CITY OF ALBUQUERQUE

December 4, 2017



Diane Hoelzer, PE Mark Goodwin & Associates, PA. PO Box 90606 Albuquerque, NM 87110

Re: Fruita Del Sol

Release of Financial Guarantee

Engineer's Stamp dated: 6-14-16 (E19D021A)

Certification dated: 7-27-16

Dear Ms. Hoelzer,

Based on the Certification received 8/1/2016, and Site Visits, the above referenced certification is accepted for Release of Financial Guarantee.

PO Box 1293

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

Sincerely,

Albuquerque

Abiel Carrillo, P.E.,

New Mexico 87103 Principal Engineer, Planning Department

Development and Review Services

www.cabq.gov

Cc: DRC

See Pad Cart File

CITY OF ALBUQUERQUE



September 27, 2016

Diane Hoelzer, PE Mark Goodwin & Associates, PA. PO Box 90606 Albuquerque, NM 87110

Fruita Del Sol-All Lots Re:

> Request for Engineer Pad Certification - Accepted Engineer's Stamp dated: 6-14-16 (E19D021A)

Certification dated: 7-27-16

Dear Ms. Hoelzer,

Based on the Certification received 8/1/2016, the above referenced certification is acceptable for permanent release of Certificate of Occupancy by Hydrology.

PO Box 1293

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

Albuquerque

Abiel Carrillo, P.E.,

Sincerely,

New Mexico 87103 Principal Engineer, Planning Department

Development and Review Services

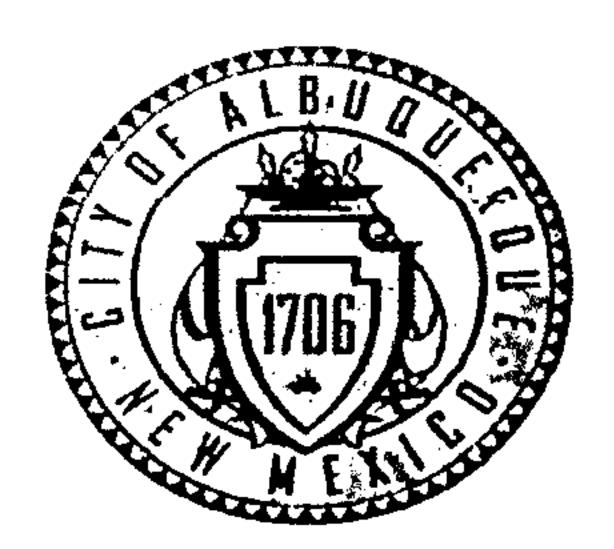
www.cabq.gov

TE/AC

C: email

Cordova, Camille C.; Miranda, Rachel; Sandoval, Darlene M.; Blocker,

Lois



City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

DRB#: 1006844	EPC#:		Work Order#: 785371
Legal Description: Tract A-1-A	<u></u>		
City Address: 6901 Wyoming Blvd., Albuquero	que, NM 87109		
Engineering Firm: Mark Goodwin & Associa	ates, PA		Contact: Diane Hoelzer
Address: PO BOX 90606, Albuquerque, NM 8	7199		
Phone#: 828-2200	Fax#:		E-mail: diane@goodwinengineers.com
Owner: Dragonfly Development, LLC			Contact: Philip Lindborg
Address: 12809 Donette Ct. NE, Albuquerque	, NM 87112		
Phone#: 505-450-4388	Fax#:		E-mail: phillindborg@comcast.net
Architect:			Contact:
Address:			
Phone#:	Fax#:		E-mail:
Other Contact:			Contact:
Address:			
Phone#:	Fax#:		E-mail:
TRAFFIC/ TRANSPORTATION			ERMIT APPROVAL
MS4/ EROSION & SEDIMENT CON	TROL	CERTIFICATI	E OF OCCUPANCY
		CERTIFICATI	E OF OCCUPANCY Y PLAT APPROVAL
TYPE OF SUBMITTAL: X ENGINEER/ ARCHITECT CERTIFICA CONCEPTUAL G & D PLAN GRADING PLAN DRAINAGE MASTER PLAN DRAINAGE REPORT CLOMP/LOMP	ATION EGGEVE 2016	PRELIMINAR SITE PLAN F SITE PLAN F SIA/ RELEAS FOUNDATION GRADING PE	E OF OCCUPANCY Y PLAT APPROVAL OR SUB'D APPROVAL OR BLDG. PERMIT APPROVAL APPROVAL E OF FINANCIAL GUARANTEE PERMIT APPROVAL ERMIT APPROVAL
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TYPE OF SUBMITTAL: X ENGINEER/ ARCHITECT CERTIFICA CONCEPTUAL G & D PLAN GRADING PLAN DRAINAGE MASTER PLAN DRAINAGE REPORT CLOMR/LOMR TRAFFIC CIRCULATION LAYOUF TRAFFIC IMPACT STUDY (TIS)	ATION GGGGVG AND PEVELOPMENT SECTOR PLAN (ESC.) ATION PLAN (ESC.)	PRELIMINAR SITE PLAN F SITE PLAN F FINAL PLAT SIA/ RELEAS FOUNDATION GRADING PE SO-19 APPRO PAVING PER WORK ORDER CLOMR/LOM PRE-DESIGN N	E OF OCCUPANCY LY PLAT APPROVAL OR SUB'D APPROVAL OR BLDG. PERMIT APPROVAL APPROVAL E OF FINANCIAL GUARANTEE PERMIT APPROVAL ERMIT APPROVAL OVAL MIT APPROVAL AD CERTIFICATION R APPROVAL R

Elliott, Stanice

From: Elliott, Stanice

Sent: Tuesday, September 13, 2016 2:11 PM

To: 'Diane Hoelzer' Cc: Carrillo, Abiel X.

Subject: Fruita Del Sol Pad Cert

Diane

This email is being sent in lieu of a formal comment letter on letterhead in order to expedite the review process. Similar to formal letters, responses to comments should continue to be included in the re-submittal. A reply to this email with responses to comments will not be considered a re-submittal.

Based upon the information provided in your submittal received 8-1-2016, the above referenced plan cannot be approved for Pad Certification until the following comments are addressed:

- There are duplicate lot numbers on the plan. Every lot needs to have a unique identifying number.
- ESC plan needs to maintained. The wall builder appears to be placing dirt piles on the road. This needs to be corrected immediately. Waddle pyramid at AMAFCA outlet is missing and waddle on Papaya is not in good condition.
- Lot 9-P1 has sewer manhole in the way of the driveway. How will this be resolved?
- How will the separation between the retaining wall and the back of the curb be protected on the north end of Papaya St.

Stanice 'Totten' Elliott Planning Department Hydrology Section City of Albuquerque 505-924-3982 505-924-3864 fax

CITY OF ALBUQUERQUE



July 29, 2016

Richard J. Berry, Mayor

D. Mark Goodwin, P.E. Mark Goodwin & Associates, P.A. P.O. Box 90606 Albuquerque, NM, 87199

RE: Fruita del Sol

(aka) Holy Cross Townhomes Grading and Drainage Plan

Stamp 6-14-2016 (File: E19D021A)

Dear Mr. Goodwin:

Based upon the information provided in your submittal received 11-20-2015, and a revision to the plan with Stamp Date 6-14-2016, the above referenced Grading and Plan is re-approved for Grading Permit. The changes are minor so they do not affect the previous Preliminary Plat approval.

PO Box 1293

Since the original approval, the City implemented the Erosion and Sediment Control Plan and ESC Grading Permit procedures. Please coordinate with Curtis Cherne, Stormwater Quality Engineer for direction on how to complete these items prior to Construction.

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

Albuquerque

Sincerely,

New Mexico 87103

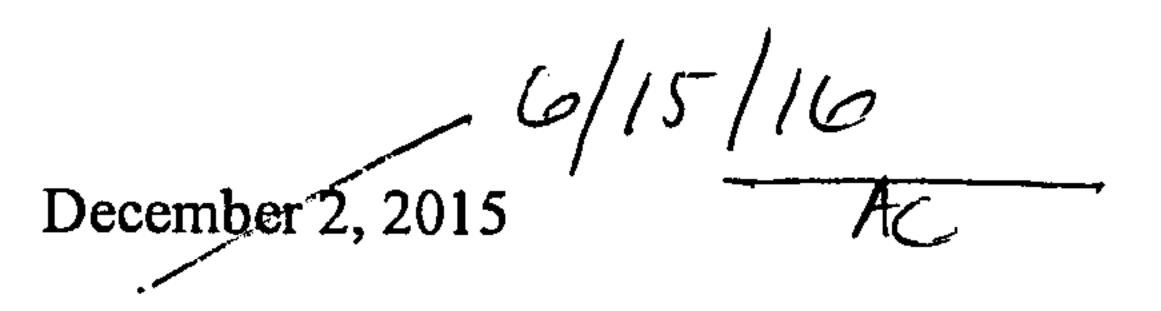
www.cabq.gov

Abiel Carrillo, P.E.

Principal Engineer, Planning Dept. Development Review Services

Orig: Drainage file

CITY OF ALBUQUERQUE





Richard J. Berry, Mayor

D. Mark Goodwin, P.E. Mark Goodwin & Associates, P.A. P.O. Box 90606 Albuquerque, NM, 87199

RE: Holy Cross Townhomes

Grading and Drainage Plan

Stamp 11-20-2015 (File: E19D021A)

Revised Grading and Drainage Plan dated 6/14/2016 replaced in

the Set. Minor changes to be captured in as-builts.

Dear Mr. Goodwin:

Based upon the information provided in your submittal received 11/20/2015, the above referenced Plan is approved for Preliminary Plat and Grading Permit.

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

PO Box 1293

Albuquerque

Abiel Carrillo, P.E.

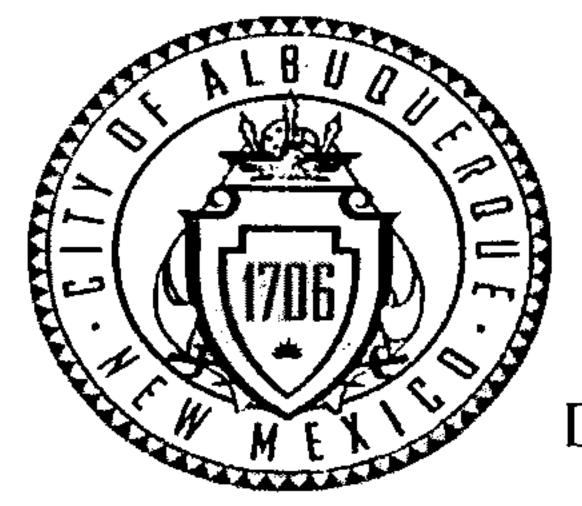
Sincerely,

Principal Engineer, Planning Dept. Development Review Services

New Mexico 87103

www.cabq.gov

Orig: Drainage file



City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: Fruita Del Sol Tou	Sahomes Building Permit #: City Drainage #: E1900214
DRB#: 100684 EPC#:	Work Order#:
Legal Description:	
City Address:	
Engineering Firm: Mark Goodwin & Address: 8916 Adams St	Associates PA Contact: Hiram L. Crock
Phone#: 505 - 828 - 2200 Fax#: 50	5-797-9539 E-mail: Hiram@goodwineugineer:
Owner:	Contact:
Address:	
Phone#: Fax#:	E-mail:
Architect:	Contact:
Address:	
Phone#: Fax#:	E-mail:
Surveyor:	Contact:
Address:	
Phone#: Fax#:	E-mail:
Contractor:	Contact:
Address:	
Phone#: Fax#:	E-mail:
TYPE OF SUBMITTAL:	CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:
DRAINAGE REPORT	SIA/FINANCIAL GUARANTEE RELEASE
DRAINAGE PLAN 1st SUBMITTAL	PRELIMINARY PLAT APPROVAL
DRAINAGE PLAN RESUBMITTAL CONCERTINAL CON DRIVEN	S. DEV. PLAN FOR SUB'D APPROVAL
CONCEPTUAL G & D PLAN GRADING PLAN	S. DEV. FOR BLDG. PERMIT APPROVAL
EROSION & SEDIMENT CONTROL PLAN (ESC)	SECTOR PLAN APPROVAL
ENGINEER'S CERT (HYDROLOGY)	FINAL PLAT APPROVAL CERTIFICATE OF OCCUPANION (DEDNA)
CLOMR/LOMR	CERTIFICATE OF OCCUPANCY (PERM) CERTIFICATE OF OCCUPANCY (TCL TEMP)
TRAFFIC CIRCULATION LAYOUT (TCL)	FOUNDATION PERMIT APPROVAL
ENGINEER'S CERT (TCL)	BUILDING PERMIT APPROVAL
ENGINEER'S CERT (DRB SITE PLAN)	GRADING PERMIT APPROVAL SO-19 APPROVAL
ENGINEER'S CERT (ESC)	PAVING PERMIT APPROVAL ESC PERMIT APPROVAL
SO-19	WORK ORDER APPROVAL ESC CERT. ACCEPTANCE
OTHER (SPECIFY)	GRADING CERTIFICATION X OTHER (SPECIFY)
WAS A PRE-DESIGN CONFERENCE ATTENDED:	Decidosova
	res to copy Provided
DATE SUBMITTED: 6/14/20/6	By:

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location, and 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 following

- 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

Hydraflow Express Extension for AutoCAD® Civil 3D® 2013 by Autodesk, Inc.

Thursday, Mar 3 2016

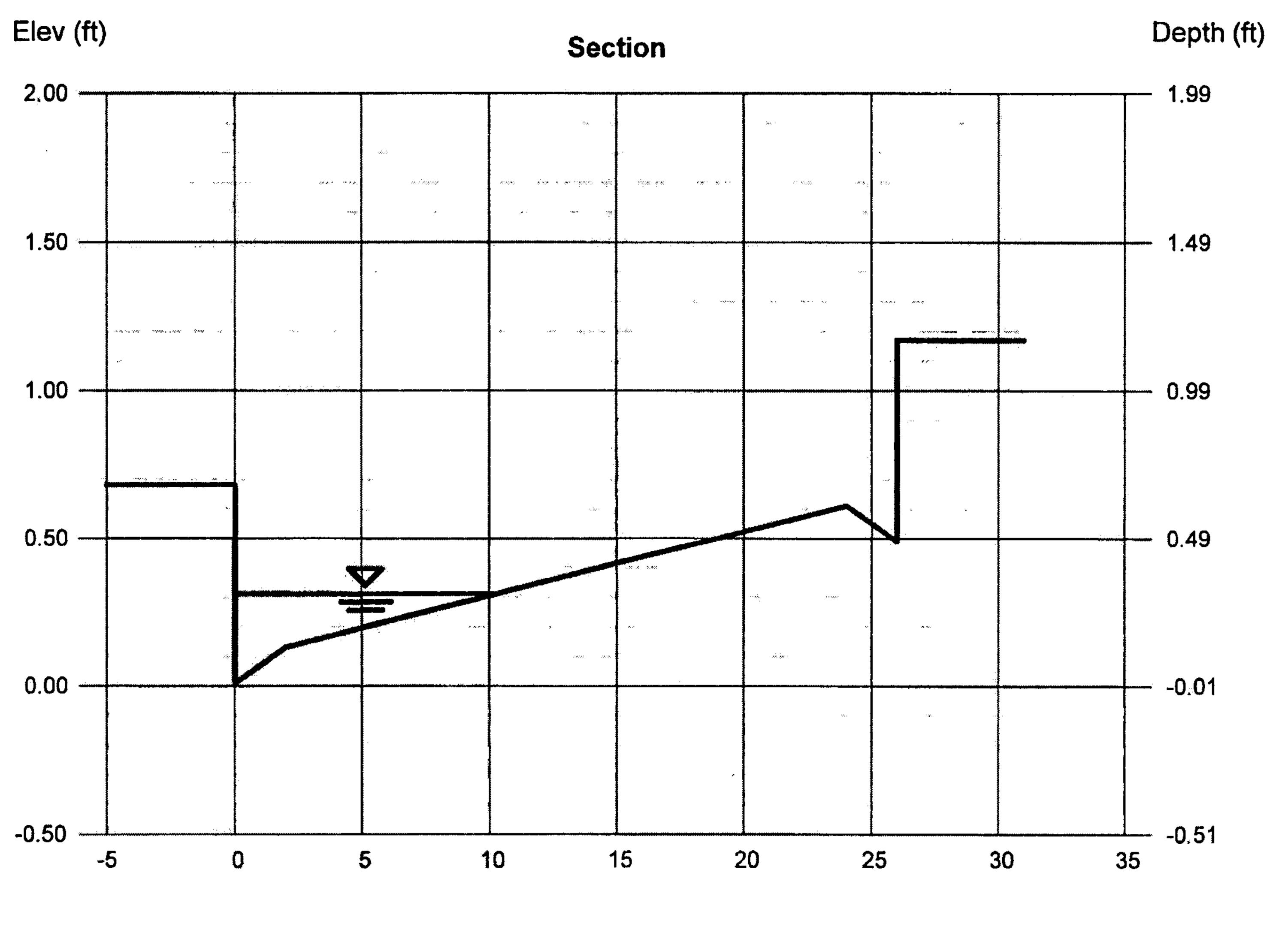
DB-3 Tangerine Ct. Q100 Street Capacity (26' F-F) AP3

	Highlighted	- 0 20 1/ N/
= 0.01	Depth (ft)	= 0.30 1 0
= 2.00	Q (cfs)	= 3.640
= 0.016	Area (sqft)	= 1.22
	Velocity (ft/s)	= 2.98
	Wetted Perim (ft)	= 10.56
Known Q	Crit Depth, Yc (ft)	= 0.35
= 3.64	Top Width (ft)	= 10.25
	EGL (ft)	= 0.44
	= 2.00 = 0.016 Known Q	= 0.01 Depth (ft) = 2.00 Q (cfs) = 0.016 Area (sqft) Velocity (ft/s) Wetted Perim (ft) Known Q Crit Depth, Yc (ft) = 3.64 Top Width (ft)

(Sta, El, n)-(Sta, El, n)...

