DRAINAGE AND TRANSPORTATION SHEET

(REV. 1/28/2003rd)

PROJECT TITLE: Valero Corner Store, Unser & McMahon
ZONE MAP/DRG. FILE # A-11-Z D007D
DRB: 1000936 EPC #:
WORK ORDER #:

LEGAL DESCRIPTION: Tract H, Zolin, Kunath, Tres Esquinas, LLC & Curb Inc.
CITY ADDRESS: 10801 Unser Blvd. NW

ENGINEERING FIRM:	TIERRA WEST, LLC	CONTACT:	JOEL HERNANDEZ
ADDRESS:	5571 MIDWAY PARK PLACE NE	PHONE:	(505) 858-3100
CITY, STATE:	ALBUQUERQUE, NM	ZIP CODE:	87109
OWNER:	Diamond Shamrock Stations, Inc.	CONTACT:	
ADDRESS:	952 E. Baseline Road, #103	PHONE:	
CITY, STATE:	Mesa, AZ 85204	ZIP CODE:	
ARCHITECT:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	
SURVEYOR:	PRECISION SURVEYS	CONTACT:	LARRY MEDRANO
ADDRESS:	8500-A JEFFERSON STREET, NE	PHONE:	(505) 856-5700
CITY, STATE:	ALBUQUERQUE, NM	ZIP CODE:	87113
CONTRACTOR:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	

CHECK TYPE OF SUBMITTAL:

- [X] DRAINAGE REPORT
- [ ] DRAINAGE PLAN 1st SUBMITTAL, ***REQUIRES TCL or equal***
- [ ] DRAINAGE PLAN RESUBMITTAL
- [ ] CONCEPTUAL GRADING & DRAINAGE PLAN
- [X] GRADING PLAN
- [ ] EROSION CONTROL PLAN
- [ ] ENGINEER'S CERTIFICATION (HYDROLOGY)
- [ ] CLOMR/LOMR
- [ ] TRAFFIC CIRCULATION LAYOUT (TCL)
- [ ] ENGINEERS CERTIFICATION (TCL)
- [ ] ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- [ ] OTHER BERNCO PROJECT-CONCURRENT REVIEW

CHECK TYPE OF APPROVAL SOUGHT:

- [ ] SIA / FINANACIAL GUARANTEE RELEASE
- [ ] PRELIMINARY PLAT APPROVAL
- [ ] S. DEV. PLAN FOR SUB'D. APPROVAL
- [ ] S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- [ ] SECTOR PLAN APPROVAL
- [ ] FINAL PLAT APPROVAL
- [ ] FOUNDATION PERMIT APPROVAL
- [X] BUILDING PERMIT APPROVAL
- [ ] CERTIFICATE OF OCCUPANCY (PERM.)
- [ ] CERTIFICATE OF OCCUPANCY (TEMP.)
- [X] GRADING PERMIT APPROVAL
- [ ] PAVING PERMIT APPROVAL
- [ ] WORK ORDER APPROVAL
- [ ] SO-19

RECEIVED
MAR 2 1 2011
HYDROLOGY SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- [ ] YES
- [X] NO
- [ ] COPY PROVIDED

$50.00 AM

DATE SUBMITTED: 3/21/2011 BY: JOEL HERNANDEZ, PE

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

1. **Conceptual Grading and Drainage Plans**: 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 subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

DRAINAGE REPORT

for

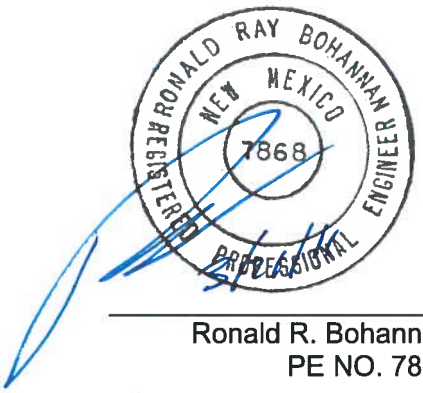
Valero Corner Store
Unser & McMahon Boulevard NW
Albuquerque, New Mexico

Prepared by:

Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, New Mexico 87109

March, 2011

I certify that this report was prepared under my supervision, and I am a registered professional engineer in the State of New Mexico in good standing.



Ronald R. Bohannan
PE NO. 7868

Job No 2010051

TABLE OF CONTENTS

Map Pockets

Appendices

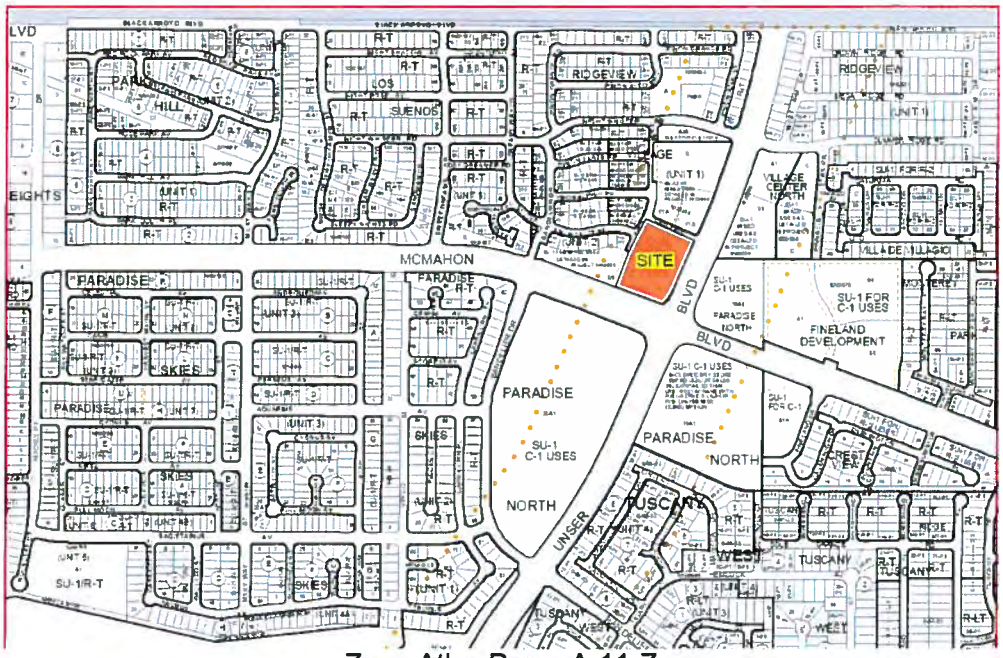
PURPOSE

The purpose of this report is to provide the drainage management plan for the development of the Valero Corner Store, a convenience store and gas station, and a future commercial building. This plan will be utilized for the development of a 2.91 acre property, to be subdivided into two tracts by this project (Tract G and Tract H), and developed with all necessary public and private infrastructure within the site, including the southerly half-width construction of Calle Perro. This plan is in accordance with the DPM, Chapter 22, Hydrology Section. The purpose of this report is to provide the drainage analysis and management plan for the new site.

