

CITY OF ALBUQUERQUE



June 21, 2017

Diane Hoelzer, P.E.
Mark Goodwin & Associates
PO Box 90606
Albuquerque, NM, 87199

**RE: Glendesto Subdivision
Grading Plan and Drainage Report
Engineers Stamp Date: 6/15/17
Hydrology File: B18D020**

Dear Ms. Hoelzer:

Based on the information provided in your submittal received on 6/16/17, the Grading Plan and Drainage Report are not approved for Grading Permit or Preliminary Plat. The following comments must be addressed prior to approval:

1. The proposed channel on Tract A needs to be designed to accommodate 1.0' freeboard according to Ch. 22 of the DPM. Also the channel top width in the drainage report is 9' wide, but the top width shown on the grading plan is only 5' wide.
2. What happens where the Tract A channel crosses the sidewalks on Glendale and at the hammerhead? It seems like arrays of sidewalk culverts need to be sized and designed here and included on the Infrastructure List.
3. The Glendale roadside channel designed in the drainage report does not match the channel shown on the plans.
4. What happened to the double retaining wall along the west side of lot 23, formerly lot 8? The single retaining wall topped with a garden wall will exceed the 8' maximum and the double wall may infringe on the 5' setback for the pad.
5. Recheck the pad elevations. Many pads have enough elevation difference to require retaining walls in between lots such as: lot 21, and lot 24/25.
6. A revised ESC plan is required prior to Grading Permit approval.

CITY OF ALBUQUERQUE



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

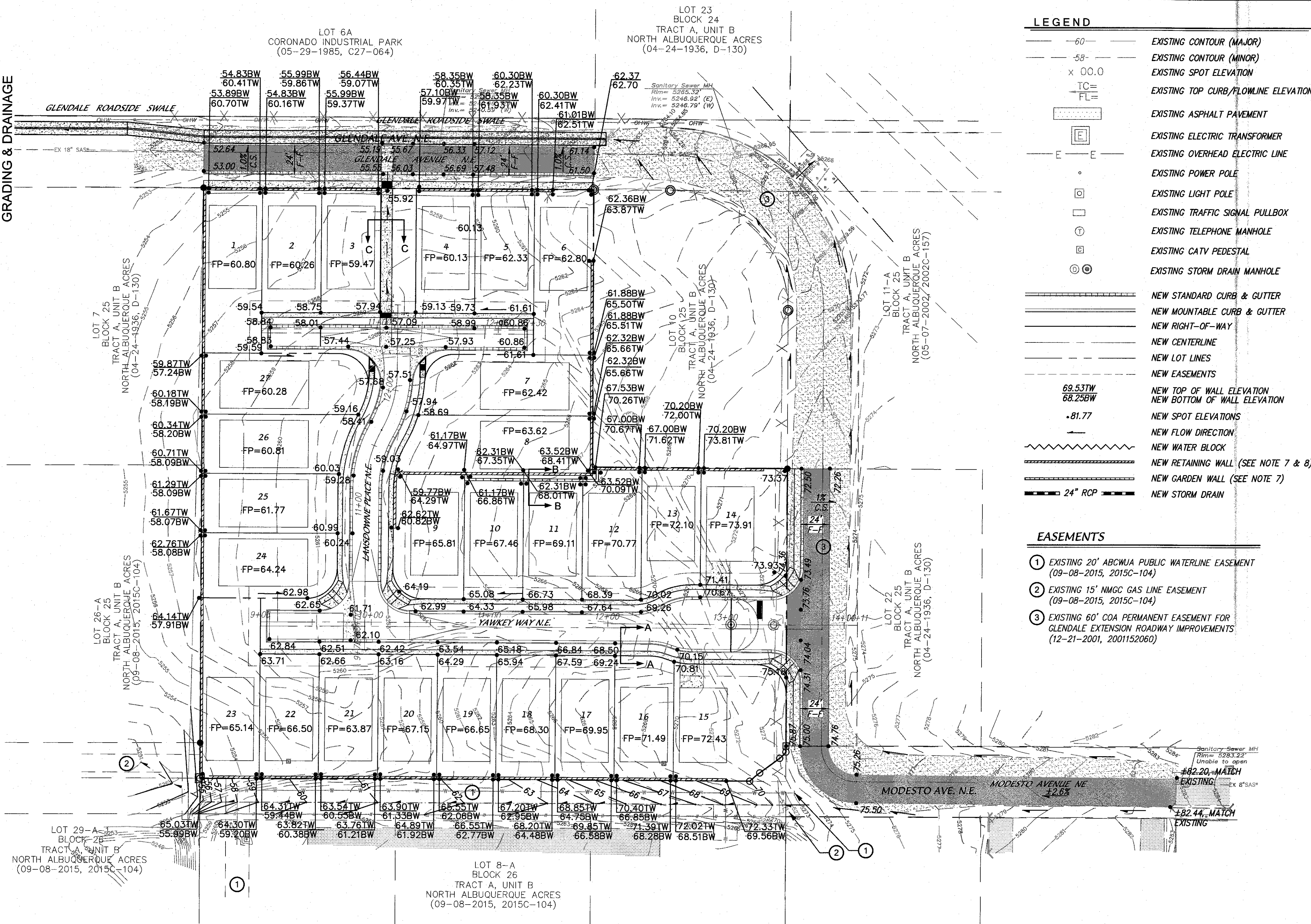
PO Box 1293

Albuquerque

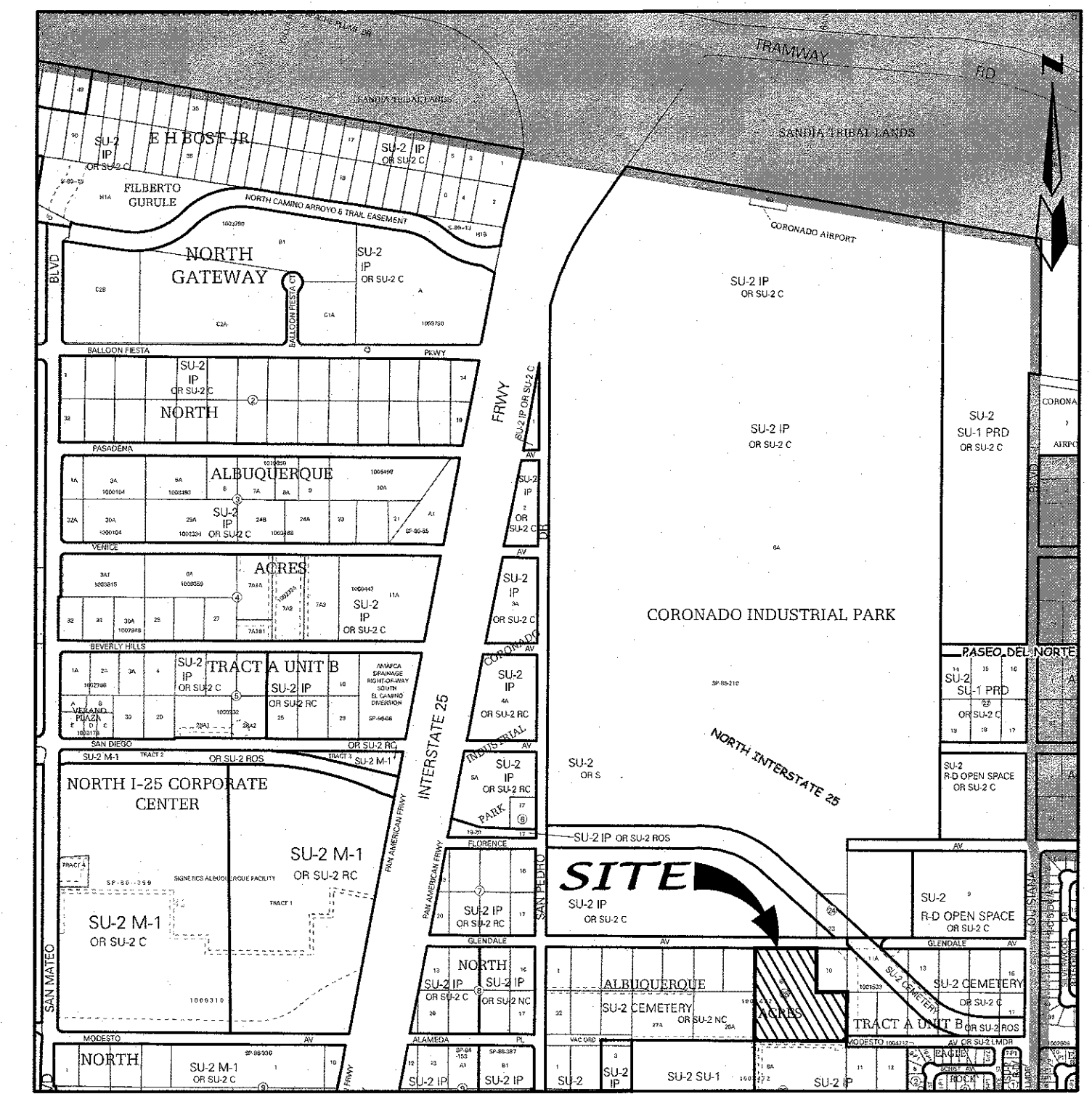
New Mexico 87103

www.cabq.gov

SEE SHEET 2 FOR OFF-SITE
GRADING & DRAINAGE



- LEGEND**
- 60 — EXISTING CONTOUR (MAJOR)
 - 58 — EXISTING CONTOUR (MINOR)
 - x 00.0 EXISTING SPOT ELEVATION
 - TC= EXISTING TOP CURB/FLOWLINE ELEVATION
 - FL= EXISTING ASPHALT PAVEMENT
 - E E EXISTING ELECTRIC TRANSFORMER
 - E E EXISTING OVERHEAD ELECTRIC LINE
 - EXISTING POWER POLE
 - EXISTING LIGHT POLE
 - EXISTING TRAFFIC SIGNAL PULLBOX
 - EXISTING TELEPHONE MANHOLE
 - EXISTING CATV PEDESTAL
 - EXISTING STORM DRAIN MANHOLE
 - NEW STANDARD CURB & GUTTER
 - NEW MOUNTABLE CURB & GUTTER
 - NEW RIGHT-OF-WAY
 - NEW CENTERLINE
 - NEW LOT LINES
 - NEW EASEMENTS
 - NEW TOP OF WALL ELEVATION
 - NEW BOTTOM OF WALL ELEVATION
 - NEW SPOT ELEVATIONS
 - NEW FLOW DIRECTION
 - NEW WATER BLOCK
 - NEW RETAINING WALL (SEE NOTE 7 & 8)
 - NEW GARDEN WALL (SEE NOTE 7)
 - NEW STORM DRAIN
- EASEMENTS**
- EXISTING 20' ABCWJA PUBLIC WATERLINE EASEMENT (09-08-2015, 2015C-104)
 - EXISTING 15' NMGC GAS LINE EASEMENT (09-08-2015, 2015C-104)
 - EXISTING 60' COA PERMANENT EASEMENT FOR GLENDALE EXTENSION ROADWAY IMPROVEMENTS (12-21-2001, 2001152060)