(0.00, 0.68)-(0.01, 0.01, 0.013)-(2.01, 0.13, 0.013)-(13.01, 0.37, 0.017)-(24.01, 0.61, 0.017)-(26.01, 0.49, 0.013)-(26.02, 1.17, 0.013)

Roll carb # = 0.33'
ok



Sta (ft)

CITY OF ALBUQUERQUE



December 2, 2015

Richard J. Berry, Mayor

D. Mark Goodwin, P.E. Mark Goodwin & Associates, P.A. P.O. Box 90606 Albuquerque, NM, 87199

RE: Holy Cross Townhomes

Grading and Drainage Plan

Stamp 11-20-2015 (File: E19D021A)

Dear Mr. Goodwin:

Based upon the information provided in your submittal received 11/20/2015, the above referenced Plan is approved for Preliminary Plat and Grading Permit.

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

PO Box 1293

Albuquerque

Abiel Carrillo, P.E.

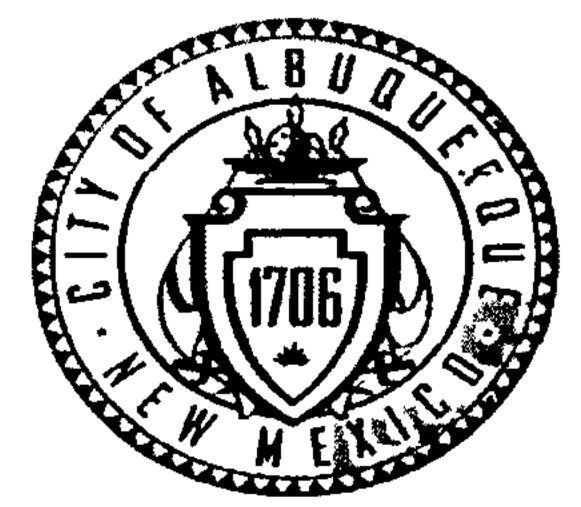
Sincerely,

Principal Engineer, Planning Dept. Development Review Services

New Mexico 87103

www.cabq.gov

Orig: Drainage file



COA STAFF:

ELECTRONIC SUBMITTAL RECEIVED: ____

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: Holy Cross Townhomes	Building Permit #: City Drainage #: F19002
DRB#: 1006844 EPC#:	Work Order#:
Legal Description: Tract A-I-A, Lands of Lu	theran Church in America
City Address:	
Engineering Firm: D, Mark Goodwin & Asso Address: PO BOX 90606, ABQ, NM	
Phone#: 505-878-2700 Fax#: 505-797	
•	
Owner: Holy Cross Lutheran Church Address: 6901 Wyoming Blud NE,	ABQ, NM Contact: Doseph Pappe Dr
Phone#: 505 - 821 - 4676 Fax#: 505 - 821 -	
Architect: N/A	Contact:
Address:	
Phone#: Fax#:	E-mail:
Other Contact:	Contact:
Address:	
Phone#: Fax#:	E-mail:
MYDROLOGY/ DRAINAGE TRAFFIC/ TRANSPORTATION MS4/ EROSION & SEDIMENT CONTROL TYPE OF SUBMITTAL: ENGINEER/ ARCHITECT CERTIFICATION CONCEPTUAL G & D PLAN GRADING PLAN DRAINAGE MASTER PLAN DRAINAGE REPORT CLOMR/LOMR TRAFFIC CIRCULATION LAYOUT (TCL) TRAFFIC IMPACT STUDY (TIS) EROSION & SEDIMENT CONTROL PLAN (ESC) OTHER (SPECIFY) Yes No	CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT: BUILDING PERMIT APPROVALCERTIFICATE OF OCCUPANCY
DATE SUBMITTED: 11/20/2015 By:	H-(//

In accordance with the City of Albuquerque's Stormwater Quality, the use of a first flush design was taken into consideration. Storm water will be captured through a tiered depressed landscape design throughout the lots of the subdivision. The depressed landscaping is located between the sidewalk and back of curb, and behind the sidewalk in the 10' easement along Papaya St. and Tangerine Ct. This design will accommodate a total of 717 cubic feet of storage.

Table 1- Summary of Hydrology

		· · · · · · · · · · · · · · · · · · ·	TA	BLE 1			<u> </u>	
			Holy Cros	s Subdivision)		·	
		Su	mmary of Hydrolog	gy Parameter	s (AHYMO)			
Sub	Area	Area	Area		Land Tro	eatment	•	Discharge
Basin					Val	ues		value
ID	sq.ft	acre	sq.mi.	A	В	С	D	cfs
DEV	ELOPED							100-R 24-HR
DB-1	12,197.5	0.28	0.000438	0.0	20.0	10.0	70.0	1.08
DB-2	27,418.4	0.63	0.000983	0.0	20.0	10.0	70.0	2.40
DB-3	40,814.3	0.94	0.001464	0.0	20.0	10.0	70.0	3.64
DB-4	13,430.7	0.31	0.000482	0.0	20.0	10.0	70.0	1.16
BAN (Million de de de Million de displica - la fireguessa en emenen y esta - de e								
TOTAL	93,860.8	2.15	0.003367	0.0	20.0	10.0	70.0	8.28
EX	ISTING						100 yr-24 hr	
100	93,715.0	2.15	0.003367	100.00				3.85
			<u></u>					

The hydraulic calculation procedures utilize the DPM Section 22 to establish the drainage design criteria for this project. It requires that the 100-YR water spread be contained within the road right-of-way and that the 10-YR design discharge may not exceed 0.5' in any collector or arterial street and will allow for one lane to remain open in both directions on arterial streets.

The Papaya St. drainage outfall will consist of a 10' wide concrete channel which conveys the on-site runoff in a controlled discharge to the Piño Arroyo Channel. This rundown constructed with a .7% slope will convey the design flow of 7.20 cfs at a depth of .36 feet with a velocity of 2.54 fps.

Autodesk Civil 3D hydraulic analysis software which uses the Manning's Equation to calculate street flow depths and velocities and the fundamental weir equation for curb opening flow capacity calculations was used to determine the hydraulic characteristics within a street cross-section at a given slope and flow rate. The results of this analysis are summarized in Table 2.

<u>M</u>

D. Mark Goodwin & Associates, P.A. Consulting Engineers

P.O. BOX 90606, ALBUQUERQUE, NM 87199 (505) 828-2200 FAX 797-9539

PROJECT Holy Cross Townhomes

SUBJECT Depressed Lanscape Storage

BY________DATE ______

CHECKED_______DATE _____

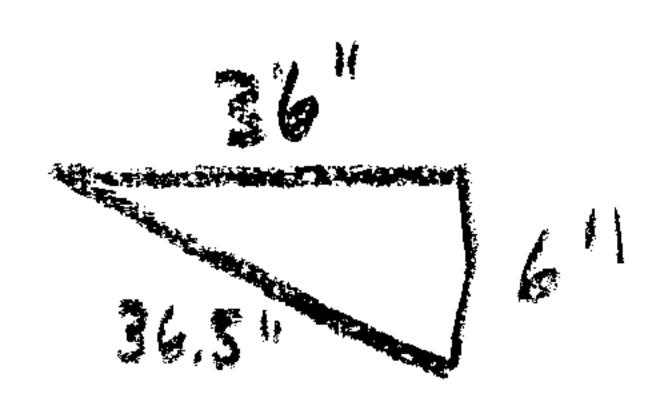
SHEET___OF____

Papaya St = 117 LF

117 (,7544) = 87,7543 2 (67,9543) = [175,543]

Tangerine C+ = 159'(.754+) = 119.2561' 2(159.2564') = [236.544]

Total Storage



A = (6'')(36'') = 108''

LECONOCCIONA CHE MINISTERIO DE PROPERTO DE LA CONTRACTOR DE LA CONTRACTOR

Total vol Depressed Landscape

<u>M</u>

D. Mark Goodwin & Associates, P.A. Consulting Engineers

P.O. BOX 90606, ALBUQUERQUE, NM 87199 (505) 828-2200 FAX 797-9539

PROJECT Holy Cross Town homes
SUBJECT Depressed Sasement
BY______ DATE _____
CHECKED______ DATE _____
SHEET___OF___

Papaya $S^{+} =$ $58.5'(1.254^{2}) = 73.1344^{3}$ $2(73.1344^{3}) = [146.2544^{3}]$

Tangerine C+= $62.5'(1.254^2)=78.1254^3$ $2(78.1254^3)=[156.254^3]$

60'' 60^{2} $6^{2} + 6^{2} = c^{2}$ $6^{2} + 60^{2} = 3636 \approx 60.3^{2} \text{ in}$ $A = (6'')(60'') = 180 \text{ in }^{2}$ $\frac{2}{1.25 + 4^{2}}$

Total Storage Depressed Easement 144.25 ft3 + 156.25 ft3 = [302.50ft]

CITY OF ALBUQUERQUE



November 5, 2015

D. Mark Goodwin, P.E. Mark Goodwin & Associates, P.A. P.O. Box 90606 Albuquerque, NM, 87199 Richard J. Berry, Mayor

RE: Holy Cross Townhomes | Grading and Drainage Plan | Stamp 9-24-15 (File: E19D021A)

Dear Mr. Goodwin:

Based upon the information provided in your submittal received 9-25-2015, the above referenced Plan is approved for Site Plan for Building Permit. However, the Grading Permit cannot be approved until the following comments are addressed:

- 1. A first flush retention method needs to be included. It appears that the proposed plan included depressions between the sidewalk and the curb which could serve the purpose, but the drainage report states that the first flush requirement will not be addressed. If the depressions shown on the plan are to be used, a calculation of the first flush required vs provided needs to be included. If the depressions proposed between the sidewalk and the curb are not sufficient, then the design needs to include ponding areas on the individual lots.
- 2. The concrete rundown on the north end of the adjacent property, and the sidewalk culvert shown on Vickrey Dr. cannot be listed on the Infrastructure List for the "Holy Cross Townhomes" Property. It needs to be 1) constructed as a condition of final plat approval, 2) included in the Infrastructure List for the adjacent property improvements, or 3) revert to the original lot line configuration that does not separate the property as a separate lot until the rundown and culvert are constructed.
- 3. Analysis Point 6 (AP6) in Vickrey Dr. is shown with a discharge of 10.06 cfs in Figure 1, but labeled with a discharge of 20.20 cfs at the valley gutter in the same vicinity on the Grading and Drainage Sheet.
- 4. Previous platting and design documents reference a rundown on the NW corner of the existing site. If this structure exists, it needs to be noted on the Sheet.
- 5. Show the dimensions of the wall opening on the design sheet.

6. Section-A-A-and-Section-B-B-appear to be 'typical' sections-rather-than actual sections.

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

Sincerel

PO Box 1293

Albuquerque

NM 87103

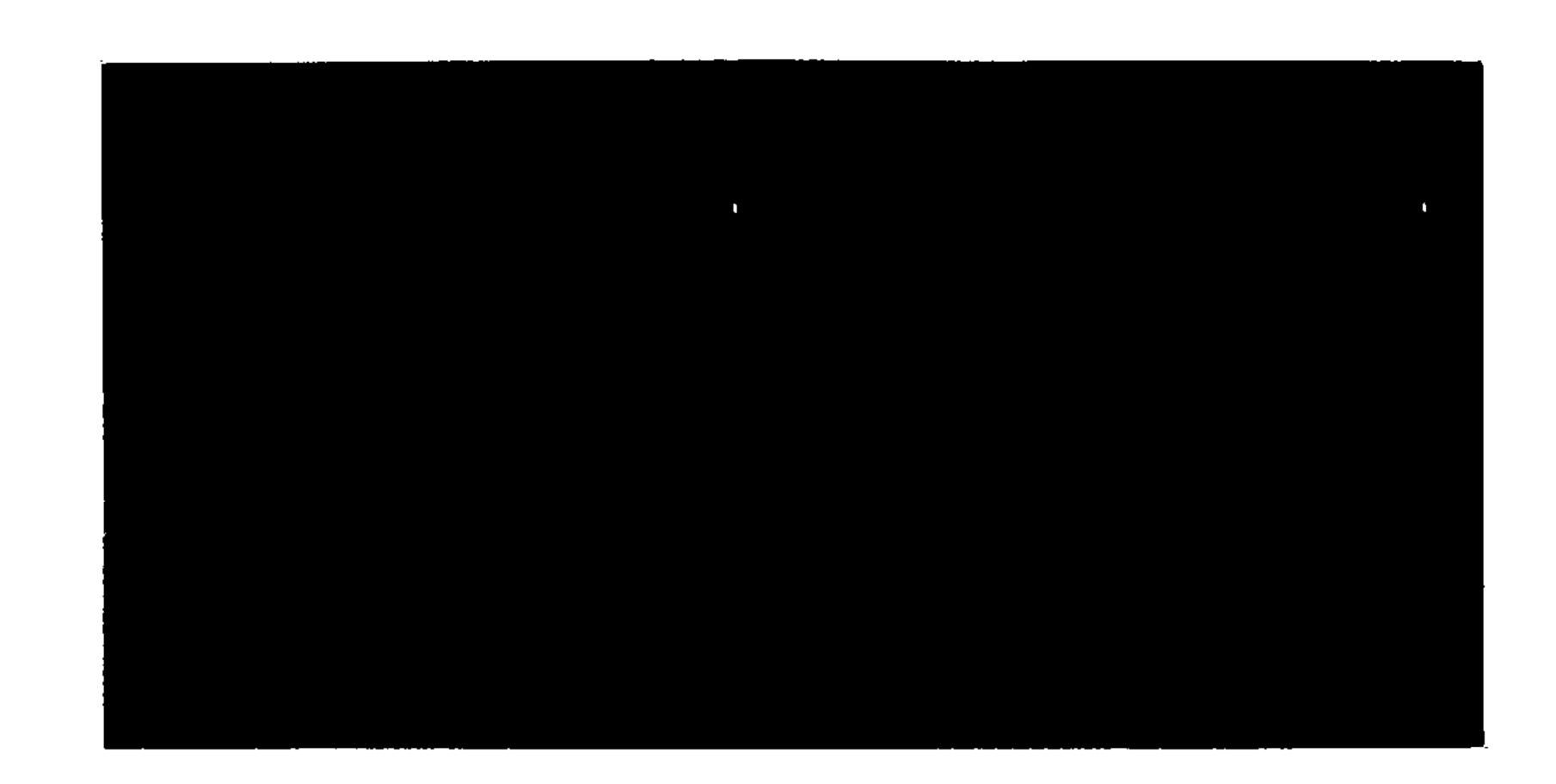
www.cabq.gov

Abiel Carrillo, P.E.

Principal Engineer, Planning Dept. Development Review Services

Orig: Drainage file

E19D021A_SPBP_GP_CMMT.docx





MARK GOODWIN

ST ASSOCIATES
CONSULTING ENGINEERS

DRAINAGE REPORT

for

HOLY CROSS SUBDIVISION



Prepared for
Dragonfly Development, LLC
12809 Donette Court NE
Albuquerque, NM 87112

Prepared by
Mark Goodwin & Associates, PA
PO Box 90606
Albuquerque, NM 87199
(505) 828-2200
September 2015

TABLE OF CONTENTS

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Existing Conditions	2
Developed Conditions	
Drainage Design Procedures and Related Studies	2
Drainage Management Plan	
Conclusion	4

Tables:

Table 1 – Summary of Hydrology

Table 2 - Summary of On-Site Street Capacity Results

Figures:

Figure 1 – On-Site Drainage Sub-Basin Map

Appendices:

Appendix A - NOAA Precipitation Data & AHYMO Input and Output Data

Appendix B - Street Capacity Analysis

Appendix C - Vickrey Dr/San Antonio Pl Runoff Flow Rate Analysis

Appendix D – COA Stormwater Quality & Illicit Discharges Ordinance & Section 9 of Storm Water Pollution Control

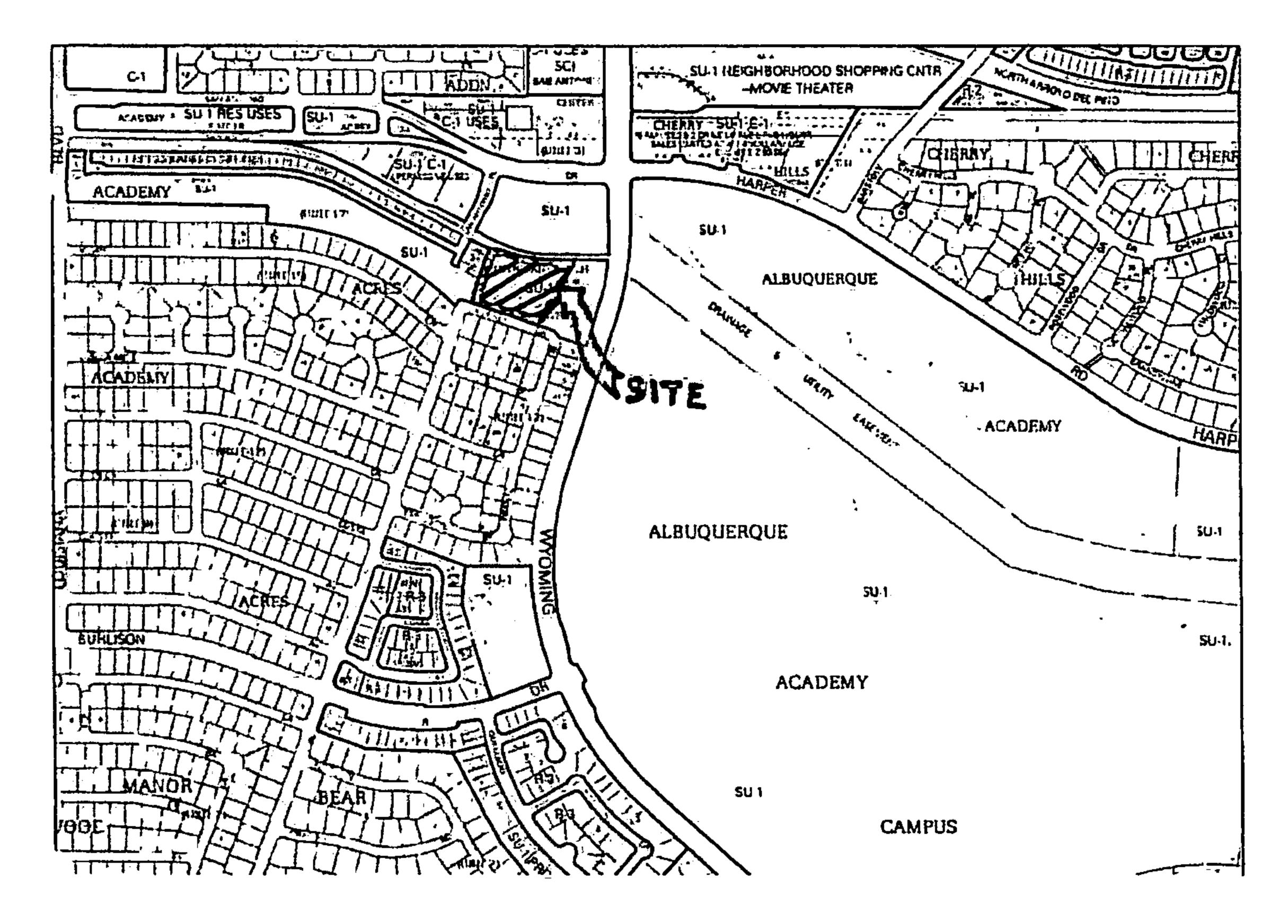
Map Pockets:

Sheets 1 - Holy Cross Subdivision Grading and Drainage Plan

F:\1-Projects\2014\A14052 - Holy Cross\Drainage Report 9.18.015\Drainage Report TOC_9.25.015.docx

INTRODUCTION

This report has been prepared in support of a proposed 2.15 acre site located on Albuquerque's east side (Zone Atlas E-19-Z). The proposed project includes a 21 lot single family residential townhome development. The site is bounded on the north by the Piño Arroyo Drainage channel, on the west by Academy Acres Subdivision Unit 17, on the south by Academy Acres Subdivision Unit 13 and the south by Holy Cross Church on Tract A-1-B. Once the site is subdivided into 21 lots, it will be named Holy Cross Subdivision (to be referred to as "HCS" in this report). This report is being submitted as part of the Holy Cross Subdivision preliminary plat submittal requirement.