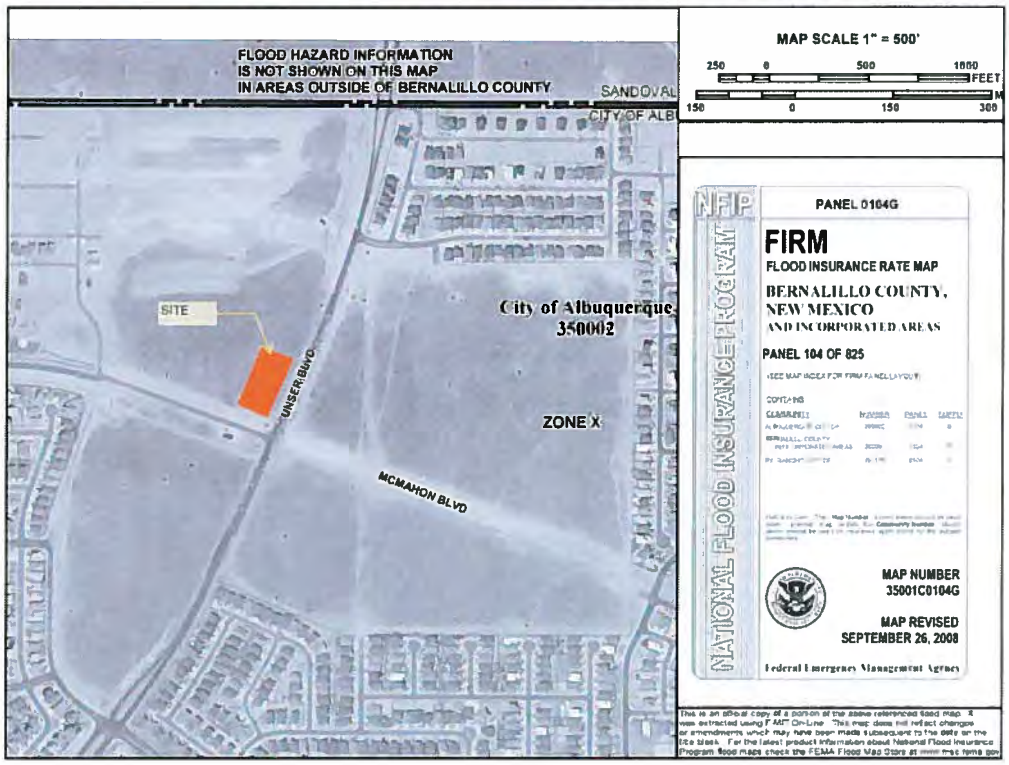
INTRODUCTION

The subject of this report, as shown on the Exhibit A vicinity map, is a 2.91-acre parcel of land located on the northwest corner of Unser and McMahon Boulevard. The site appears on zone atlas page A-11-Z and is currently undeveloped, although storm drainage improvements have been installed with the northerly half-width improvements of Calle Perro. The property will be re-platted to create Tract G (.99 AC) for parking and a future commercial building, and Tract H (1.92 AC) for the convenience store and gas station. As shown on FIRM map 35001C0104G, the subject property has been determined to be outside the 100- and 500-year floodplains. A "Master Drainage Study for the Unser/McMahon Area " was previously done by Bohannan Huston in July of 2001 and amended November 13, 2001. The drainage report assumes the project property (identified in the report as Basin DB5A; Q=10.9 cfs) has free discharge to the storm drain system within Unser Boulevard. The proposed development was designed to convey flow in the manner consistent with the assumptions of the referenced report.

Exhibit A- Vicinity Map



Zone Atlas Page: A-11-Z



EXISTING CONDITIONS

The project property is undeveloped and bound by Unser Boulevard to the east, McMahon Boulevard to the south, Piñon Verde to the west, and Calle Perro ("half-width" improvements recently constructed by project # 1002944) to the north. No offsite flows are conveyed onto the project property. Topography is gently sloping from southwest to northeast with some localized depressions, ultimately conveying drainage runoff from the property to the curb inlet in Calle Perro. Discharge for the existing, undeveloped condition is calculated at 5.86 cfs.

PROPOSED CONDITIONS

The site will be graded to accommodate the proposed structures and associated parking facilities. Although the building within Tract G and its associated parking will be constructed in the future, the analysis of this report is based on the ultimate build-out condition.

The drainage condition around the site will remain unchanged, with the exception of Calle Perro, which will be constructed to its full-width configuration draining into the existing curb inlet at low point near Unser Blvd. Piñon Verde Drive will continue to drain from south to north, crossing Calle Perro at a valley gutter. A high point/water-break in Calle Perro near the Piñon Verde intersection will preclude flows from being diverted. The proposed driveway connection to Piñon Verde is located near the high point in the road and is configured to maintain flows within the road. This report designates the southerly half of Calle Perro as Basin A, which generates 0.87 cfs during the 100-year storm. A water-break in the Calle Perro driveway separates Basin A from on-site flows.

This project proposes to construct storm drain facilities to convey onsite drainage into the existing storm drain pipe connecting the curb inlet in Calle Perro to the inlet on Unser Blvd. located on the northeast corner of the project property. The proposed facilities will be private and

will consist of two drop inlets (single type "D"), 12-inch and 18-inch storm drain pipe, and a 4-foot manhole at the connection point. Drainage within the site will be conveyed to the proposed inlets by means of overland flow to curb cuts adjacent to the landscape areas, then by earthen swales to the two depressions where the drop inlets are proposed. This report designates the tributary area to the northerly drop inlet as Basin B-1 (developed Q=6.17 cfs), and Basin B-2 as the tributary area to the southerly drop inlet (developed Q=3.86 cfs). Hydraulic calculations to analyze proposed inlet grates and pipe sizing, as well as the existing storm drain facilities connecting to the 66-inch storm drain line in Unser Boulevard, are included in Appendix A of this report.