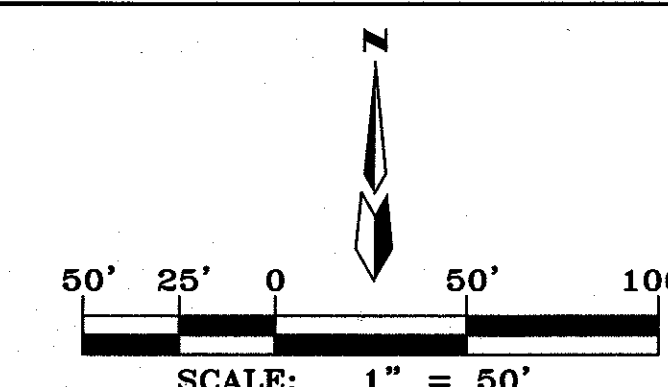
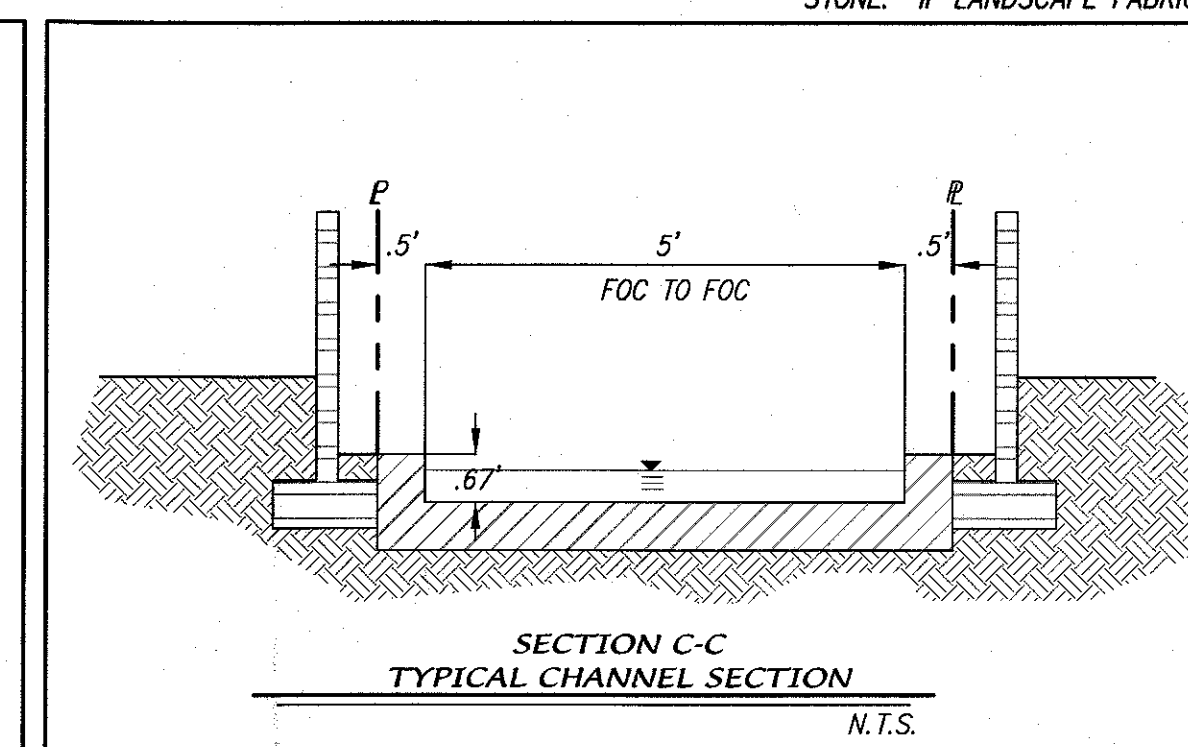
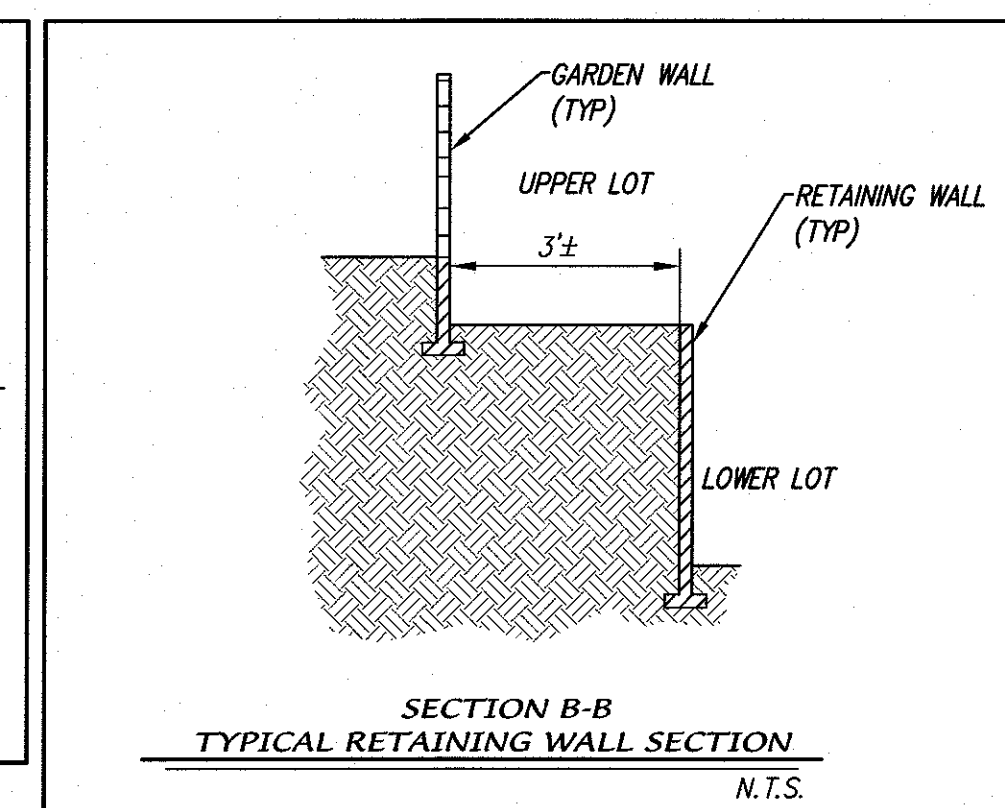
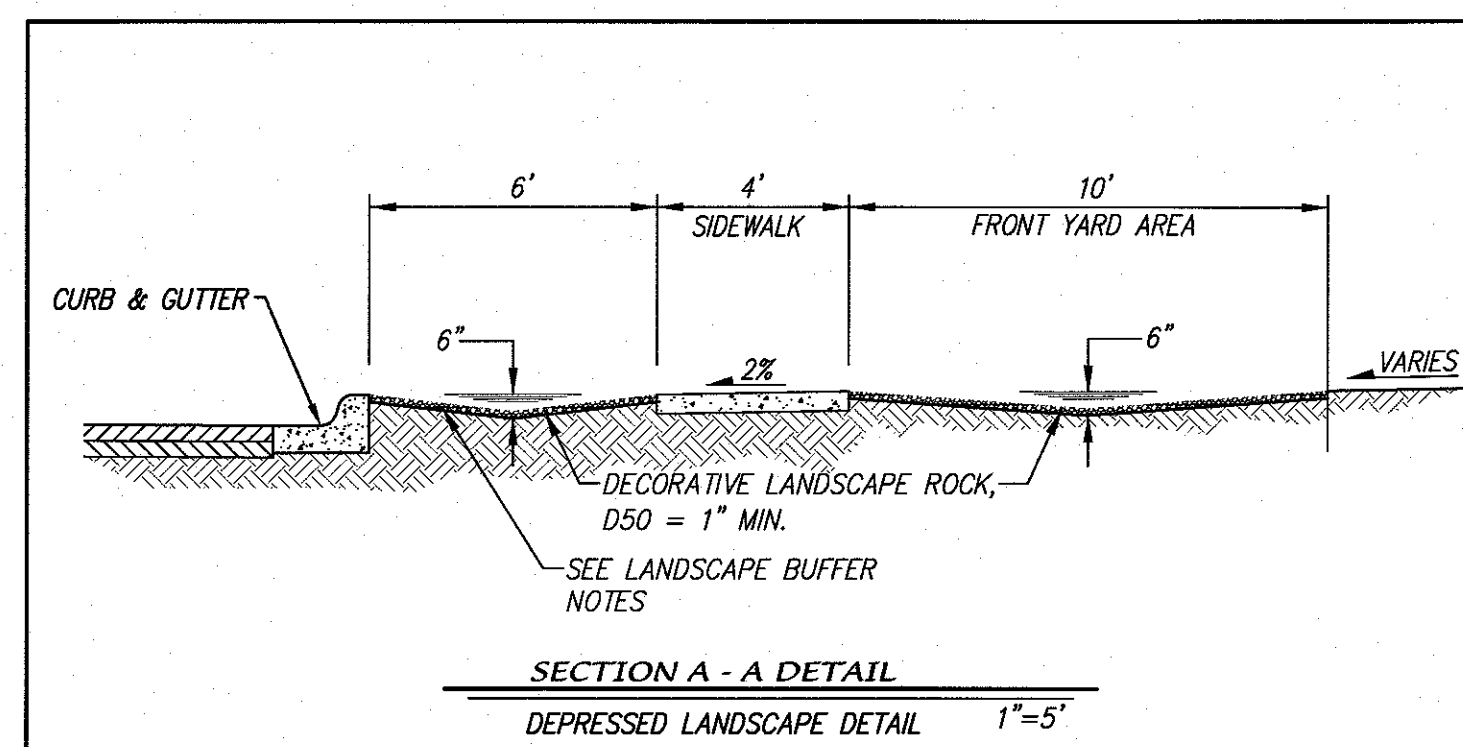
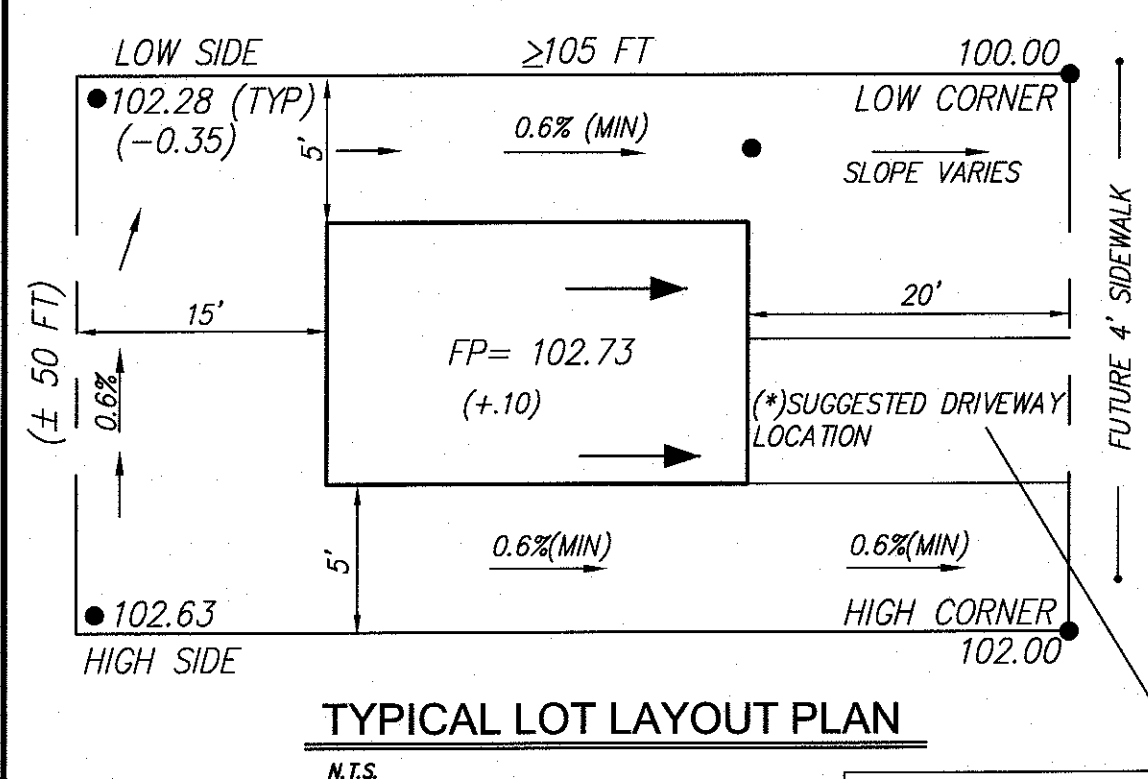
VICINITY MAP (NTS) ZONE ATLAS MAP B-18

LEGAL DESCRIPTION

A TRACT OF LAND SITUATE WITHIN THE ELENA GALLEGOS GRANT, PROJECTED SECTION 12, TOWNSHIP 11 NORTH, RANGE 3 EAST, NEW MEXICO PRINCIPAL MERIDIAN, CITY OF ALBUQUERQUE, BERNILLO COUNTY, NEW MEXICO, BEING ALL OF LOT 8-A, BLOCK 25, TRACT A, UNIT B, NORTH ALBUQUERQUE ACRES, AS THE SAME IS SHOWN AND DESIGNATED ON SAID PLAT, FILED FOR RECORD IN THE OFFICE OF THE COUNTY CLERK OF BERNILLO COUNTY, NEW MEXICO, ON SEPTEMBER 8, 2015, IN PLAT BOOK 2015C, PAGE 104, AND CONTAINING 4.7676 ACRES MORE OR LESS.

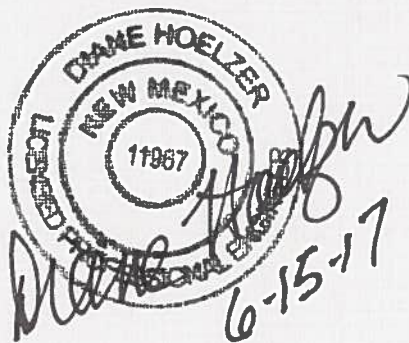
- NOTES**
- CONTRACTOR MUST OBTAIN A TOPSOIL DISTURBANCE PERMIT FROM THE ENVIRONMENTAL HEALTH DIVISION PRIOR TO CONSTRUCTION.
 - CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION SHALL GOVERN ALL WORK.
 - THE CONTRACTOR SHALL CONFORM TO ALL CITY, COUNTY, STATE AND FEDERAL DUST CONTROL MEASURES AND REQUIREMENTS AND WILL BE RESPONSIBLE FOR PREPARING AND OBTAINING ALL NECESSARY APPLICATIONS AND APPROVALS.
 - THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE LOTS INTO PUBLIC RIGHT-OF-WAY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AND WETTING THE SOIL TO KEEP IT FROM BLOWING.
 - THE EARTHWORK CONTRACTOR SHALL STOCKPILE ENOUGH MATERIAL ADJACENT TO RETAINING WALL LOCATIONS TO BE UTILIZED FOR WALL BACKFILL.
 - SITE DOES NOT LIE IN A 100 YEAR FLOOD ZONE.
 - ALL SITE WALLS SHALL CONFORM TO THE GENERAL HEIGHT AND DESIGN REGULATIONS CONTAINED IN SECTION 14-16-3-19 OF THE CITY ZONING CODE.
 - COMBINATION GARDEN WALL/RETAINING WALL CANNOT EXCEED 8 FEET. IF THE RETAINING WALL IS GREATER THAN 4 FEET, THE DEVELOPER CAN ADD 3:1 SLOPES IN BACKYARD OR A SECOND RETAINING WALL OFFSET FROM THE FIRST ONE.

- LANDSCAPE BUFFER NOTES:**
- SWALE TO BE 6" DEEP WHEN THE DISTANCE BETWEEN BACK OF CURB AND THE SIDEWALK IS 5 FEET.
 - FINAL GRADE OF DIRT TO BE 1 TO 2 INCHES BELOW TOP OF CURB AND TOP OF SIDEWALK GRADE.
 - SURFACE BETWEEN BACK OF CURB AND SIDEWALK TO BE COVERED WITH GRAVEL MULCH (MINIMUM 3/4"), COBBLES OF RIP-RAP. DO NOT FILL ENTIRE SWALE.
 - LANDSCAPE FABRIC IS RECOMMENDED, BUT NOT REQUIRED, BETWEEN THE DIRT AND THE STONE. IF LANDSCAPE FABRIC IS TO BE USED IT IS TO BE PERMEABLE.