LOCATION MAP (Zone Atlas E-19-Z)
NTS

EXISTING CONDITIONS

The HCS is vacant and covered by sparse native vegetation. The existing topography on this 2.15 acre site falls from southeast to northwest. An existing retaining wall along the western edge of the Academy Acres Unit 17 subdivision redirects portions of the existing runoff flow generated from the site. Once encountering the wall, flows are routed to the north to the Piño Arroyo Drainage Channel. All on-site runoff flows north and west to the Piño Arroyo Drainage Channel.

Runoff from the Academy Acres Units 13 & 17 flow west and north away from the HCS site. Vickrey Drive runoff flows west and through the Academy Acres site toward San Antonio Place and outfalls into the Piño Arroyo Channel. The Holy Cross church runoff flows are split north entering the channel. The Southern half flows west into the HCS into an existing temporary retention pond on our site. This will change under proposed conditions. The project site is not encumbered by a flood plain.

DEVELOPED CONDITIONS

The HCS will include 21 single family residential lots with one street connection to Vickrey Dr. It is proposed that on-site storm runoff be conveyed via street surface flow to the north stub end of Papaya Street. These flows will be routed through a 10' wide concrete rundown into the Piño Arroyo Drainage Channel. The HCS will utilize both mountable and standard curb and gutter. See Figure 1 for the on-site drainage basin map.

DRAINAGE DESIGN PROCEDURES AND RELATED STUDIES

The design criteria used in this report was in accordance with Section 22.2 of the Development Process Manual (DPM); Volume 2, Design Criteria, 1997 Edition. The hydrologic calculation procedures used to calculate the peak 10-YR and 100-YR flow rates for developed conditions are based on the DPM and the Arid Land Hydrologic Modeling (AHYMO-S4) program. Precipitation values are taken from NOAA Atlas 14. The 100-YR, 6-HR storm precipitation values are Peo=1:81", P360=2:43", and P24=2:82". The 10-YR, 6-HR storm precipitation values are P60=1:13", P360=1:58", and P24=1:89". The hydrology input data and 100-YR and 10-YR runoff peak flow rates are summarized in Table 1. Appendix A contains the NOAA Precipitation Data and the AHYMO input and output data.

DRAINAGE MANAGEMENT PLAN

The on-site watershed was subdivided into four (4) drainage sub-basins (see Figure 1) which allows for hydraulic analysis at critical points within the subdivision to determine street flow carrying capacity and acceptable curb type. For Drainage Basin Map see Figure 1 in Appendix B. Flows for the HCS will be split and carried through a concrete rundown at the stub end of Papaya Street and by Vickrey Drive which is conveyed through San Antonio Place and into the Piño Arroyo Drainage.

In accordance with the City of Albuquerque's Stormwater Quality and Illicit Discharges (SQID), the use of a first flush design was not taken into consideration. The SQID refers to Section 9 of the Storm Water Pollution Control and its listings of best management practices requirements. These requirements excludes single family housing subdivisions. Appendix D contains a copy of the SQID ordinance and Section 9 of Storm Water Pollution Control.

Needs to be included

Table 1- Summary of Hydrology

·					BLE 1				
·	<u> </u>				Subdivision	Holy Cross			
			<u> </u>	(AHYMO)	y Parameter	nmary of Hydrolog	Sun	······································	
·	Discharge		atment	Land Tre	:	Area	Area	Area	Sub
	value	·	Jes_	Valu			<u> </u>		Basin
	cfs	,	С	В	Α	sq.mi.	acre	sq.ft	ID.
	100-R 24-HR	<u> </u>						LOPED	DEVE
->(Escapes	1.08	70.0	10.0	20.0	0.0	0.000438	0.28	12,197.5	DB-1
Vickney)	2.40	70.0	10.0	20.0	_ 0.0	0.000983	0.63	27,418.4	DB-2
	3.64	70.0	10.0	20.0	0.0	0.001464	0.94	40,814.3	DB-3
	1.16	70.0	10.0	20.0	0.0	0.000482	0.31	13,430.7	DB-4
₹7.20	8.28	70.0	10.0	20.0	0.0	0.003367	2.15	93,860.8	TOTAL
to Ayro	100 yr-24 hr						EX		
_ -	3.85				100.00	0.003367	2.15	93,715.0	100

The hydraulic calculation procedures utilize the DPM Section 22 to establish the drainage design criteria for this project. It requires that the 100-YR water spread be contained within the road right-of-way and that the 10-YR design discharge may not exceed 0.5' in any collector or arterial street and will allow for one lane to remain open in both directions on arterial streets.

The Papaya St. drainage outfall will consist of a 10' wide concrete channel which conveys the on-site runoff in a controlled discharge to the Piño Arroyo Channel. This rundown constructed with a .7% slope will convey the design flow of 7.20 cfs at a depth of .36 feet with a velocity of 2.54 fps.

Autodesk Civil 3D hydraulic analysis software which uses the Manning's Equation to calculate street flow depths and velocities and the fundamental weir equation for curb opening flow capacity calculations was used to determine the hydraulic characteristics within a street cross-section at a given slope and flow rate. The results of this analysis are summarized in Table 2.

Table 2- Summary of On-site Street Capacity Results

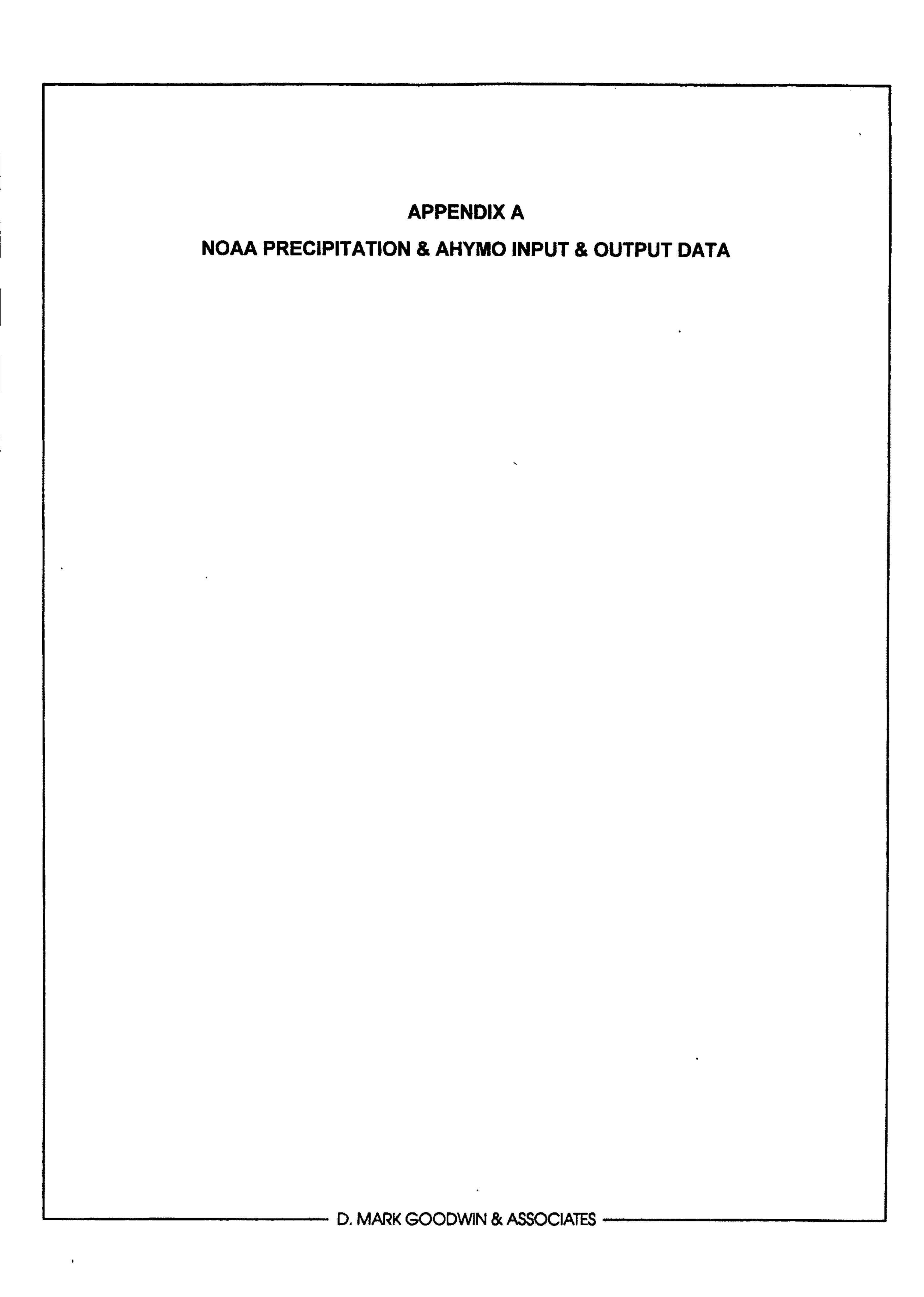
STREET	CONTRIBUTING BASINS	Q100 (cfs)	V100 (fps)	FLOW DEPTH (ft.)	RECOMMEND
Papaya St.	DB-1	1.08	1.72	.18	Roll Type
Papaya St.	DB-2	2.40	2:28	.22	Roll Type
Tangerine Ct.	DB-3	3.64	2:55	.25	Roll Type
Papaya St.	DB-4,	1.16	2.16	.17	Roll Type
Papaya St.*	DB-4, DB-3, DB-2	7.20	3.14	.30	Standard

^{*} Section of Papaya Dr. north of Tangerine Court intersection.

For all on-site streets, the 100-YR storm is contained within the road right-of-way. See Appendix B for 100-YR street hydraulic data output sheets.

CONCLUSION

As seen on the Grading & Drainage Plan, there is no underground storm drain improvements required within the Holy Cross Subdivision. Storm flow discharging will be routed within the subdivision streets to the north stub-end of Papaya Street and will be conveyed by a 10' rundown outfall structure into the Piño Arroyo Drainage Channel. A water block at the intersection of Papaya St. and Vickrey Dr. conveys the remaining 1.08 cfs which will be collected by a rundown to the west into the Academy Acres Unit 17 and discharged into the Piño Arroyo Channel crossing at San Antonio PL. See Appendix C for the flow calculations for Vickrey Dr. and San Antonio PL. A 5' concrete rundown will be installed in the existing church parking lot for drainage to the north and 3-12" wide sidewalk culverts will be installed for drainage of the south half of the existing Holy Cross Church property.



<u>My</u>

D. Mark Goodwin & Associates, P.A. Consulting Engineers

P.O. BOX 90606, ALBUQUERQUE, NM 87199 (505) 828-2200 FAX 797-9539

PROJECT Holy	Cross
PROJECT HOLY SUBJECT AHY	1M0
BY HLC	DATE 7/14/015
CHECKED	DATE
	SHEETOF

Holy Cross Townhomes: Existing Conditions

- · Area of Site: 2.1514 Ac ≈.003361563 sq mi ≈ 93714.98 sq ft1
- · Per DPM
- · Existing Conditions:
 - Vacant, Sparsely covered native vegitation
 - Pino Arroyo Drainage Channel to the north
 - D1t Academy Acres Unit 17 to the West
 - Holy Cross Lutheran, Church to the East
 - Vickrey Dr (R/W 50') to the South
 - Existing Run-off flows to the Northwest corner of the property towards the Pino Arroyo Drainage Channel
- There is an existing 20' wide asphalt trail across the middle of the property

Land treatment types:

100 yr

· Rain I hr: 1.81 in Rain 6 hr: 2.43 in Rain 24 hr: 2.82 in Developed Conditions



NOAA Atias 14, Volume 1, Version 5 Location name: Albuquerque, New Mexico, US* Latitude: 35.1575°, Longitude: -106.5609° Elevation: 5392 ft*



POINT PRECIPITATION FREQUENCY ESTIMATES

* source: Google Maps

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

PD	PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹									
					ge recurren				410 (111 1110	
Duration	1	2	5	10	25	50	100	200	500	1000
5-min	0.173 (0.146-0.206)	0.224 (0.188-0.267)	0.301 (0.253-0.359)	0.361 (0.301-0.429)	0.442 (0.368-0.525)	0.507 (0.420-0.603)	0.575 (0.473-0.682)	0.646 (0.529-0.767)	0.744 (0.603-0.883)	0.822 (0.663-0.974)
10-min	0.263 (0.222-0.314)	0.341 (0.286-0.406)	0.458 (0.385-0.546)	0.549 (0.458-0.653)	0.672 (0.560-0.800)	0.771 (0.639-0.917)	0.875 (0.719-1.04)	0.984 (0.804-1.17)	1.13 (0.918-1.34)	1.25 (1.01-1.48)
15-min	0.326 (0.276-0.389)	0,422 (0.354-0.503)	0.568 (0.478-0.677)	0.680 (0.568-0.809)	0.834 (0.694-0.991)	0.956 (0.793-1.14)	1.08 (0.892-1.29)	1.22 (0.997-1.45)	1.40 (1.14-1.67)	1.55 (1.25-1.84)
30-min	0.439 (0.371-0.524)	0.568	0.764	0.916	1.12	1.29	1.46	1.64 (1.34-1.95)	1.89 (1.53-2.24)	2.09 (1.68-2.48)
60-min	0.543 (0.459-0.648)	0.703 (0.590-0.838)	0.946 (0.796-1.13)	1.13 (0.947-1.35)	1.39 (1.16-1.65)	1.59 (1.32-1.90)	1.81 (1.49-2.14)	2.03 (1.66-2.41)	2.34 (1.90-2.78)	2.58 (2.08-3.06)
2-hr	0.656 (0.539·0.822)	0.844 (0.692-1.06)	1.12 (0.914-1.40)	1.34 (1.09-1.66)	1.64 (1.33-2.04)	1.89 (1.52-2.34)	2.15 (1.72-2.65)	2.42 (1.93-2.98)	2.81 (2.21-3.46)	3.12 (2.44-3.85)
3-hr	0.702 (0.580-0.868)	0.893 (0.735-1.11)	1.17 (0.968-1.45)	1.40 (1.15-1.72)	1,70 (1.39-2.10)	1.95 (1.58-2.40)	2.22 (1.79-2.72)	2.50 (2.00-3.07)	2,89 (2.29-3.54)	3,21 (2.53-3.94)
6-hr	0.822 (0.683-1.01)	1.04 (0.863-1.27)	1.34 (1.12-1.64)	1.58 (1.31-1.92)	1. 91 (1.57-2.32)	2.16 (1.77-2.63)	2.43 (1.99-2.96)	2.71 (2.20-3.29)	3.10 (2.49-3.76)	3.41 (2.73-4.14)
12-hr	0.912 (0.772-1.08)	1.15 (0.970-1.37)	1.46 (1.23-1.74)	1.71 (1.43-2.02)	2.04 (1.71-2.41)	2.30 (1.91-2.72)	2.57 (2.13-3.03)	2.84 (2.34-3.36)	3.22 (2.63-3.81)	3.52 (2.85-4.17)
24-hr	1.03 (0.881-1.21)	1.29 (1.10-1.51)	1.63 (1.39-1.91)	1.89 (1.62-2.22)	2.25 (1.91-2.64)	2.53 (2.14-2.96)	2.82 (2.38-3.30)	3.12 (2.61-3.64)	3.52 (2.93-4.11)	3.84 (3.17-4.50)
2-day	1.08 (0.928-1.26)	1.36 (1.17-1.58)	1.72 (1.47-2.00)	2.00 (1.71-2.32)	2.38 (2.02-2.76)	2.67 (2.26-3.10)	2.98 (2.51-3.46)	3.29 (2.77-3.84)	3.72 (3.10-4.34)	4.05 (3.37-4.75)
3-day	1.20 (1.07-1.35)	1.50 (1.34-1.69)	1.87 (1.66-2.10)	2.16 (1.91-2.42)	2.55 (2.25-2.86)	2.85 (2.50-3.20)	3.15 (2.76-3,54)	3.46 (3.02-3.90)	3.88 (3.37-4.37)	4.20 (3.63-4.76)
4-day	1.32 (1.21-1.45)	1.64 (1.50-1.80)	2.02 (1.85-2.21)	2.32 (2.12-2.52)	2.72 (2.48-2.96)	3.02 (2.75-3.29)	3.33 (3.01-3.62)	3.63 (3.28-3.95)	4.04 (3.63-4.40)	4.34 (3.89-4,79)
7-day	1.52 (1.40-1.65)	1.89 (1.73-2.05)	2.30 (2.11-2.50)	2.62 (2.41-2.84)	3.05 (2.79-3,30)	3.36 (3.08-3.64)	3.68 (3.36-3.98)	3.98 (3.63-4.31)	4.38 (3.98-4.75)	4.67 (4.24-5.07)
10-day	1.69 (1.55-1.83)	2.09 (1.93-2.27)	2.56 (2.36-2.78)	2.93 (2.70-3.18)	3.42 (3.15-3.70)	3.79 (3.48-4.10)	4.16 (3.81-4.50)	4.52 (4.13-4.89)	4.99 (4.54-5.41)	5.34 (4.84-5.80)
20-day	2.13 (1.96-2.32)	2.65 (2.44-2.88)	3.22 (2.96-3.50)	3.65 (3.35-3.96)	4.20 (3.85-4.55)	4.60 (4.21-4.98)	4.98 (4.56-5.39)	5.35 (4.88-5.78)	5.81 (5.29-6.28)	6.13 (5.57-6.64)
30-day	2.56 (2.35-2.77)	3.18 (2.92-3.44)	3.83 (3.52-4.14)	4.31 (3.96-4.65)	4.91 (4.51-5.29)	5.34 (4.89-5.75)	5.75 (5.26-6.19)	6.13 (5.60-6.61)	6.59 (6.01-7.11)	6.91 (6.29-7.46)
45-day	3.13 (2.89-3.39)	3.88 (3.58-4.19)	4.63 (4.27-4.99)	5.16 (4.76-5.56)	5.81 (5.36-6.26)	6.25 (5.76-6.74)	6.66 (6.13-7.17)	7.01 (6.46-7.55)	7.42 (6.84-8.00)	7.68 (7.08-8.27)
60-day	3.61 (3.33-3.90)	4.47 (4.13-4.83)	5.33 (4.93-5.76)	5.94 (5.50-6.42)	6.69 (6.19-7.22)	7.20 (6.66-7.76)	7.66 (7.09-8.27)	8.08 (7.47-8.73)	8.56 (7.92-9.25)	8.86 (8.21-9.58)

