage #: D18/ D054E

DRB#: 1010144 EPC#: Work Order#:

Legal Description: Tract 3-A-1 and a Portion of Tract 4-A-1

City Address:

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

Address: 128 Monroe Street NE - Albuquerque, NM 87108

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

Owner: Del Rey Investments, LLC Contact: Kurt Browning

Address: c/o Titan Development - 6000 Riverside Plaza Lane NW, Suite 200, Albuquerque, NM 87120

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

Architect: Contact:

Address:

Phone#: Fax#: E-mail:

Surveyor: Surv-Tek, Inc Contact: Russ Hugg

Address:

Phone#: (505) 897-3366 Fax#: E-mail: Hugg@survtek.comtony@harrissurveying.comcastbiz.net

Contractor: Contact:

Address:

Phone#: Fax#: E-mail:

TYPE OF SUBMITTAL:

- X DRAINAGE REPORT
- X DRAINAGE PLAN 1st SUBMITTAL
- ___ DRAINAGE PLAN RESUBMITTAL
- ___ CONCEPTUAL G & D PLAN
- X GRADING PLAN
- ___ EROSION & SEDIMENT CONTROL PLAN (ESC)
- ___ ENGINEER'S CERT (HYDROLOGY)
- ___ CLOMR/LOMR
- ___ TRAFFIC CIRCULATION LAYOUT (TCL)
- ___ ENGINEER'S CERT (TCL)
- ___ ENGINEER'S CERT (DRB SITE PLAN)
- ___ ENGINEER'S CERT (ESC)
- ___ SO-19
- ___ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

- ___ SIA/FINANCIAL GUARANTEE RELEASE
- X PRELIMINARY PLAT APPROVAL
- ___ S. DEV. PLAN FOR SUB'D APPROVAL
- ___ S. DEV. FOR BLDG. PERMIT APPROVAL
- ___ SECTOR PLAN APPROVAL
- ___ FINAL PLAT APPROVAL
- ___ CERTIFICATE OF OCCUPANCY (PERM)
- ___ CERTIFICATE OF OCCUPANCY (TCL TEMP)
- ___ FOUNDATION PERMIT APPROVAL
- ___ BUILDING PERMIT APPROVAL
- X GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- X WORK ORDER APPROVAL
- ___ GRADING CERTIFICATION

- ___ SO-19 APPROVAL
- ___ ESC PERMIT APPROVAL
- ___ ESC CERT. ACCEPTANCE
- ___ OTHER (SPECIFY)

$930.00

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LAND DEVELOPMENT SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED: ___ Yes ___ No ___ Copy Provided

DATE SUBMITTED: August 28, 2015 By: Åsa Nilsson-Weber
Isaacson & Afrman, P.A.

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location, anc scope to the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the followin

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres
3. **Drainage Report**: Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more
4. **Erosion and Sediment Control Plan:** Required for any new development and redevelopment site with 1-acre or more of land disturbing area, including project less than 1-acre than are part of a larger common plan of development

Asa Nilsson-Weber

From: Asa Nilsson-Weber <asaw@iacivil.com>
Sent: Friday, August 28, 2015 11:00 AM
To: 'plndrs@cabq.gov'
Subject: Santa Monica Estates (Replat of Tract 3-A-1, Santa Monica Place)
Attachments: 2109 GRADING SIGNED 08-28-15.pdf; 2109 Drainage Report.pdf

Please see attached for a drainage submittal—g&d plans and drainage report—for an 88-lot residential subdivision.

Thanks.

Åsa Nilsson-Weber, P.E.
Principal / Vice President

Isaacson & Arfman, P.A.
Consulting Engineering Associates
128 Monroe St. N.E.
Albuquerque, NM 87108
Phone: (505)268-8828
Fax: (505)268-2632
asaw@iacivil.com

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AUG 2 8 2015
LAND DEVELOPMENT SECTION

AUGUST 28, 2015

DRAINAGE REPORT

FOR

SANTA MONICA ESTATES
(Replat of Tract 3-A-1, Santa Monica Place)

Louisiana Blvd. and Derickson Ave. NE

BY

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AUG 2 8 2015
LAND DEVELOPMENT SECTION

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. 2109

AUGUST 28, 2015

DRAINAGE REPORT

FOR

SANTA MONICA ESTATES
(Replat of Tract 3-A-1, Santa Monica Place)

Louisiana Blvd. and Derickson Ave. NE

ÅSA M. NILSSON-WEBER
NEW MEXICO
17631
LICENSED PROFESSIONAL ENGINEER

8-28-15

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. 2109

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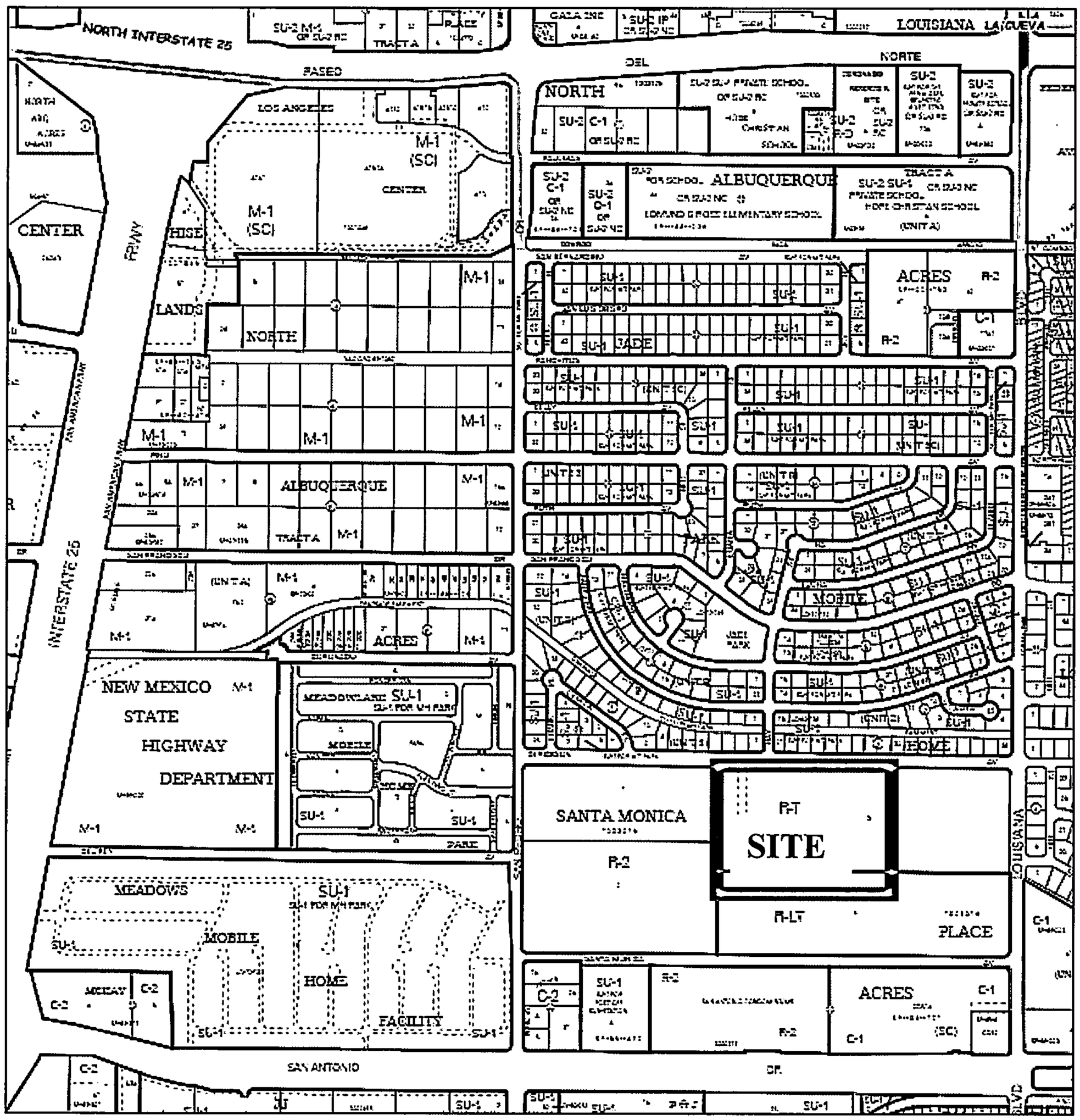
NOAA Atlas 14 Rainfall Data
AHYMO Summary