MARK GOODWIN & ASSOCIATES, P.A. CONSULTING ENGINEERS P.O. BOX 90606 ALBUQUERQUE, NEW MEXICO 87199 OFFICE (505) 828-2200, FAX (505) 797-9539	
CITY OF ALBUQUERQUE PUBLIC WORKS DEPARTMENT	
TITLE: GLENDESTO SUBDIVISION GRADING & DRAINAGE PLAN	
DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL
LAST DESIGN UPDATE	MO./DAY/YR.
CITY PROJECT NO.	ZONE MAP NO.
SHEET 1 OF 2	

*Drainage Management Plan
for
Glendesto Subdivision
(27 lots)*



*Prepared by
Mark Goodwin & Associates, P.A.*

June 2017



City of Albuquerque

Planning Department
Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: Glendesto Subdivision **Building Permit #:** _____ **City Drainage #:** B18 / D020
DRB#: 1004472 **EPC#:** _____ **Work Order#:** _____
Legal Description: Lot 8-A, Block 25, Tract A, Unit B, N.A.A.
City Address: Glendale Avenue _____

Engineering Firm: Mark Goodwin and Associates, PA **Contact:** William Travis Barr
Address: PO Box 90606, Abq, 87199
Phone#: 505-828-2200 **Fax#:** _____ **E-mail:** Travis@goodwinengineers.com

Owner: Scott Clark (Managing member) **Contact:** Scott Clark
Address: _____
Phone#: 883-1414 **Fax#:** _____ **E-mail:** scottbrockclark@aol.com

Architect: NA **Contact:** _____
Address: _____
Phone#: _____ **Fax#:** _____ **E-mail:** _____

Other Contact: Mark Goodwin and Associates, PA **Contact:** Diane Hoelzer, PE
Address: PO Box 90606, Abq, 87199
Phone#: 505-828-2200 **Fax#:** _____ **E-mail:** Diane@goodwinengineers.com

Check all that Apply:

DEPARTMENT:

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

TYPE OF SUBMITTAL:

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

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

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

IS THIS A RESUBMITTAL?: ☒ Yes ☐ No

DATE SUBMITTED: June 15, 2017 **By:** William Travis Barr, EI

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: _____



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

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

*~ 2012 ACEC/NM Award Winner for Engineering Excellence ~
~ 2008 ACEC/NM Award Winner for Engineering Excellence ~*

June 15, 2017

Mr. Doug Hughes
Hydrology Principal Engineer
City of Albuquerque
PO Box 1293
Albuquerque, NM 87103

**Re: Glendesto Subdivision – (DRB 1004472) B18-D020
Amended Preliminary Plat, Grading and Drainage Plan, and Drainage Report**

Dear Mr. Hughes,

Attached hereto is the Amended Preliminary Plat, Grading and Drainage Plan, and Drainage Report for the previously approved Glendesto Subdivision. There are a couple of small improvements to the proposed plans from the original approved plan. The most significant difference is the addition of a gated entrance to the community on Modesto Ave. NE. Additionally, the entrance on Glendale Ave NE has been removed and replaced with a Hammerhead at the end of Lansdown Place NE. The proposed changes lowered the total of available lots from 29 to 27.

The proposed drainage has not changed significantly. The subdivision has the same proposed discharge location and rate. The new proposed plans incorporate a 9' drainage channel to convey flows from the Hammerhead to Glendale Avenue NE. A 10' valley gutter is proposed to convey the flow from the drainage channel from the south side of the road to the previously approved Glendale Roadside Swale.

Should you have any questions or concerns, please don't hesitate to contact myself at travis@goodwinengineers.com or 505-828-2200.

Sincerely,
MARK GOODWIN & ASSOCIATES, PA

W8 Barr, E.I.

William Travis Barr, EI
Staff Engineer

Attachments as listed herein.

GLEDESTO SUBDIVISION

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IV. DEVELOPED DRAINAGE CONDITIONS

V. FIRST FLUSH

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FIGURE 2 Existing Drainage Conditions (Google Earth)

FIGURE 3 FEMA Map

EXHIBITS:

Preliminary Plat

Infrastructure List

Master Paving Plan

Master Utility Plan

Grading and Drainage Plan

Existing Drainage Conditions & Sub basins

Proposed Drainage Conditions & Sub basins

APPENDIX A HYDROLOGY

AHYMO Summary and Input Files- Existing Conditions

AHYMO Summary and Input Files- Developed Conditions

First Flush Calculations

APPENDIX B HYDRAULICS

Glendale Avenue- Northside Swale

SanPedro- Eastside Swale

Swale Sump Inlet Calculation

Glendale Avenue Street Capacity Calculations

Glendesto Channel

APPENDIX C FINAL N.A.A. MASTER DRAINAGE PLAN

Excerpts

POCKET 1 GRADING AND DRAINAGE PLAN

POCKET 2 EXISTING DRAINAGE CONDITIONS AND SUB BASINS EXHIBIT

DEVELOPED DRAINAGE CONDITIONS AND SUB BASINS EXHIBIT

I. PROJECT DESCRIPTION

The Glendesto subdivision project site covers an area of approximately 7.46 acres. This project encompasses grading and infrastructure construction that will support the development of 27 single family residential lots within a gated community.

The project site is bounded to the south by the Eagle Rock Business Park and a parking lot with a 30 foot wide vacant strip separating the two properties; to the west by the Sandia Memorial Gardens; to the north is Glendale Avenue; to the east is Modesto Avenue and a vacant acre parcel owned by the Sandia Indian Pueblo.

The proposed subdivision will connect to Modesto Avenue to the east through a gate.

II. DESIGN CRITERIA AND PREVIOUS DEVELOPMENT

The design criteria used in this report was in accordance with Section 22.2 Hydrology of the Development Process Manual, Volume 2, Design Criteria, January 1993 edition. The 100-year 24-hour storm event was analyzed to determine street capacities and sizing of the storm drain system using $P(1 \text{ hr})=2.10"$, $P(6 \text{ hr})=2.50"$ and the $P(24 \text{ hr})=2.85"$. The onsite Land Treatment values used were based on Table A-5, in the DPM. (Refer to Exhibit 1 Vicinity Map and Exhibit 2 Existing Drainage Conditions- google earth).

The site lies in Zone X as shown on Firm Panel 129, map number 3500120129H, revised August 16, 2012.

*This project site lies within the **North Albuquerque Acres Master Drainage Plan Report** (RTI, Inc., October 1998). Excerpts from this report can be found in Appendix C. Under existing drainage conditions, this property is split between the south third (sub basin 116.0) flowing to the west and the northern two-thirds (sub basin 115.0) flowing to the north and west as shown in Figure 3A. In Figure 4A Future Conditions, the south three acres are to flow to the west and the north two acres are to flow down Glendale. Since there isn't a conveyance system in place to intercept any of the runoff from our site, it was decided to take the entire runoff from our project site to Glendale.*

According to Figure 5A, there is a planned future storm drain in San Pedro extending from Glendale to the La Cueva arroyo channel. At this time, there is only a 6' manhole in San Pedro immediately south of the La Cueva channel that connects to an inlet on the east side of San Pedro which intercepts existing flows from the remnant natural La Cueva arroyo.

III. EXISTING DRAINAGE CONDITIONS

Under existing drainage conditions, runoff from the project site is in a general westerly direction. Refer to "Existing Drainage Conditions" Exhibit. Runoff from the north third flows to Glendale through two incised arroyos. The middle third appears to sheet flow directly to the west to the Sandia Memorial Gardens Cemetery. Runoff from the south third flows through the Cemetery through an incised arroyo where it continues across San Pedro and westward.

Runoff from a portion of Modesto Avenue continues in a westerly direction down the same southerly arroyo through the Cemetery.

IV. DEVELOPED DRAINAGE CONDITIONS

Under developed drainage conditions, runoff from the project site will discharge into Glendale Avenue and be intercepted by a hardlined swale running along the north side of Glendale. Runoff in the swale will be intercepted by a proposed Double D inlet that will connect to a new 36" RCP storm drain at the San Pedro intersection. A new 36" storm drain in San Pedro will continue north and tie into the existing storm manhole in San Pedro. Refer to the "Proposed Drainage Conditions" Exhibit. The swale is designed to convey flows from Glendale and the project site.

- 1) A portion of the runoff from "N-S" Modesto Avenue will flow through the existing apron rundown on the La Cueva channel right where Modesto turns west again and becomes Glendale Avenue.*
- 2) The south portion of the flows from "W-E" Modesto Avenue will continue westward in the existing historical flow path through the 30 foot wide easement area.*
- 3) Flows from the vacant Lot 10, immediately east of our project site will continue in the same general flow path to Glendale Avenue.*
- 4) The 30' wide vacant area immediately south of this project site will be regraded to continue runoff in the same historic flow path as before.*

V. FIRST FLUSH

First flush for the project site will be handled on each individual residential lot. The area between the back of curb and sidewalk will be depressed 6 inches and the front yards will also be depressed by 6" as shown in the standard detail on the grading and drainage plan. First flush calculations can be found in Appendix A Hydrology.



FIGURE 1 Vicinity Map

ZONE ATLAS B-18



FIGURE 2 Existing Drainage Conditions

AMENDED
PRELIMINARY PLAT
FOR
GLENDESTE SUBDIVISION

WITHIN THE
ELENA GALEGO GRANT
PROJECTED SECTION 12
TOWNSHIP 11 NORTH, RANGE 3 EAST, N4M4
CITY OF ALBUQUERQUE
BERNALILLO COUNTY, NEW MEXICO
JUNE, 2017

LEGAL DESCRIPTION

A TRACT OF LAND SITUATE WITHIN THE ELENA GALEGO GRANT PROJECTED SECTION 12, TOWNSHIP 11 NORTH, RANGE 3 EAST, N4M4, BEING ALL OF LOT B-A, BLOCK 25, TRACT A, UNIT B, NORTH ALBUQUERQUE ACRES, 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 SEPTEMBER 8, 2015, IN PLAT BOOK 2015C, PAGE 104, AND CONTAINING 4.7676 ACRES MORE OR LESS.

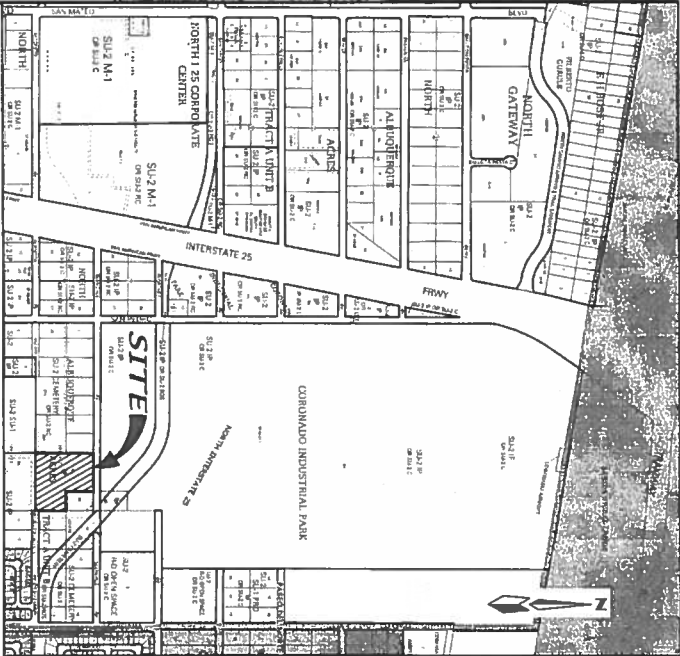
SUBDIVISION DATA

GROSS ACREAGE 4.7676 AC
ZONE ATLAS NO. B-18-Z
NO. OF EXISTING TRACTS/LOTS 1 TRACT/0 LOTS
NO. OF TRACTS CREATED 1 TRACT
NO. OF LOTS CREATED 27 LOTS
DATE OF SURVEY MAY, 2016

SCOTT B. CLARK, BURNING PARTNER (40% OWNER) DATE 6/13/2017
CCC PARTNERSHIP, A NEW MEXICO PARTNERSHIP
SCOTT B. CLARK (40% OWNER) DATE 6/13/2017
Pamela M. Clark, HIS WIFE (40% OWNER) DATE 6/13/2017
Pamela M. Clark, HIS WIFE (40% OWNER) DATE 6/13/2017
Charlotte P. Davenport (20% OWNER) DATE 6/13/17
Charlotte P. Davenport (20% OWNER) DATE 6/13/17
Steven M. Raulerson, P.S. DATE 6/14/17
City Engineer, City of Albuquerque, N.M.
DRB PROJECT No. 1004472 SHEET 1 OF 1

CURVE	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
C1	7.50'	25.00'	171°04'0"	S 45°04'41" W	7.47'
C2	11.03'	96.00'	06°34'57"	S 50°22'33" W	11.02'

LINE	BEARING	DISTANCE
L1	S 00°05'03" W	5.12'
L2	S 53°40'01" W	20.86'
L3	N 00°12'49" E	29.85'



PURPOSE OF PLAT

- SUBDIVIDE LOT B-A, BLOCK 25, TRACT A, UNIT B, NORTH ALBUQUERQUE ACRES, INTO 27 RESIDENTIAL LOTS AND 1 TRACT.
- GRANT NEW EASEMENTS AS SHOWN.

NOTES

- BEARINGS ARE GRID BASED ON THE NEW MEXICO STATE PLANE COORDINATE SYSTEM (CENTRAL ZONE).
- ALL DISTANCES ARE GROUND DISTANCES.
- BEARINGS AND DISTANCES IN PARENTHESES ARE RECORD.
- BASE OF BOUNDARY ARE THE FOLLOWING PLATS OF RECORD ENLARGED:
NORTH ALBUQUERQUE ACRES, TRACT A, UNIT B, (09-08-2015, 2015C-104)
NORTH ALBUQUERQUE ACRES, TRACT A, UNIT B, (04-23-2012, 2012C-045)
NORTH ALBUQUERQUE ACRES, TRACT A, UNIT B, (05-07-2002, 2002C-157)
NORTH ALBUQUERQUE ACRES, TRACT A, UNIT B, (02-12-1993, 93C-038)
NORTH ALBUQUERQUE ACRES, TRACT A, UNIT B, (04-24-1936, D-130)
- FIELD SURVEY PERFORMED IN MAY, 2016.
- CITY OF ALBUQUERQUE, NEW MEXICO ZONE, SL-2
- 100 YEAR FLOOD ZONE DESIGNATION: ZONE X, AS SHOWN ON PANEL 129 OF 825, FLOOD INSURANCE RATE MAP, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO, DATED AUGUST 16, 2012. THIS PROPERTY DOES NOT LIE IN THE 100 YEAR FLOOD ZONE.
- TITLE REPORT: NONE PROVIDED.
- MANHOLES WILL BE OFFSET AT ALL POINTS OF CHANGING POINTS OF TANGENCY, STREET INTERSECTIONS, AND ALL OTHER ANGLE POINTS TO ALLOW USE OF CENTERLINE MOVEMENT.

