### CITY OF ALBUQUERQUE

Planning Department
David Campbell, Director



June 21, 2018

Ronald Bohannan, P.E. Tierra West, LLC 5571 Midway Park Place NE Albuquerque, NM, 87109

RE: Pizza Hut - Coors Blvd & Avalon Rd

Grading and Drainage Plan Engineer's Stamp Date: 06/12/18 Hydrology File: K10D020D

Dear Mr. Bohannan:

PO Box1293

www.cabq.gov

Based upon the information provided in your submittal received 06/13/2018, the Grading Plan is

approved for Building Permit.

Albuquerque Please attach a copy of this approved plan in the construction sets for Building Permit

processing. Also once the grading is complete, a pad certification will be required.

NM 87103 Prior to approval in support of Permanent Release of Occupancy by Hydrology, Engineer

Certification per the DPM checklist will be required and a formal Elevation Certificate needs to

be submitted to Hydrology.

Please provide a Private Facility Drainage Covenant per Chapter 17 of the DPM for first flush pond prior to Permanent Release of Occupancy. Please submit this on the 4th floor of Plaza de Sol. A \$25 fee will be required.

If you have any questions, please contact me at 924-3995 or <u>rbrissette@cabq.gov</u>.

Renée C. Brissette

Renée C. Brissette, P.E. CFM Senior Engineer, Hydrology

Planning Department



### City of Albuquerque

### Planning Department

### Development & Building Services Division

### DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 3/2018)

Project Title:	Building Pe	ermit #: Hydrology File #:
		Work Order#:
Legal Description:		
Applicant:		Contact:
Address:		
		E-mail:
Other Contact:		Contact:
Address:		
Phone#:	Fax#:	E-mail:
Check all that Apply:		IS THIS A RESUBMITTAL?: Yes No
DEPARTMENT:  HYDROLOGY/ DRAINAGH TRAFFIC/ TRANSPORTAT  TYPE OF SUBMITTAL:  ENGINEER/ARCHITECT CH PAD CERTIFICATION  CONCEPTUAL G & D PLAN GRADING PLAN DRAINAGE MASTER PLAN DRAINAGE REPORT  FLOODPLAIN DEVELOPME ELEVATION CERTIFICATE  CLOMR/LOMR  TRAFFIC CIRCULATION LA TRAFFIC IMPACT STUDY  OTHER (SPECIFY)  PRE-DESIGN MEETING?	ERTIFICATION  ENT PERMIT APPLIC  AYOUT (TCL) (TIS)	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  FLOODPLAIN DEVELOPMENT PERMIT  OTHER (SPECIFY)
DATE SUBMITTED:	By:	-

FEE PAID:



### TIERRA WEST, LLC

June 8, 2018

Ms. Renee Brisette, P.E. Sr. Engineer-Hydrology City of Albuquerque 600 2<sup>nd</sup> Street NW Albuquerque, NM 87102

RE: PIZZA HUT – COORS BLVD & AVALON RD

GRADING AND DRAINAGE PLAN RESPONSE TO COMMENTS

ENGINEER'S STAMP DATE 4/14/18 (K10-D020D)

Dear Ms. Brisette:

Per your correspondence dated April 18, 2018, please find the following responses addressing the comments listed below:

1. According to the latest Firm Map as you have indicated, this site is partially in Flood Zone AH. Please provide a written approval from FEMA prior to Hydrology approval. Response: In a meeting with yourself and Doug Hughes on April 24, 2018 we discussed the routing of the surrounding drainage for the Bluewater Village Apartments, it was determined that a FEMA approval was not necessary since the existing drainage infrastructure was already handling the drainage that created the flood plain. An email from Doug Hughes discussing this can be found in Appendix D

- 2. Please provide Floodplain Permit prior to Hydrology approval. Response: A floodplain permit application with a draft of the building elevation certificate is being submitted along with this resubmittal into City Hydrology. The proposed building finished floor elevation will be at an elevation of 5089.40, which is 1.4 feet higher than the base flood elevation shown on the FEMA FIRM Map.
- 3. Please fix the site location on the Vicinity Map. The existing Valero gas station is highlighted.

Response: The vicinity map was updated to show the correct site location.

- 4. Please show the two existing trees and place a note that they will have to be removed. Response: The two existing trees are now shown on the plan near the driveway at the SE corner of the property. One tree falls within the proposed driveway that will need to be removed and the other falls behind the proposed curb return of the driveway that can remain (NW of the proposed dumpster pad).
- Please provide as-built spot elevations (top of wall and existing ground on either side of the wall) of the existing retaining wall.
   Response: As-built spot elevations are now shown for both the lower east side of the wall across the entire existing span of the wall.
- Please add the provided volume in the first flush pond.
   Response: The provided volume of 963.7 CF is now currently shown on the grading plan.

- 7. For Section A-A, please make these changes:
  - a. Please add the property line.

Response: The property line was added to the cross section.

b. Please add the existing wall footer.

Response: The existing wall footer is now shown with the correct scaling of the wall height and existing/proposed ponds.

c. Please provide the width of the existing retaining wall.

Response: The existing width of the retaining wall is 8" and is now shown on the cross section.