APPENDIX B: Street Capacity Calculations

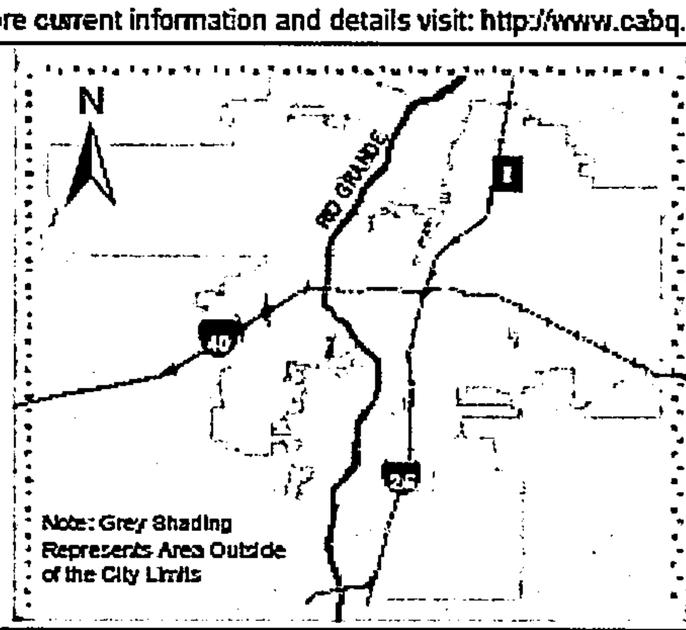
APPENDIX C: Storm Drain Calculations
Storm Drain Calculations (Hydraflow Storm Sewers)
Sump Inlet Capacity Calculations



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

Albuquerque Geographic Information System

Map amended through: 1/10/2013



Zone Atlas Page:

D-18-Z

Selected Symbols

- SECTOR PLANS
- Design Overlay Zones
- City Historic Zones
- H-1 Buffer Zone
- Petroglyph Mon.
- Escarpment
- 3 Mile Airport Zone
- Airport Noise Contours
- Wall Overlay Zone

0 360 1,800 Feet

I. PROJECT INFORMATION

LEGAL DESCRIPTION:
Proposed: Santa Monica Estates
Existing: Tract 3-A-1, Santa Monica Place

TOTAL AREA:
15.0415 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

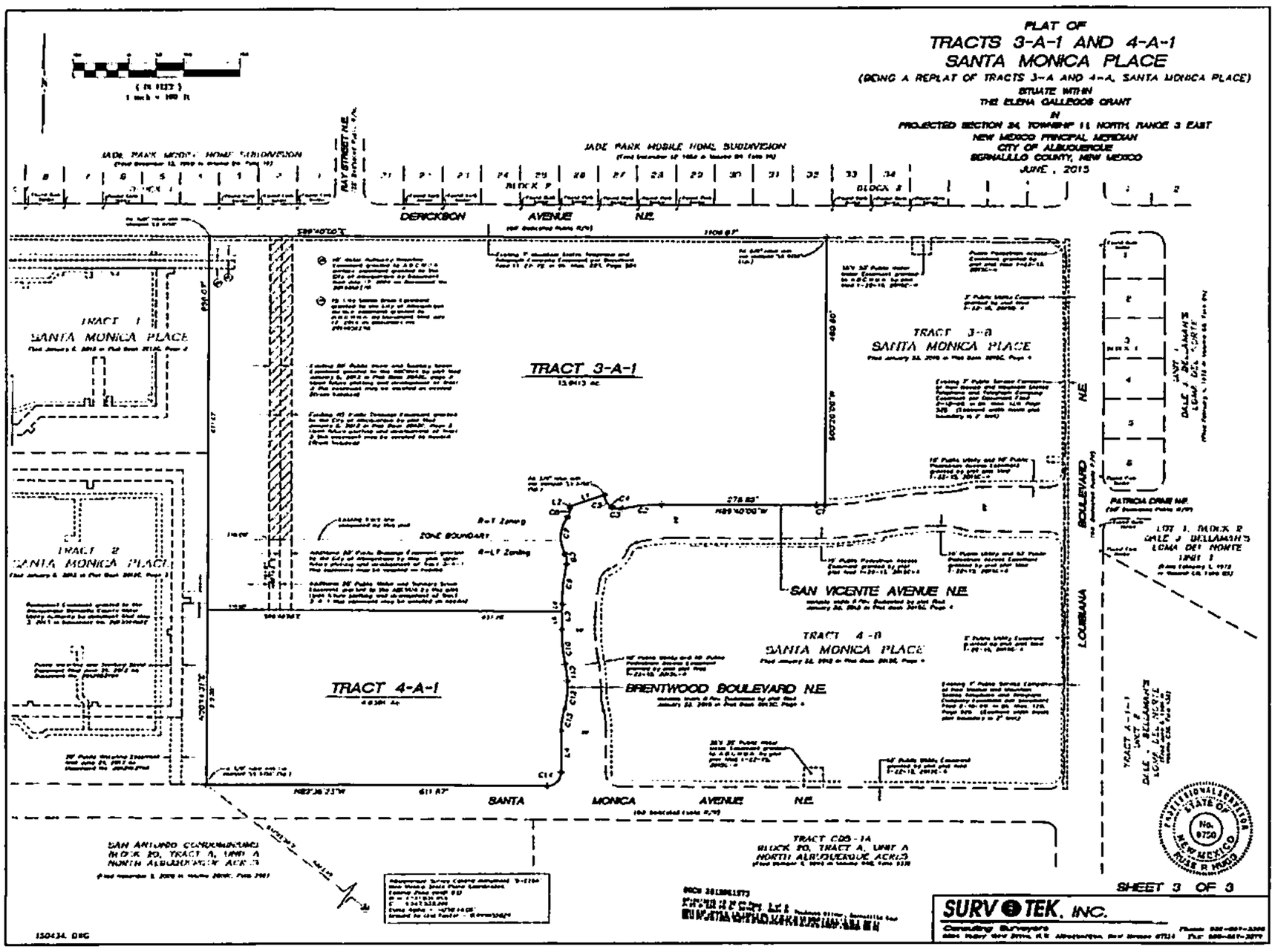
SURVEYOR:
Surv-Tek, Inc.
(505) 897-3366
Attn: Russ P. Hugg, NMPLS No. 9750

LAND OWNER:
Santa Monica Place Development, LLC
c/o Titan Development
6300 Riverside Plaza Lane NW - #200
Albuquerque, NM 87120-2617
Attn: Kurt Browning

II. INTRODUCTION

This drainage report is for Tracts 3-A-1, a proposed 88-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. The site is bound by Derickson Ave. NE to the north, by apartments to the southwest and apartments to the northwest (under construction), by Brentwood Blvd/San Vicente Ave to the south. The site was previously developed as a mobile home park.