SUMMARY AND RECOMMENDATIONS

Per the previous drainage report, this site has free discharge into the storm drain system in Unser Blvd. The proposed improvements will accommodate the proposed development while maintaining historic drainage patterns and not exceeding the total developed discharge (Q=10.9 cfs) anticipated by the BHI master drainage study. The development of this site is consistent with the DPM, Chapter 22, Hydrology section. It is recommended this development be approved for rough grading and Site Plan for Building Permit.

MAP POCKET A

SITE GRADING AND DRAINAGE PLAN

APPENDIX A

CALCULATIONS

Weighted E Method

De□elo□ed □n□□/e □□□in□□□i□u□□□□o Pi□□□e □□e□ D□□in □□□e□

Basin	Area (sf)	Area (acres)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	100-Year, 6-Hr Weighted E	100-Year, 6-Hr Volume (ac-ft)	100-Year, 6-Hr Flow cfs	10-Year, 6-Hr Weighted E	10-Year, 6-Hr Volume (ac-ft)	10-Year, 6-Hr Flow cfs	2-Year, 6-Hr Weighted E	2-Year, 6-Hr Volume (ac-ft)	2-Year, 6-Hr Flow cfs	100-Year, 10-Day Weighted E	100-Year, 10-Day Volume (ac-ft)	100-Year, 10-Day Flow cfs
A	8953	0.21	0%	0	0%	0.00	10%	0.0205533	90%	0.18	1.872	0.032	0.87	1.160	0.020	0.57	0.660	0.011	0.32	1.872	0.055	0.87
B-1	67224	1.54	0%	0	0%	0.00	25%	0.3858127	75%	1.16	1.725	0.222	6.17	1.040	0.134	3.92	0.570	0.073	2.14	1.725	0.364	6.17
B-2	49613	1.14	0%	0	26%	0.30	25%	0.2847394	49%	0.56	1.387	0.132	3.86	0.775	0.074	2.26	0.385	0.037	1.09	1.387	0.200	3.86
Total	125,790	2.89								1.90		0.386	10.89			6.75					0.618	10.89

P□e□De□elo□□en□□o□ □□□/□on

Basin	Area (sf)	Area (acres)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	100-Year, 6-Hr Weighted E	100-Year, 6-Hr Volume (ac-ft)	100-Year, 6-Hr Flow cfs	10-Year, 6-Hr Weighted E	10-Year, 6-Hr Volume (ac-ft)	10-Year, 6-Hr Flow cfs	2-Year, 6-Hr Weighted E	2-Year, 6-Hr Volume (ac-ft)	2-Year, 6-Hr Flow cfs	100-Year, 10-Day Weighted E	100-Year, 10-Day Volume (ac-ft)	100-Year, 10-Day Flow cfs
Pre Develop	125,790	2.89	0%	0	100%	2.89	0%	0	0%	0.00	0.670	0.161	5.86	0.220	0.053	2.19	0.010	0.002	0.09	0.670	0.161	5.86

Equations for Weighted E Method:

Weighted E = Ea*Aa + Eb*Ab + Ec*Ac + Ed*Ad / (Total Area)

Volume = Weighted D * Total Area

Flow = Qa * Aa + Qb * Ab + Qc * Ac + Qd * Ad

Volume (10-day) = V_{360} + Ad * (P_{10days} - P_{360})/ 12 in/ft

Excess Precipitation, E (inches)			
Zone 1	100-Year	10 - Yea	2 - Year
E_a	0.44	0.08	0.00
E_b	0.67	0.22	0.01
E_c	0.99	0.44	0.12
E_d	1.97	1.24	0.72

Peak Discharge (cfs/acre)			
Zone 1	100-Year	10 - Yea	2 - Year
Q_a	1.29	0.24	0
Q_b	2.03	0.76	0.03
Q_c	2.87	1.49	0.47
Q_d	4.37	2.89	1.69

Capacity of a Single 'D' Storm Drop Inlets

Capacity of the grate:

L = 40" - 2(2"$_{ends}$) - 7(½" $_{middle\ bars}$)
= 32 1/2"
= 2.7083'

W = 25" - 13(½" $_{middle\ bars}$)
= 18.5"
= 1.54'

Area = 2.7083' x 1.54'
= 4.18 ft^2

Effective Ar = 4.18- 4.18 (0.5 $_{clogging\ factor}$)
2.09 ft^2 at the grate

Orifice Equation

Q = CA sqrt(2gH)
For H = 0.40 (assumes no ponding in pavement area)
Q = 0.6*2.09*sqrt(2*32.2*0.33)
Q = 6.4 cfs (capacity) >6.17 cfs (max required), therefore OK

Worksheet for Circular Pipe - 12-in

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01500	ft/ft
Diameter	12.00	in
Discharge	3.86	ft^3/s

Results

Normal Depth	0.73	ft
Flow Area	0.62	ft^2
Wetted Perimeter	2.05	ft
Hydraulic Radius	0.30	ft
Top Width	0.89	ft
Critical Depth	0.83	ft
Percent Full	73.1	%
Critical Slope	0.01137	ft/ft
Velocity	6.27	ft/s
Velocity Head	0.61	ft
Specific Energy	1.34	ft
Froude Number	1.33	
Maximum Discharge	4.69	ft^3/s
Discharge Full	4.36	ft^3/s
Slope Full	0.01174	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	73.12	%
Downstream Velocity	Infinity	ft/s

Worksheet for Circular Pipe - 12-in

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.73	ft
Critical Depth	0.83	ft
Channel Slope	0.01500	ft/ft
Critical Slope	0.01137	ft/ft

Worksheet for Circular Pipe - 18-in RCP

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Diameter	18.00	in
Discharge	10.89	ft³/s

Results

Normal Depth	1.29	ft
Flow Area	1.61	ft²
Wetted Perimeter	3.55	ft
Hydraulic Radius	0.45	ft
Top Width	1.05	ft
Critical Depth	1.26	ft
Percent Full	85.7	%
Critical Slope	0.01025	ft/ft
Velocity	6.75	ft/s
Velocity Head	0.71	ft
Specific Energy	1.99	ft
Froude Number	0.96	
Maximum Discharge	11.30	ft³/s
Discharge Full	10.50	ft³/s
Slope Full	0.01075	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	85.73	%
Downstream Velocity	Infinity	ft/s

Worksheet for Circular Pipe - 18-in RCP

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	1.29	ft
Critical Depth	1.26	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.01025	ft/ft