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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START	0.0 HRS PUNCH CODE=0 PRINT LINES=-6				
*S**********	*********				
*S	Holy Cross				
*S	100 YEAR 24-HR STORM EVENT				
*S					
*S	FILE: Holy Cross 2.1514ac.DAT				
*S	LAST REVISED: 7-14-15				
*S	NOAA ATLAS 14, VOL I ZONE: A 10				
LOCATION	NEW MEXICO				
RAINFALL	TYPE=2 RAIN QUARTER=0.0				
	RAIN ONE=1.81 IN RAIN SIX=2.43 IN				
	RAIN DAY=2.82 IN DT=0.0333 HRS				
*S**********	********				
*** ********	***				
*S TOTAL SITE					
*S DEVELOPED CONDIT	CIONS				
*** *********	***				
*** BASIN 100					
*** AREA = 2.1514 AC	RES				
*** AREA = .003361563					
*** ********	**				
COMPUTE NM HYD	ID=1 HYD NO=100 AREA= 0.003361563 SQ MI				
	PER A=0 PER B=20 PER C=10 PER D=70				
	TP=-0.13333 HR MASS RAIN=-1				
PRINT HYD					
*					
*** BASIN 100 *** AREA = 2.1514 AC *** AREA = .00336156 *** ********************************	TRES 3 *** ID=1 HYD NO=100 AREA= 0.003361563 SQ MI PER A=0 PER B=20 PER C=10 PER D=70				