PROPERTY CORNERS

- FOUND 5/8" REBAR WITH 2" ALUMINUM CAP
75 11860" (TYP.)

EASEMENTS

- EXISTING 20' AGRICULTURAL WATERLINE EASEMENT
(09-08-2015, 2015C-104)
- EXISTING 15' NWC GAS LINE EASEMENT
(09-08-2015, 2015C-104)
- EXISTING 60' COA PERMANENT EASEMENT FOR
GLENDESTE ROADWAY IMPROVEMENTS
(12-21-2001, 2001152060)

OWNERS

CCC PARTNERSHIP,
A NEW MEXICO GENERAL PARTNERSHIP
ATTN: SCOTT B. CLARK
P.O. BOX 14641 ADDRESS
ALBUQUERQUE, N.M. 87191
(505) 883-1414

ENGINEERS

D. MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
ATTN: SCOTT B. CLARK
P.O. BOX 14641 ADDRESS
ALBUQUERQUE, N.M. 87191
(505) 883-2200

SURVEYOR

ALDRICH LAND SURVEYING
P.O. BOX 30207
ALBUQUERQUE, N.M. 87190
(505) 884-1990

SITE BENCHMARK

A.G.R.S. MONUMENT
"X" MARK
ELEVATION=5222.09
(NAVD 1988)

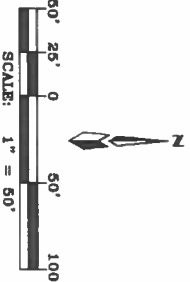
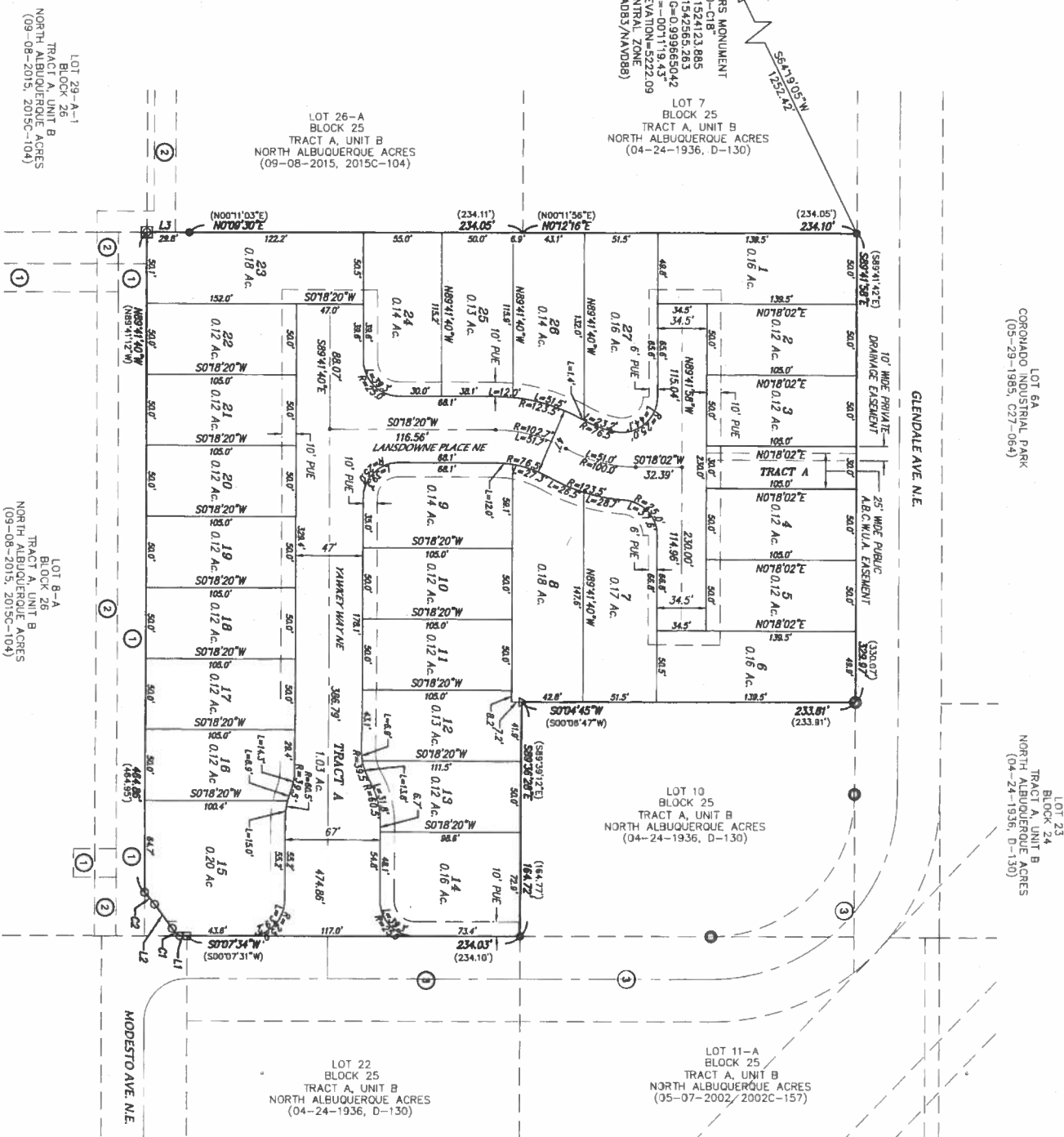


EXHIBIT "A"

TO SUBDIVISION IMPROVEMENTS AGREEMENT
DEVELOPMENT REVIEW BOARD (D.R.B.) REQUIRED INFRASTRUCTURE LIST

Glendesto Subdivision

PROPOSED NAME OF PLAT AND/OR SITE DEVELOPMENT PLAN

Lot 8-A, Block 25, Tract A, Tract B, N.A.A.

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 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.

Project Acceptance and Close Out										
SIA		COA DRC	Size	Type of Improvement PAVING	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
Sequence #	Project #									
			26' F-F	Res Pvmnt	Lansdowne Place N.E.	Hammerhead	Yawkey Way N.E.	/	/	/
			4'	G&G (both sides)						
			4'	Sidewalk (westside) Deferred	Lansdowne Place N.E.	Hammerhead	Yawkey Way N.E.	/	/	/
			4'	Sidewalk (eastside) Deferred	Lansdowne Place N.E.	Hammerhead	Lot 9	/	/	/
			4'	Sidewalk (eastside)	Lansdowne Place N.E.	Lot 9	Yawkey Way N.E.	/	/	/
			26' F-F	Res Pvmnt	Yawkey Way N.E.	Lot 23	Modesto Ave. N.E.	/	/	/
				C&G (both sides)						
			4'	Sidewalk (southside) Deferred	Yawkey Way N.E.	Lot 23	Modesto Ave. N.E.	/	/	/
			4'	Sidewalk (northside) Deferred	Yawkey Way N.E.	Lansdowne Place N.E.	Modesto Ave. N.E.	/	/	/
			4'	Sidewalk (northside)	Yawkey Way N.E.	Lansdowne Place N.E.	Lot 23	/	/	/
			20' F-F	Res Pvmnt	Hammerhead	Lot 1	Lot 6	/	/	/
				C&G (both sides)						
			4'	Sidewalk (northside) Deferred	Hammerhead	Lot 1	Lot 3	/	/	/
			4'	Sidewalk (northside)	Hammerhead	Lot 3	Lot 4	/	/	/
			4'	Sidewalk (northside) Deferred	Hammerhead	Lot 4	Lot 6	/	/	/
				OFF-SITE PAVING						
			24' F-E	Perm Pvmnt	Glendale Ave.	W. Lot 1 Property Line	E. Lot 6 Property Line	/	/	/
				C&G (southside)						
			6'	Sidewalk (southside)	Glendale Ave.	W. Lot 1 Property Line	E. Lot 6 Property Line	/	/	/

24' F-E	Perm Pymt	Modesto Ave.	N. Lot 14	S. Lot 15
6"	C&G (westside)	Modesto Ave.	N. Lot 14	S. Lot 15
	Sidewalk (westside)			
24' F-E	Temp Pymt	Modesto Ave.	S. Lot 15	24' Existing Pymt
	WATER			
8"	Waterline	Glendale Ave.	Exist 12" WL San Pedro	E. Lot 6 Prop Line
8"	Waterline	Lansdowne Place N.E.	Glendale Ave.	Yawkey Way N.E.
6"	Waterline	Hammerhead	Lot 1	Lot 6
8"	Waterline	Yawkey Way N.E.	Lansdowne Place N.E.	Modesto Ave.
4"	Waterline	Yawkey Way N.E.	Lot 23	Lansdowne Place N.E.
8"	Waterline	Modesto Ave.	Yawkey Way N.E.	Exist 8" WL Modesto Ave (near SE corner Lot 15)
	SANITARY SEWER			
8"	SAS	Lansdowne Place N.E.	Glendale Av. Exist 18" SAS	Yawkey Way N.E.
8"	SAS	Hammerhead	Lot 1	Lot 6
8"	SAS	Yawkey Way N.E.	Lot 23	Modesto Ave
8"	SAS	Modesto Ave.	Yawkey Way N.E.	South PL Lot 15
	DRAINAGE			
Per Design	Roadside Swale - Shotcrete	Glendale Ave.	San Pedro Ave.	East PL Lot 6
Per Design	Channel - Concrete	Tract A	Hammerhead	Glendale Ave.
36" RCP	Storm Drain	San Pedro Ave.	Glendale Ave.	Existing SD Stub near La Cueva Channel
Dble D Inlet	Storm Drain	Glendale Ave.	At San Pedro Ave.	

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

- 1 Sidewalks to be Deferred per Exhibit
- 2 Street Lights Per DPM
- 3 Water Infrastructure includes Valves, Fittings, Valve Boxes, Fire Hydrants, and Appurtenances.
- 4 Sanitary Sewer includes manholes and service connection to property line
- 5 Grading & Drainage certification per DPM for release of SIA & Financial Guaranty's. Financial Guaranty's are not required for grading.

AGENT / OWNER **DEVELOPMENT REVIEW BOARD MEMBER APPROVALS**

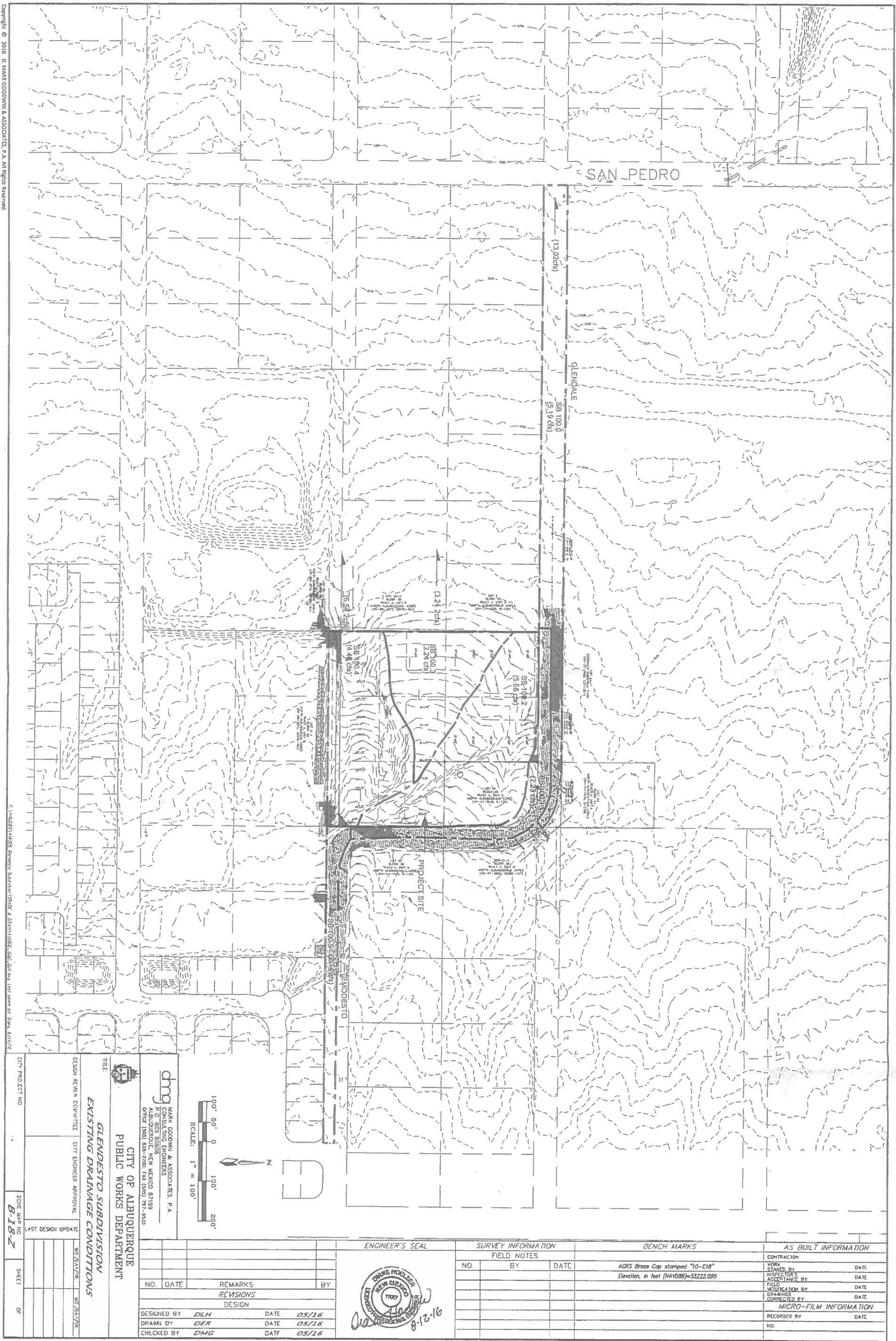
AGENT / OWNER
 Diane Hoelzer, P.E.
 NAME (print)
MARK GOODWIN & ASSOCIATES
 FIRM