A replat of Tracts 3-A and 4-A was filed in July 20, 2015, creating Tracts 3-A-1 and 4-A-1.



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 3-A-1 and storm drain sizes required.

III. EXISTING CONDITIONS

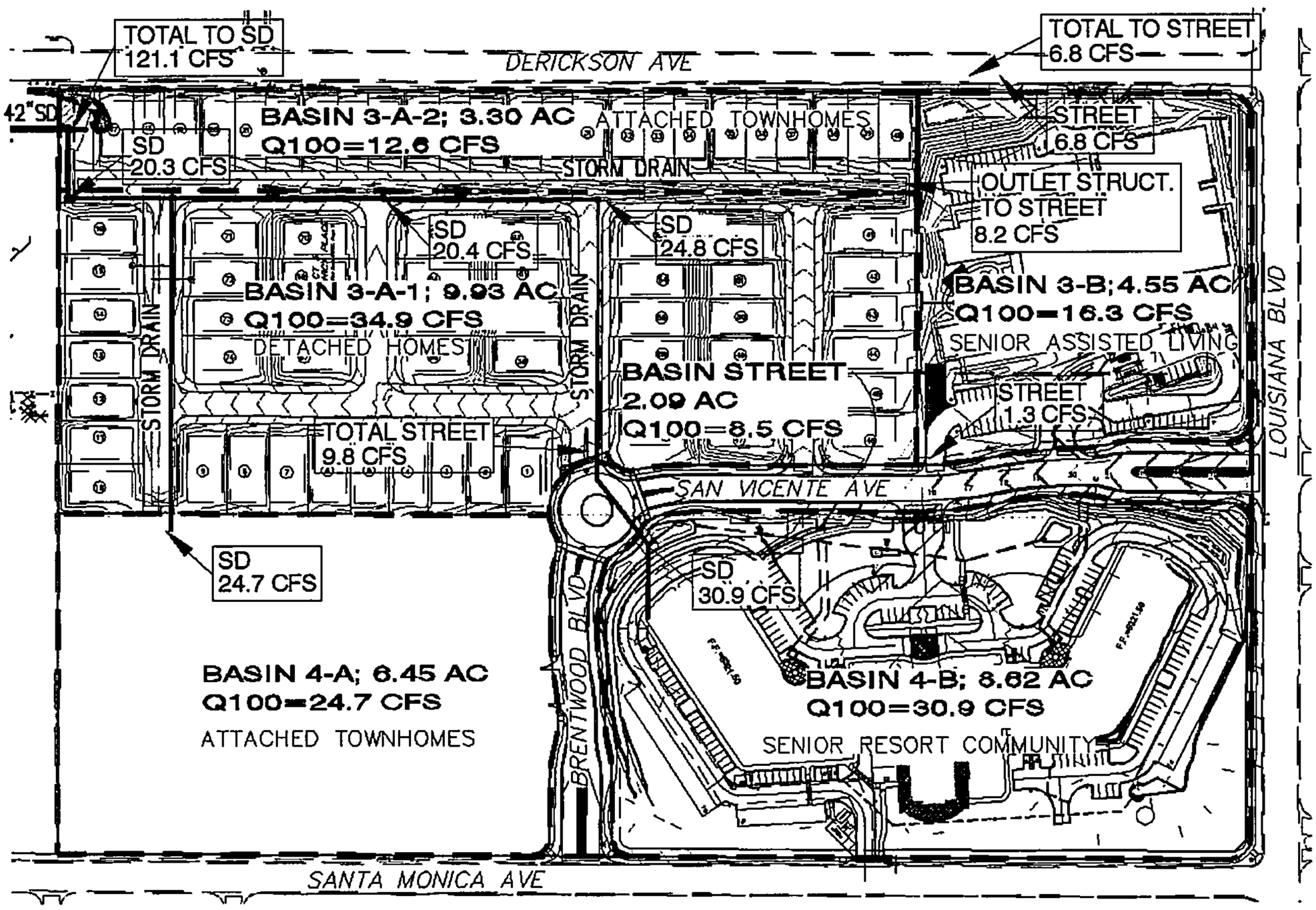
The site drains from the southeast to the northwest corner of Tract 3-A-1. With the development of the apartments on Tract 1 (currently under construction), a 42" storm drain was stubbed to the northwest corner of Tract 3-A-1. The storm drain connects to the Derickson Ave. and San Pedro Blvd. storm drain 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 which currently discharges to temporary ponds on Tract 3-A-1 will discharge into the proposed storm drain system for the proposed Santa Monica Estates subdivision (Tract 3-A-1).

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

IV. BASIN EXHIBIT FROM THE MDR

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



V. PROPOSED CONDITIONS

Santa Monica Estates (Tract 3-A-1) will be developed with a mixture of attached townhomes (24 units) and detached single-family homes (64 units). The adjacent Tract 3-B will be developed as an assisted living facility and Tract 4-B as a senior resort. Site plans and preliminary grading plans have been developed for Tract 3-B and Tract 4-B is currently under construction. Tract 4-A will be developed with attached townhomes—there is currently no site plan for this tract.

The storm drain system for the Santa Monica Estates will be connected to the existing storm drain in Brentwood Blvd. and discharge to the northwest 42" storm drain stub.

The 100-yr, 6-hr flow rates for each tract were calculated using AHYMO based on NOAA Atlas 14 rainfall data and assigned land treatments—see Appendix A.

The MDR shows a total discharge to the storm drain at the northwest corner of 121.1 cfs and 6.8 cfs to Derickson Ave. The allowable discharge to Derickson is 10 cfs.