FINISH

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        INPUT FILE = C:\Users\hiram\Desktop\Holy Cross\Holy Cross 2.1514ac.txt
START
                   0.0 HRS PUNCH CODE=0 PRINT LINES=-6
*$
                   Holy Cross
*$
                   100 YEAR 24-HR STORM EVENT
*S
*$
                   FILE: Holy Cross 2.1514ac.DAT
                   LAST REVISED: 7-14-15
*S
                   NOAA ATLAS 14, VOL I ZONE: A 10
LOCATION
                   NEW MEXICO
    State of New Mexico soil infiltration values (LAND FACTORS) used for computations.
    Land Treatment
                      Initial Abstr.(in)
                                          Unif. Infilt.(in/hour)
                      0.65
                                           1.67
                      0.50
                                           1.25
                      0.35
                                           0.83
                      0.10
                                           0.04
RAINFALL
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                   RAIN ONE=1.81 IN RAIN SIX=2.43 IN
                   RAIN DAY=2.82 IN DT=0.0333 HRS
              24-HOUR RAINFALL DIST. - BASED ON NOAA ATLAS 14 FOR CONVECTIVE AREAS (NM & AZ) - D1
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                                                     24.009300 HOURS
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               0.0684 0.0780 0.0883 0.0987 0.1093 0.1202 0.1310
               0.1423 0.1536 0.1655 0.1780 0.1905 0.2045 0.2185
               0.2341 0.2515 0.2689 0.2921 0.3155 0.3432 0.3759
               0.4086 0.4571 0.5062 0.5717 0.6564 0.7412 0.9612
               1.1869 1.3666 1.4917 1.6168 1.6824 1.7453 1.7976
               1.8372 1.8768 1.9049 1.9323 1.9565 1.9766 1.9967
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               2.1030 2.1130 2.1229 2.1322 2.1415 2.1506 2.1596
               2.1685 2.1730 2.1771 2.1811 2.1850 2.1890 2.1927
               2.1964 2.2000 2.2036 2.2072 2.2107 2.2141 2.2175
               2.2208 2.2241 2.2273 2.2305 2.2336 2.2367 2.2398
               2.2428 2.2457 2.2486 2.2515 2.2544 2.2572 2.2600
               2.2628 2.2655 2.2681 2.2708 2.2734 2.2760 2.2786
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               2.3303 2.3325 2.3346 2.3368 2.3389 2.3410 2.3431
               2.3451 2.3472 2.3492 2.3513 2.3533 2.3553 2.3573
               2.3593 2.3612 2.3632 2.3651 2.3671 2.3690 2.3709
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2.6788 2.6795 2.6802 2.6810 2.6817 2.6824
2.6838 2.6846 2.6853 2.6860 2.6867 2.6874
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2.6889 2.6896
2.6939 2.6947 2.6954 2.6961 2.6968 2.6975
2.6990 2.6997
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2.7040 2.7048 2.7055 2.7062 2.7069 2.7076
2.7091 2.7098 2.7105 2.7113
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2.7141 2.7149 2.7156 2.7163
                            2.7170 2.7177
             2.7206 2.7214
2.7192 2.7199
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2.7242 2.7250 2.7257 2.7264
                            2.7271 2.7278
2.7293 2.7300
              2.7307 2.7315 2.7322 2.7329
2.7343 2.7351 2.7358 2.7365 2.7372 2.7379 2.7387
2.7394 2.7401 2.7408 2.7416 2.7423 2.7430 2.7437
2.7444 2.7452 2.7459 2.7466 2.7473 2.7480 2.7488
2.7495 2.7502 2.7509 2.7517 2.7524 2.7531 2.7538
2.7545 2.7553 2.7560 2.7567 2.7574 2.7582 2.7589
2.7596 2.7603 2.7610 2.7618 2.7625 2.7632 2.7639
2.7646 2.7654 2.7661 2.7668 2.7675 2.7683
2.7697 2.7704 2.7711 2.7719 2.7726 2.7733 2.7740
2.7747 2.7755 2.7762 2.7769 2.7776 2.7784 2.7791
2.7798 2.7805 2.7812 2.7820 2.7827 2.7834 2.7841
2.7848 2.7856 2.7863 2.7870 2.7877 2.7885
2.7899 2.7906 2.7913 2.7921 2.7928 2.7935 2.7942
2.7949 2.7957 2.7964 2.7971 2.7978 2.7986
2.8000 2.8007 2.8014 2.8022 2.8029 2.8036
2.8050 2.8058 2.8065 2.8072 2.8079 2.8087 2.8094
2.8101 2.8108 2.8115 2.8123 2.8130 2.8137 2.8144
2.8151 2.8159 2.8166 2.8173 2.8180 2.8188 2.8195
2.8200
```

*S***********************************

*** ********

*S TOTAL SITE

*S DEVELOPED CONDITIONS

*** *********

*** BASIN 100

*** AREA = 2.1514 ACRES

*** AREA = .003361563

*** **********

COMPUTE NM HYD

ID=1 HYD NO=100 AREA= 0.003361563 SQ MI PER A=0 PER B=20 PER C=10 PER D=70 TP=-0.13333 HR MASS RAIN=-1

K = 0.072665HR TP = 0.133330HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428 UNIT PEAK = 9.2881 CFS UNIT VOLUME = 0.9982 B = 526.28 P60 = 1.8100 AREA = 0.002353 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

K = 0.123123HR TP = 0.133330HR K/TP RATIO = 0.923444 SHAPE CONSTANT, N = 3.832145 UNIT PEAK = 2.6006 CFS UNIT VOLUME = 0.9953 B = 343.82 P60 = 1.8100 AREA = 0.001008 SQ MI IA = 0.45000 INCHES INF = 1.11000 INCHES PER PER

PRINT HYD

ID=1 CODE=1

PARTIAL HYDROGRAPH 100.00

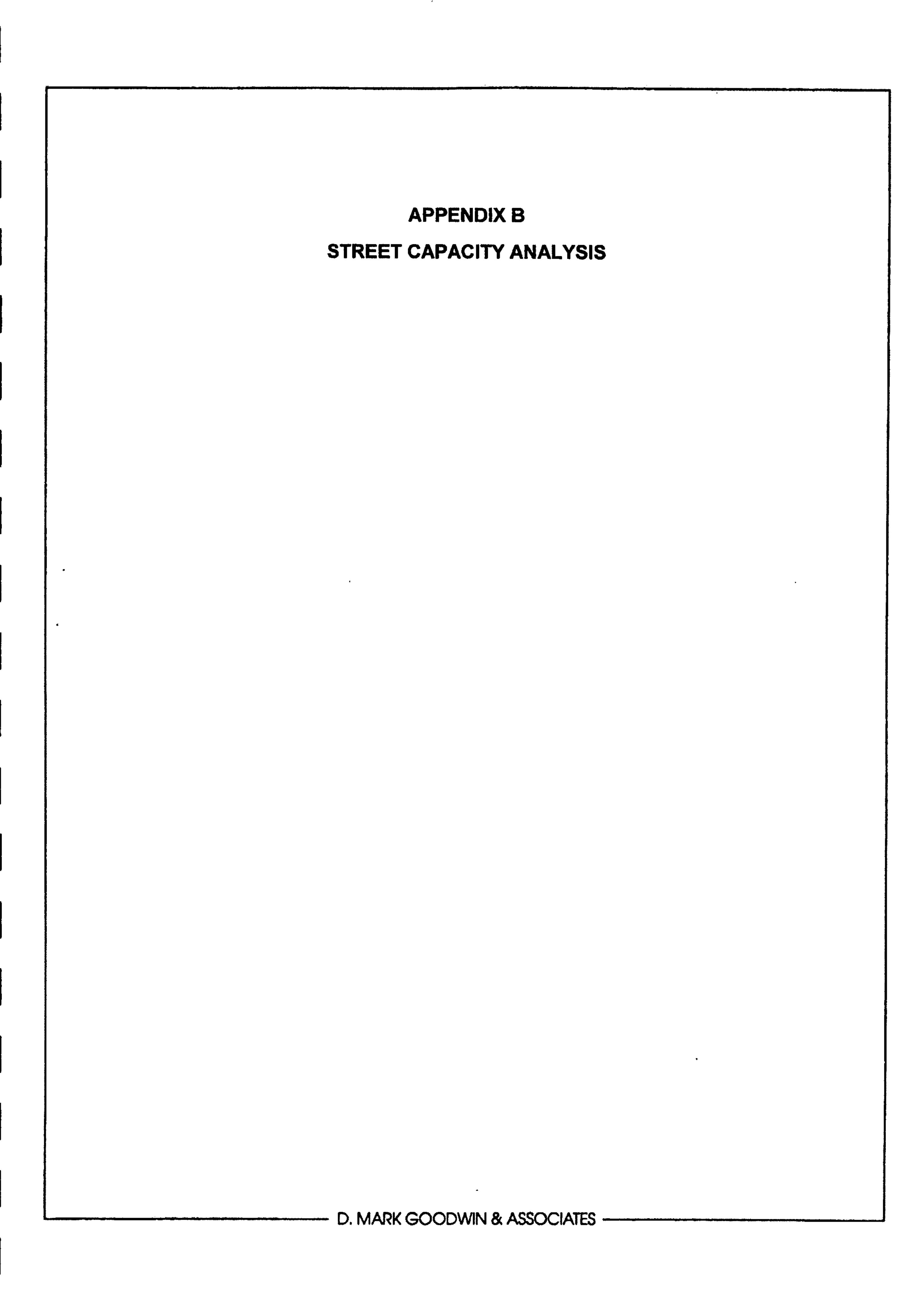
RUNOFF VOLUME = 2.06535 INCHES = 0.3703 ACRE-FEET' PEAK DISCHARGE RATE = 8.28 CFS AT 1.532 HOURS BASIN AREA = 0.0034 SQ. MI.

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 16:09:03

~(s0p10h4099T~&l6D



Hydraflow Express Extension for AutoCAD® Civil 3D® 2013 by Autodesk, Inc.

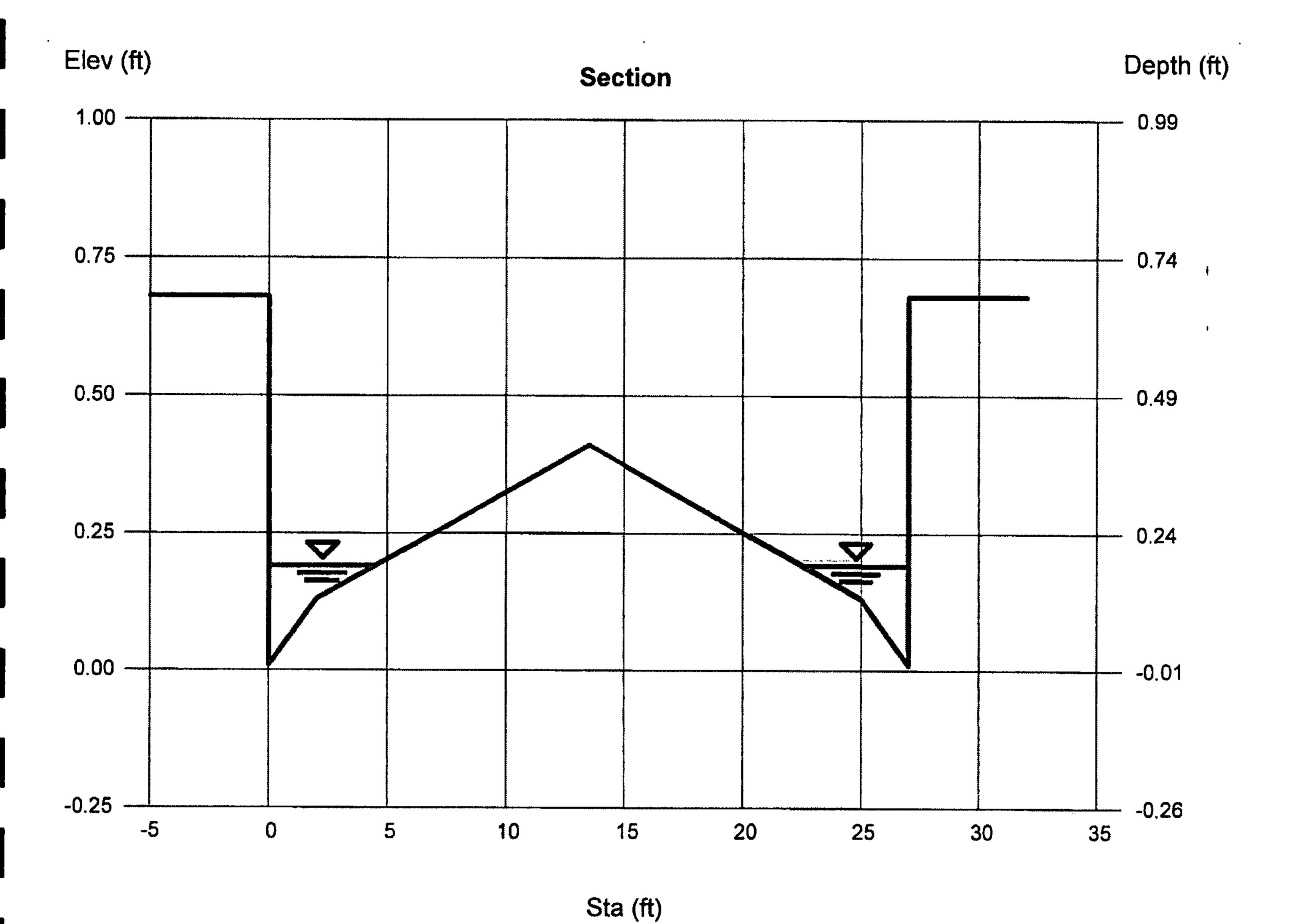
Friday, Sep 18 2015

DB-1 Papaya St. Q100 Street Capacity (27' F-F) AP1

User-defined		Highlighted	
Invert Elev (ft)	= 0.01	Depth (ft)	= 0.18
Slope (%)	= 1.32	Q (cfs)	= 1.080
N-Value	= 0.015	Area (sqft)	= 0.63
		Velocity (ft/s)	= 1.72
Calculations		Wetted Perim (ft)	= 9.30
Compute by:	Known Q	Crit Depth, Yc (ft)	= 0.19
Known Q (cfs)	= 1.08	Top Width (ft)	= 8.93
		EGL (ft)	= 0.23

(Sta, El, n)-(Sta, El, n)...

(0.00, 0.68)-(0.01, 0.01, 0.013)-(2.01, 0.13, 0.013)-(13.51, 0.41, 0.017)-(25.01, 0.13, 0.017)-(27.01, 0.01, 0.013)-(27.02, 0.68, 0.013)



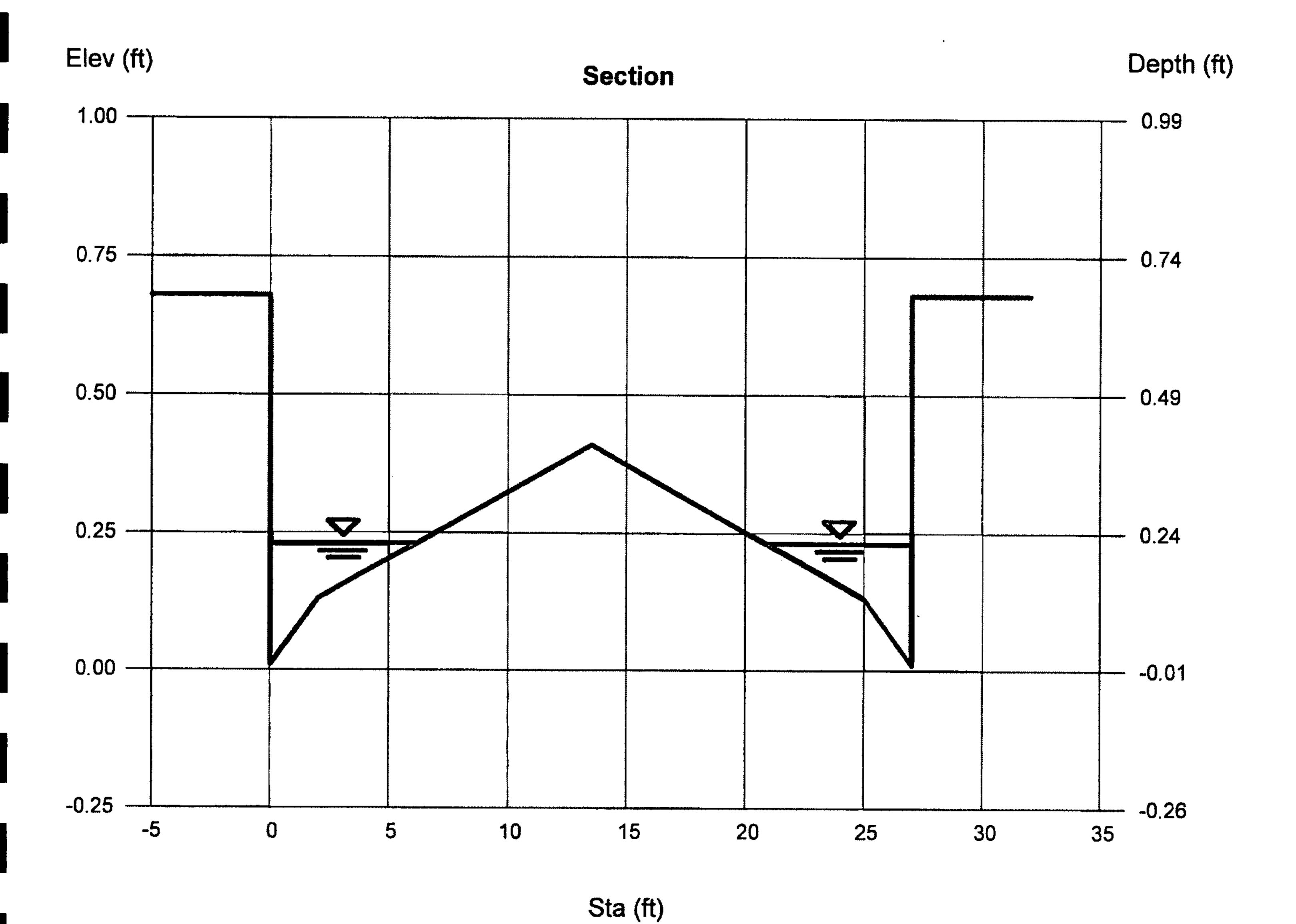
Hydraflow Express Extension for AutoCAD® Civil 3D® 2013 by Autodesk, Inc.

Friday, Sep 18 2015

DB-2 Papaya St. Q100 Street Capacity (27' F-F) AP2

User-defined		Highlighted	
Invert Elev (ft)	= 0.01	Depth (ft)	= 0.22
Slope (%)	= 2.00	Q (cfs)	= 2.400
N-Value	= 0.016	Area (sqft)	= 1.05
		Velocity (ft/s)	= 2.28
Calculations		Wetted Perim (ft)	= 12.66
Compute by:	Known Q	Crit Depth, Yc (ft)	= 0.25
Known Q (cfs)	= 2.40	Top Width (ft)	= 12.22
		EGL (ft)	= 0.30

(Sta, El, n)-(Sta, El, n)... (0.00, 0.68)-(0.01, 0.01, 0.013)-(2.01, 0.13, 0.013)-(13.51, 0.41, 0.017)-(25.01, 0.13, 0.017)-(27.01, 0.01, 0.013)-(27.02, 0.68, 0.013)



Hydraflow Express Extension for AutoCAD® Civil 3D® 2013 by Autodesk, Inc.

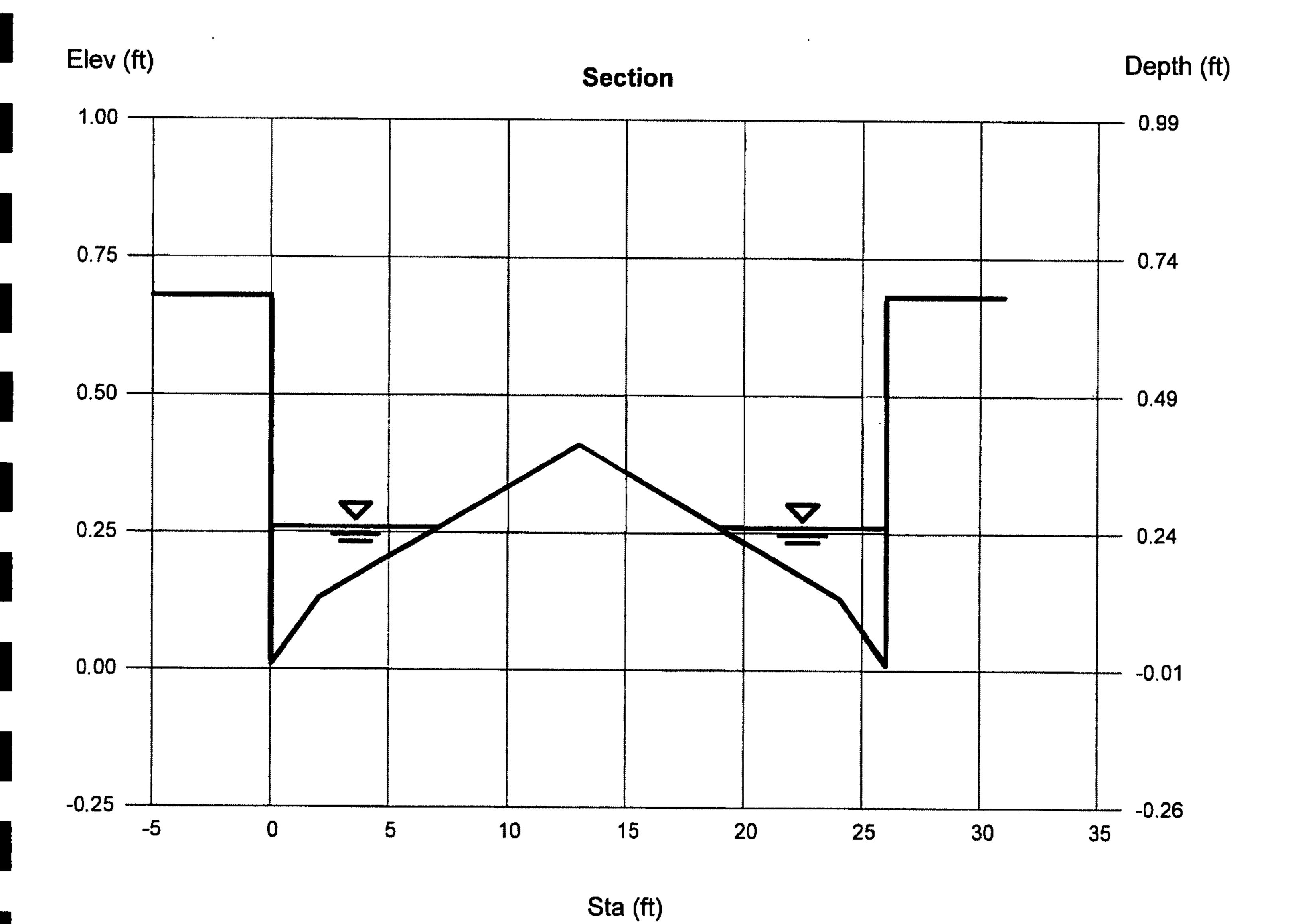
Tuesday, Sep 22 2015

DB-3 Papaya St. Q100 Street Capacity (26' F-F) AP3

User-defined		Highlighted	
Invert Elev (ft)	= 0.01	Depth (ft)	= 0.25
Slope (%)	= 2.00	Q (cfs)	= 3.640
N-Value	= 0.016	Area (sqft)	= 1.42
		Velocity (ft/s)	= 2.55
Calculations		Wetted Perim (ft)	= 14.72
Compute by:	Known Q	Crit Depth, Yc (ft)	= 0.29
Known Q (cfs)	= 3.64	Top Width (ft)	= 14.22
		EGL (ft)	= 0.35

(Sta, El, n)-(Sta, El, n)...

(0.00, 0.68)-(0.01, 0.01, 0.013)-(2.01, 0.13, 0.013)-(13.01, 0.41, 0.017)-(24.01, 0.13, 0.017)-(26.01, 0.01, 0.013)-(26.02, 0.68, 0.013)



Hydraflow Express Extension for AutoCAD® Civil 3D® 2013 by Autodesk, Inc.

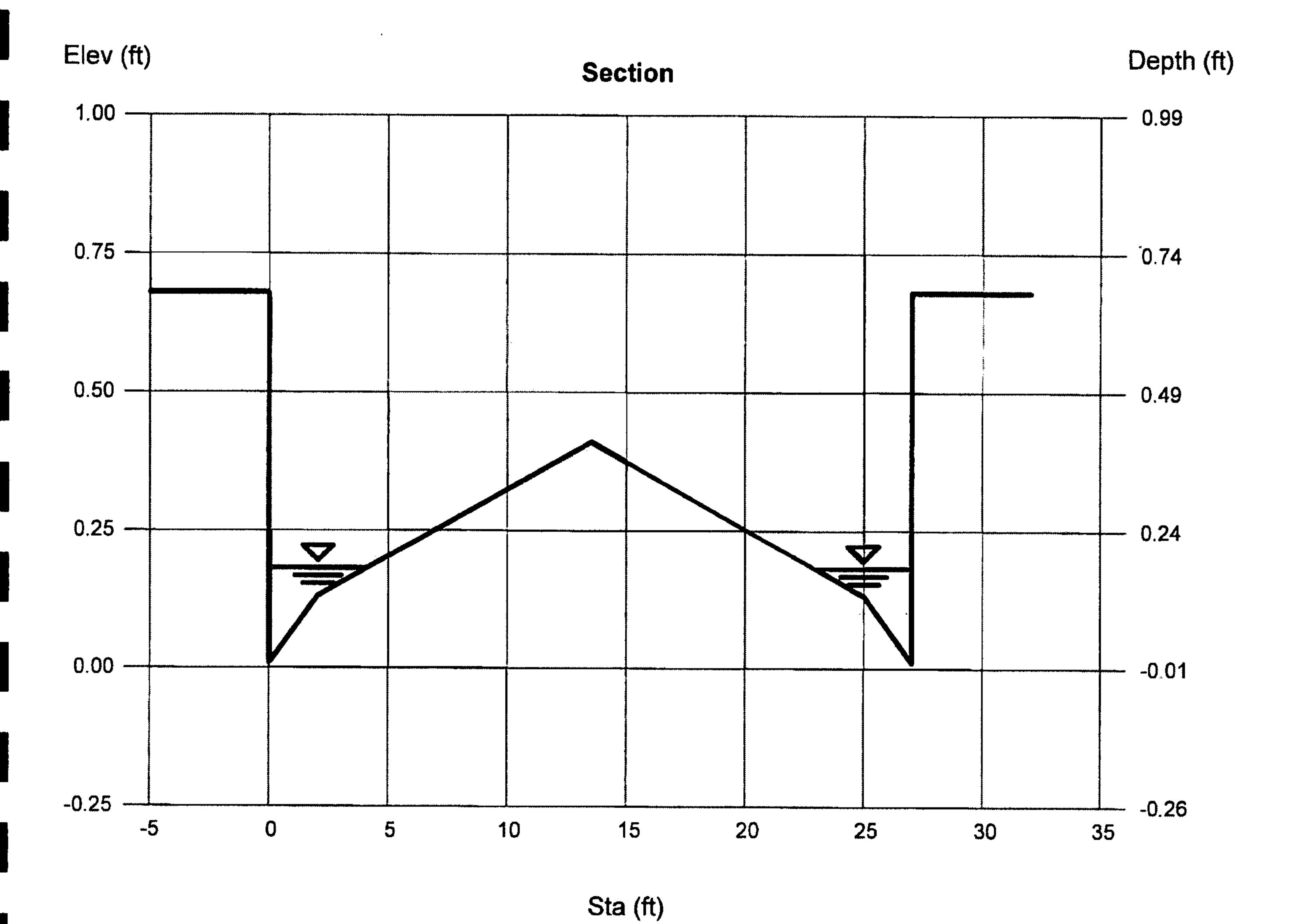
Tuesday, Sep 22 2015

DB-4 Papaya St. Q100 Street Capacity (27' F-F) AP4

User-defined		Highlighted	
Invert Elev (ft)	= 0.01	Depth (ft)	= 0.17
Slope (%)	= 2.00	Q (cfs)	= 1.160
N-Value	= 0.015	Area (sqft)	= 0.54
		Velocity (ft/s)	= 2.14
Calculations		Wetted Perim (ft)	= 8.46
Compute by:	Known Q	Crit Depth, Yc (ft)	= 0.20
Known Q (cfs)	= 1.16	Top Width (ft)	= 8.11
		EGL (ft)	= 0.24

(Sta, EI, n)-(Sta, EI, n)...

(0.00, 0.68)-(0.01, 0.01, 0.013)-(2.01, 0.13, 0.013)-(13.51, 0.41, 0.017)-(25.01, 0.13, 0.017)-(27.01, 0.01, 0.013)-(27.02, 0.68, 0.013)



Hydraflow Express Extension for AutoCAD® Civil 3D® 2013 by Autodesk, Inc.

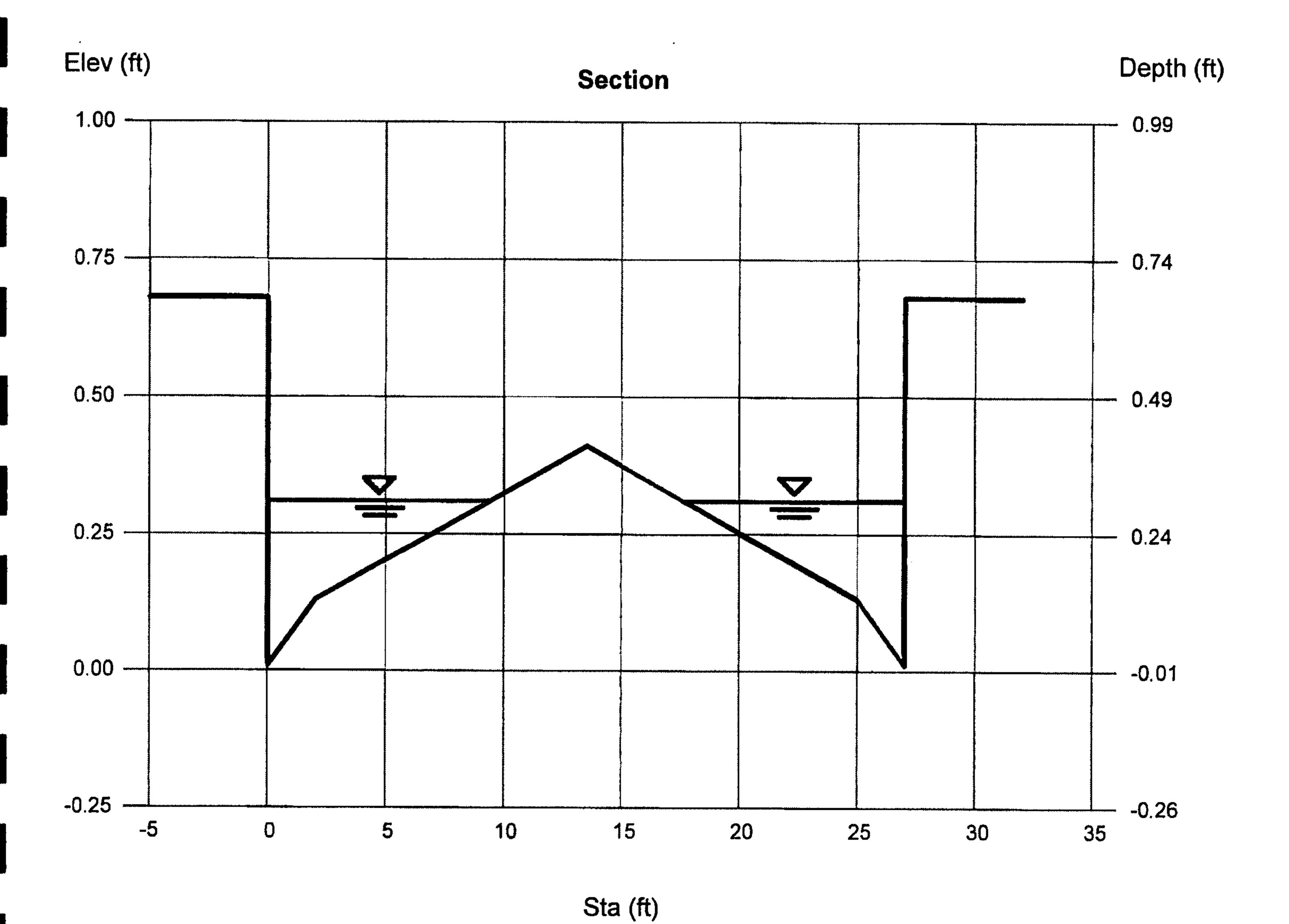
Tuesday, Sep 22 2015

DB-4 Papaya St. Q100 Street Capacity (27' F-F) AP5

User-defined		Highlighted	
Invert Elev (ft)	= 0.01	Depth (ft)	= 0.30
Slope (%)	= 2.00	Q (cfs)	= 7.200
N-Value	= 0.016	Area (sqft)	= 2.29
		Velocity (ft/s)	= 3.14
Calculations		Wetted Perim (ft)	= 19.40
Compute by:	Known Q	Crit Depth, Yc (ft)	= 0.35
Known Q (cfs)	= 7.20	Top Width (ft)	= 18.79
		EGL (ft)	= 0.45

(Sta, El, n)-(Sta, El, n)...

(0.00, 0.68)-(0.01, 0.01, 0.013)-(2.01, 0.13, 0.013)-(13.51, 0.41, 0.017)-(25.01, 0.13, 0.017)-(27.01, 0.01, 0.013)-(27.02, 0.68, 0.013)



Weir Report

Hydraflow Express Extension for AutoCAD® Civil 3D® 2013 by Autodesk, Inc.

Thursday, Sep 24 2015

10 ft. Concrete Rundown Capacity

Rectangular Weir

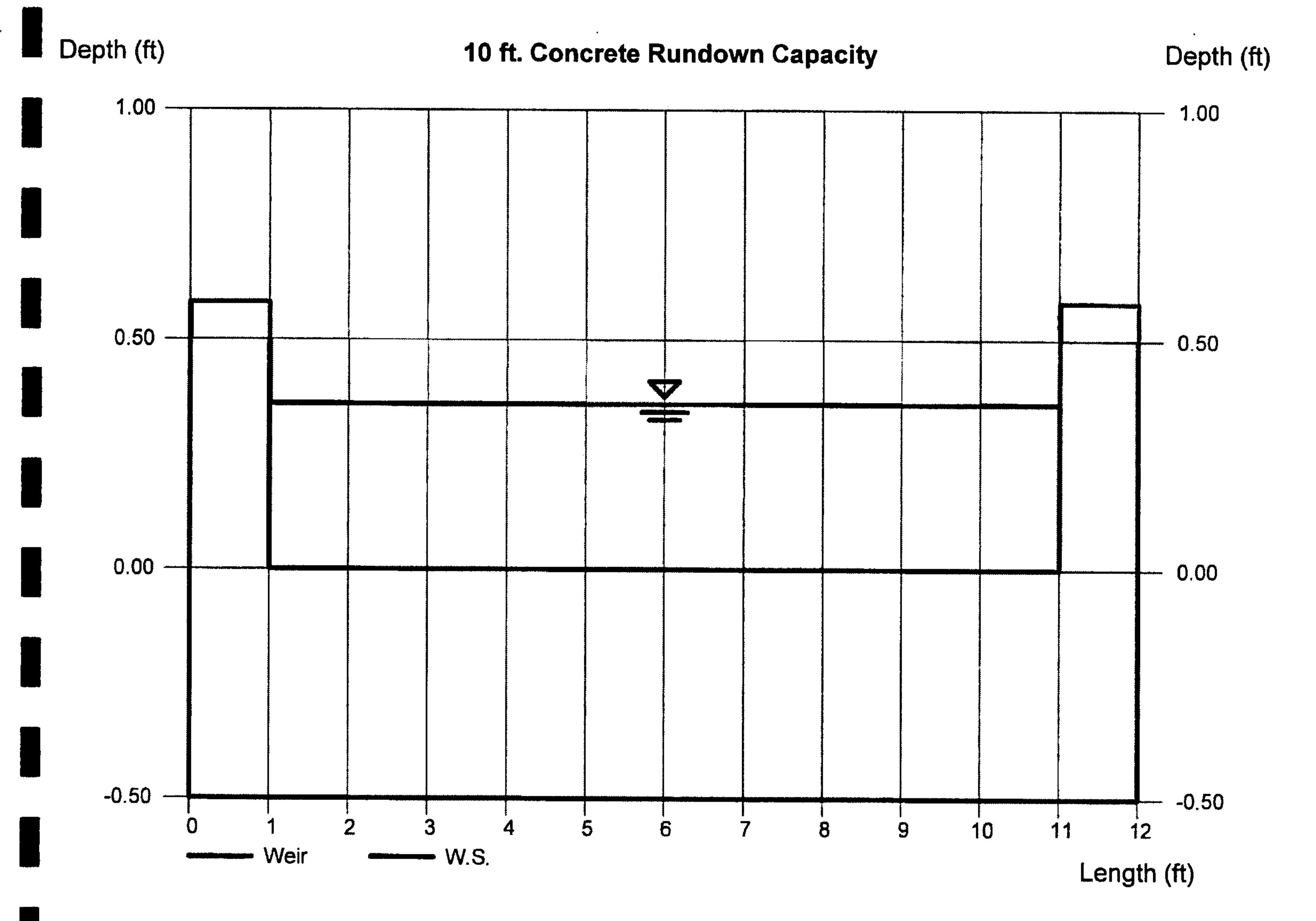
Crest = Sharp
Bottom Length (ft) = 10.00
Total Dooth (ft) = 0.58

Total Depth (ft) = 0.58

Calculations

Weir Coeff. Cw = 3.33 Compute by: Known Q Known Q (cfs) = 7.20 **Highlighted**Depth (ft) = 0.36
Q (cfs) = 7.200

Area (sqft) = 3.60 Velocity (ft/s) = 2.00 Top Width (ft) = 10.00



APPENDIX C VICKREY DR. / SAN ANTONIO PL. NE RUN OFF ANALYSIS

D. MARK GOODWIN & ASSOCIATES

Eccined 11/1976

DRAINAGE REPORT

ACADEMY ACRES

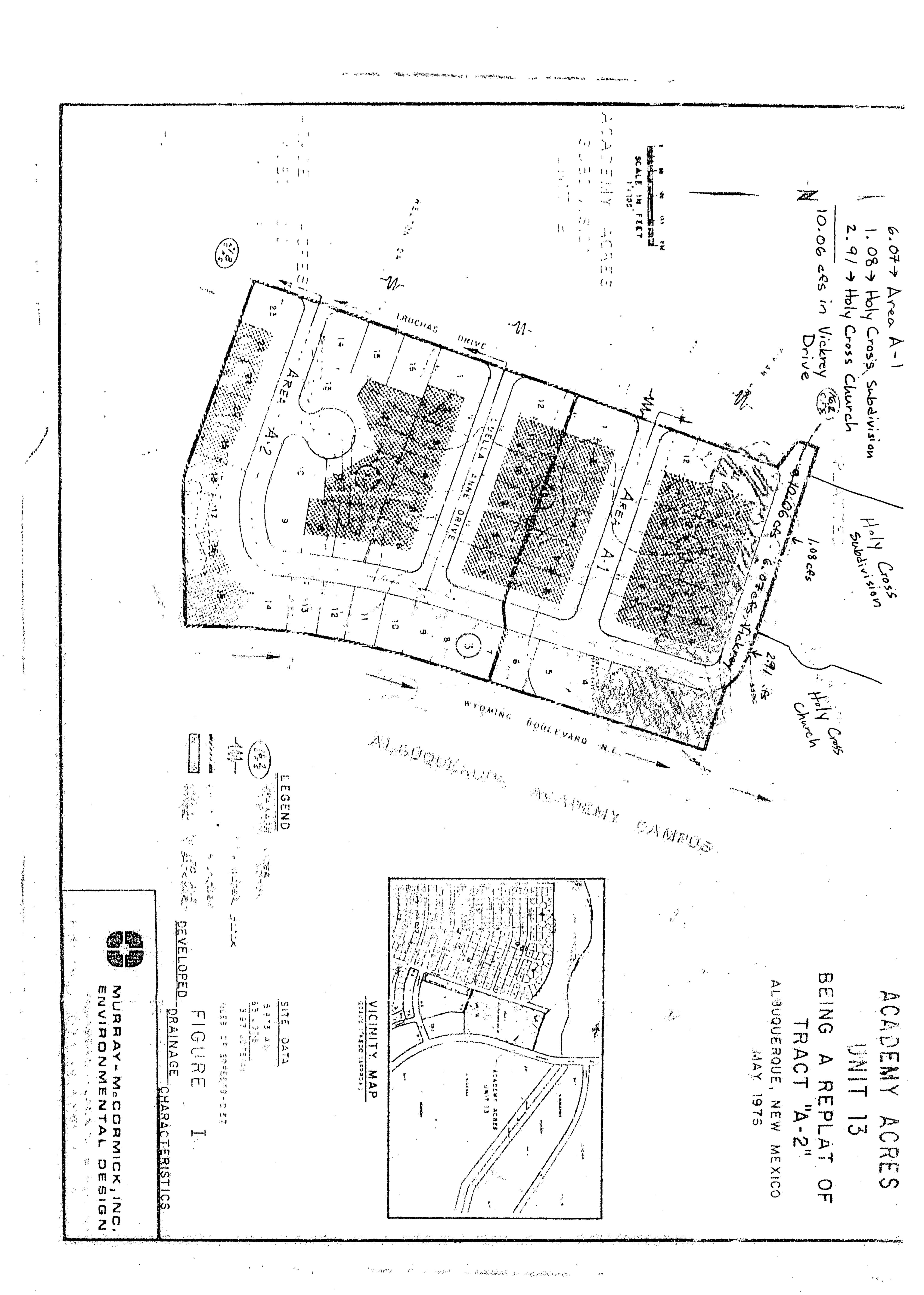
UNIT - 13.

ALBUQUE QUE, NFR MEXICO

MURRAY-MCCORMICK, INC. BENVIRONMENTAL DESIGN

ECOSYSTEMS ANALYSIS PLANNING LAND SURVEYS ENGINEERING

2601 WYOMING BLVD., NE. SUITE F / ALBUGUERQUE, N M. 87110 / 505-292-1936



Channel Report

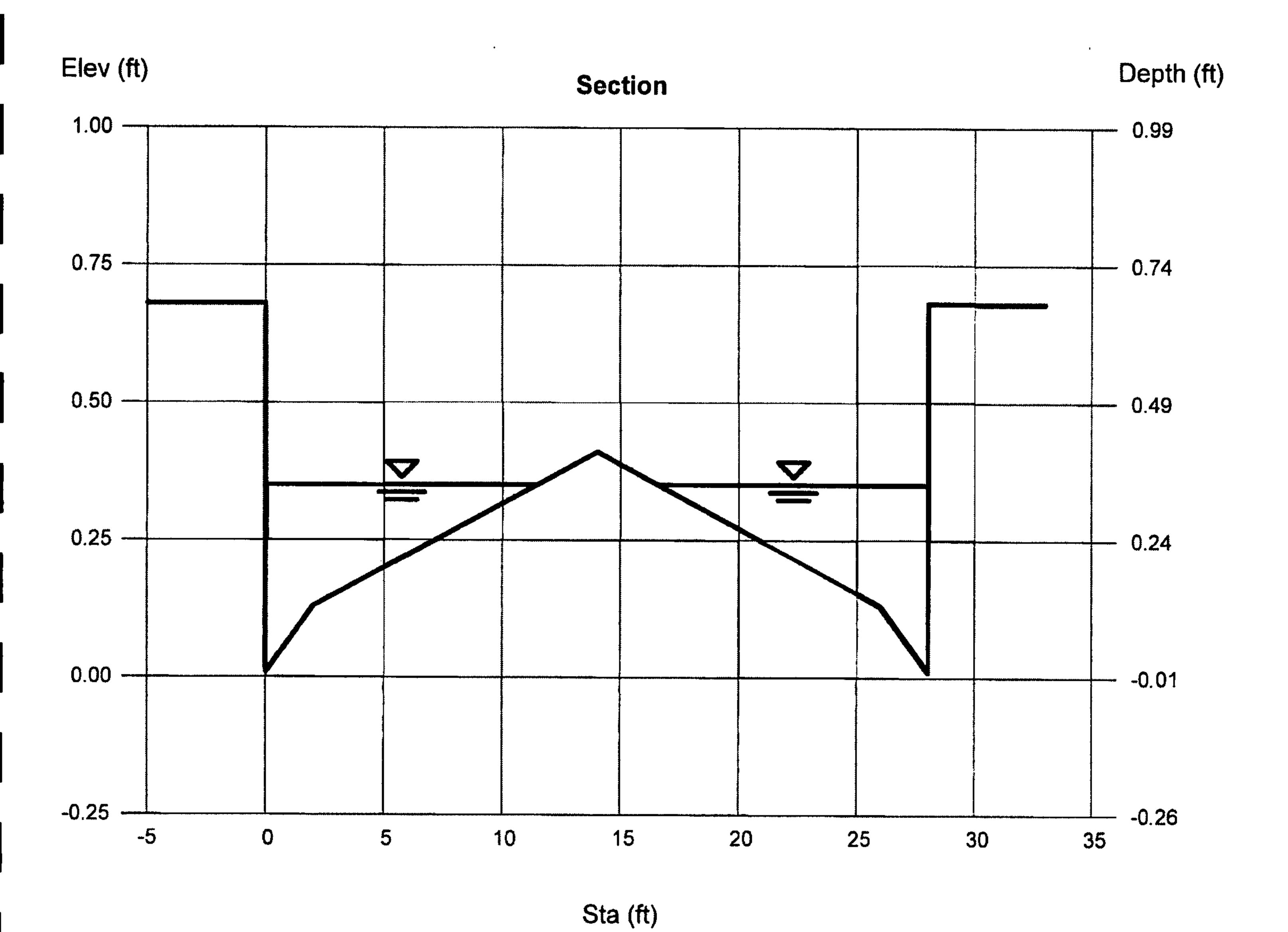
Hydraflow Express Extension for AutoCAD® Civil 3D® 2013 by Autodesk, Inc.

Tuesday, Sep 22 2015

VICKREY RD. Q100 Street Capacity (50 ROW)

User-defined		Highlighted	
Invert Elev (ft)	= 0.01	Depth (ft)	= 0.34
Slope (%)	= 2.00	Q (cfs)	= 10.06
N-Value	= 0.016	Area (sqft)	= 3.20
		Velocity (ft/s)	= 3.15
Calculations		Wetted Perim (ft)	= 23.55
Compute by:	Known Q	Crit Depth, Yc (ft)	= 0.39
Known Q (cfs)	= 10.06	Top Width (ft)	= 22.87
		EGL (ft)	= 0.49

(Sta, El, n)-(Sta, El, n)... (0.00, 0.68)-(0.01, 0.01, 0.013)-(2.01, 0.13, 0.013)-(14.01, 0.41, 0.017)-(26.01, 0.13, 0.017)-(28.01, 0.01, 0.013)-(28.02, 0.68, 0.013)



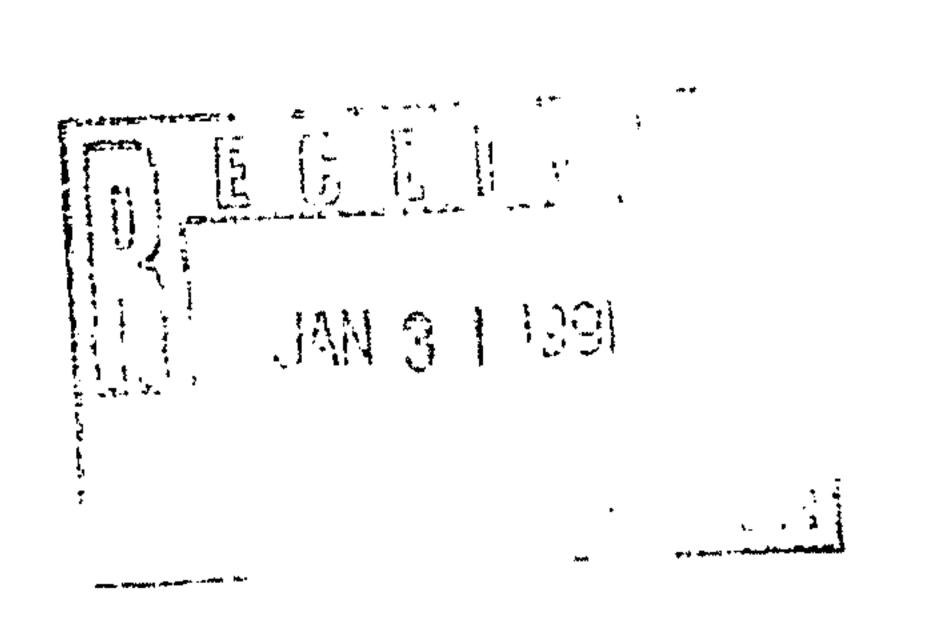


HALL ENGINEERING COMPANY INC. ENGINEERING • SURVEYING • PLANNING • CONSTRUCTION

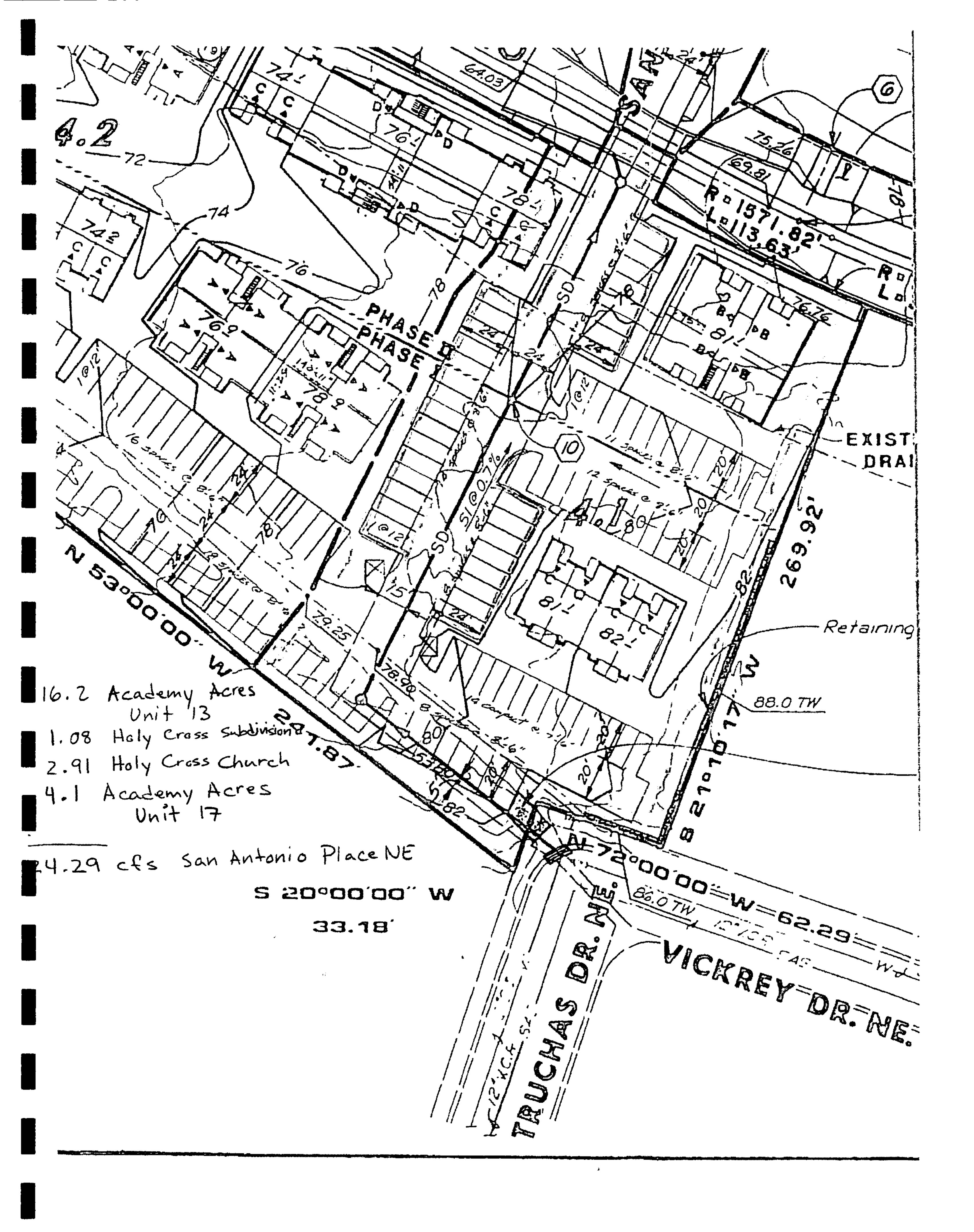
DRAINAGE REPORT

TRACTS D-1-A AND D-1-B ACADEMY ACRES UNIT 17

January, 1991







Channel Report

Hydraflow Express Extension for AutoCAD® Civil 3D® 2013 by Autodesk, Inc.

Thursday, Sep 24 2015

San Antonio Dr. Q100 Street Capacoty (24' F-F)

 User-defined

 Invert Elev (ft)
 = 0.50

 Slope (%)
 = 1.00

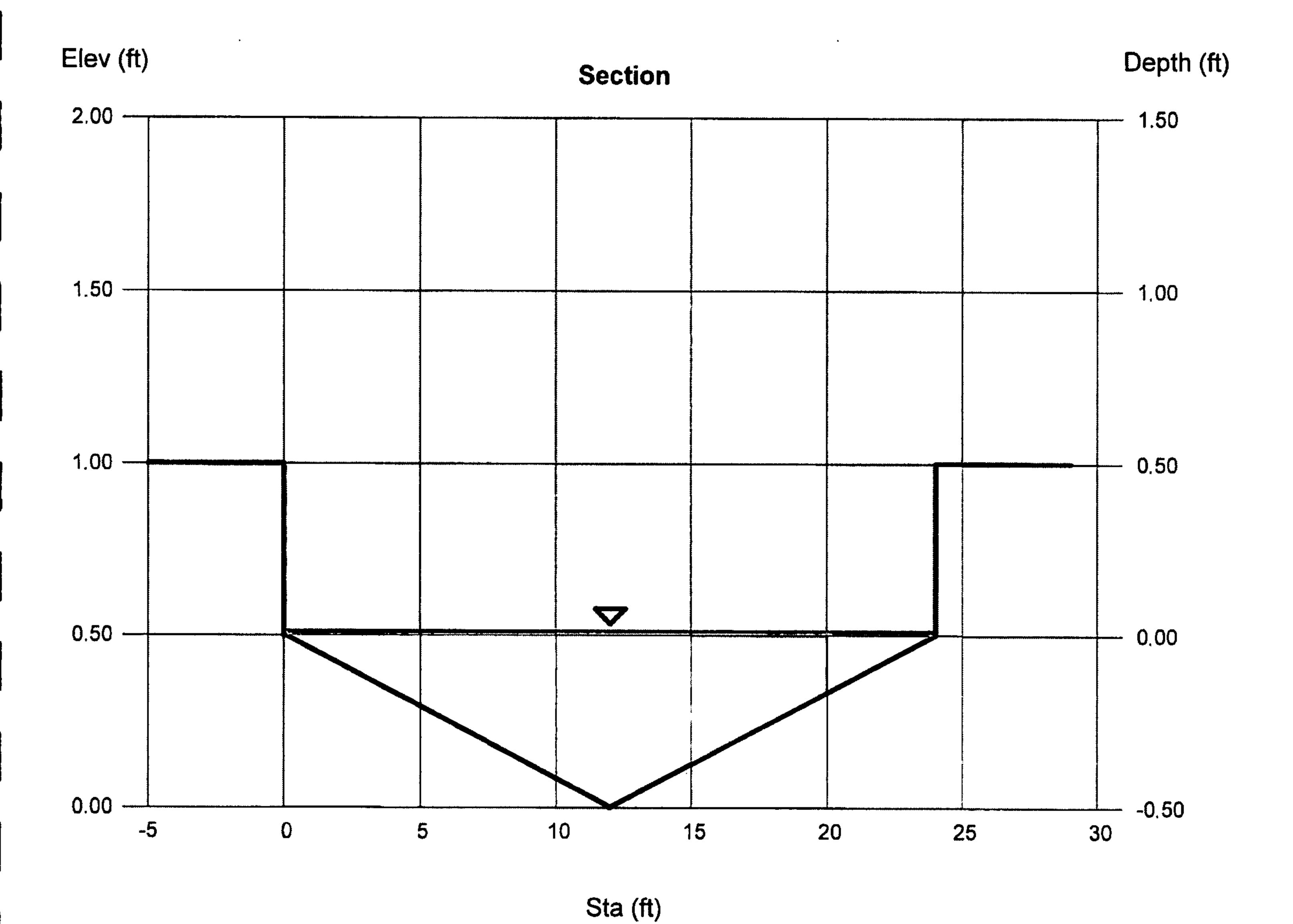
 N-Value
 = 0.015

Calculations

Compute by: Known Q Known Q (cfs) = 24.30

(Sta, El, n)-(Sta, El, n)... (0.00, 1.00)-(24.00, 0.50, 0.015)-(24.00, 1.00, 0.015)

Highlighted Depth (ft) = 0.01Q (cfs) = 24.30Area (sqft) = 6.24Velocity (ft/s) = 3.89Wetted Perim (ft) = 24.04Crit Depth, Yc (ft) = 0.07Top Width (ft) = 24.00EGL (ft) = 0.25