Earthen (gravel) Swale in Lanscape Area Capacity

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.041	
Channel Slope	0.01000	ft/ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Discharge	6.17	ft^3/s

Results

Normal Depth	0.97	ft
Flow Area	2.85	ft^2
Wetted Perimeter	6.16	ft
Hydraulic Radius	0.46	ft
Top Width	5.85	ft
Critical Depth	0.77	ft
Critical Slope	0.03619	ft/ft
Velocity	2.17	ft/s
Velocity Head	0.07	ft
Specific Energy	1.05	ft
Froude Number	0.55	
Flow Type	Subcritical	

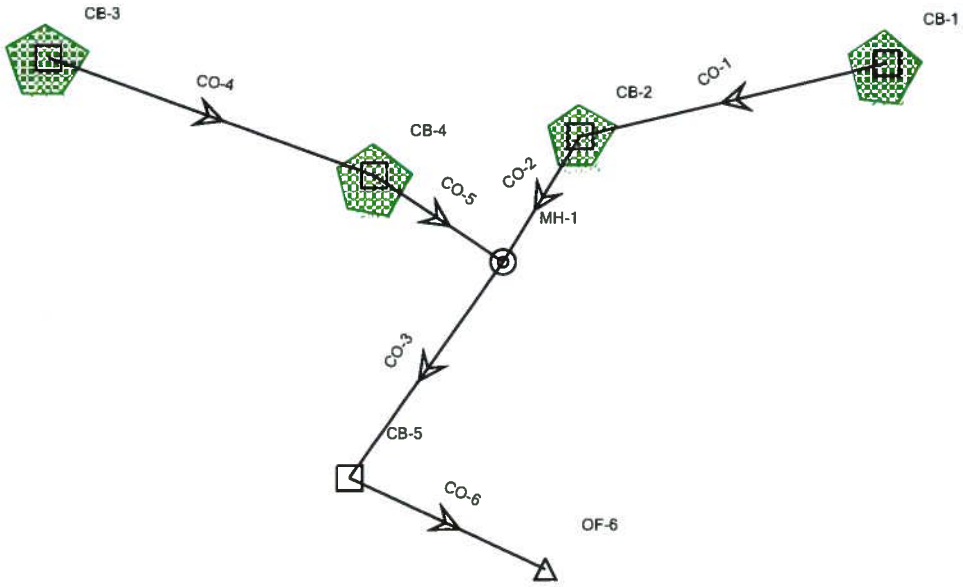
GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

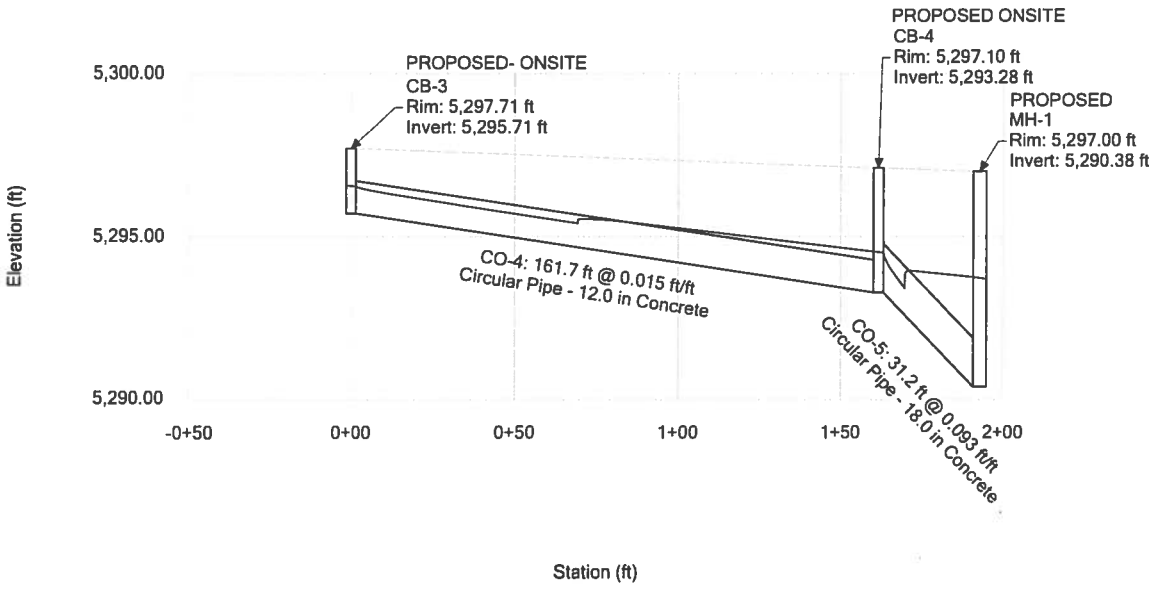
GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.97	ft
Critical Depth	0.77	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.03619	ft/ft