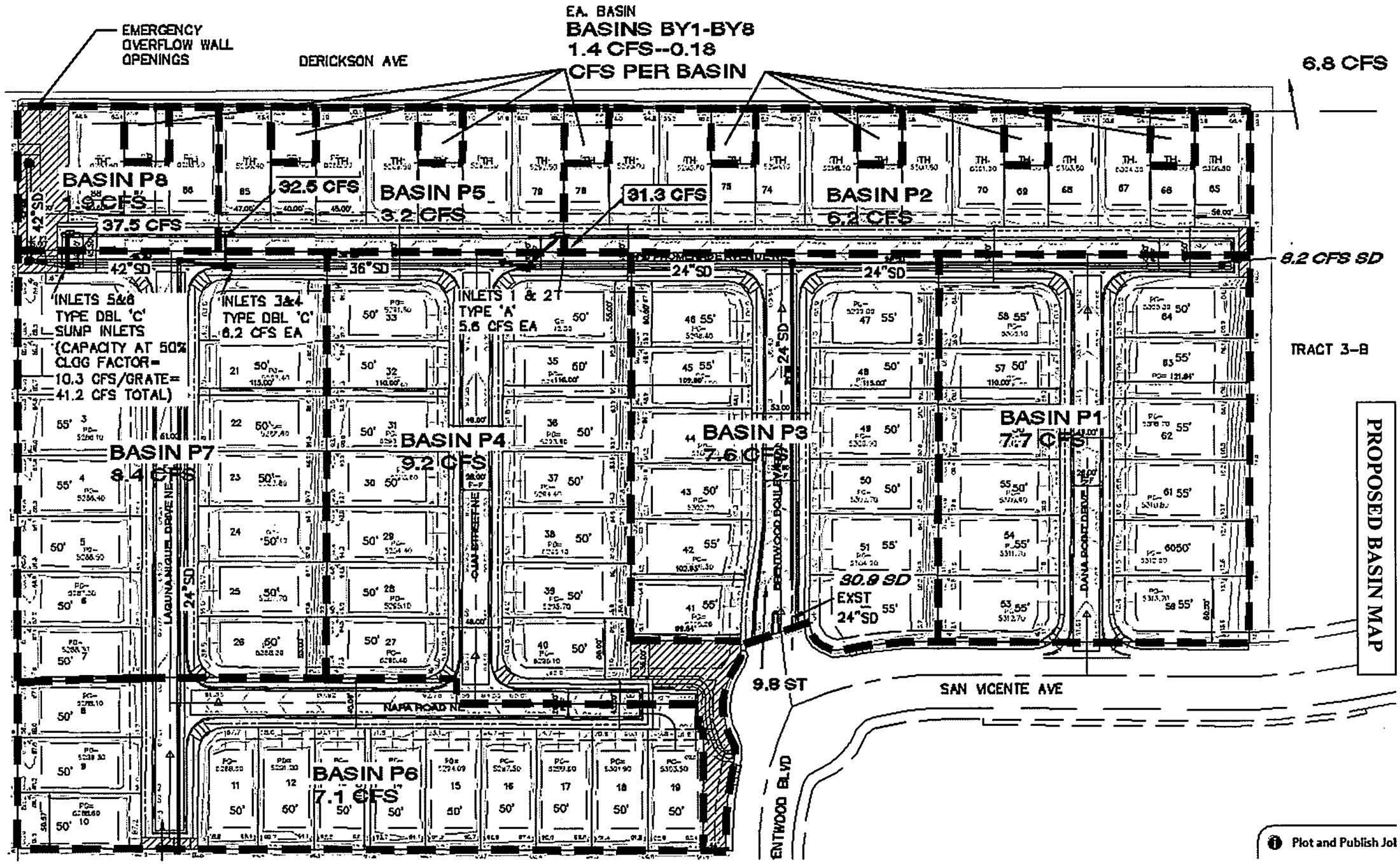
The townhome units are triplexes, and the middle unit shall be allowed to discharge backyard flows to Derickson Ave. This will allow the middle unit to independently discharge flows without relying on the downstream townhome owner to accept flows and maintain a cross-lot drainage easement. The total discharge to Derickson is 1.4 cfs (0.18 cfs from each of the middle townhomes. The total discharge to Derickson is 8.2 cfs (6.8+1.4), which is less than the allowable 10 cfs.

Discharge from the subdivision will be collected in on-grade curb inlets and two double grate sump inlets at the northwest corner in Promenade Avenue. A clogging factor of 50% was applied to the sump inlets as a safety factor. Emergency overflow wall openings at Tract B shall be installed as an additional safety measure. See Appendix C for sump inlet capacity calculations and storm drain calculations. The ongrade inlet capacity was calculated from DPM Plates 22.3 D-5 & D-6 based on street flow depth—see Appendix B for street capacity calculations.

98.9 cfs from the subdivision and from offsite tracts 3-B & 4-B will be discharged to the 42" storm drain at the northwest corner. This leaves 15.7 cfs allowable discharge for Tract 4-A-1.

The area between the sidewalks and the curb shall be depressed 6 inches to allow for some retention of the "first flush" storm (first .34 inches).

See a basin exhibit on the next page.


EMERGENCY OVERFLOW WALL OPENINGS
DERICKSON AVE
EA. BASIN
BASINS BY1-BY8
1.4 CFS--0.18
CFS PER BASIN
6.8 CFS
BASIN P8
9 CFS
32.5 CFS
BASIN P5
3.2 CFS
31.3 CFS
BASIN P2
6.2 CFS
37.5 CFS
42"SD
36"SD
24"SD
8.2 CFS SD
INLETS 5&6
TYPE DBL 'C'
SUMP INLETS
(CAPACITY AT 50%
CLOG FACTOR=
10.3 CFS/GRATE=
41.2 CFS TOTAL)
INLETS 3&4
TYPE DBL 'C'
6.2 CFS EA
INLETS 1 & 2
TYPE 'A'
5.6 CFS EA
TRACT 3-B
BASIN P7
8.4 CFS
BASIN P4
9.2 CFS
BASIN P3
7.6 CFS
BASIN P1
7.7 CFS
30.9 SD
EXST
24"SD
LAGUNA NIGUEL DRIVE NE
QUAIL STREET NE
DEERWOOD BOULEVARD
DANA POINT DRIVE
NAPA ROAD NE
9.8 ST
SAN VICENTE AVE
BASIN P6
7.1 CFS
ENTWOOD BLVD
PROPOSED BASIN MAP
Plot and Publish Jol

VI. SUMMARY

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

- Remove temporary ponds and erosion control.
- Construct streets with curb & gutter.
- Construct storm drain and inlets as shown on grading plan. Connect storm drain to stubs at Brentwood Blvd and the Tract 4-A development.
- Construct wall openings at middle townhome units for discharge to Derickson Ave.
- Construct wall openings at Tract B for emergency overflow to Derickson Ave.

TRACT 4-A

Allowable discharge from Tract 4-A shall be 15.7 cfs.

APPENDIX A

Hydrology Calculations

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

LAND TREATMENT TABLE

BASIN ID	DESCRIPTION	AREA SF	AREA AC	AREA SQ MI	LAND TREATMENTS % A	B	C	D	Q100 CFS
P1	Single Detached	98432	2.2597	0.003531	0	28	28	44	7.7
P2	Attached Townhomes	70648	1.6218	0.002534	0	15	15	70	6.2
P3	Single Detached	96967	2.2261	0.003478	0	28	28	44	7.6
P4	Single Detached	117565	2.6989	0.004217	0	28	28	44	9.2
P5	Attached Townhomes	36587	0.8399	0.001312	0	15	15	70	3.2
P6	Single Detached	90288	2.0727	0.003239	0	28	28	44	7.1
P7	Single Detached	107155	2.4599	0.003844	0	28	28	44	8.4
P8	Attached Townhomes	21564	0.4950	0.000773	0	15	15	70	1.9
BY1-BY8	Attached Townhomes	16000	0.3673	0.000574	0	15	15	70	1.4
			15.0414						**52.7**

Calculations for Single Detached Homes

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

Total Area	15.0415	Acres
# of Lots	64	lots
N =	4.25	D.U./Ac.