APPENDIX D CITY OF ALBUQUERQUE STORM WATER QUALITY & ILLICIT DISCHARGES ORDINANCE & SECTION 9 STORM WATER POLLUTION CONTROL D. MARK GOODWIN & ASSOCIATES -

ORDINANCE

STORMWATER QUALITY AND ILLICIT DISCHARGES

REGULATING STORMWATER QUALITY AND PROHIBITING ILLICIT DISCHARGES INTO THE CITY'S STORMWATER DRAINAGE FACILITIES

WHEREAS the Clean Water Act was enacted by Congress in 1972;

WHEREAS the City has been subject to stormwater regulation through its Municipal Separate Stormwater System (MS4) permit since 2003;

WHEREAS the City was issued a new Watershed Based MS4 Permit on December 22, 2014that increased regulatory requirements;

WHEREAS enhanced water quality in the Rio Grande is a community value;

WHEREAS enacting this Ordinance will further compliance with an unfunded federal mandate and will reduce stormwater contaminants; and

WHEREAS this ordinance is a significant step toward addressing issues with the existing developed environment relating to stormwater;

BE IT ORDAINED BY THE COUNCIL, THE GOVERNING BODY OF THE CITY OF ALBUQUERQUE:

SECTION 1. The Stormwater Quality and Illicit Discharges Ordinance is hereby adopted to read as follows:

Sec 1. Definitions.

As used in this article, the following terms shall have the meanings ascribed in this section unless the context of their usage clearly indicates another meaning:

Discharge shall mean the introduction or addition of any pollutant, stormwater, or other substance into the MS4, or to allow, permit, or suffer any such introduction or addition that is not specifically allowed by the City of Albuquerque's current MS4 permit.

Discharger shall mean a person who allows, causes, permits, suffers, or threatens to cause a discharge.

Illicit Discharge means any discharge to the MS4 that is not composed entirely of stormwater except discharges pursuant to a NPDES permit or those allowed in Section 10(b).

Impervious – Pertaining to surfaces that are mainly artificial structures that are the result of design, construction, and maintenance – such as pavements (roads, sidewalks, driveways, and parking lots) that are covered by impenetrable materials such as asphalt, concrete, brick, and

stone - and rooftops. Soils compacted by urban development are also highly impervious.

Industrial Activity Certification (IAC) means a certification submitted to the Stormwater Engineer showing compliance with EPA industrial activity regulations.

Industrial Facility means a property that has discharges associated with industrial activity as defined by federal regulations

MS4 or Municipal separate storm sewer system shall mean the system of conveyances owned or operated by the City or any co-permittee of the City that is designed or used for collecting, retention, storage, or conveying storm water.

Non-structural control shall mean a maintenance or operational practice designed to prevent, reduce, or mitigate the potential of stormwater runoff contact with pollution-causing activities.

NPDES shall mean National Pollutant Discharge Elimination System.

NPDES permit shall mean a permit issued by the EPA under Title 33 of the United States Code that authorizes the discharge of pollutants to waters of the United States, whether the permit is applicable on an individual, group, or general basis.

Parcel shall mean a contiguous piece of land that is under common ownership or control or that is part of a larger common plan of development or sale.

Person shall mean an individual, corporation, organization, governmental entity, business trust, partnership, association, or other legal entity, or an agent or an employee thereof.

Point Source means any discernible and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural Stormwater runoff.

Pollutant shall mean, but shall not be limited to, dredged soil, solid waste, incinerator residue, sewage, garbage, sewage sludge, filter backwash, munitions, chemical wastes, biological materials, radioactive materials, wrecked or discarded equipment, sediment, and other material, or any combination thereof, discharged into the MS4 or any waters of the United States.

Pollution shall mean the alteration of the physical, chemical, or biological quality of, or the contamination of, any waters of the United States that renders the water harmful, detrimental or injurious to humans, animal life, vegetation, or property or to public health, safety, or welfare, or otherwise impairs the quality of the water.

Stormwater means stormwater runoff, snow melt runoff, and surface runoff and drainage.

Stormwater Discharge Associated with Industrial Activity means the discharge from any

conveyance which is used for collecting and conveying stormwater and which is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant (See 40 CFR 122.26(b)(14) for specifics of this definition).

Stormwater Engineer means the individual who is responsible for enforcement of this ordinance as designated by the Director of the Department of Municipal Development.

Stormwater Control Permit for Erosion and Sediment Control or SWP. The permit issued pursuant to the Drainage Control Ordinance or this ordinance.

Structure shall mean that which is built or constructed, an edifice or building of any kind, or any piece of work, including, but not limited to, a paved surface, that is artificially built up or composed of parts joined together in some definite manner. The term does not include a street, a channel, or a public utility.

Structural Control, any structure built and maintained to prevent, reduce, or mitigate the potential of stormwater runoff contact with pollution-causing activities.

Sec. 2. General Requirements.

- (A) A person who owns a parcel of property within the City of Albuquerque's corporate boundaries shall be responsible for obtaining a SWP as required in the Drainage Ordinance or as desired by the person owning the parcel in order to comply with this Ordinance. Until a change in ownership of the parcel or termination of the applicable SWP, that person is the SWP permittee.
- (B) If a parcel is located outside the corporate boundaries of the City and stormwater from any portion of the parcel drains into the MS4, then that parcel is subject to this Ordinance.
- (C) Any requirement for a SWP is in addition to any other permit required for development of a parcel.
- (D) The requirements contained in the SWP, at the time of issuance, shall not be increased due to new regulations or adoption of more restrictive requirements in the Development Process Manual, so long as compliance with all permit requirements are maintained.

Sec. 3. Industrial Activity Certification.

At any facility with activity covered by the EPA's Standard Industrial Codes, the operator shall submit to the Stormwater Engineer an Industrial Activity Certification (IAC) in a form approved by the Stormwater Engineer. The IAC may include any one of the following:

(A) A copy of the application for an individual permit from the EPA for stormwater discharges from industrial activity at the facility;

- (B) A copy of the permit issued by the EPA for stormwater discharges from industrial activity at the facility;
- (C) A copy of the Notice of Intent (NOI) for coverage under a Multi-Sector General Permit for stormwater discharges associated with industrial activity issued by the EPA;
- (D) A statement of commitment to file an application for an individual permit from the EPA for stormwater discharges from industrial activity at the facility by a date certain agreed to by the Stormwater Engineer; or
- (E) A statement of commitment to file a NOI for coverage under a general permit for stormwater discharges associated with industrial activity issued by the EPA by a date certain agreed to by the Stormwater Engineer.

Sec. 4. Amendment of a SWP.

- (A) An amendment to the SWP is required in the following events:
 - (1) Change in ownership of the property associated with the SWP. An amended permit issued due solely to a change in ownership shall contain the same terms and conditions as the initial permit;
 - (2) Any substantial deviation is made to a non-structural control or any change is made to a structural control on which the SWP is based; or
 - The subsequent additional development of any parcel covered by that SWP, unless the additional development has already been anticipated and provided for in the Stormwater Pollution Prevention Plan (SWPPP) on which the SWP is based.
- (B) Amendments to a SWP to satisfy subsections (A)(2) and (A)(3) of this section must be obtained before commencement of the activity that triggers the need for the amendment.
- (C) To amend a SWP, the SWP permittee must submit any revisions to the permit including the inspection checklist, maintenance plan and associated construction drawings, together with the appropriate form and amendment fee. The Stormwater Engineer shall review the amendment application and either approve or deny the amendment application based on compliance with the applicable provisions of this article and the Development Process Manual.
- (D) If an amendment is denied, the applicant can appeal to the Technical Standards Advisory Committee set forth in Section 14-5-2-15 of the Drainage Ordinance.

Sec. 5. Revocation of SWP

- (A) The Stormwater Engineer may revoke a SWP after notice and opportunity for a hearing pursuant to this Ordinance if he finds that:
 - (1) The SWP permittee knew or should have known that a statement made in the application for the SWP was false;
 - (2) The SWP permittee has violated any provision of its SWP or of this Ordinance including, but not limited to, failure to amend a SWP;
 - (3) The SWP permittee or anyone acting on his behalf commits or threatens to commit an act of violence against an official either on or off the job for the purpose of intimidating the official so that he will not perform his duties under this Ordinance; or
 - (4) The SWP has been issued in error.
- (B) The Stormwater Engineer shall send a written notification by certified mail, return receipt requested, to the SWP permittee informing him of the grounds for revoking his SWP and inform them of appeal right. The SWP permittee may request a hearing pursuant to this Ordinance by filing a written request with the Stormwater Engineer not later than the tenth day after notification of the grounds for revocation is sent.

Sec. 6. SWP Duration and Termination

- (A) A SWP shall be in effect until expiration, amendment, or termination.
- (B) A SWP may be terminated if a regional or other large stormwater quality program eliminates the need for the SWP or if:
 - (1) All Structural Controls are dedicated to and accepted by the City for maintenance; and