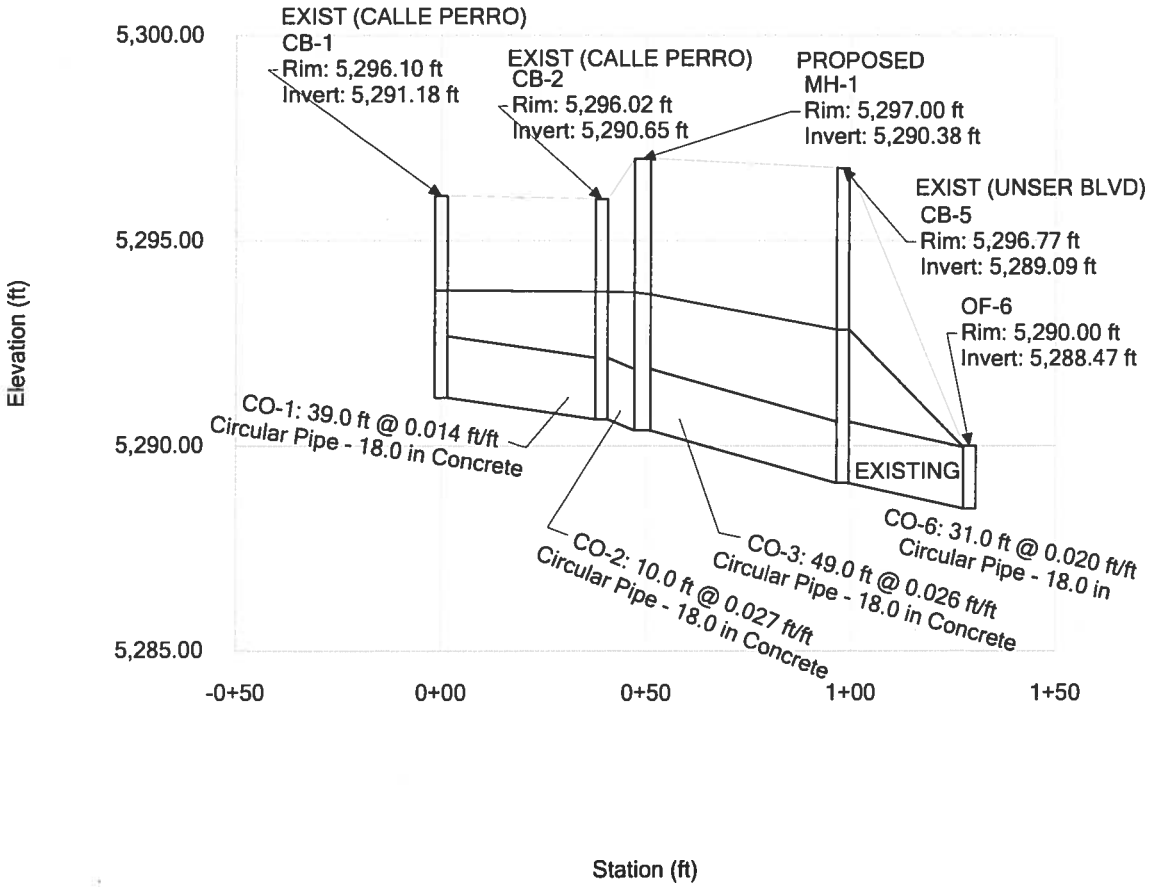
Scenario: Base



Profile Report
Engineering Profile - Profile - 1 (Valero Corner Store, abq - SD Analysis.stc)



Profile Report
Engineering Profile - Profile - 2 (Valero Corner Store, abq - SD Analysis.stc)



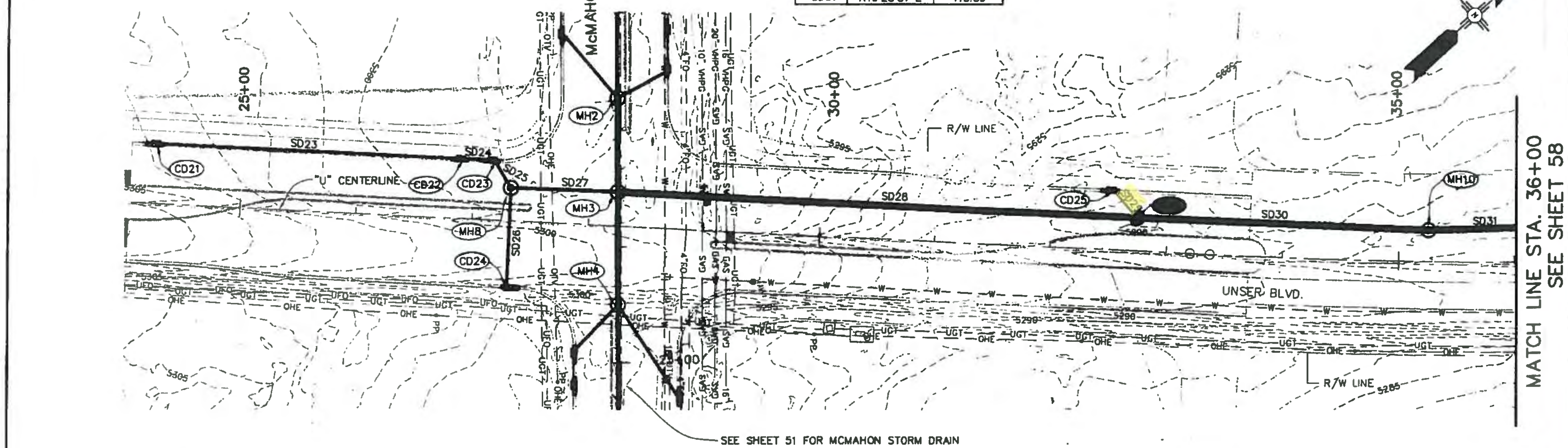
FlexTable: Conduit Table (Valero Corner Store, abq - SD Analysis.stc)

Label	Invert (Upstream) (ft)	Stop Node	Invert (Downstream) (ft)	Manning's n	Diameter (in)	Flow (ft³/s)	Length (Unified) (ft)	Slope (Calculated) (ft/ft)	Capacity (Full Flow) (ft³/s)	Elevation Ground (Start) (ft)
CO-1	5,291.18	CB-2	5,290.65	0.013	18.0	3.03	39.0	0.014	12.24	5,296.10
CO-2	5,290.65	MH-1	5,290.38	0.013	18.0	3.90	10.0	0.027	17.26	5,296.02
CO-3	5,290.38	CB-5	5,289.09	0.013	18.0	13.93	49.0	0.026	17.04	5,297.00
CO-4	5,295.71	CB-4	5,293.28	0.013	12.0	3.86	161.7	0.015	4.37	5,297.71
CO-5	5,293.28	MH-1	5,290.38	0.013	18.0	10.03	31.2	0.093	32.02	5,297.10
CO-6	5,289.09	OF-6	5,288.47	0.013	18.0	31.93	31.0	0.020	14.85	5,296.77

Elevation Ground (Stop) (ft)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Cover (Start) (ft)	Cover (Stop) (ft)	Velocity (Average) (ft/s)
5,296.02	5,293.80	5,293.76	3.42	3.87	1.71
5,297.00	5,293.76	5,293.75	3.87	5.12	2.21
5,296.77	5,293.70	5,292.84	5.12	6.18	7.88
5,297.10	5,296.55	5,294.53	1.00	2.82	6.28
5,297.00	5,294.50	5,293.75	2.32	5.12	16.02
5,290.00	5,292.84	5,289.96	6.18	0.03	18.07

Bentley Systems, Inc. Haestad Methods Solution Center
27 Siemon Company Drive Suite 200 W Watertown, CT 06795 USA
+1-203-755-1666