DRB CHAIR - date _____
 PARKS & GENERAL SERVICES - date _____
 TRANSPORTATION DEVELOPMENT - date _____
 AMAFCA - date _____
 UTILITY DEVELOPMENT - date _____
 CITY ENGINEER - date _____

SIGNATURE - date _____
 MAXIMUM TIME ALLOWED TO CONSTRUCT
 THE IMPROVEMENTS WITHOUT A DRB
 EXTENSION: N/A

DESIGN REVIEW COMMITTEE REVISIONS

REVISION	DATE	DRC CHAIR	USER DEPARTMENT	AGENT / OWNER



APPENDIX A - HYDROLOGY

```

- Ver. S4.01a, Rel: 01a
- RUN DATE (MON/DAY/YR) =06/15/2016
- USER NO.= M-GoodwinNMSiteA90075759

AHYMO PROGRAM SUMMARY TABLE (AHYMO-S4)
AHYMO INPUT FILE = C:\Program Files (x86)\AHYMO-S4\GLENEX.DAT

```

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- Ver. S4.01a, Rel: 01a
- RUN DATE (MON/DAY/YR) =06/15/2016
- USER NO.= M-GoodwinNMSiteA90075759

AHYMO PROGRAM SUMMARY TABLE (AHYMO-S4)
AHYMO INPUT FILE = C:\Program Files (x86)\AHYMO-S4\GLENEX.DAT

```

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

*S GLENDESTO SUBDIVISION
*S 100 YEAR 24 HOUR STORM EVENT

*S FILE: GLENEX.DAT
*S LAST REVISED: 6-15-16
*S NOAA ATLAS 2, VOL IV ZONE B-18

[illegible]

LOCATION: RAINFALL TYPE= 2 NOAA 14
R211124 = 2.850

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*S	EXTING DRAINAGE	CONDITIONS	1	0.00289	5.19	0.152	0.9842	1.532	2.806	PER	IMP=	0.00
1	COMPUTE NM HYD	100.00	-	0.00289	5.19	0.152	0.9842	1.532	2.806	PER	IMP=	0.00
1	COMPUTE NM HYD	100.10	-	0.00124	2.23	0.065	0.9842	1.532	2.813	PER	IMP=	0.00
1	COMPUTE NM HYD	100.20	-	0.00388	5.68	0.170	0.82168	1.532	2.287	PER	IMP=	0.00
1	COMPUTE NM HYD	100.30	-	0.00221	3.24	0.097	0.82168	1.532	2.290	PER	IMP=	0.00
1	COMPUTE NM HYD	100.40	-	0.00301	4.40	0.132	0.82168	1.532	2.288	PER	IMP=	0.00
1	COMPUTE NM HYD	100.50	-	0.00092	2.14	0.078	1.60396	1.532	3.649	PER	IMP=	40.00
FINISH												

EXISTING DRAINAGE CONDITIONS