Percentage of Impervious Land (Type D)

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

%D= 43.93 %

LAND TREATMENTS		
Type A=	**0**	**%**
Type B=	**28**	**%**
Type C=	**28**	**%**
Type D=	**44**	**%**
Σ=	100	%

Attached Townhomes

70% D per the City of Albuquerque DPM Section 22.2, Table A-5

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 Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

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 (0.653-0.968)
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 (0.351-0.496)	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 (2.46-3.72)	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 (2.56-3.57)	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 (3.46-4.10)	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 (6.61-7.68)
60-day	3.43 (3.17-3.71)	4.24 (3.92-4.58)	5.05 (4.67-5.45)	5.62 (5.20-6.05)	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

```
AHYMO PROGRAM SUMMARY TABLE (AHYMO-S4)                        - Ver. S4.01a, Rel: 01a      RUN DATE (MON/DAY/YR) =08/27/2015
  INPUT FILE = M:\PROJECTS\2100-2199\2109\CALCS\AHYMO\2109DEV.DAT                          USER NO.= AHYMO_Temp_User:20122010

                                FROM  TO                    PEAK        RUNOFF                TIME TO    CFS      PAGE =   1
                   HYDROGRAPH   ID    ID        AREA     DISCHARGE     VOLUME      RUNOFF      PEAK     PER
  COMMAND        IDENTIFICATION  NO.  NO.      (SQ MI)     (CFS)       (AC-FT)    (INCHES)   (HOURS)    ACRE     NOTATION

  *S*********************************************************************
  *S           SANTA MONICA ESTATES
  *S           88-LOT SUBDIVISION
  *S           100-YEAR, 6-HOUR STORM
  *S           2109DEV.DAT
  *S
  *S           BY ASA NILSSON WEBER
  *S           ISAACSON & ARFMAN, P.A.
  *S           AUGUST, 2015
  *S*********************************************************************
  *S
  *S    Rainfall distribution based on NOAA Atlas 14 maps
  *S      Latitude=35.1625   Longitude=-106.5741
  *S
  *S*********************************************************************
  START                                                                                                    TIME=      0.00
  RAINFALL  TYPE= 1 NOAA 14                                                                                RAIN6=    2.410
  *S      BASIN P1 SINGLE DETACHED HOMES
  COMPUTE NM HYD        100.00   -     1       0.00353        7.73       0.276      1.46712     1.533    3.420 PER IMP=  44.00
  *S      BASIN P2 ATTACHED TOWNHOMES
  COMPUTE NM HYD        102.00   -     2       0.00253        6.22       0.241      1.78578     1.533    3.836 PER IMP=  70.00
  *S      BASIN P3 SINGLE DETACHED HOMES
  COMPUTE NM HYD        103.00   -     3       0.00348        7.61       0.272      1.46712     1.533    3.421 PER IMP=  44.00
  *S      BASIN P4 SINGLE DETACHED HOMES
  COMPUTE NM HYD        104.00   -     4       0.00422        9.23       0.330      1.46712     1.533    3.420 PER IMP=  44.00
  *S      BASIN P5 ATTACHED TOWNHOMES
  COMPUTE NM HYD        105.00   -     5       0.00131        3.23       0.125      1.78578     1.533    3.847 PER IMP=  70.00
  *S      BASIN P6 SINGLE DETACHED HOMES
  COMPUTE NM HYD        106.00   -     6       0.00324        7.09       0.253      1.46712     1.533    3.421 PER IMP=  44.00
  *S      BASIN P7 SINGLE DETACHED HOMES
  COMPUTE NM HYD        107.00   -     7       0.00384        8.41       0.301      1.46712     1.533    3.420 PER IMP=  44.00
  *S      BASIN P8 ATTACHED TOWNHOMES
  COMPUTE NM HYD        108.00   -     8       0.00077        1.91       0.074      1.78578     1.533    3.860 PER IMP=  70.00
  *S      BASINS BY1-8 BACKYARDS OF 8 MIDDLE TOWNHOME UNITS
  COMPUTE NM HYD        109.00   -     9       0.00057        1.42       0.055      1.78578     1.533    3.871 PER IMP=  70.00
  FINISH

  FINISH
```

APPENDIX B

Street Capacity

Calculations

STREET FLOW CAPACITY CALCULATIONS

STREET NAME:	**PROMENADE AVE**	1
LOCATION:	**INLETS 1 & 2**	

STREET INFORMATION		HALF STREET CALCULATIONS	
Slope	0.027	Road Width/2	15
Q_{100}	31.3	Curb Height	0.67
Right-of-way Width	51	1/2 Wetted Perimeter (P)	15.360
Road Width	30	1/2 Area(STD)	3.150
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)	15.651

Depth $\boxed{0.360}$

RESULTS

HGL

Q_{100} FLOW CAPACITY =	**31.30**	**cfs**		OK		
at an HGL Depth=	**0.36**	**ft**	<	**OK**	Curb height =	0.67

EGL

Velocity	4.97	fps				
$V^2/2g$	0.38	ft				
EGL Depth =	**0.74**	**ft**	<	**OK**	Right-of-way height =	0.87

~~~~~~

STREET NAME:	**PROMENADE AVE**			2
LOCATION:	**INLETS 3 & 4**			
STREET INFORMATION		**HALF STREET CALCULATIONS**		
Slope	0.027	Road Width/2	15	
Q_{100}	32.5	Curb Height	0.67	
Right-of-way Width	51	1/2 Wetted Perimeter (P)	15.365	
Road Width	30	1/2 Area(STD)	3.225	
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)	16.275	
Depth	0.365			

RESULTS

HGL

Q_{100} FLOW CAPACITY =	**32.55**	**cfs**		**OK**		
at an HGL Depth=	**0.37**	**ft**	<		Curb height =	0.67
				OK		

EGL

Velocity	5.05	fps				
$V^2/2g$	0.40	ft				
EGL Depth =	**0.76**	**ft**	<		Right-of-way height =	0.87
				OK		
~~~~~~

~~~~~~

STREET NAME:	PROMENADE AVE	3
LOCATION:	**INLETS 5 & 6**	

STREET INFORMATION		HALF STREET CALCULATIONS	
Slope	0.027	Road Width/2	15
Q_{100}	37.5	Curb Height	0.67
Right-of-way Width	51	1/2 Wetted Perimeter (P)	15.385
Road Width	30	1/2 Area(STD)	3.525
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)	18.865
Depth	0.385		

RESULTS

HGL

Q_{100} FLOW CAPACITY =	**37.73**	**cfs**		OK		
at an HGL Depth=	**0.39**	**ft**	<	**OK**	Curb height =·	0.67

EGL

Velocity	5.35	fps				
$V^2/2g$	0.44	ft				
EGL Depth =	**0.83**	**ft**	<	**OK**	Right-of-way height =	0.87

~~~~~~

APPENDIX C

Sump Inlet Capacity Calculations

Storm Drain Calculations

ANALYZE SUMP INLETS

GRATE OPEN AREA:
(per COA std dwg #2220, single grate)

GROSS AREA FOR ONE GRATE =	(25 in/12)(40 in/12) =	6.94	SF
LESS BEARING BARS =	(0.5 in/12)(3.33 ft)(13) =	1.80	SF
LESS CROSS BARS =	(0.5 in/12)(7)[(25 in/12)-(13)(0.5 in/12)] =	0.45	SF
	NET GRATE OPEN AREA =	**4.69**	**SF**
	GRATE OPEN AREA (assuming 50% clogging factor) =	***2.35***	***SF***