- d. It appears that the top of the existing pond next to retaining wall is 5085.70 and not 5087.70. This could be cleared up with the as-built topo shots in comment #5. Response: The wall and pond heights were updated for clarification of the cross section. The low side of the wall where the existing wall is located is at an elevation of 5084.25 and the high side of the wall with the proposed first flush pond is at an elevation of 5087.70. The top of wall is at an elevation of 5089.50. All these elevations are shown on the cross sections along with the existing grade.
- e. Is the existing wall footer conflicting with the proposed pond? If so, than the pond will need to be adjusted.

Response: The existing footer lies approximately 2' below the bottom of the existing pond at an elevation of 5082.25. This would put the footer at approximately 5.45 feet below the proposed pond and will not conflict with the finished grade.

f. Is the wall stable after the existing earthwork excavation for the proposed pond? If not, then either provide for a new wall adjacent with the existing wall or shift the pond so it does not interfere with the existing wall.

Response: The wall was constructed to have a finished grade on the high side to be approximately 5089.50, the finished grade of the proposed pond that abuts this wall will be no higher than 5087.70 so will put less of a burden on the loading of the wall.

If you have any questions or need additional information regarding this matter, please do not hesitate to contact me.

Sincerely,

Ronald R. Bohannan, PE

JN: 2017015

RRB/vp

### **DRAINAGE REPORT**

For

## Pizza Hut Coors Blvd & Avalon Rd

Prepared by:

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

June 11, 2018

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 # 7868

Job No. 2017015

### **TABLE OF CONTENTS**

Purpose Location Exhibit A – Vicinity Map Exhibit B – Site Aerial Image Existing Conditions Flood Plain Exhibit C – FIRM Map Proposed Conditions Water Quality Management Calculations Summary		3 4 5 5 6 6 7 8 8
<u>Appendices</u>		
Drainage Basin Maps & Hydrology Tables/Calculations	. APPENDIX	Α
Weir and Curb Cut Capacities	. APPENDIX	В
Bluewater Development Hydrology Report Excerpts	.APPENDIX (	С
Email Excerpt From City Hydrology Discussing FEMA Flood Plain Mitigation	.APPENDIX I	D

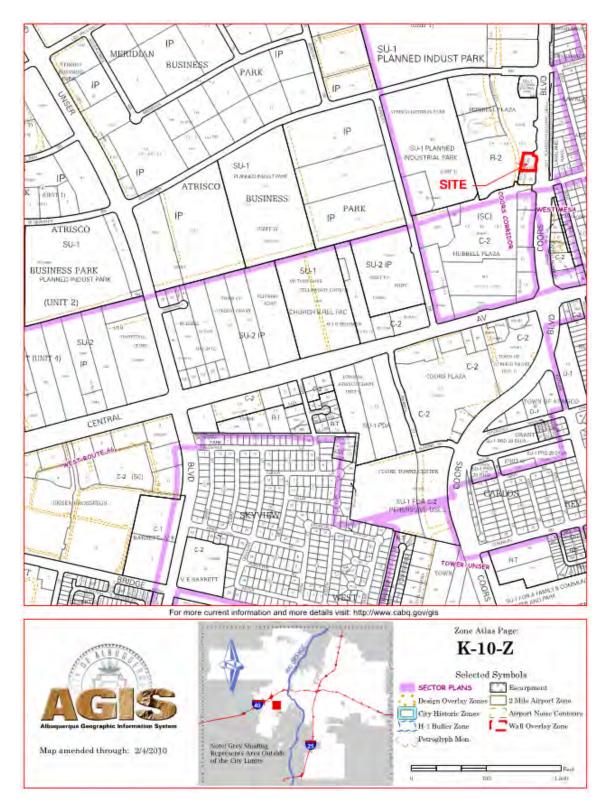
### **Purpose**

The purpose of this report is to develop a Drainage Management Plan for developing a new commercial building for a Pizza Hut and retail tenant on an undeveloped 0.56-acre parcel of land, entitled Tract D-3A of the Coors Central North plat. The 0.56 acres will include an additional drainage inflow from the 0.55-acre developed parcel of land directly south of the site (Twisters property), giving a total of 1.11 acres of drainage area.

### Location

The site is located on the northwest corner of the Coors Boulevard and Avalon Road intersection; it is bounded by Camino Azul to the west, Bluewater Village Apartments to the north, Coors Boulevard to the east, and Twisters to the south. The site consists of 1 commercial lot which will be developed for a single-story building with a drive-thru lane for a Pizza Hut and a tenant space for future commercial/retail use.

### **Exhibit A – Vicinity Map**







### **Existing Conditions**

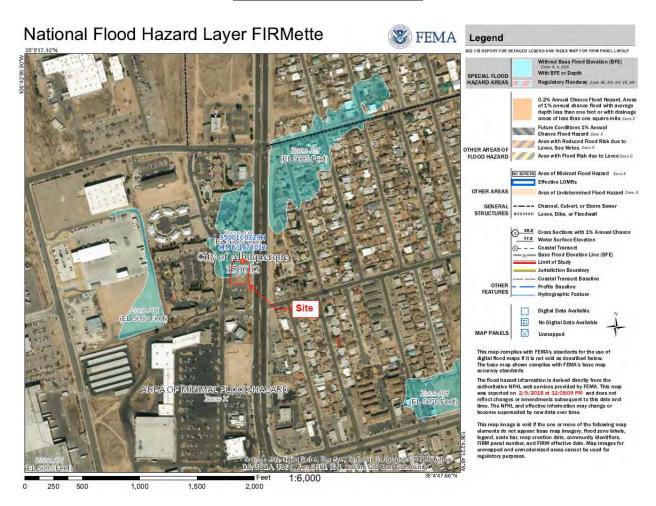
The site is undeveloped and drains from southeast to northwest with runoff retained onsite. The site currently consists of two drainage basins, E1 and E2. Basin E1 consists of the Twisters developed property directly south of the site. Runoff flows from E1 are directed north towards the site where the flows are retained.