```
*S*****
*S          GLENDESTO SUBDIVISION
*S          100 YEAR 24 HOUR STORM EVENT
*S
*S          FILE: GLENEX.DAT
*S          LAST REVISED: 6-15-16
*S          NOAA ATLAS 2, VOL IV ZONE B-18
START       TIME=0.0 HR PUNCH CODE=0 PRINT LINES=-6
LOCATION     NEW MEXICO
RAINFALL    TYPE=2 RAIN QUARTER=0.0
            RAIN ONE=2.10 IN RAIN SIX=2.50 IN
            RAIN DAY=2.85 IN DT=0.0333 HRS
*S*****
*S  EXSTING DRAINAGE CONDITIONS
*
*** SUB BASIN 100.0
*
COMPUTE NM HYD      ID=1  HYD NO=100.0 AREA= 0.002888 SQ MI
                    PER A=20 PER B=80 PER C=0 PER D=0
                    TP=-.1333 HR MASS RAIN=-1
PRINT HYD           ID=1 CODE=1
*
*** SUB BASIN 100.1
*
COMPUTE NM HYD      ID=1  HYD NO=100.1 AREA= 0.001236 SQ MI
                    PER A=20 PER B=80 PER C=0 PER D=0
                    TP=-.1333 HR MASS RAIN=-1
PRINT HYD           ID=1 CODE=1
*
*** SUB BASIN 100.2
*
COMPUTE NM HYD      ID=1  HYD NO=100.2 AREA= 0.003884 SQ MI
                    PER A=100 PER B=0 PER C=0 PER D=0
                    TP=-.1333 HR MASS RAIN=-1
PRINT HYD           ID=1 CODE=1
*
*** SUB BASIN 100.3
*
COMPUTE NM HYD      ID=1  HYD NO=100.3 AREA= 0.002210 SQ MI
                    PER A=100 PER B=0 PER C=0 PER D=0
                    TP=-.1333 HR MASS RAIN=-1
PRINT HYD           ID=1 CODE=1
*
*** SUB BASIN 100.4
*
COMPUTE NM HYD      ID=1  HYD NO=100.4 AREA= 0.003007 SQ MI
                    PER A=100 PER B=0 PER C=0 PER D=0
                    TP=-.1333 HR MASS RAIN=-1
PRINT HYD           ID=1 CODE=1
*
*** SUB BASIN 100.5
*
COMPUTE NM HYD      ID=1  HYD NO=100.5 AREA= 0.000915 SQ MI
                    PER A=25 PER B=35 PER C=0 PER D=40
                    TP=-.1333 HR MASS RAIN=-1
PRINT HYD           ID=1 CODE=1
FINISH
```

PROPOSED CONDITIONS

AHYMO PROGRAM SUMMARY TABLE (AHYMO-S4)
 INPUT FILE = C:\Program Files (x86)\AHYMO-S4\glenp6.dat
 - Ver. S4.01a, Rel: 01a
 RUN DATE (MON/DAY/YR) =08/10/2016
 USER NO. = M-GoodwinMMSiteA90075759

COMMAND	HYDROGRAPH IDENTIFICATION	FROM TO ID ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1	NOTATION
S	*****	*****	*****	*****	*****	*****	*****	*****		
*S	GLENDESTO SUBDIVISION									
*S	PROPOSED DRAINAGE CONDITIONS									
*S	100 YEAR 24 HOUR STORM EVENT									
*S	FILE: GLENP6.DAT									
*S	LAST REVISED: 8-8-16									
*S	NOAA ATLAS 2, VOL IV ZONE B-18									
START										
LOCATION										
RAINFALL	TYPE= 1 NOAA 14									
S	*****	*****	*****	*****	*****	*****	*****	*****		
*S	PROPOSED DRAINAGE CONDITIONS									
COMPUTE NM HYD	201.00	-	1	0.00244	4.39	0.129	1.532	2.807	PER IMP=	0.00
COMPUTE NM HYD	201.10	-	1	0.00071	2.05	0.073	1.532	4.505	PER IMP=	72.00
COMPUTE NM HYD	201.20	-	1	0.00744	20.48	0.707	1.532	4.299	PER IMP=	57.00
S	*****	*****	*****	*****	*****	*****	*****	*****		
S	ROUTE THRU ONSISTE POND									
S	*****	*****	*****	*****	*****	*****	*****	*****		
ROUTE RESERVOIR	POND.12	1	12	0.00744	10.24	0.437	1.10157	2.150	AC-FT=	0.424
COMPUTE NM HYD	201.30	-	1	0.00162	2.51	0.075	1.532	2.426	PER IMP=	0.00
COMPUTE NM HYD	201.40	-	1	0.00044	0.80	0.023	1.532	2.837	PER IMP=	0.00
COMPUTE NM HYD	201.50	-	1	0.00041	1.19	0.042	1.532	4.538	PER IMP=	72.00
COMPUTE NM HYD	201.60	-	1	0.00055	0.81	0.024	1.532	2.312	PER IMP=	0.00
COMPUTE NM HYD	201.70	-	1	0.00091	2.26	0.075	1.532	3.890	PER IMP=	40.00
COMPUTE NM HYD	201.20	-	1	0.00744	10.88	0.326	1.532	2.285	PER IMP=	0.00
FINISH										

TIME= 0.00
 RAIN6= 2.500

PROPOSED CONDITIONS

AHYMO PROGRAM (AHYMO-S4)
- Version: S4.01a - Rel: 01a
RUN DATE (MON/DAY/YR) = 08/10/2016
START TIME (HR:MIN:SEC) = 14:17:12
INPUT FILE = C:\Program Files (x86)\AHYMO-S4\glenp6.dat
USER NO.= M-GoodwinMMSiteA90075759

*S*****
*S GLENDESTO SUBDIVISION
*S PROPOSED DRAINAGE CONDITIONS
*S 100 YEAR 24 HOUR STORM EVENT
*S FILE: GLENP6.DAT
*S LAST REVISED: 8-8-16
*S NOAA ATLAS 2, VOL IV ZONE B-18
START TIME=0.0 HR PUNCH CODE=0 PRINT LINES=-6
LOCATION NEW MEXICO
State of New Mexico soil infiltration values (LAND FACTORS) used for computations.
Land Treatment Initial Abstr. (in) Unif. Infiltr. (in/hour)
A 0.65 1.67
B 0.50 1.25
C 0.35 0.83
D 0.10 0.04

RAINFALL
TYPE=1 RAIN QUARTER=0.0
RAIN ONE=2.10 IN RAIN SIX=2.50 IN
RAIN DAY=2.85 IN DT=0.0333 HRS
6-HOUR RAINFALL DIST. - BASED ON NOAA ATLAS 14 FOR CONVECTIVE AREAS (NM & AZ) - D1
DT = 0.033300 HOURS END TIME = 5.994000 HOURS
0.0000 0.0018 0.0036 0.0054 0.0074 0.0094 0.0116
0.0138 0.0161 0.0186 0.0212 0.0265 0.0319 0.0377
0.0438 0.0499 0.0565 0.0631 0.0699 0.0769 0.0839
0.0912 0.0985 0.1063 0.1145 0.1227 0.1320 0.1413
0.1558 0.1760 0.1962 0.2231 0.2502 0.2824 0.3203
0.3582 0.4145 0.4714 0.5475 0.6458 0.7441 0.9994
1.2612 1.4697 1.6149 1.7600 1.8362 1.9091 1.9698
2.0158 2.0617 2.0943 2.1261 2.1541 2.1775 2.2008
2.2187 2.2364 2.2501 2.2588 2.2675 2.2753 2.2831
2.2902 2.2966 2.3029 2.3088 2.3146 2.3204 2.3260
2.3316 2.3345 2.3372 2.3399 2.3425 2.3451 2.3475
2.3499 2.3523 2.3547 2.3570 2.3593 2.3616 2.3638
2.3660 2.3681 2.3702 2.3723 2.3743 2.3763 2.3784
2.3803 2.3822 2.3841 2.3860 2.3878 2.3897 2.3915
2.3933 2.3950 2.3967 2.3984 2.4001 2.4018 2.4035
2.4051 2.4068 2.4084 2.4100 2.4116 2.4132 2.4147
2.4163 2.4178 2.4193 2.4209 2.4224 2.4239 2.4253
2.4268 2.4283 2.4297 2.4311 2.4326 2.4340 2.4354
2.4368 2.4381 2.4395 2.4409 2.4422 2.4436 2.4449

*S*****
*S PROPOSED DRAINAGE CONDITIONS
*** *****

*** SUB BASINS 201.0

COMPUTE NM HYD
ID=1 HYD NO=201.0 AREA= 0.002442 SQ MI
PER A=20 PER B=80 PER C=0 PER D=0
TP=-.1333 HR MASS RAIN=-1

K = 0.138116HR TP = 0.133300HR K/TP RATIO = 1.036128 SHAPE CONSTANT, N = 3.406848
UNIT PEAK = 5.7427 CFS UNIT VOLUME = 0.9977 B = 313.47 P60 = 2.1000
AREA = 0.002442 SQ MI IA = 0.53000 INCHES INF = 1.33400 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 201.00

RUNOFF VOLUME = 0.98842 INCHES = 0.1287 ACRE-FEET
PEAK DISCHARGE RATE = 4.39 CFS AT 1.532 HOURS BASIN AREA = 0.0024 SQ. MI.

*** SUB BASINS 201.1

COMPUTE NM HYD
ID=1 HYD NO=201.1 AREA= 0.000712 SQ MI
PER A=0 PER B=28 PER C=0 PER D=72
TP=-.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 2.0239 CFS UNIT VOLUME = 0.9941 B = 526.28 P60 = 2.1000
AREA = 0.000513 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 201.10

RUNOFF VOLUME = 1.91043 INCHES = 0.0725 ACRE-FEET
PEAK DISCHARGE RATE = 2.05 CFS AT 1.532 HOURS BASIN AREA = 0.0007 SQ. MI.

*** SUB BASINS 201.2

COMPUTE NM HYD
ID=1 HYD NO=201.2 AREA= 0.007444 SQ MI
PER A=0 PER B=21.5 PER C=21.5 PER D=57
TP=-.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 16.752 CFS UNIT VOLUME = 0.9986 B = 526.28 P60 = 2.1000
AREA = 0.004243 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