ORIFICE EQUATION:

$$Q = CA(2gh)^{1/2}$$

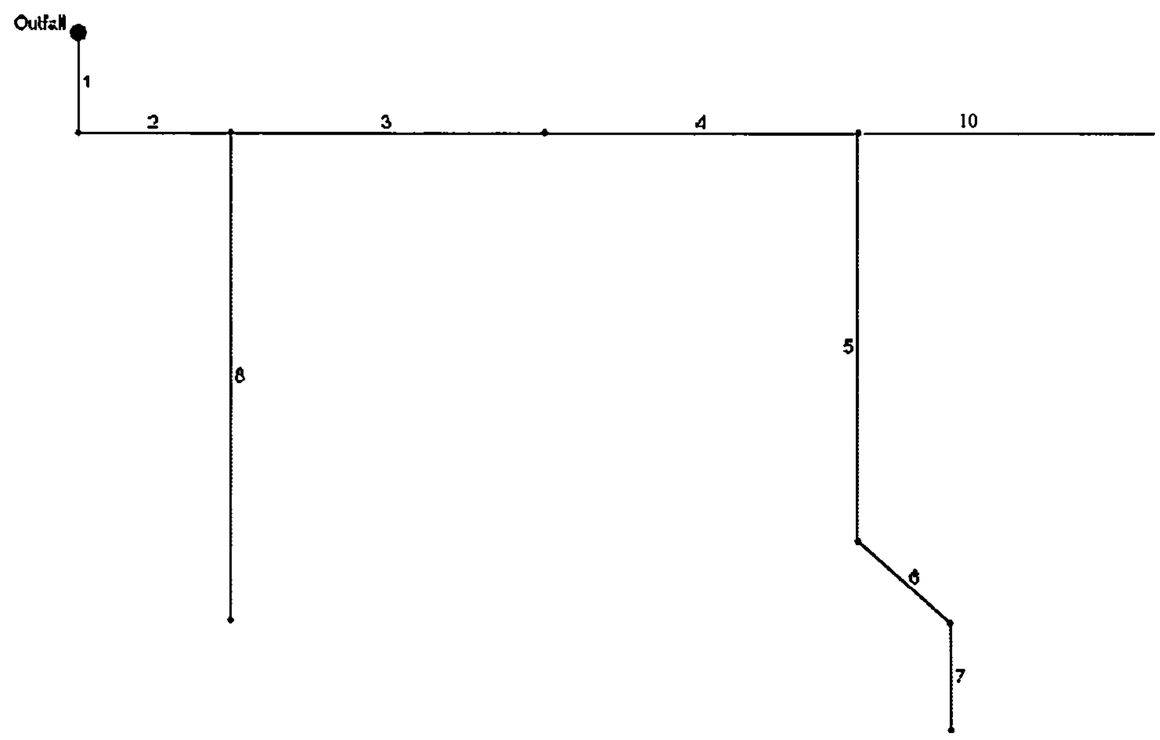
Where:

C =	0.67	
A =	2.35	ft^2
g =	32.2	ft/sec^2
h =	height of the water surface above the grate	

CAPACITY CALCULATIONS:

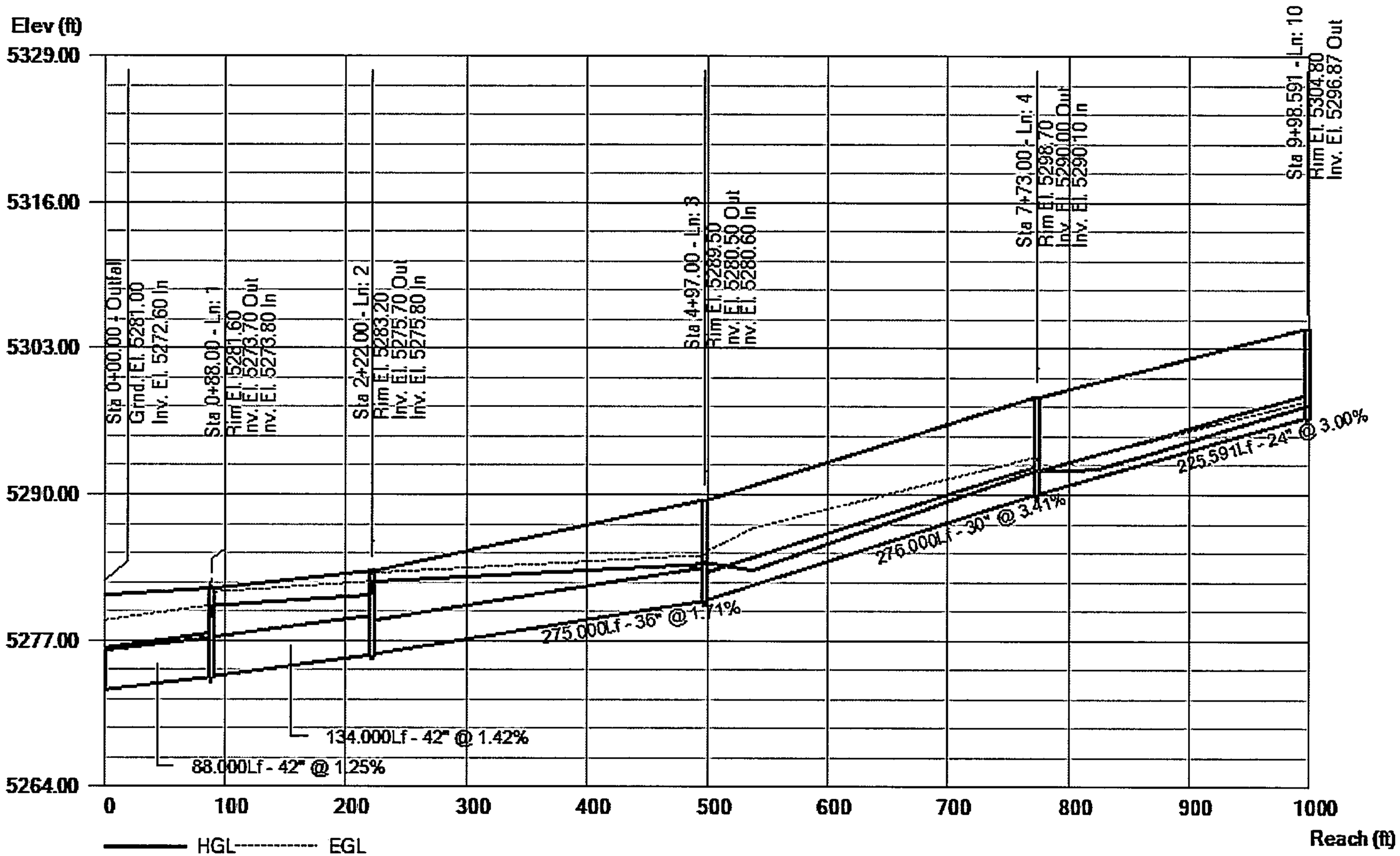
INLET #	5&6				
LOCATION:	PROMENADE AVE WEST END				
h =	0.67	ft			
$Q_{(capacity)}$ =	10.32273	cfs	REQUIRED Q =	37.5	cfs
NUMBER OF GRATES REQUIRED =			4		