Basin E2 consists of the entire undeveloped subject site. The undeveloped site has a slight grade to direct flows to the northwest but is retained onsite currently. The total 100-yr storm runoff for both basins is 3.09 cfs. The hydrology calculations/table and existing basin map can be found in Appendix A.

### Flood Plain

The site is located on FIRM Map 35001C0329H. The map indicates that the site partially lies within Flood Zone AH with a water surface elevation of 5088 ft. The finished floor elevation of the proposed building will be at an elevation of 5089.40 ft. An email from the city principal hydrology engineer, James D. Hughes, can be found in Appendix D explaining that the surrounding existing drainage infrastructure is adequate for mitigation of fill within the flood plain and will not require a LOMR.

### Exhibit C - FIRM Map



### **Proposed Conditions**

All improvements will be built out in their entirety. The grading and drainage design is configured to accommodate the proposed building and associated improvements plus the drainage of the Twisters property to the south.

Basin P1 consists of the entire Twister property, runoff will be directed towards the north towards the subject site via surface flow through the new drive aisle at the SE corner of the site and through a landscaped buffer and curb cuts along the southern onsite parking row. Total flow rate from this basin is 1.88 cfs.

Basin P2 consists of the southern portion of the site as well as the southern half of the building roof and drive through lane. Flows from this basin accept the flows from Basin P1 and are directed northwest via surface flow and curb cut towards the landscaped ponding area along the western and northern property line. Total flow rate from this basin is 1.02 cfs.

Basin P3 consists of the parking area and landscaped buffer directly east of the building. Flows from this basin are directed north via surface flow and a curb cut towards the landscaped ponding area along the western and northern property line. Total flow rate from this basin is 0.68 cfs.

Basin P4 consists of the norther half of the building roof as well as a portion of the drive through lane. Flows from this basin are directed west via surface flow towards a curb cut that enter the landscaped ponding area along the western and northern property line. Total flow rate from this basin is 0.23 cfs.

Basin P5 consists of a small portion of the drive through lane directly northwest of the proposed building. These flows are directed northwest via surface flow and curb cut and into the landscaped ponding area. Total flow rate from this basin is 0.06 cfs.

Basin P6 consists of the entire landscaped ponding area along the north and west property line. This basin accepts flows from all the developed basins for this development. Total flow rate for this basin is 0.2 cfs. The landscape ponding area is intended to retain the "first flush" volume of the developed site prior to discharging into

the existing pond directly west and north the site. A weir will be constructed in the existing retaining wall that is on the west property line so that the remaining runoff flow (less the first flush volume) will topple over the wall and into the existing pond. Calculations for the size and capacity of the weir can found in Appendix B along with calculations for the curb cut capacity.

The total developed flow rate through the weir and into the existing pond north and west of the site is 4.07 cfs. An existing master drainage plan for this area titled "Bluewater Development Hydrology Report" by Red Mountain Engineers 12/4/1996 (K10-D20) shows that our site plus the Twisters site (formerly Arby's) can discharge into this existing pond at a rate of 5.8 cfs, which we fall under. Excerpts of this drainage report can be found in Appendix C.

### **Water Quality Management**

The management of water quality for this site intends to capture the 99<sup>th</sup> percentile storm event and retain onsite prior to any discharge off of the site. This volume was calculated per the COA drainage ordinance as 0.44" (minus initial abstractions) over the developed impervious areas, giving a total of 885.7 cubic feet of runoff to retain. The water quality will be retained in the landscaped ponding area along the west and north property lines. The weir that will be cut into the existing retaining wall will act as a raised invert of the pond at a height that will retain the required 885.7 cubic feet volume. The water quality volume calculations can be found on the hydrology table in Appendix A.

### **Calculations**

The Weighted E Method from the "City of Albuquerque Development Process Manual Volume I – Design Criteria, 2006 Revision" was used to calculate the runoff and volume for the site, the hydrology table can be found in Appendix A. Drainage capacities for the weir and curb cuts can be found in Appendix B.

### **Summary**

The entire site will be graded and all of the surface improvements will be built out in their entirety. The enclosed grading plan shows the grades for the entire project.

The proposed development consists of commercial development with 6 basins that includes accepting drainage from the Twisters property directly to the south. All of the basins will convey flow via surface flow and through curb cuts towards the proposed onsite landscaped ponding area along the west and north property lines.

The landscaped ponding area will include a raised invert weir that will retain the required first flush volume prior to any discharge from the site. The developed discharge will flow over the weir and into an existing pond just north and west of the subject site. The flow rate entering this pond through the weir will be 4.07 cfs which is less than the 5.8 cfs requirement outlined in the "Bluewater Development Hydrology Report".