K = 0.120817HR TP = 0.133300HR K/TP RATIO = 0.906356 SHAPE CONSTANT, N = 3.908407
UNIT PEAK = 8.3810 CFS UNIT VOLUME = 0.9989 B = 349.02 P60 = 2.1000
AREA = 0.003201 SQ MI IA = 0.42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 201.20

RUNOFF VOLUME = 1.78078 INCHES = 0.7070 ACRE-FEET
PEAK DISCHARGE RATE = 20.48 CFS AT 1.532 HOURS BASIN AREA = 0.0074 SQ. MI.

*S***** ROUTE THRU ONSISTE POND *****

*S***** ROUTE THRU ONSISTE POND *****

*S***** ROUTE THRU ONSISTE POND *****

ROUTE RESERVOIR ID=12 HYD=POND.12 INFLOW=1 CODE=24
OUTFLOW (CFS) STORAGE (ACFT) ELEV (FT)
0.00 0.0000 49.0
0.01 0.36049 54.5
10.88 0.4279 55.0

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
0.00	0.00	49.00	0.000	0.00
0.80	0.03	49.00	0.000	0.00
1.60	16.81	54.67	0.383	3.60
2.40	0.74	54.54	0.366	0.94
3.20	0.08	54.50	0.361	0.09
4.00	0.05	54.50	0.361	0.05
4.80	0.05	54.50	0.361	0.05
5.59	0.07	54.50	0.361	0.07
6.39	0.01	54.50	0.361	0.01

PEAK DISCHARGE = 10.245 CFS - PEAK OCCURS AT HOUR 1.70
MAXIMUM WATER SURFACE ELEVATION = 54.971
MAXIMUM STORAGE = 0.4240 AC-FT INCREMENTAL TIME= 0.033300HRS

PRINT HYD ID=12 CODE=50

HYDROGRAPH FROM AREA POND.12

0.0	25.974	0.0	52.614	0.0	79.254	0.0	105.894	0.0	132.534	0.0
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RUNOFF VOLUME = 1.10157 INCHES = 0.4373 ACRE-FEET
PEAK DISCHARGE RATE = 10.24 CFS AT 1.698 HOURS BASIN AREA = 0.0074 SQ. MI.

*** SUB BASINS 201.3

COMPUTE NM HYD

ID=1 HYD NO=201.3 AREA= 0.001617 SQ MI
PER A=78 PER B=22 PER C=0 PER D=0
TP=-.1333 HR MASS RAIN=-1

K = 0.152449HR TP = 0.133300HR K/TP RATIO = 1.143653 SHAPE CONSTANT, N = 3.096457
UNIT PEAK = 3.5130 CFS UNIT VOLUME = 0.9958 B = 289.60 P60 = 2.1000
AREA = 0.001617 SQ MI IA = 0.61700 INCHES INF = 1.57760 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 201.30

RUNOFF VOLUME = 0.86460 INCHES = 0.0746 ACRE-FEET
PEAK DISCHARGE RATE = 2.51 CFS AT 1.532 HOURS BASIN AREA = 0.0016 SQ. MI.

*** SUB BASINS 201.4

COMPUTE NM HYD

ID=1 HYD NO=201.4 AREA= 0.000439 SQ MI
PER A=20 PER B=80 PER C=0 PER D=0
TP=-.1333 HR MASS RAIN=-1

K = 0.138116HR TP = 0.133300HR K/TP RATIO = 1.036128 SHAPE CONSTANT, N = 3.406848
UNIT PEAK = 1.0324 CFS UNIT VOLUME = 0.9869 B = 313.47 P60 = 2.1000
AREA = 0.000439 SQ MI IA = 0.53000 INCHES INF = 1.33400 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 201.40

RUNOFF VOLUME = 0.98842 INCHES = 0.0231 ACRE-FEET
PEAK DISCHARGE RATE = 0.80 CFS AT 1.532 HOURS BASIN AREA = 0.0004 SQ. MI.

*** SUB BASINS 201.5

COMPUTE NM HYD

ID=1 HYD NO=201.5 AREA= 0.000409 SQ MI
PER A=0 PER B=28 PER C=0 PER D=72
TP=-.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 1.1626 CFS UNIT VOLUME = 0.9896 B = 526.28 P60 = 2.1000
AREA = 0.000294 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

K = 0.133173HR TP = 0.133300HR K/TP RATIO = 0.999050 SHAPE CONSTANT, N = 3.533543
UNIT PEAK = 0.27730 CFS UNIT VOLUME = 0.9522 B = 322.78 P60 = 2.1000
AREA = 0.000115 SQ MI IA = 0.50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 201.50

RUNOFF VOLUME = 1.91043 INCHES = 0.0417 ACRE-FEET
PEAK DISCHARGE RATE = 1.19 CFS AT 1.532 HOURS BASIN AREA = 0.0004 SQ. MI.

*** SUB BASINS 201.6

COMPUTE NM HYD ID=1 HYD NO=201.6 AREA= 0.000545 SQ MI
PER A=100 PER B=0 PER C=0 PER D=0
TP=-.1333 HR MASS RAIN=-1

K = 0.157866HR TP = 0.133300HR K/TP RATIO = 1.184438 SHAPE CONSTANT, N = 2.996859
UNIT PEAK = 1.1512 CFS UNIT VOLUME = 0.9873 B = 281.57 P60 = 2.1000
AREA = 0.000545 SQ MI IA = 0.65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 201.60

RUNOFF VOLUME = 0.82168 INCHES = 0.0239 ACRE-FEET
PEAK DISCHARGE RATE = 0.81 CFS AT 1.532 HOURS BASIN AREA = 0.0005 SQ. MI.

*** SUB BASINS 201.7

COMPUTE NM HYD ID=1 HYD NO=201.7 AREA= 0.000909 SQ MI
PER A=25 PER B=0 PER C=35 PER D=40
TP=-.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 1.4355 CFS UNIT VOLUME = 0.9910 B = 526.28 P60 = 2.1000
AREA = 0.000364 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

K = 0.129055HR TP = 0.133300HR K/TP RATIO = 0.968152 SHAPE CONSTANT, N = 3.648501

UNIT PEAK = 1.3544 CFS UNIT VOLUME = 0.9899 B = 331.02 P60 = 2.1000
AREA = 0.000545 SQ MI IA = 0.47500 INCHES INF = 1.18000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 201.70

RUNOFF VOLUME = 1.54680 INCHES = 0.0750 ACRE-FEET
PEAK DISCHARGE RATE = 2.26 CFS AT 1.532 HOURS BASIN AREA = 0.0009 SQ. MI.

*** *****

*** EXISTING CONDITIONS FOR THE ONSITE PROJECT AREA

*** *****

*** SUB BASINS 100.2

*** ONSISTE SUB BASIN

*** *****

COMPUTE NM HYD ID=1 HYD NO=201.2 AREA= 0.007444 SQ MI
PER A=100 PER B=0 PER C=0 PER D=0
TP=-.1333 HR MASS RAIN=-1

K = 0.15786HR TP = 0.133300HR K/TP RATIO = 1.184438 SHAPE CONSTANT, N = 2.996859
UNIT PEAK = 15.724 CFS UNIT VOLUME = 0.9989 B = 281.57 P60 = 2.1000
AREA = 0.007444 SQ MI IA = 0.65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 201.20

RUNOFF VOLUME = 0.82168 INCHES = 0.3262 ACRE-FEET
PEAK DISCHARGE RATE = 10.88 CFS AT 1.532 HOURS BASIN AREA = 0.0074 SQ. MI.

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 14:17:12

APPENDIX B - HYDRAULICS

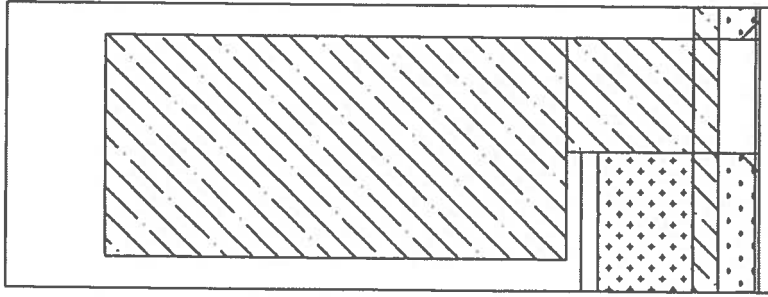
IMPERVIOUS AREA

PAD AREA
2555 SF
FF=72 CF

DRIVEWAY
360 SF
FF=10.2 CF

SIDEWALK
180 SF
FF=5.1 CF

(first flush = SF x 0.34"/12")



DEPRESSED AREA PROVIDED

Concept: Depressed areas are provided to capture the first flush from impervious areas on each individual lot. These depressed areas will be landscaped with rock or grass which will allow drainage to pass through retaining some volume but in some cases will not retain all the flow in the volume provided in this calculation because varying street slopes will effectively reduce the amount of runoff that can be intercepted and retained on any given individual lot.

front yard volume=
(19' x 15' x 0.5')/2=
71.25 CF

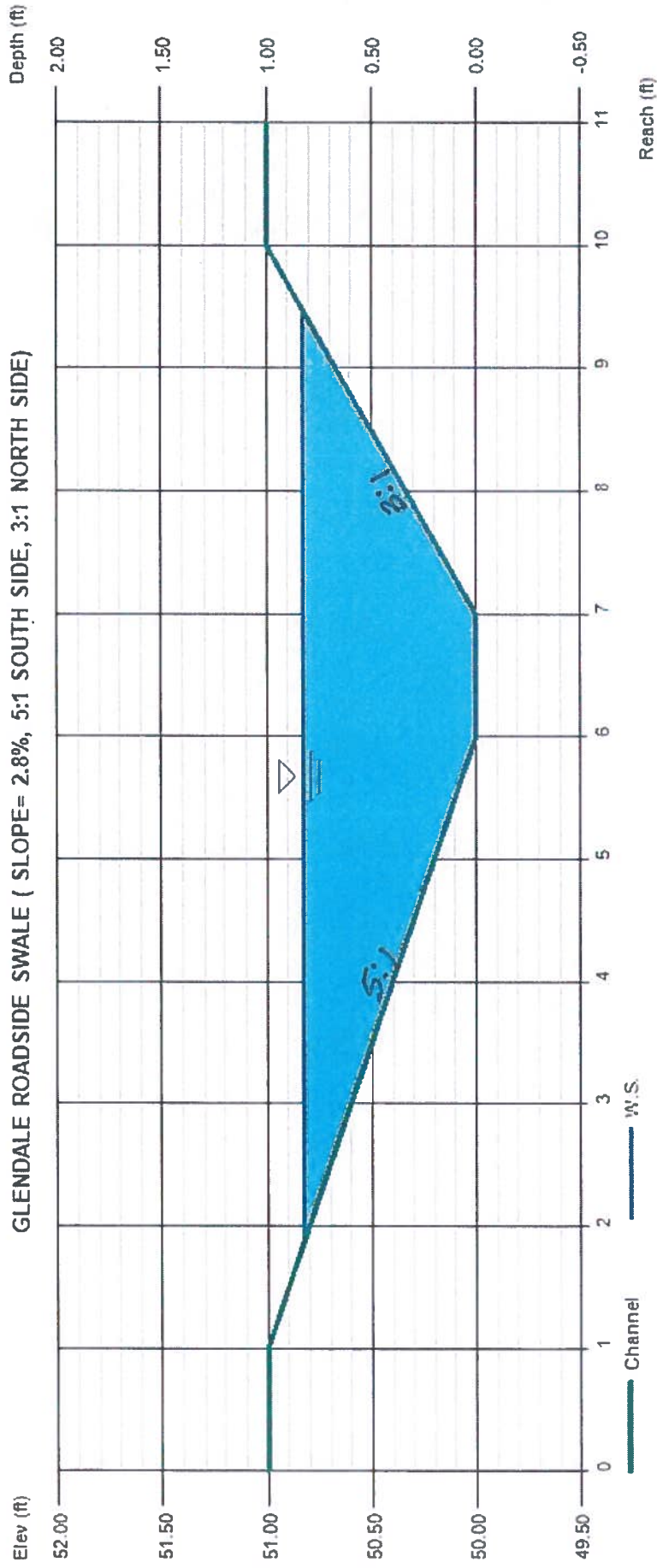
Curb-sdwk volume=
(19' x 5.88' x 0.5')/2=
27.9 CF

GLENDESTO SUBDIVISION

FIRST FLUSH CALCULATIONS FOR TYPICAL LOT

(scale 1 inch=30 feet)

GLENDALE ROADSIDE SWALE (SLOPE= 2.8%, 5:1 SOUTH SIDE, 3:1 NORTH SIDE)



Depth	Q	Area	Veloc	Wp	Yc	TopWidth	Energy
(ft)	(cfs)	(sqft)	(ft/s)	(ft)	(ft)	(ft)	(ft)
0.83	30.43	3.586	8.49	7.86	1.00	7.64	1.95

GLENESTO SUBDIVISION
CALCULATIONS FOR INLET AT END OF SWALE
(SAN PEDRO)

Capacity is measured using the orifice equation: $Q = c \times a \times ((2 \times g \times H)^{.5})$

FOR SINGLE TYPE D INLET

Assume 2 feet of head: $Q = (0.6) \times (4.56 \text{ sq.ft.}) \times ((2 \times 32.4 \times 2 \text{ ft})^{.5}) = 31.15 \text{ cfs}$

FOR DOUBLE TYPE D INLET