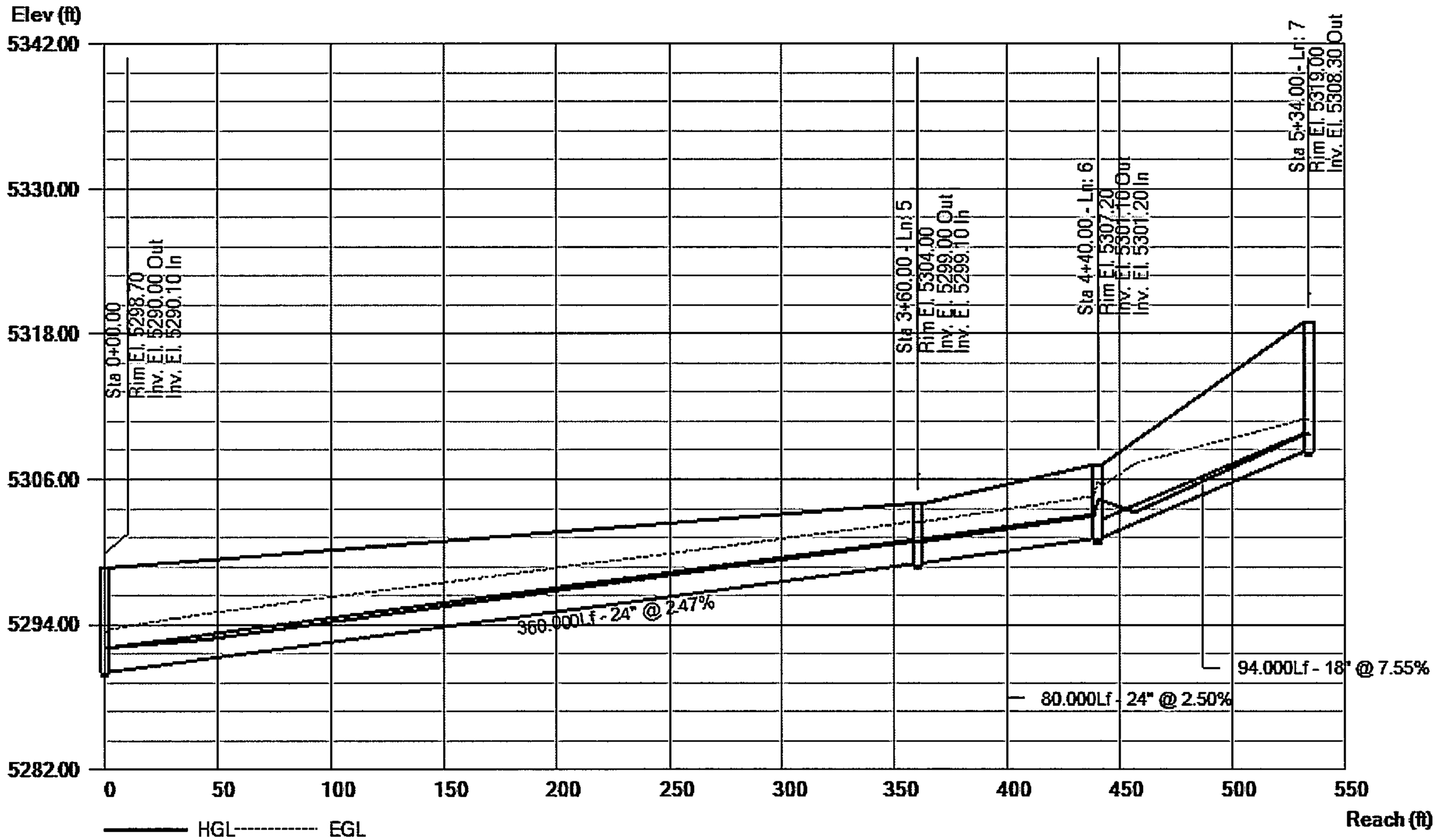
Hydraflow Storm Sewers Extension for Autodesk® AutoCAD® Civil 3D® Plan

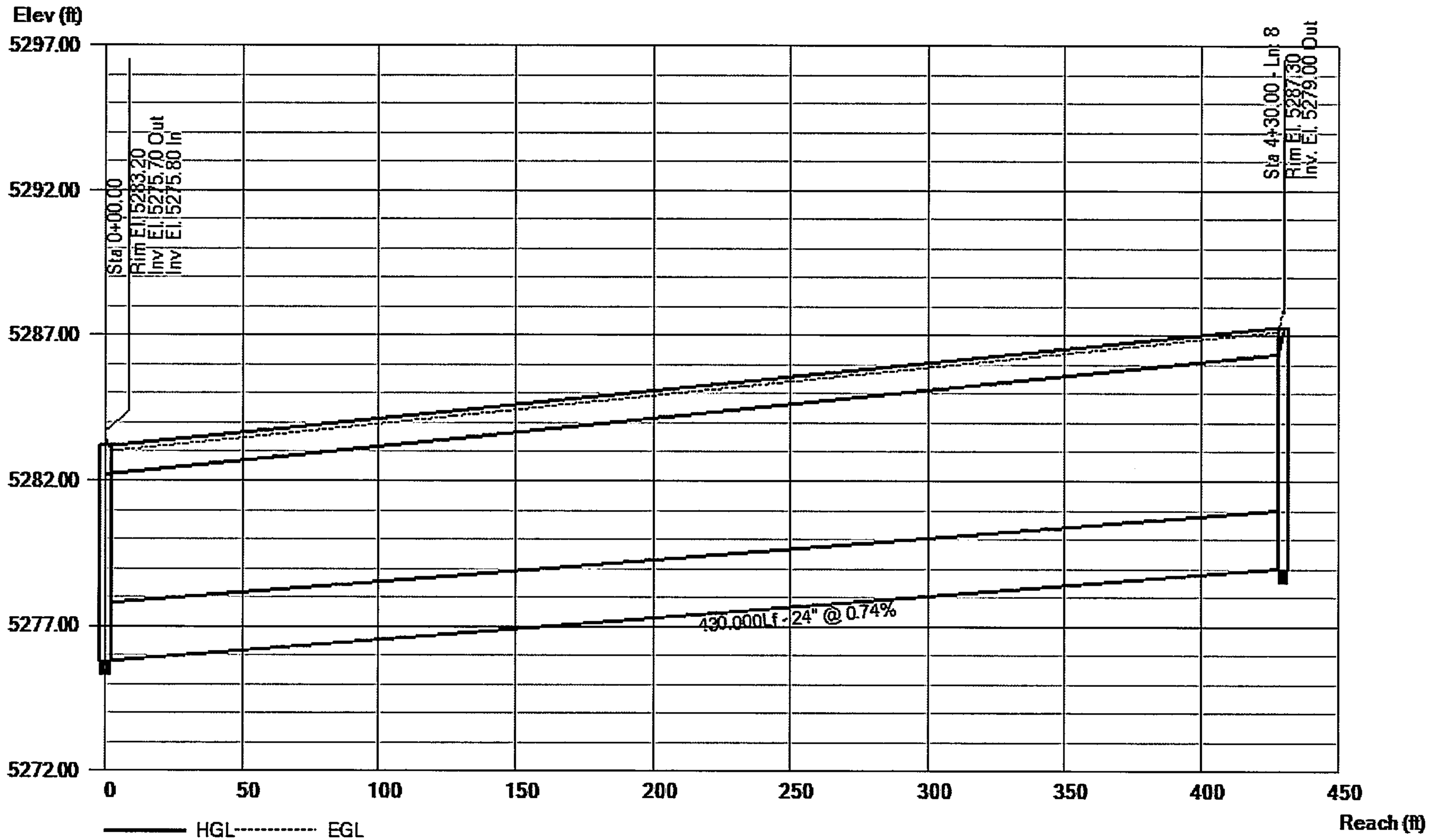


Project File: 2048 MSTR SD.stm	Number of lines: 8	Date: 10/7/2014

Storm Sewers v10.30


Elev (ft)
5329.00
5316.00
5303.00
5290.00
5277.00
5264.00
Sta 0+00.00 - Outfall
Grnd./El. 5281.00
Inv. El. 5272.60 In
Sta 0+88.00 - Ln: 1
Rim El. 5281.60
Inv. El. 5273.70 Out
Inv. El. 5273.80 In
Sta 2+22.00 - Ln: 2
Rim El. 5283.20
Inv. El. 5275.70 Out
Inv. El. 5275.80 In
Sta 4+97.00 - Ln: 3
Rim El. 5289.50
Inv. El. 5280.50 Out
Inv. El. 5280.60 In
Sta 7+73.00 - Ln: 4
Rim El. 5298.70
Inv. El. 5290.00 Out
Inv. El. 5290.10 In
Sta 9+98.591 - Ln: 10
Rim El. 5304.80
Inv. El. 5296.87 Out
225.591Lf - 24" @ 3.00%
276.000Lf - 30" @ 3.41%
275.000Lf - 36" @ 1.71%
134.000Lf - 42" @ 1.42%
88.000Lf - 42" @ 1.25%
0
100
200
300
400
500
600
700
800
900
1000
Reach (ft)
HGL
EGL