NUMBER	BEARING	DISTANCE
SD23	N23°46'53"E	262.40'
SD24	N23°46'53"E	27.36'
SD25	N80°15'43"E	27.92'
SD26	N66°47'24"W	85.73'
SD27	N23d12'40"E	92.06'
SD28	N23°12'42"E	449.01'
SD29	N70°31'57"E	31.03'
SD30	N23°29'17"E	251.36'
SD31	N19°28'37"E	418.89'

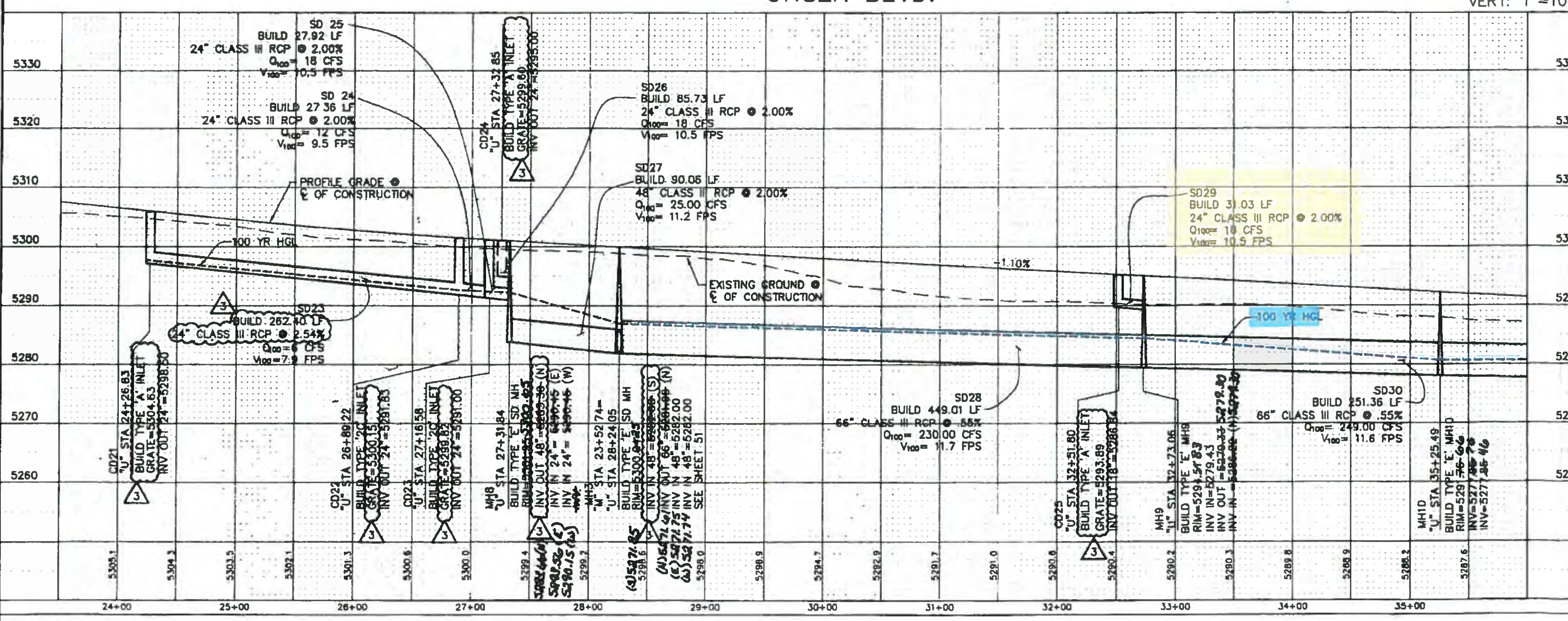


SEE SHEET 51 FOR MCMAHON STORM DRAIN

MATCH LINE STA. 36+00
SEE SHEET 58

SCALE:
HORIZ: 1"= 50'
VERT: 1"=10'

UNSER BLVD.



F.H.W.A. REGION NO. 6 / NEW MEXICO PROJECT NO.	SHEET NO.
TPU-7601(7) CN 9823	57

CONSTRUCTION BUILD NOTES:

CONCRETE DROP INLET:

- CD21 "U" STA 24+26.83, 51.50' LT. CONSTRUCT TYPE 'A' INLET. (3)
- CD22 "U" STA 26+89.22, 51.50' LT. CONSTRUCT TYPE '2C' INLET.
- CD23 "U" STA 27+16.58, 51.50' LT. CONSTRUCT TYPE '2C' INLET.
- CD24 "U" STA 27+32.85, 57.50' RT. CONSTRUCT TYPE 'A' INLET. (3)
- CD25 "U" STA 32+51.80, 51.50' LT. CONSTRUCT TYPE 'A' INLET. (3)

CONSTRUCT TYPE '2C' INLET AS PER COA STANDARD DWG 2205

CONSTRUCT TYPE 'A' INLET AS PER COA STANDARD DWG 2201 & 2202

OFFSETS MEASURED FROM CONSTR. CL TO CURB & GUTTER FLOWLINE. (3)

MANHOLE:

- MH8 "U" STA ~~27+31.84~~, ~~28.50'~~ LT., CONSTRUCT 5' TYPE "E" SD MH (3)
- MH9 "U" STA ~~32+73.06~~, ~~28.50'~~ LT., CONSTRUCT TYPE 8' "E" SD MH
- MH10 "U" STA ~~35+25.49~~, ~~27.12'~~ LT., CONSTRUCT 8' TYPE "E" SD MH

CONSTRUCT TYPE "E" SD MH AS PER COA STANDARD DWG 2102

STORM DRAIN PIPE:

- SD23 "U" STA 24+26.83, 51.50' LT TO "U" STA 26+89.22, 51.50' LT., CONSTRUCT 24" CLASS III RCP.
- SD24 "U" STA 26+89.22, 51.50' LT TO "U" STA 27+16.58, 51.50' LT., CONSTRUCT 24" CLASS III RCP.
- SD25 "U" STA 27+16.58, 51.50' LT TO "U" STA 27+31.84, 28.50' LT., CONSTRUCT 24" CLASS III RCP.
- SD26 "U" STA 27+32.85, 57.50' RT TO "U" STA 27+31.84, 28.50' LT., CONSTRUCT 24" CLASS III RCP.
- SD27 "U" STA 27+31.84, 28.50' LT TO "U" STA 28+24.05, 29.14' LT. CONSTRUCT 48" CLASS III RCP. (3)
- SD28 "U" STA 28+24.05, 29.14' LT TO "U" STA 32+73.06, 28.50' LT., CONSTRUCT 66" CLASS III RCP.
- SD29 "U" STA 32+51.80, 51.50' LT TO "U" STA 32+73.06, 28.50' LT. CONSTRUCT 24" CLASS III RCP. (3)
- SD30 "U" STA 32+73.06, 28.50' LT TO "U" STA 35+25.49, 27.12' LT., CONSTRUCT 66" CLASS III RCP.
- SD31 "U" STA 35+25.49, 27.12' LT TO "U" STA 36+00.00, 29.78' LT., CONSTRUCT 66" CLASS III RCP.