 - (2) No Nonstructural Controls are continuing.
- (C) Determinations regarding termination of a SWP are made by the Stormwater Engineer under the Amendment procedures of this ordinance.

Sec. 7, SWP Exemptions

(A) Exemptions from the requirement to obtain a SWP may be granted to property owners whose property falls under the following percentage of impervious surface versus overall parcel area criteria:

- (1) Detached Residential, Attached Residential and Commercial properties less than one (1) acre in area are exempt. Certain commercial land uses may require further examination when determining if such an exemption is appropriate to the proposed land use**.
- Commercial multi-family properties between one (1) and two and one half (25) acres whose total impervious area is less than 65% of the total area are exempt, otherwise a SWP is required. Certain commercial land uses may require further examination when determining if such an exemption is appropriate to the proposed land use**. Non-exempt properties which fall into this size category are given six (6) years to obtain a SWP from the date of Certificate-of-Occupancy (CO).
- (3) Commercial multi-family properties between five (5.0) and twenty (20) acres whose total impervious area is less than 65% of the total area are exempt, otherwise a SWP is required within two (2) years. Certain commercial land uses may require further examination when determining if such an exemption is appropriate to the proposed land use**. Non-exempt properties which fall into this size category are given three (3) years to obtain a SWP from the date of CO or three (3) years from date of ordinance.
- (4) Commercial multi-family properties greater than twenty (20) acres whose total impervious area is less than 65% of the total area are exempt, otherwise a SWP is required. Certain commercial land uses may require further examination when determining if such an exemption is appropriate to the proposed land use**.Non-exempt properties which fall into this size category are required to obtain a SWP prior to obtaining a CO within one (1) year.
- (5) In the event an otherwise exempt parcel is determined in writing by the Stormwater Engineer to have a heightened risk of improper discharge, then that parcel shall not be exempt from the requirement to obtain an SWP.
 - ** Commercial uses which may require additional examination include, but are not limited to: animal kennels, animal health care, auto repair shops (indoor and outdoor), auto parts sales, auto salvage, auto sales, carwashes, gas stations, fueling facilities, laundry dry cleaners, restaurants, warehouses, and other commercial uses not covered under the EPA's Multi-Sector General Permit (MSGP).

Sec. 8. SWQP Reporting

At a minimum, the SWP permittee shall certify that all required Structural Controls have been maintained and Non-structural Controls have been performed according to the SWP every three

years in a form satisfactory to the City. Shorter reporting durations may be required within the SWP. If Structural Controls are in use, then a New Mexico registered professional engineer or other entity acceptable to the City shall also certify that all Structural controls continue to conform to the plans and technical specifications. NOTE: Sentence is underlinded.

Sec. 9. SWP Recordation.

A copy of the approved SWP and any amendments shall be kept on file with the City.

ILLICIT DISCHARGES AND CONNECTIONS

Sec. 10. Discharge to MS4 Prohibited.

- (A) A person commits an offense if the person attempts to introduce, introduces, or causes to be introduced into the MS4 any discharge that is not composed entirely of storm water except:
 - (1) A discharge authorized by, and in compliance with, a current NPDES permit (other than the City of Albuquerque's NPDES permit for discharges from the MS4);
 - (2) Any discharge in compliance with a SWP
 - (3) Any nonprohibited discharge from an exempt parcel
 - (4) A discharge or flow resulting from fire fighting by the fire department if that discharge is not reasonably expected to be a significant source of pollutants to the MS4;
 - (5) Water line flushing, provided that the water is not significantly chlorinated when reaching a receiving water;
 - (6) Rising ground waters;
 - (7) Ground water infiltration;
 - (8) Irrigation water from agricultural operations;
 - (9) Flows from riparian habitats and wetlands;
 - (10) Dechlorinated discharges of potable water; or
 - Materials resulting from a spill where the discharge is necessary to prevent loss of life, personal injury, or property damage provided that the party responsible for the spill takes all reasonable steps to minimize or prevent any adverse effects to human health or the environment.
 - (12) Any stormwater flows from property in a native undisturbed state.

- (B) Notwithstanding the exceptions above, no discharge shall be allowed if:
 - (1) The discharge or flow in question has been determined by the City Engineer to be a source of a pollutant or pollutants to the MS4;
 - (2) Written notice of such determination has been provided to the discharger; and,
 - (3) The discharge has continued after the expiration of the time given in the notice to cease the discharge.

Sec. 11. Express Prohibitions

No person shall:

- (A) Leave, accumulate, discharge, or allow animal waste on a publicly owned property or on private property that will drain to the MS4;
- (B) Allow any fluids from motor vehicles to drip or flow on public property or in the MS4;
- (C) Blow or cause dirt, leaves or other organic or inorganic material to leave private property and be located on any public property or in the MS4;
- (D) Allow sanitary sewer overflows from private property to enter publicly owned property. Sanitary sewer overflows shall be contained to the property of origin and the owner of the property shall bear the cost of proper disposal and cleanup. Disposal and cleanup shall be initiated and completed as expeditiously as possible, and in no case shall exceed 48 hours from the time of detection.
- (E) Allow sanitary sewer from private property to enter the MS4 through an underground cross-connection of sanitary sewer pipe into storm sewer pipe. Should such a cross-connection be detected, the owner of the property that is the origin of the sanitary sewer discharge shall bear the cost of removing the cross-connection. Proper permitting must be obtained prior to performing the work.
- (F) Allow any other non-authorized, non-stormwater discharge to enter the MS4.

Sec. 12. Unpermitted Discharges Associated with Industrial Activity Prohibited.

A person who is the owner or operator of an industrial facility that has discharges associated with industrial activity as defined by federal regulations must apply for and acquire an EPA Multi Sector General Permit. The owner or operator shall notify the Stormwater Engineer of such application and any federal notice of intent or notice of termination.

COMPLIANCE AND ENFORCEMENT

Sec. 13. Compliance Monitoring; Methods.

- (A) At any facility that discharges stormwater to the MS4, the Stormwater Engineer shall have the right to install, or to require the installation of, such devices as are necessary to conduct sampling or metering of the discharger's operations at the expense of the City.
- (B) The Stormwater Engineer may require any I facility that is this reasonably determined to have discharged a pollutant or any substance that causes, continues to cause, or will cause pollution, to conduct specified sampling, testing, analysis and other monitoring of its stormwater discharges. The Stormwater Engineer may specify the frequency and parameters of any required sampling or monitoring.
- (C) The Stormwater Engineer may require any facility that has been found to have violated this ordinance to install monitoring equipment as necessary at the discharger's expense. The discharger, at its own expense, shall at all times maintain the facility's sampling and monitoring equipment in a safe and operating condition. Each device used to measure storm water flow and quality must be calibrated regularly to ensure accuracy. The Stormwater Engineer may also require monitoring of non-storm water discharges if the Stormwater Engineer reasonably believes that such discharges violate the City's MS4 permit requirements.
- (D) Upon written request of the Stormwater Engineer, an facility shall submit in writing the results of any sampling or monitoring undertaken pursuant to the requirements of this article.
- (E) facilities shall maintain the results of any monitoring and any supporting documentation undertaken pursuant to this Ordinance for three (3) years
- (F) All monitoring required by this Ordinance shall be performed in accordance with the established methodologies and protocols of the EPA or New Mexico Environmental Department.

Sec. 14. Regulations and Forms Authorized.

The Stormwater Engineer shall promulgate regulations and forms regarding compliance with the requirements of this article. Such regulations and forms shall be available at the office of the City Engineer; the office of the Stormwater Engineer; and on the City website. The regulations and forms established hereunder may be amended or supplemented from time to time.

Sec. 15. Cumulative Effect.

- (A) This Ordinance is cumulative of other requirements imposed by Ordinances and Regulations of the City. To the extent of any inconsistency, the more restrictive provision shall govern.
- (B) Any authorization granted by this Ordinance does not excuse compliance with federal or state law or any other provisions of this Code or any other City ordinance relating to the activities regulated by this article.

Sec. 16. Remedies Not Exclusive.

The remedies listed in this article are not exclusive of any other remedies available under any applicable federal, state, or local law. It is within the discretion of the City to seek cumulative remedies. The suspension, revocation, cancellation, or denial of any permit issued under this article shall not prohibit imposition of any civil or criminal penalty. The imposition of a civil or criminal penalty shall not prohibit any other remedy and shall not prohibit the suspension, revocation, or denial of any permit issued under this article. (NOTE: These two sentences are underlined).

Sec. 17. Access to facilities and records.