### **APPENDIX A**

## Drainage Basin Maps & Hydrology Tables/Calculations

# **DPM Weighted E Method**

Precipitation Zone 1

NW Corner of Coors Blvd. and Avalon Rd.

Pizza Hut - 303 Coors Blvd. NW

TWLLC

Date 3/19/2

3/19/2018

Existing	Existing Conditions			8	Basin Descri	escriptions						100	100-Year, 6-Hr		10-	10-Year, 6-Hr	
Basin	Area	Area	Area	Treatn	Treatment A	Treatment B	nent B	Treatr	Treatment C	Treatn	Treatment D	Weighted E	Volume	Flow	Weighted E	Volume	Flow
Q	(sf)	(acres)	(sd miles)	%	(acres)	%	(acres)	%	(acres)	%	(acres)	(in)	(ac-ft)	cfs	(in)	(ac-ft)	cfs
E1	24,564.31	0.564	0.00088	%0	0.000	44%	0.248	%0	0.000	%95	0.316	1.398	990.0	1.88	0.791	0.037	1.10
E2	25,955.60	0.596	0.00093	%0	0.000	100%	0.596	%0	000.0	%0	0.000	0.670	0.033	1.21	0.220	0.011	0.45
Total	50,519.91	1.160	0.00181		0.000		0.844		000'0		0.316		0.099	3.09		0.048	1.55

## **Proposed Conditions**

				Э	Basin Descri	escriptions						100	100-Year, 6-Hr		10-	10-Year, 6-Hr	
Basin	Area	Area	Area	Treatr	Treatment A	Treatr	Treatment B	Treatn	Treatment C	Treatment D	nent D	Weighted E	Volume	Flow	Weighted E	Volume	Flow
<b>□</b>	(sf)	(acres)	(sa miles)	%	(acres)	%	(acres)	%	(acres)	%	(acres)	(in)	(ac-ft)	cfs	(in)	(ac-ft)	cfs
P1	24,564.31	0.564	0.00088	%0	0.000	44%	0.248	%0	0.000	%95	0.316	1.398	990.0	1.88	0.791	0.037	1.10
P2	11,576.76	0.266	0.00042	%0	0.000	77%	0.058	%0	0.000	%8/	0.207	1.684	0.037	1.02	1.016	0.022	0.64
P3	7,901.47	0.181	0.00028	%0	0.000	27%	0.049	%0	0.000	73%	0.132	1.619	0.024	0.68	0.965	0.015	0.42
P4	2,259.50	0.052	0.00008	%0	0.000	%0	0.000	%0	0.000	100%	0.052	1.970	600.0	0.23	1.240	0.005	0.15
P5	573.04	0.013	0.00002	%0	0.000	%0	0.000	%0	0.000	100%	0.013	1.970	0.002	90.0	1.240	0.001	0.04
9d	3644.83	0.084	0.00013	%0	0.000	22%	0.046	45%	0.038	%0	0.000	0.814	0.006	0.20	0.319	0.002	0.09
Total	50,519.91	1.160	0.00181		0.000		0.402		0.000		0.721		0.144	4.07		0.083	2.44

## Equations:

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

Excess Precipitation, E (in.)
Zone 1 100-Year 10-Year

Volume = Weighted E \* Total Area

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

Peak Discharge (cfs/acre)	r 10-Year	0.24	0.76	1.49	2.89
Discharge	100-Year	1.29	2.03	2.87	4.37
Peak	Zone 1	Qa	Qb	Qc	Qd