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING STORM DRAINAGE STRUCTURES AND UTILITY LOCATIONS. THE CONTRACTOR SHALL NOTIFY THE PROJECT MANAGER IMMEDIATELY OF ANY DISCREPANCIES.

Gannett Fleming West, Inc.
ENGINEERS AND PLANNERS

WILSON & COMPANY

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
TRANSPORTATION DESIGN DIVISION

TITLE: McMAHON BOULEVARD TRANSPORTATION IMPROVEMENTS
GRADING & DRAINAGE PLAN & PROFILE

AS BUILT INFORMATION

BENCH MARKS: THE STA. IS A USGS BRASS TABLET STAMPED "BLACK-2 1977" SET FLUSH W/THE GROUND. THE STA IS LOCATED 8.5 MI. N.W. OF DOWNTOWN ALBQ. TO REACH THE STA FROM THE INTX. OF COORS/I-40 GO N. ON COORS 5.8 MI. TO PARADISE BLVD. TURN LEFT GO W. ON PARADISE BLVD. 1.1 MI. TO GOLF COURSE RD. TURN RIGHT GO N. ON GOLF COURSE RD. 1.3 MI. TO McMAHON BLVD. THE STA. IS ON THE LEFT. ELEVATION = 5213.926 FT. (2ND ORDER) (NGVD 29)

SURVEY INFORMATION — FIELD NOTES: NO. | BY | DATE

ENGINEER'S SEAL

NO.	DATE	REMARKS	BY
3	06/04	STORM DRAIN MODIFICATIONS	MFZ

REVISIONS

GANNETT FLEMING WEST, INC.

DESIGNED BY	MHB	DATE	4/25/01
DRAWN BY	RLL	DATE	11/15/01
CHECKED BY	RLL	DATE	11/16/01

Design Review Committee | City Engineer Approval | Last Design Update

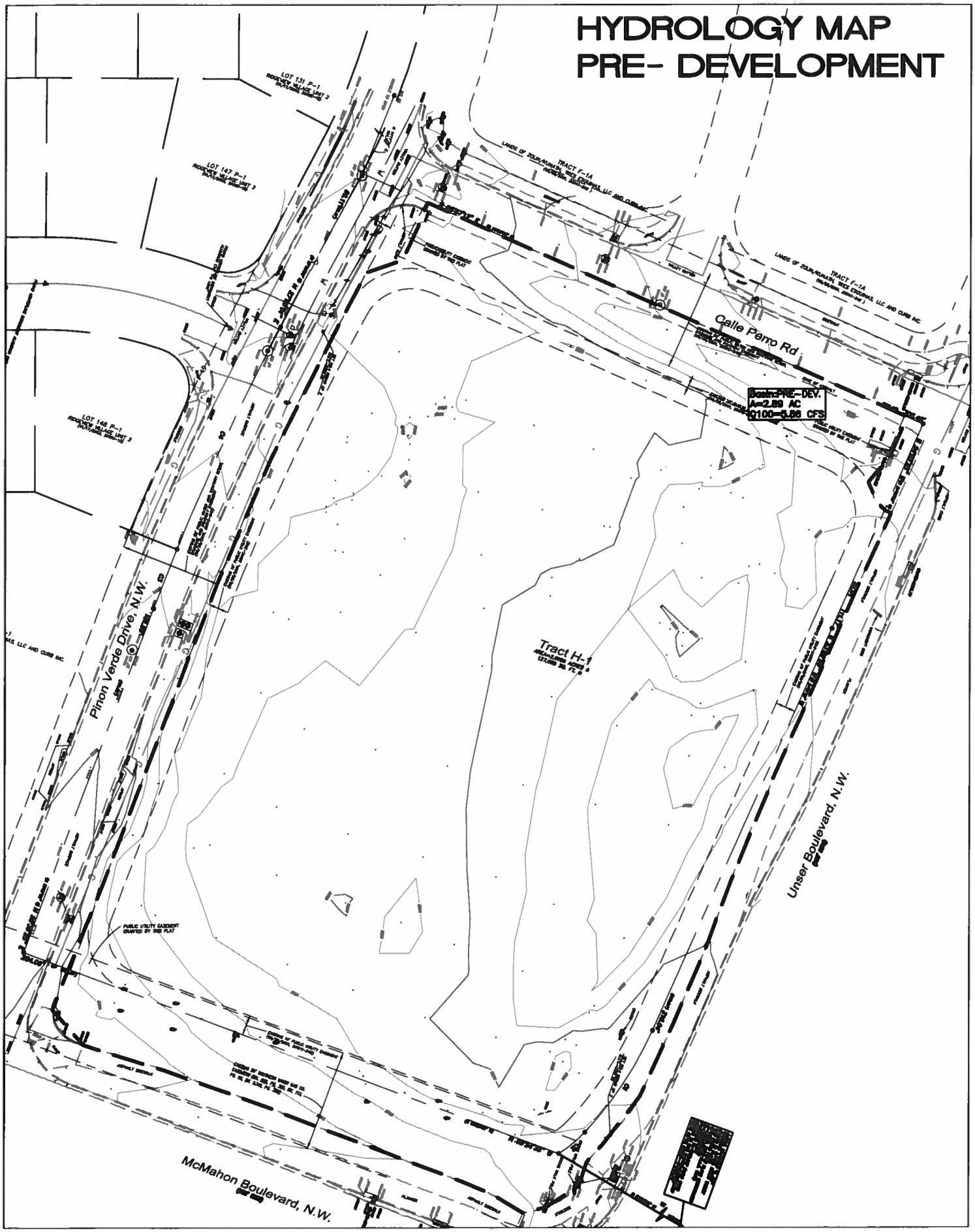
City Project No. 618591 | Zone Map No. A-11 & A-12-Z | Sheet 57 of 123