Elev (ft)
5342.00
5330.00
5318.00
5306.00
5294.00
5282.00
0
50
100
150
200
250
300
350
400
450
500
550
Reach (ft)
Sta 0+00.00
Rim El. 5298.70
Inv. El. 5290.00 Out
Inv. El. 5290.10 In
Sta 3+60.00 - Ln: 5
Rim El. 5304.00
Inv. El. 5299.00 Out
Inv. El. 5299.10 In
Sta 4+40.00 - Ln: 6
Rim El. 5307.20
Inv. El. 5301.10 Out
Inv. El. 5301.20 In
Sta 5+34.00 - Ln: 7
Rim El. 5319.00
Inv. El. 5308.30 Out
360.000Lf - 24" @ 2.47%
80.000Lf - 24" @ 2.50%
94.000Lf - 18" @ 7.55%
HGL
EGL


Elev (ft)
5297.00
5292.00
5287.00
5282.00
5277.00
5272.00
Sta 0+00.00
Rim El. 5283.20
Inv. El. 5275.70 Out
Inv. El. 5275.80 In
Sta 4+30.00 - Ln: 8
Rim El. 5287.30
Inv. El. 5279.00 Out
430.000Lf - 24" @ 0.74%
0
50
100
150
200
250
300
350
400
450
Reach (ft)
HGL
EGL

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data							
	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	88.000	90.000	MH	36.20	0.00	0.00	0.0	5272.60	1.25	5273.70	42	Cir	0.013	1.00	5281.60
2	1	134.000	-90.000	MH	12.40	0.00	0.00	0.0	5273.80	1.42	5275.70	42	Cir	0.013	1.00	5283.20
3	2	275.000	0.000	MH	11.20	0.00	0.00	0.0	5275.80	1.71	5280.50	36	Cir	0.013	0.15	5289.50
4	3	276.000	0.000	MH	0.00	0.00	0.00	0.0	5280.60	3.41	5290.00	30	Cir	0.013	1.00	5298.70
5	4	360.000	90.004	MH	0.00	0.00	0.00	0.0	5290.10	2.47	5299.00	24	Cir	0.013	0.78	5304.00
6	5	80.000	-47.891	MH	15.50	0.00	0.00	0.0	5299.10	2.50	5301.10	24	Cir	0.013	0.78	5307.20
7	6	94.000	47.316	MH	15.40	0.00	0.00	0.0	5301.20	7.55	5308.30	18	Cir	0.013	0.65	5319.00
8	2	430.000	90.000	MH	22.20	0.00	0.00	0.0	5275.80	0.74	5279.00	24	Cir	0.013	1.00	5287.30
9	7	35.000	-37.000	Genr	0.10	0.00	0.00	0.0	5308.30	1.43	5308.80	18	Cir	0.013	1.00	5313.50
10	4	225.591	-0.047	MH	8.20	0.00	0.00	0.0	5290.10	3.00	5296.87	24	Cir	0.013	1.00	5304.80

Storm Sewer Summary Report

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		121.2	42	Cir	88.000	5272.60	5273.70	1.250	5276.31*	5277.59*	2.47	5280.06	End	Manhole
2		85.00	42	Cir	134.000	5273.80	5275.70	1.418	5280.06*	5281.01*	1.21	5282.23	1	Manhole
3		50.40	36	Cir	275.000	5275.80	5280.50	1.709	5282.23*	5283.80*	0.12	5283.92	2	Manhole
4		39.20	30	Cir	276.000	5280.60	5290.00	3.406	5283.92	5292.11	n/a	5292.11 j	3	Manhole
5		31.00	24	Cir	360.000	5290.10	5299.00	2.472	5292.11	5300.88	n/a	5300.88 j	4	Manhole
6		31.00	24	Cir	80.000	5299.10	5301.10	2.500	5300.88	5302.98	n/a	5304.22	5	Manhole
7		15.50	18	Cir	94.000	5301.20	5308.30	7.553	5304.22	5309.72	n/a	5309.72 j	6	Manhole
8		22.20	24	Cir	430.000	5275.80	5279.00	0.744	5282.23*	5286.37*	0.78	5287.15	2	Manhole
9		0.10	18	Cir	35.000	5308.30	5308.80	1.429	5309.72	5308.92	n/a	5308.92	7	Generic
10		8.20	24	Cir	225.591	5290.10	5296.87	3.001	5292.11	5297.89	n/a	5297.89 j	4	Manhole

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	88.000	0.00	0.00	0.00	0.00	0.00	0.0	12.7	0.0	121.2	112.5	12.60	42	1.25	5272.60	5273.70	5276.31	5277.59	5281.00	5281.60	
2	1	134.000	0.00	0.00	0.00	0.00	0.00	0.0	12.4	0.0	85.00	119.8	8.84	42	1.42	5273.80	5275.70	5280.06	5281.01	5281.60	5283.20	
3	2	275.000	0.00	0.00	0.00	0.00	0.00	0.0	11.8	0.0	50.40	87.19	7.13	36	1.71	5275.80	5280.50	5282.23	5283.80	5283.20	5289.50	
4	3	276.000	0.00	0.00	0.00	0.00	0.00	0.0	11.2	0.0	39.20	75.69	8.43	30	3.41	5280.60	5290.00	5283.92	5292.11	5289.50	5298.70	
5	4	360.000	0.00	0.00	0.00	0.00	0.00	0.0	10.6	0.0	31.00	35.56	10.00	24	2.47	5290.10	5299.00	5292.11	5300.88	5298.70	5304.00	
6	5	80.000	0.00	0.00	0.00	0.00	0.00	0.0	10.5	0.0	31.00	35.76	10.32	24	2.50	5299.10	5301.10	5300.88	5302.98	5304.00	5307.20	
7	6	94.000	0.00	0.00	0.00	0.00	0.00	0.0	10.3	0.0	15.50	28.86	8.87	18	7.55	5301.20	5308.30	5304.22	5309.72	5307.20	5319.00	
8	2	430.000	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	22.20	19.51	7.07	24	0.74	5275.80	5279.00	5282.23	5286.37	5283.20	5287.30	
9	7	35.000	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.10	12.55	0.83	18	1.43	5308.30	5308.80	5309.72	5308.92	5319.00	5313.50	
10	4	225.591	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	8.20	39.18	3.85	24	3.00	5290.10	5296.87	5292.11	5297.89	5298.70	5304.80	

Project File: 2109 SD.stm | Number of lines: 10 | Run Date: 8/28/2015

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