0.08 0.22 0.44 1.24

0.44 0.67 0.99 1.97

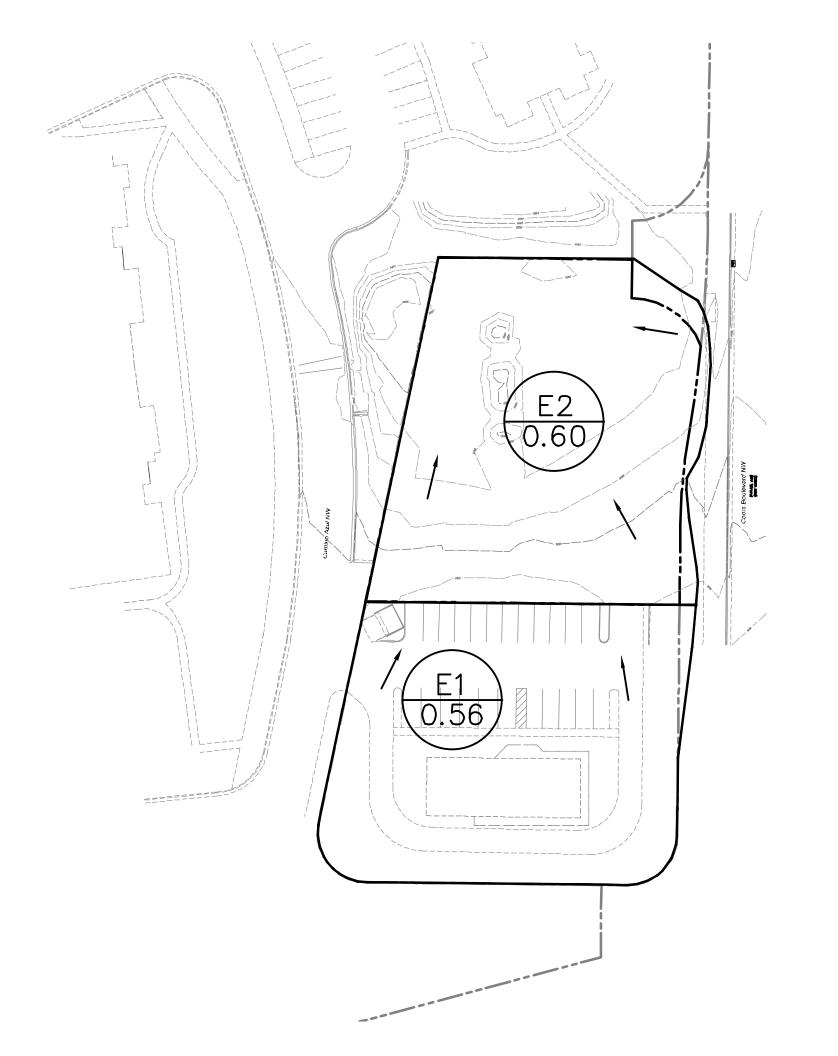
Eb Ec Ed

## Water Quality Volume

Total Impervious Area = 0.721 acres = 31,407 SF

Retainage depth = 0.44"-0.1" = 0.34" = 0.0283'

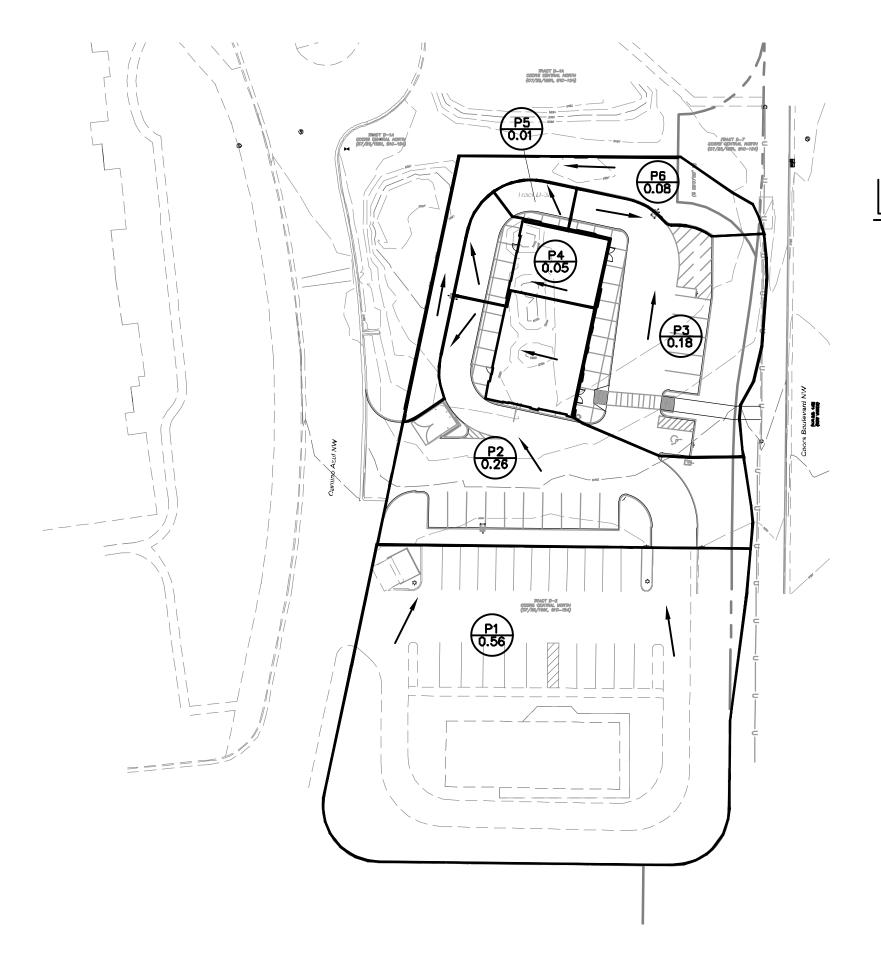
Retention Volume =  $0.0283' \times 31,407 \text{ SF} = 885.7 \text{ CF}$ 



## **LEGEND**



## EXISTING BASINS



## <u>LEGEND</u>



PROPOSED BASINS

### **APPENDIX B**

**Weir and Curb Cut Capacities** 

### Worksheet for Weir Opening in Ex. Retaining Wall

Project Description				
Friction Method	Manning Formula			
Solve For	Bottom Width			
Input Data				
Roughness Coefficient		0.013		
Channel Slope		0.00400	ft/ft	
Normal Depth		1.80	ft	
Discharge		4.07	ft³/s	
Results				
Bottom Width		0.71	ft	The proposed weir
Flow Area		1.27	ft²	will have a 2' bottom
Wetted Perimeter		4.31	ft	width which provides
Hydraulic Radius		0.30	ft	more than 50%
Top Width		0.71	ft	clogging factor for
Critical Depth		1.01	ft	discharge of the site
Critical Slope		0.01488	ft/ft	
Velocity		3.20	ft/s	
Velocity Head		0.16	ft	
Specific Energy		1.96	ft	
Froude Number		0.42		
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		1.80	ft	
Critical Depth		1.01	ft	
Channel Slope		0.00400	ft/ft	
Critical Slope		0.01488	ft/ft	