APPENDIX B

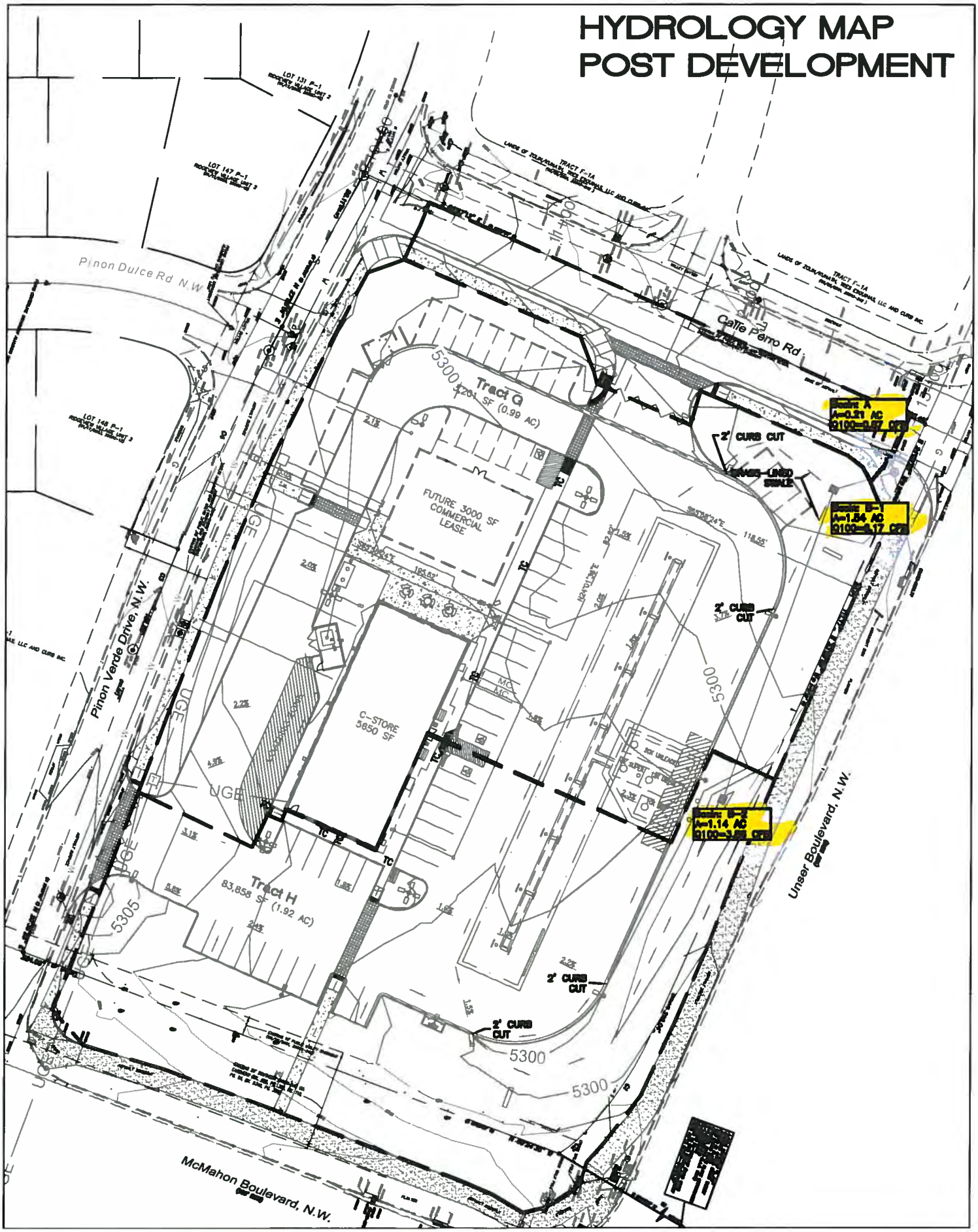
Pre-Development Basin Map

Post-Development Basin Map

HYDROLOGY MAP
PRE- DEVELOPMENT



HYDROLOGY MAP
POST DEVELOPMENT



APPENDIX C

BHI Master Drainage Study Excerpt

A-11/D005A

MASTER DRAINAGE STUDY FOR THE UNSER / MCMAHON AREA

BOHANNAN HUSTON
Courtyard One
7500 JEFFERSON NE
Albuquerque
NEW MEXICO 87109
voice 505.823.1000
fax 505 821 0892

July 17, 2001
AMENDED NOVEMBER 13, 2001

PREPARED FOR:

CURB, INC.
6301 INDIAN SCHOOL NE, SUITE 208
ALBUQUERQUE, NM 87109

AP9
343 cfs

AP2
390 cfs

AP10
675 cfs

RIO RANCHO ESTATES UNIT 16

AP11
823 cfs

ARROYO

WEST SECTION

BLACK ARROYO BLVD

EAST SECTION

RIDGEVIEW VILLAGE SUBDIVISION (CURB INC.)

DB4-A
Q=60.0 cfs
A=15.0 Ac.

SOUTH SECTION

AP3
288 cfs

RIDGEVIEW SUBDIVISION (CURB INC.)

AP4
161 cfs

8.0 cfs

Q=8.2 cfs

Q=8.0 cfs

LOS SUEÑOS SUBDIVISION

DB4-B
Q=42.7 cfs
A=12.86 Ac.

DB5B
Q=28.6 cfs
A=7.1 Ac.

SMITH COMM.
Q=20.6 cfs
A=5.0 Ac.

DB3
Q=19.9 cfs
A=6.6 Ac.

DB4-C
Q=5.6 cfs
A=1.64 Ac.

VILLAGE CENTER WEST

UNSER BLVD

VILLAGE CENTER EAST

80 cfs

SMITH RES.
Q=45.4 cfs
A=12.1 Ac.

AP13
92.3 cfs

STONEBRIDGE SUBDIVISION (CENTEX)

9.7 cfs

DB6
Q=19.0 cfs
A=4.5 Ac.

DB5A
Q=10.9 cfs
A=2.7 Ac.

99.8 cfs

FEN COMM.
Q=15.2 cfs
A=11.0 Ac.

McMAHON BLVD

DB7B
Q=21.1 cfs
A=5.8 Ac.

KUNATH
Q=9.3 cfs
A=5.3 Ac.

AP6
60 cfs

AP7
138 cfs

FEN RES.
Q=30.8 cfs
A=11.0 Ac.

AP1
180 cfs

DB8
Q=78.2 cfs
A=19.4 Ac.

UNSER BLVD

EXC2
Q=41.5 cfs
A=10.9 Ac.