- (A) When it is necessary to make an inspection to enforce the provisions of this article or to inspect or investigate conditions related to water quality, an authorized City official may enter a building or premises at reasonable times to inspect or to perform the duties imposed by this article or to inspect or review records, reports, data, plans, or other documents relating to compliance with this article or with any NPDES storm water permit. If the building or premises is occupied, credentials must be presented to the occupant and entry requested. If the building or premises is unoccupied, the authorized City official shall first make a reasonable effort to locate the owner or other person having charge or control of the building or premises and request entry. If refused, the authorized City official shall have recourse to the remedies provided by law to secure entry.
- (B) When, due to emergency, immediate entry is necessary to protect life or property, or when the authorized City official shall have first obtained a proper inspection warrant or other remedy provided by law to secure entry, no owner, occupant or any other person having charge, care or control of any building or premises shall fail or neglect, after proper request is made as herein provided, to promptly permit entry therein by the authorized City official for the purpose of inspection and investigation pursuant to this article or other laws relating to storm water quality.
- (C) Any temporary or permanent obstruction to safe and easy access to a facility that is to be inspected or sampled must be promptly removed upon the written request of the authorized City Official or Stormwater Engineer and may not be replaced.

The cost of clearing access to the facility shall be borne by the discharger.

(D) The Stormwater Engineer or any City police officer are hereby authorized to undertake the activities authorized by this section.

Sec. 18. Criminal enforcement provisions applicable.

- (A) Any person who violates any provision of this article shall be guilty of an offense and upon conviction thereof, shall be punished by a fine of not less than \$250.00 nor more than \$500.00 and up to thirty (30) days in jail for each violation. Each day in which any violation shall occur shall constitute a separate offense. Prosecution or conviction under this section shall not preclude any civil remedy or relief for a violation of this article. Once cited for an offense, an additional citation may be issued for each day the violation continues unless the violator has entered into an agreement with the City for mitigation, correction and any other necessary action and is acting in conformity with the agreement and the schedule in the agreement.
- (B) In addition to criminal prosecution, where applicable, the City shall have the right to seek the judicial remedies provided in section 18 of this Ordinance for any violation of this article.

Sec. 19. Civil enforcement provisions applicable.

- (A) The City, acting through the City attorney, is hereby authorized to file an action in a court of competent jurisdiction to:
 - (1) Enjoin any person from violating or threatening to violate the terms, conditions and restrictions of any permit issued under this article;
 - (2) Enjoin the violation or threatened violation of the provisions of this Ordinance; or
 - (3) Recover civil penalties for violation of the terms, conditions and restrictions of any permit authorized under this article;
 - (4) Recover civil penalties for violation of the provisions of this Ordinance; or
 - Recover damages from the owner of a parcel in an amount adequate for the City to undertake any construction remediation, cleanup, or other activity necessary to bring about compliance with this chapter. In addition to judicial remedies, such damages are recoverable through the imposition of a municipal lien on the parcel under NMSA 1978, § § 3-36-1 to 3-36-5.
- (B) The City, acting through the City Attorney, is hereby authorized to enter into

agreements in lieu of litigation to achieve compliance with the terms, conditions and restrictions of any SWQP authorized under this article or the provisions of this article.

- (C) The City's authority in subsections (A) and (B) is in addition to all provisions of these Ordinances relative to the definition of offenses and the provision of penalties for violations of such offenses.
- (D) Nothing in this Ordinance shall provide for a private cause of action.

Sec. 20. Appeals; Hearing.

Any person whose SWQP is revoked, or who is otherwise aggrieved by a notice, action or decision by the Stormwater Engineer, Director of Department of Municipal Development, or Building Official undertaken pursuant to this article, shall submit a written notice of appeal to the Stormwater Engineer within fifteen (15) days of such revocation, notice, action, or decision. Upon such timely submission, the aggrieved person shall be entitled to a hearing to be conducted by a hearing officer designated by the City. The hearing officer shall render a decision within five days after the close of the hearing. Where time is of the essence, the aggrieved person may so advise and state the reason therefore in the request and, to the extent reasonably warranted and allowed by the circumstances, an expedited hearing of the issue may be afforded."

SECTION 2.1 SEVERABILITY If any section, paragraph, sentence, clause, word or phrase of this Ordinance is for any reason held to be invalid or unenforceable by any court of competent jurisdiction, such decision shall not affect the validity of the remaining provisions of this Ordinance. The Council hereby declares that it would have passed this Ordinance and each section, paragraph, sentence, clause, word or phrase thereof irrespective of any provision being declared unconstitutional or otherwise invalid.

SECTION 2.2. COMPILATION. This Ordinance shall be incorporated in and made part of the Revised Ordinances of Albuquerque, New Mexico, 1994.

SECTION 2.3. EFFECTIVE DATE. This Ordinance shall take effect five days after publication by title and general summary.

Section 9. STORM WATER POLLUTION CONTROL

A. General

As a requirement in the City of Albuquerque Municipal Storm Water Discharge Permit from the Environmental Protection Agency (EPA), the City must include post construction controls to minimize the discharge of storm water pollutants from areas of new development and significant redevelopment.

The following design standards were created in an effort to ensure that, to the maximum extent practicable, new development and projects that require drainage plans do not increase post-development pollutant loads from the project site.

B. Applicability

Priority Project categories have been developed to address the more serious development categories that historically have the potential to generate serious post-development storm water pollution problems. All new development and projects that require drainage plans and that fall into one of the following Priority Project categories are subject to Structural Treatment Control Best Management Practices (BMPs) requirements.

- Retail, Warehouse and Office Developments in excess of 0.5 acres site size.
- Automotive Repair Shops
- Restaurants
- Gas Stations/Fueling Facilities
- Dumpster, Compactor and Waste Collection and Storage Pads on all commercial and industrial sites
- Residential developments with more than 10 residential units, excluding single family housing subdivisions

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Project Number:	

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FIGURE 12

INFRASTRUCTURE LIST

Date Submitted: September 18, 2015 Date Site Plan Approved: Date Preliminary Plat Approved: Date Preliminary Plat Expires: DRB Project No.: 1006844

DRB Application No.:_____

EXHIBIT "A"

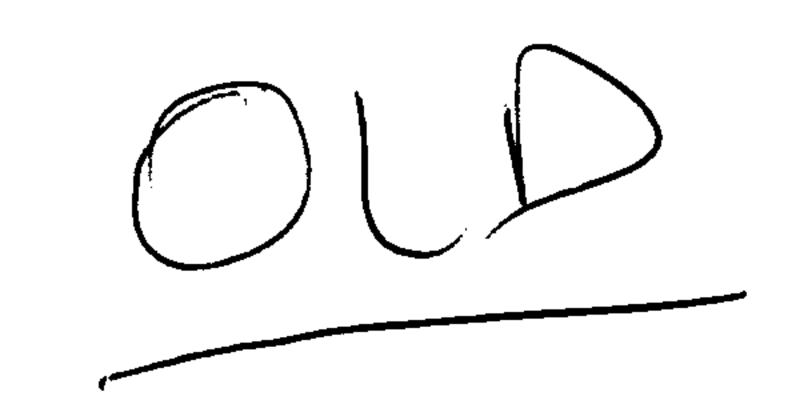
TO SUBDIVISION IMPROVEMENTS AGREEMENT

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

Holy Cross Subdivision (Preliminary Plat) PROPOSED NAME OF PLAT AND/OR SITE DEVELOPMENT PLAN

A TRACT OF LAND SITUATE WITHIN THE ELENA GALLEGOS GRANT, PROJECTED SECTION 30, TOWNSHIP 11 NORTH, RANGE 4 EAST, NEW MEXICO PRINCIPAL MERIDIAN, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO, BEING ALL OF TRACT A-1-A, LANDS OF LUTHERAN CHURCH IN AMERICA, AS THE SAME IS SHOWN AND DESIGNATED ON SAID PLAT FILED FOR RECORD IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, NEW MEXICO ON , 2015 IN PLAT BOOK, PAGE, AND CONTAINING 2.1514 ACRES MORE OR LESS.

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 required as a condition 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

ſ	of project acce	ptance and close ou	t by the City.
	SIA Sequence #	COA DRC Project #	Size 26' FF
			4' 4'
			27' FF 4' 4'
			4'
			4' 4'
			6" 6"
			8 " 8"
			10' 5' 12"
			•

			—	₩
Size	Type of Improvement	Location	From	То
26' FF	PAVING Res Pvmt	Papaya Street	Vickrey Drive	Lot 9
20 FF	C&G			
4'	Sidewalk (West Side) (1)			—
4'	Sidewalk (East Side) (1)	Papaya Street	Vickrey Drive	Tangerine Court
07) EE	Dec Dumi	Tangerine Court	Papaya Street	End of Cul-de-Sac
27' FF	Res Pvmt	, <u></u>	• •	
4'	C&G Sidewalk (North Side)(1)	Tangerine Court	Papaya Street	Lot 15
4'	Sidewalk (South Side) (1)	Tangerine Court	Lot 5	Lot 6
4'	Sidewalk (South Side)	Tangerine Court	Lot 4	
4'	Sidewalk (East Side)	Tangerine Court	End of Cul-de-Sac	
4'	Sidewalk (North Side)	Tangerine Court	Tract A-1-B	
	WATER			.
6"	Waterline	Papaya Street	Vickrey Drive	Lot 9
6"	Waterline	Tangerine Court	Papaya Street	End of Cul-de-Sac
	SANITARY SEWER			_
8*	SAS	Papaya Street	Vickrey Drive	Lot 9
8"	ŞAS	Tangerine Court	Papaya Street	End of Cul-de-Sac
	STORM DRAIN			
10'	Concrete Rundown	Papaya Street	North End	Pino Arroyo Channel
5'	Concrete Rundown	Holy Cross Church	North End	Pino Arroyo Channel
12"	Sidewalk Culvert	Holy Cross Church	South End	Vickrey Drive

Private Inspector /	City inspector /	City Cnst Engineer
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		- 00ID and an	proved for Impact Fee credits. Signature	es from the Impact Fee Ad	ministrator and the City	User Department is requ	ired prior to DRB app	roval of
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Financially Guaranteed	Constructed Under	Size	Type of Improvement	Location	From	To	Private	City Cnst
DRC #	DRC #						Inspector P.E.	Engineer
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								/ /
					Approval of Credital	ble Items:	Approval of Creditat	ole Items:
					Impact Fee Admistra	ator Signature Date	City User Dept. Sig	nature Date
4 5 6		ge Certification	nanholes, inlets, channels, bends, and side and perimeter wall construction required pri	DEVELOPMENT	REVIEW BOARD MEMB			Plan)
	NAME (print)	OCIATES.	DRB C	HAIR - date				
MARKG	OODWIN & ASS	JUGIATES	TRANSPORTATION	DEVELOPMENT - date		AMAFCA - date		
7	SIGNATURE - pate	9	25/0/5 UTILITY DEVI	ELOPMENT - date		- date		
	TIME ALLOWED TO C	ONSTRUCT		SINEER - date		- date		
EXTENS	SION: N/A	<u> </u>	DESIG	N REVIEW COMMITTEE R	EVISIONS			
				IISER DE	PARTMENT	AGE	NT /OWNER	
	REVISION	DATE	DRC CHAIR					
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