#### **Worksheet for Curb Cut Opening Project Description** Friction Method Manning Formula Solve For Discharge Input Data 0.013 Roughness Coefficient 0.01000 ft/ft Channel Slope Normal Depth 0.50 ft **Bottom Width** 2.00 ft Results Discharge 5.50 The maximum flow ft³/s 🥋 through any proposed Flow Area 1.00 ft² curb cut onsite is 2.9 Wetted Perimeter 3.00 ft cfs, therefore OK. Hydraulic Radius 0.33 ft Top Width 2.00 ft Critical Depth ft 0.62 Critical Slope 0.00549 ft/ft Velocity 5.50 ft/s Velocity Head 0.47 ft Specific Energy 0.97 ft Froude Number 1.37 Flow Type Supercritical **GVF Input Data** 0.00 ft Downstream Depth 0.00 ft Length 0 Number Of Steps **GVF Output Data** 0.00 ft Upstream Depth **Profile Description** 0.00 ft Profile Headloss Downstream Velocity Infinity ft/s **Upstream Velocity** Infinity ft/s 0.50 Normal Depth ft Critical Depth 0.62 ft

ft/ft

ft/ft

0.01000

0.00549

Channel Slope

Critical Slope

### **APPENDIX C**

## Bluewater Development Hydrology Report Excerpts

O2. A temporary retention pond currently exists on the Bluewater site that retains all runoff from basin O-2.

Basin O-3 is located southeast of the Bluewater Development. Basin O-3 consists of a portion of a Giant Service Station, an Arby's Restaurant, and an undeveloped tract of land just north of the Arby's Restaurant. This flow enters the site from the south at analysis point AP-O3. A temporary pond currently exists on the undeveloped tract to handle flows from the Arby's development.

Basin O-4 consists of the remaining portion of the Giant Service Station discussed above and a portion of the Coors & Central Shopping Center. This flow enters the site from the south at analysis point AP-O4. A temporary pond currently exists on the Bluewater site that helps handle the runoff from basin O-4.

Table 1 provides a summary of the hydrology calculations in the form of ten (10) year and one hundred (100) year storm events. In accordance with the DPM, a twenty-four (24) hour storm was used in all volume calculations and a six hour storm was used in all flow calculations.