Assume 2 feet of head $Q = (0.6) \times (9.12 \text{ sq.ft.}) \times ((2 \times 32.4 \times 2 \text{ ft})^{.5}) = 62.30 \text{ cfs}$

The 100 year flow to the sump in San Pedro is 30.43 cfs.

Assume a 50% clogging factor ~ Use a double D Inlet.

Note: Refer to Standard drawing 2220 DRAINAGE STORM INLET ALBUQUERQUE GRATE

GENERAL NOTES:

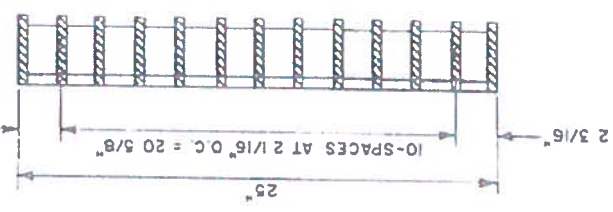
1. ALL BARS SHALL BE STRUCTURAL GRADE STEEL, GRADE A36.
2. THE GRATE SHALL BE WELDED WITH 1/8" FILLET WELD AROUND BOTH SIDES OF CROSS BARS, 1/4" FILLET WELD BOTH SIDES OF BEARING BARS TO END BARS.
3. AFTER CLEANING SURFACE OF SCALE, RUST, OILS, ETC., PAINT GRATE WITH ONE SHOP COAT RED OXIDE, TWO FINISH COATS ALUMINUM PAINT (AASHTO M 69).
4. TOP OF CROSS BARS SHALL BE FLUSH WITH TOP OF GRATE.
5. GRIND WELDS FLUSH WITH BEARING BARS.
6. WHEN INSTALLED IN FRAME, PUSH TIGHT TO ONE SIDE, OTHER SIDE SHALL HAVE 1/2" MAX. OPENING. SPACERS WELDED TO FRAME MAY BE USED IF REQUIRED TO KEEP 1/2" SPACE OR LESS.

CONSTRUCTION NOTES:

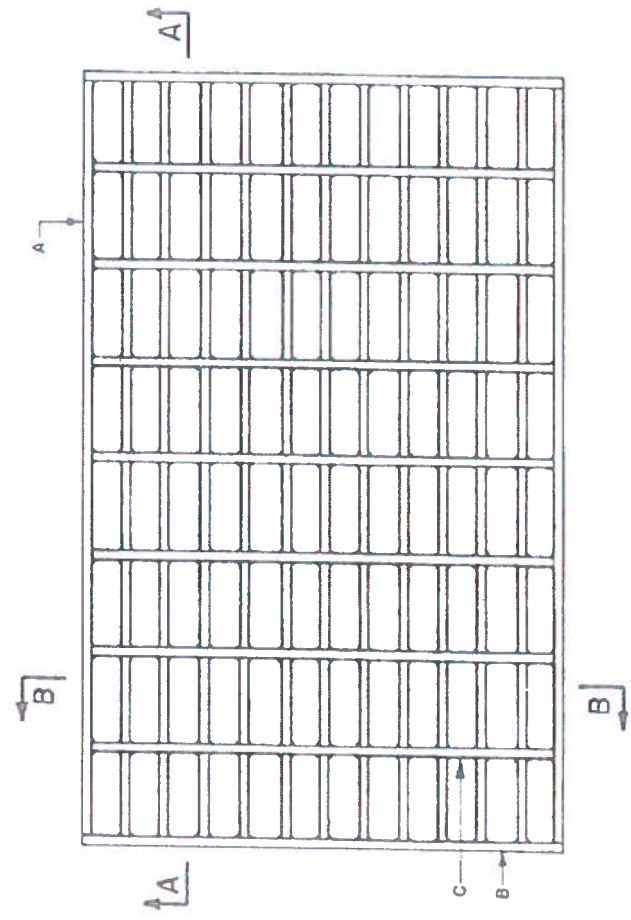
- A. BEARING BARS, (13) 1/2" X 3 1/2" X 39"
- B. END BARS, (2) 1/2" X 3" X 25"
- C. CROSS BARS, (7) 1/2" DIA. X 24"

$10'' - 4.5'' = 35.5''$
 $25'' - 6.5'' = 18.5''$
 $656.75 \text{ sq ft (OPENING)} = 4.56 \text{ sq ft (OPENING)} = 1 \text{ EA.}$
 $2 \text{ EA} = 9.12 \text{ sq ft.}$

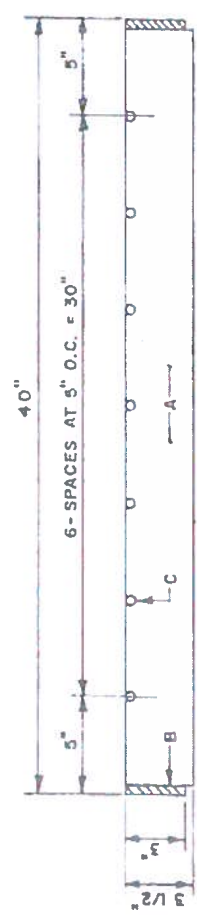
SECTION B-B



PLAN



SECTION A-A

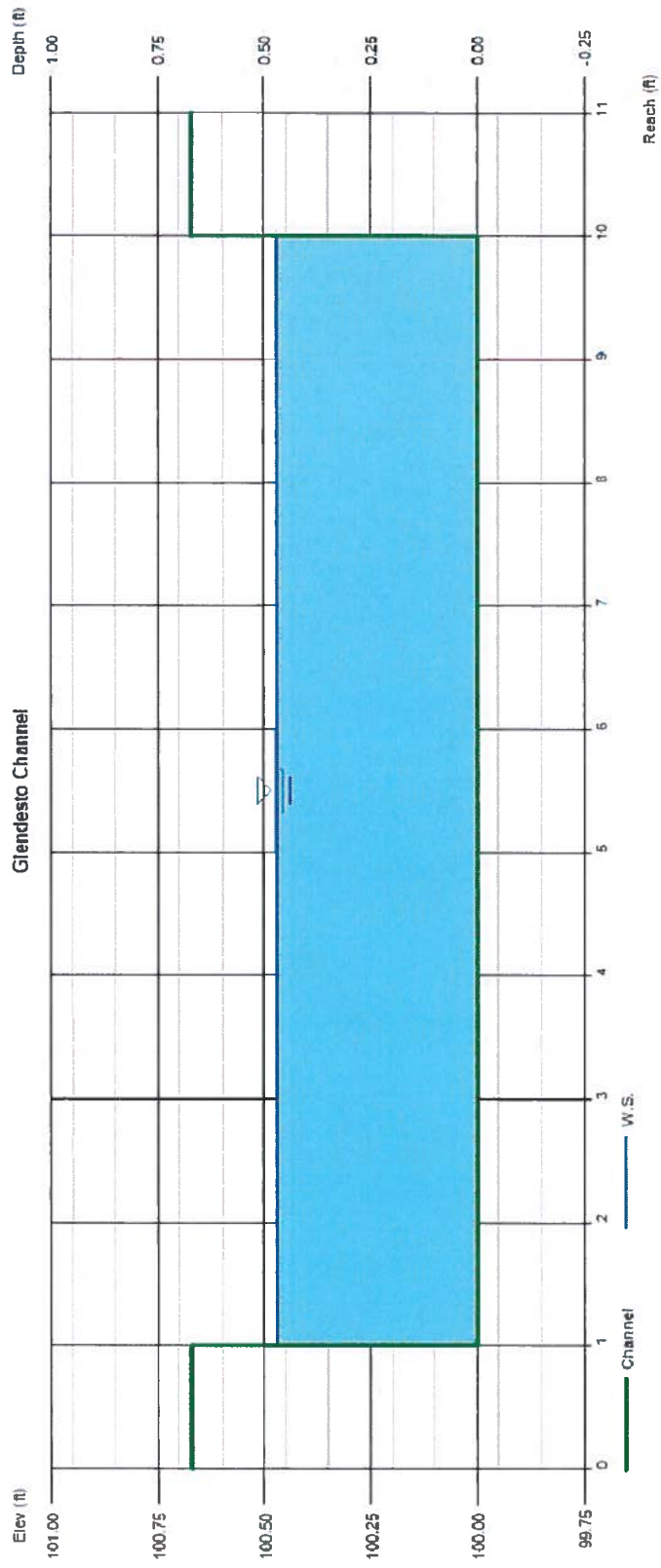


CITY OF ALBUQUERQUE

DRAINAGE
STORM INLET
ALBUQUERQUE GRATE
DWG. 2220

AUG. 1986

REVISIONS



Depth	Q	Area	Veloc	Wp	Yc	TopWidth	Energy
(ft)	(cfs)	(sqft)	(ft/s)	(ft)	(ft)	(ft)	(ft)
0.47	20.48	4.230	4.84	9.94	0.55	9.00	0.83

APPENDIX C – FINAL N.A.A. MASTER DRAINAGE PLAN

FINAL
NORTH ALBUQUERQUE ACRES
MASTER DRAINAGE PLAN

Prepared For:



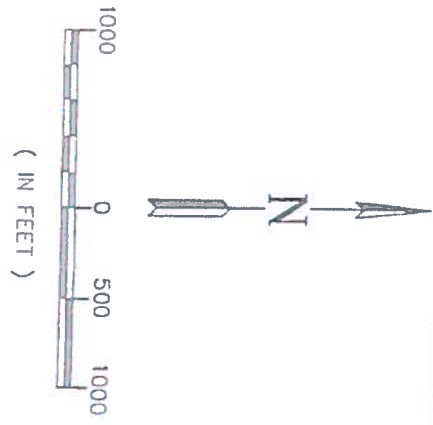
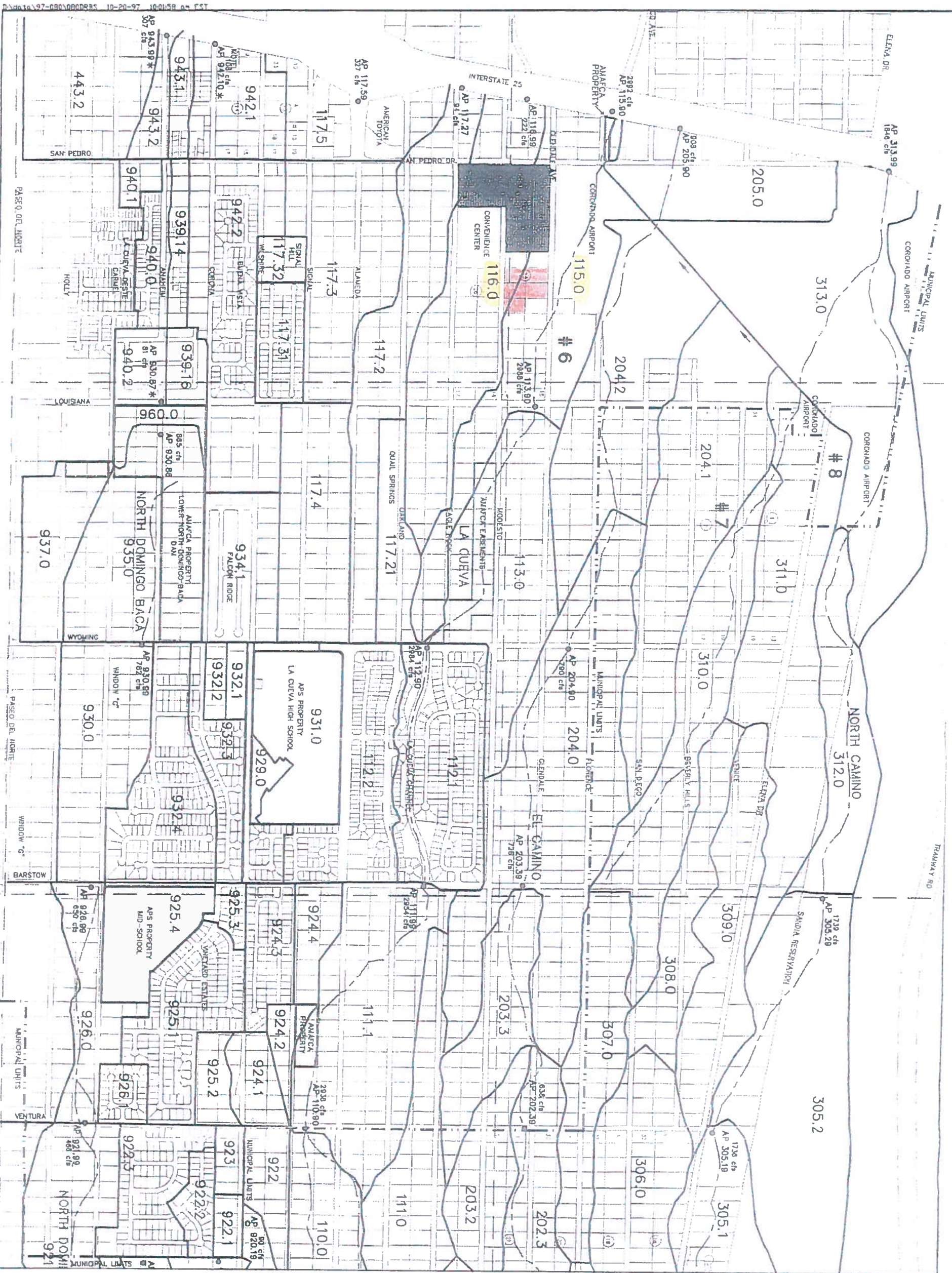
City of Albuquerque

Prepared By:



ENGINEERS AND ENVIRONMENTAL SCIENTISTS
1720-B Randolph Road SE, Albuquerque, NM 87106
Telephone (505) 243-7300
Fax (505) 243-7400
rti@nmia.com

October 1998



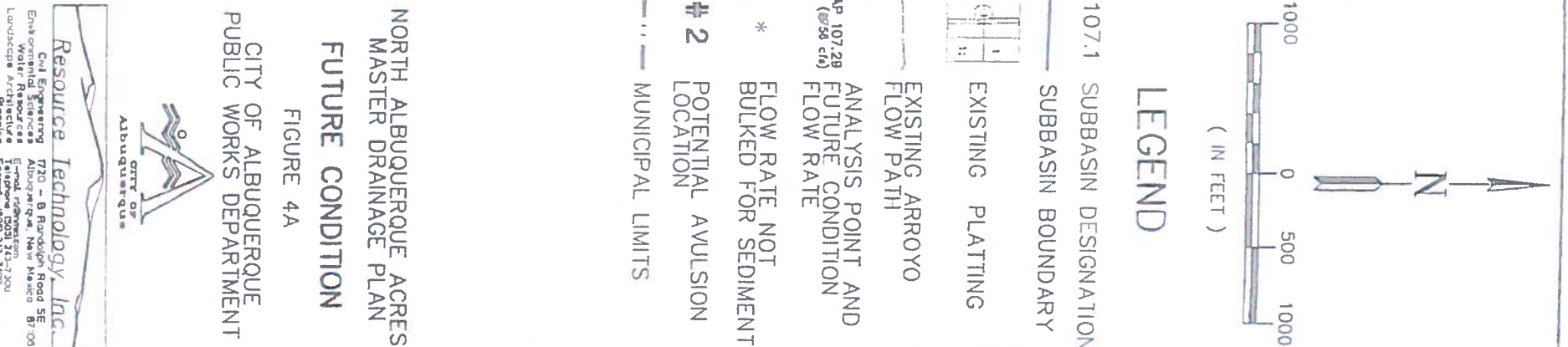
LEGEND

- 107.1 SUBBASIN DESIGNATION
- SUBBASIN BOUNDARY
- EXISTING PLATTING
- EXISTING ARROYO FLOW PATH
- ANALYSIS POINT AND EXISTING CONDITION FLOW RATE
- * FLOW RATE NOT BULKED FOR SEDIMENT
- POTENTIAL AVULSION LOCATION
- MUNICIPAL LIMITS

NORTH ALBUQUERQUE ACRES
MASTER DRAINAGE PLAN
EXISTING CONDITION
FIGURE 3A
CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT



Resource Technology, Inc.
1170 B. Randolph Road SE
Atlanta, Georgia 30316
Telephone: (404) 242-7700
Fax: (404) 242-7701
E-mail: rti@rti.com
Internet: www.rti.com

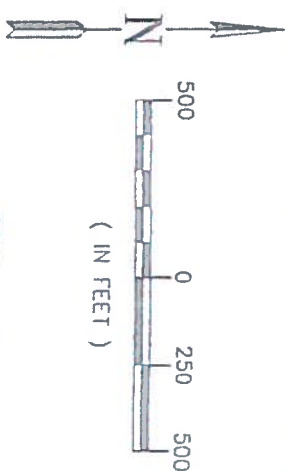
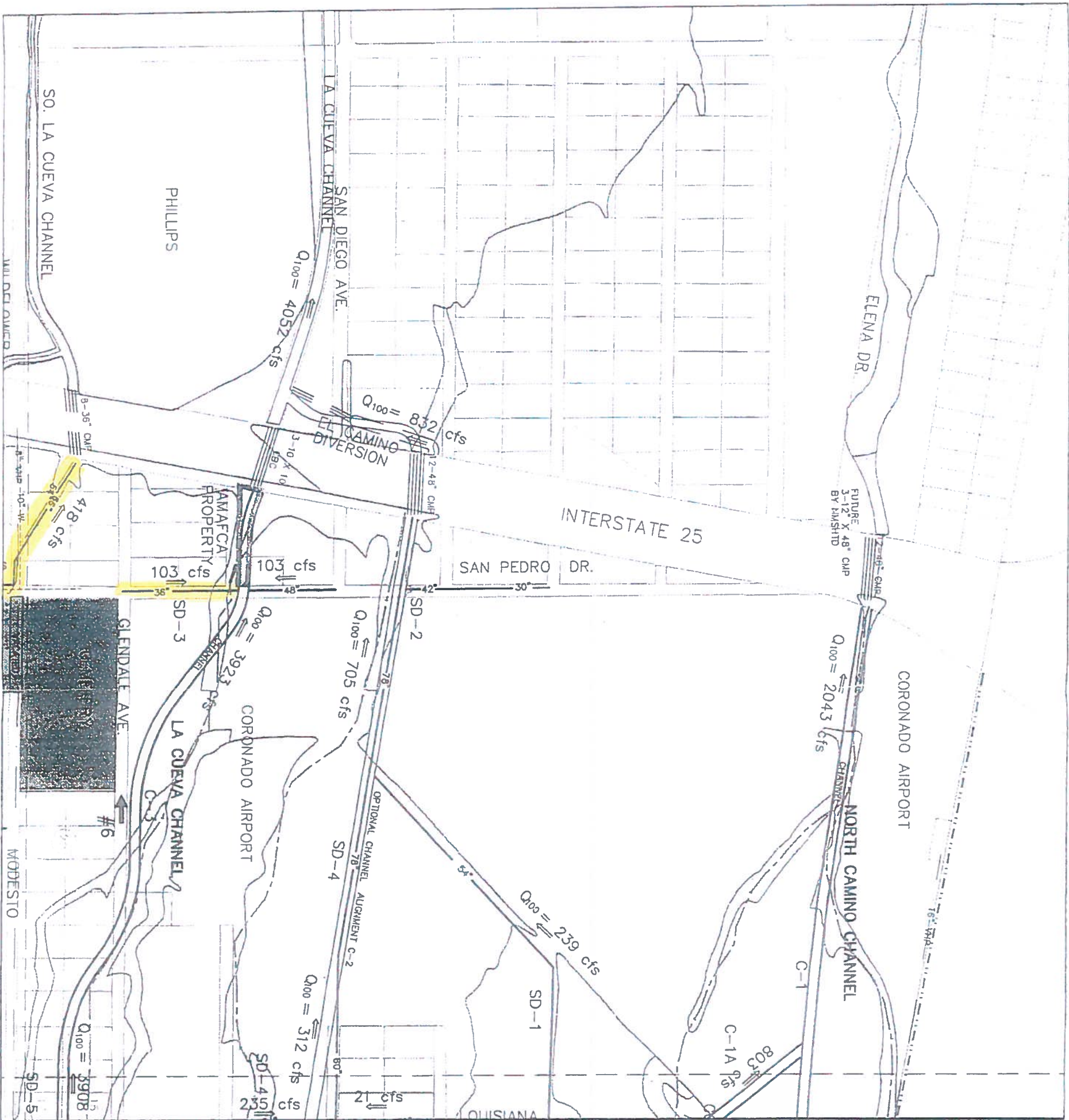


NORTH ALBUQUERQUE ACRES
MASTER DRAINAGE PLAN

FUTURE CONDITION

FIGURE 4A

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT



LEGEND

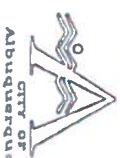
- MUNICIPAL LIMITS
- EXISTING PLATTING
- EXISTING ARROYO FLOW PATH
- EXISTING WATER LINE
- EXISTING SANITARY SEWER
- EXISTING GAS LINE
- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- PROPOSED CHANNEL
- PROPOSED STRUCTURE OR ROAD
- PROPOSED DIKE
- POTENTIAL AVULSION

NOTE:
All flow rates shown are
future condition 100-year.

NORTH ALBUQUERQUE ACRES MASTER DRAINAGE PLAN STORM DRAIN FACILITIES B-18

FIGURE 5A

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT



Resource Technology, Inc.

Civil Engineering
Environmental Sciences
Water Resources
Landscape Architecture
Planning
7720 - B Randolph Road SE
Albuquerque, New Mexico 87106
E-mail: rti@rti.com
Telephone: (505) 243-7700
Facsimile: (505) 243-7400

TABLE A-9

LA CUEVA ARROYO FUTURE CONDITIONS

Sub-basin	Area (sq. mi.)	10-yr Vol (ac-ft)	10-yr Qp (cfs)	100-yr Vol (ac-ft)	100-yr Qp (cfs)
110.0	.1634	5.774	138.24	11.738	275.61
111.0	.0533	1.823	57.02	3.739	108.83
111.1	.0500	2.054	57.41	7.699	195.97
111.3	.0420	2.498	64.56	4.348	107.90
111.4	.0141	0.482	15.09	0.989	28.80
112.1	.0894	5.152	129.98	8.942	219.11
112.2	.0826	4.760	120.22	8.262	202.31
113.0	.1000	6.393	159.65	10.797	262.65
115.0	.1202	7.581	189.15	12.750	312.21
116.1	.1028	6.570	164.05	11.100	270.05
116.2	.0719	4.529	113.32	7.629	185.54
116.21	.0344	1.682	45.58	3.024	79.13
117.2	.0500	2.788	72.23	4.836	121.61
117.22	.0156	1.108	27.22	1.820	43.06
117.3	.1172	6.536	167.85	11.336	286.33
117.4	.0512	3.225	80.83	5.432	132.07
117.5	.0550	3.907	95.92	6.417	151.76

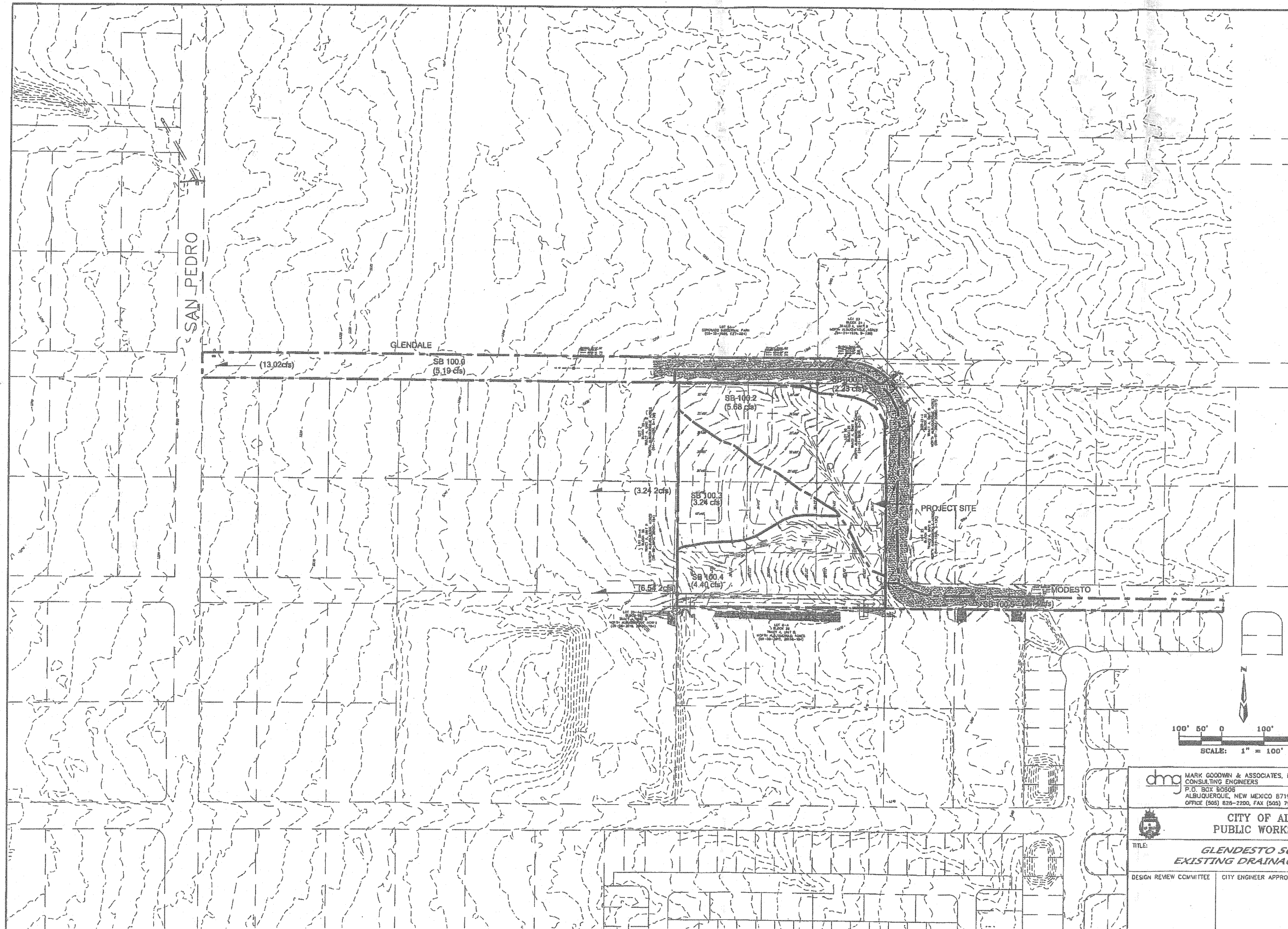
TABLE A-2 (cont.)

LA CUEVA ARROYO SUB-BASIN CHARACTERISTICS

Basin ID	Hydrologic Condition	Basin Area (mi ²)	Land Treatment (%)				TP (hrs)
			A	B	C	D	
113*	Existing	.1136	80	0	15	5	.133
	Future	.1000	0	25	15	60	.133
115*	Existing	.1337	80	0	15	5	.133
	Future	.1202	0	26	12	62	.133
116*	Existing	.1309	80	0	5	15	.133
116.1	Future	.1000	0	25	15	50	.133
116.2	Future	.0719	0	25	15	50	.133
116.21	Future	.0344	0	40	20	40	.133
117.2*	Existing	.1391	73	0	7	20	.22
	Future	.0500	0	34	16	50	.133
117.21*	Existing	.0234	0	34	16	50	.133
117.22*	Future	.0156	0	20	10	70	.133
117.3*	Existing	.0863	65	5	15	15	.133
	Future	.1172	0	34	16	50	.133
117.31*	Existing	.0250	0	34	16	50	.133
117.32*	Existing	.0090	0	34	16	50	.133
117.4*	Existing	.0750	85	0	5	10	.133
	Future	.0512	0	25	15	60	.133
117.5*	Existing	.0550	0	10	20	70	.133
	Future	.0550	0	10	20	70	.133
118	Existing	.0649	0	20	10	70	.133
	Future	.0649	0	20	10	70	.133
118.1	Existing	.0306	75	5	10	10	.133
	Future	.0306	0	20	30	50	.133
119	Existing	.0549	0	20	10	70	.133
	Future	.0549	0	20	10	70	.133
120	Existing	.0268	50	0	0	50	.133
	Future	.0268	0	20	10	70	.133
121	Existing	.0489	80	0	15	5	.133
	Future	.0489	0	20	10	70	.133

*Modified for COA NAA MDP 9/97

\\dmg-sv002\c\p\dwg\800-11012\800-11012.dwg Plot Date: 5/14/16



100' 50' 0 100' 200'
SCALE: 1" = 100'

dmg MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 80806
ALBUQUERQUE, NEW MEXICO 87199
OFFICE (505) 826-2200, FAX (505) 797-8539

CITY OF ALBUQUERQUE PUBLIC WORKS DEPARTMENT	
TITLE: GLENDESTO SUBDIVISION EXISTING DRAINAGE CONDITIONS	
DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL
LAST DESIGN UPDATE	
MO./DAY/YR.	
MO./DAY/YR.	
CITY PROJECT NO.	
ZONE MAP NO.	
SHEET OF	

ENGINEER'S SEAL		SURVEY INFORMATION		BENCH MARKS		AS BUILT INFORMATION	
		NO.	BY	DATE	NO.	CONTRACTOR	DATE
REVISIONS		NO.	BY	DATE	NO.	WORK ORDER BY	DATE
DESIGN		NO.	BY	DATE	NO.	INSPECTION BY	DATE
DRAWN BY		NO.	BY	DATE	NO.	FIELD NOTES BY	DATE
CHECKED BY		NO.	BY	DATE	NO.	REVISIONS BY	DATE
DESIGNED BY		NO.	BY	DATE	NO.	AS BUILT BY	DATE
DRAWN BY		NO.	BY	DATE	NO.	RECORDED BY	DATE
CHECKED BY		NO.	BY	DATE	NO.	NO.	DATE