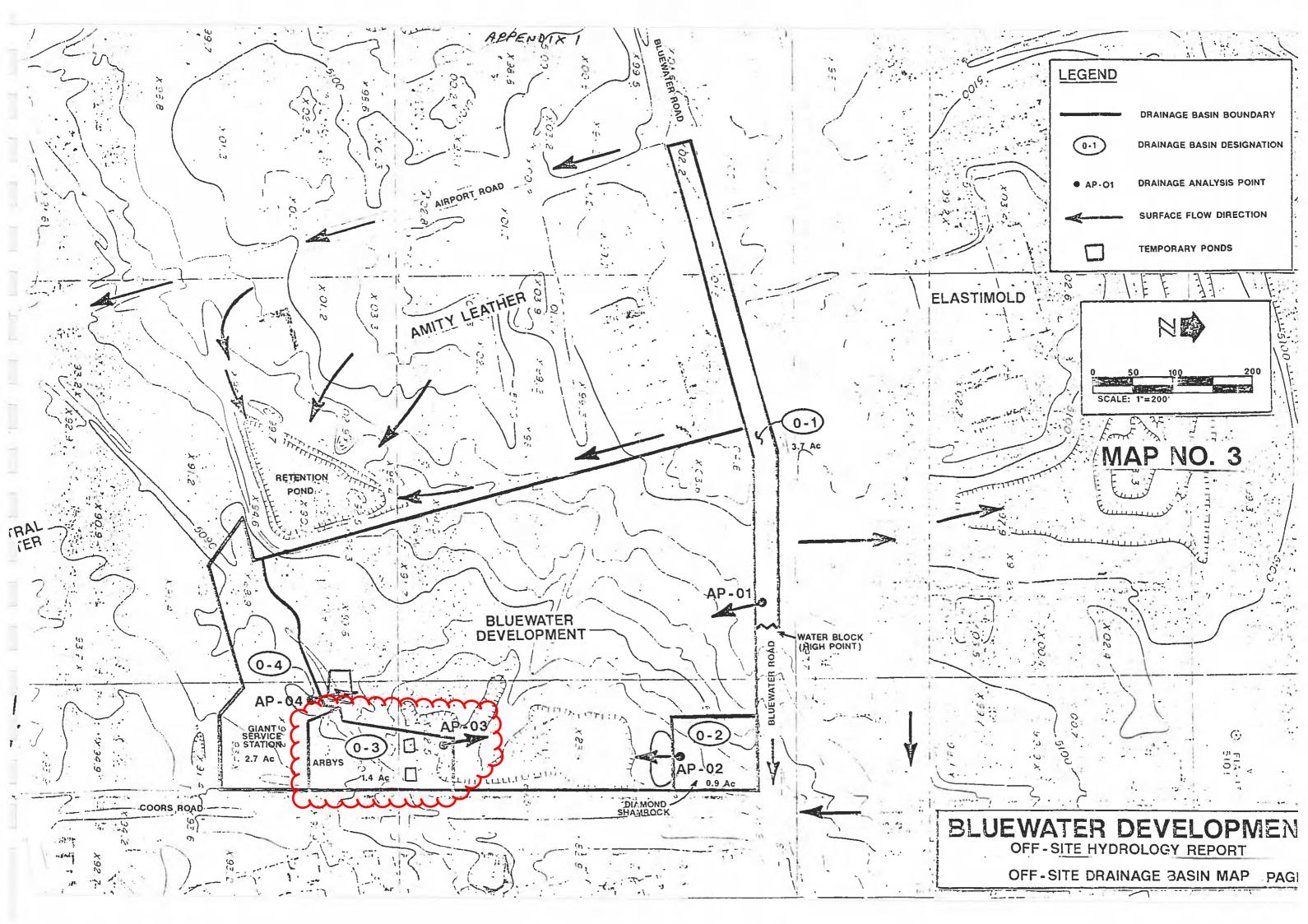
### TABLE 1

(Revised 11/4/96)

### BLUEWATER DEVELOPMENT OFF-SITE HYDROLOGY REPORT

### SUMMARY OF PEAK DISCHARGES AND PEAK VOLUMES

	CONTRIBUTING	DRAINAGE	Q(10)	V(10)	Q(100)	V(100)
ANALYSIS	DRAINAGE	BASIN	(6hr.)	(24hr.)	(6hr.)	(24hr.)
POINT	BASIN	AREA (ac.)	(cfs)	(ac.ft.)	(cfs)	(ac.ft.)
AP-O1	0-1	1.8	4.8	0.2328	7.4	0.3381
AP-02	0-2	0.9	2.4	0.1165	3.7	0.1691
AP-03	O-3	1.4	3.7	0.1811	5.8	0.2630
AP-04	0-4	2.7	7.2	0.3492	11.2	0.5072
TOTALS CONTRIBUTING TO THE BLUEWATER DEVELOPMENT	O-1,O-2,O-3,O-4	б.8 ас.	18.1 cfs	0.8796 ac.ft.	28.1 cfs	1.2774 ac.ft.



### **APPENDIX D**

## Email Excerpt From City Hydrology Discussing FEMA Flood Plain Mitigation

#### Vinny Perea

From: Hughes, James D. <jhughes@cabq.gov>

Sent: Tuesday, April 24, 2018 1:29 PM
To: Brissette, Renee C.; Vinny Perea

Cc: Ron Bohannan

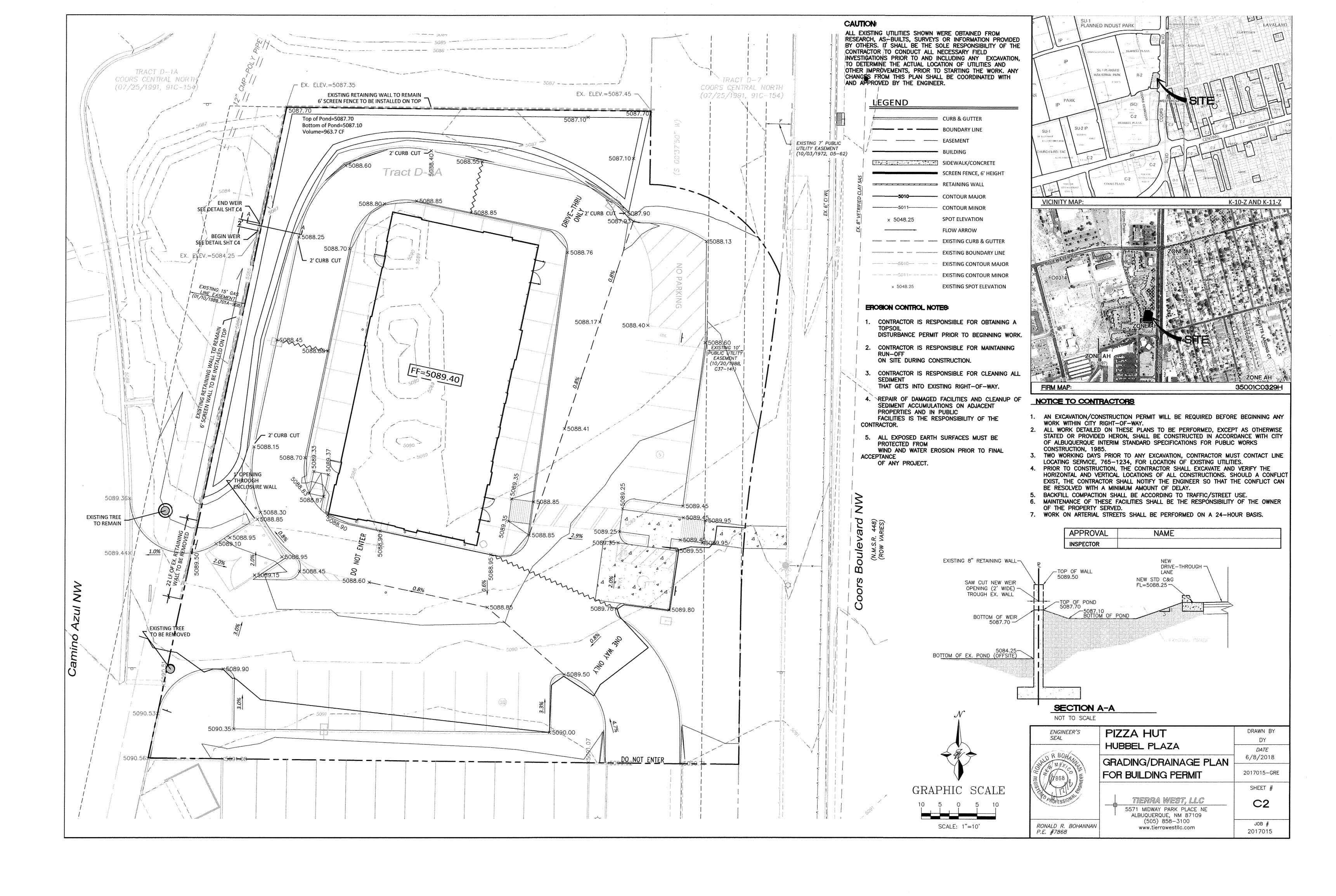
Subject: RE: Pizza Hut Coors Blvd & Avalon Rd

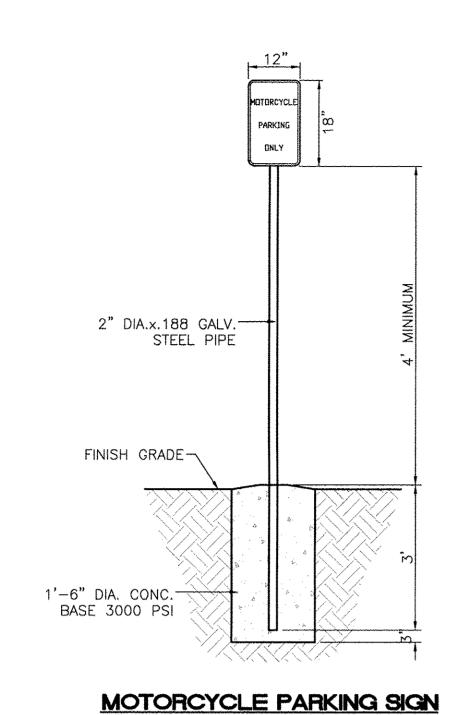
#### Vinny,

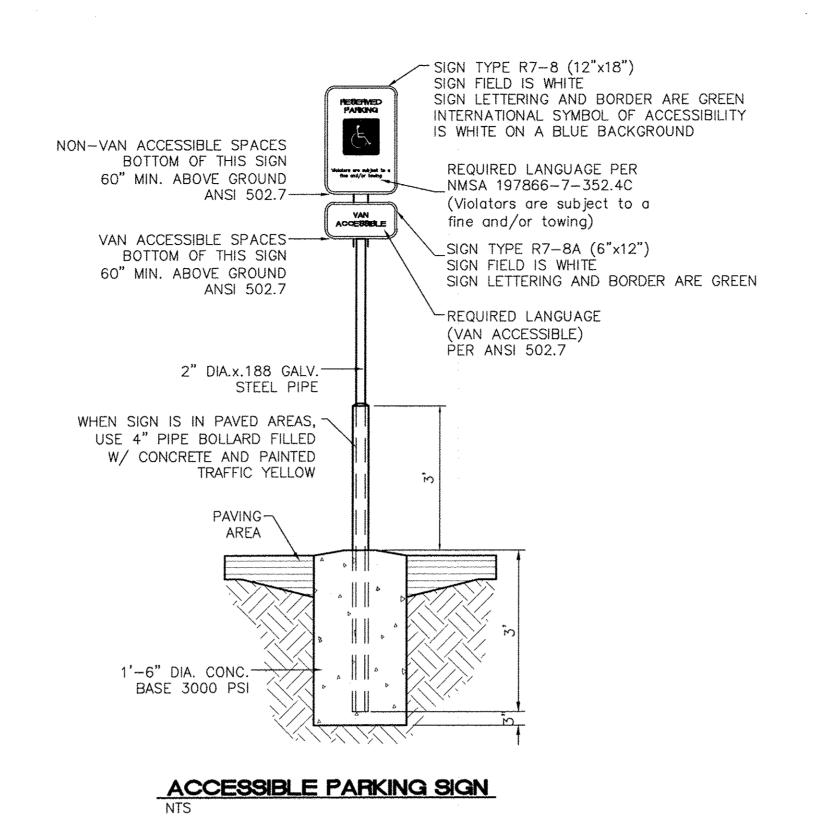
Thanks for taking the time to go through the red mountain report for the Bluewater Apartments. You found the calcs for the basin west of Camino Azul, and together we confirmed that the Apartment ponds are reasonably sized for the 100 year flow though they may be missing 10% of the 100 yr 6 hr volume, close enough. So the offsite pond is adequate mitigation for the fill that will be placed in the floodplain on the Pizza Hut site, and we can proceed with an Elevation Certificate, EC. You will need to submit a draft EC prior to Building Permit along with a Floodplain Development Permit Application. The Final EC will be required prior to Certificate of Occupancy along with an Engineer's Certification.

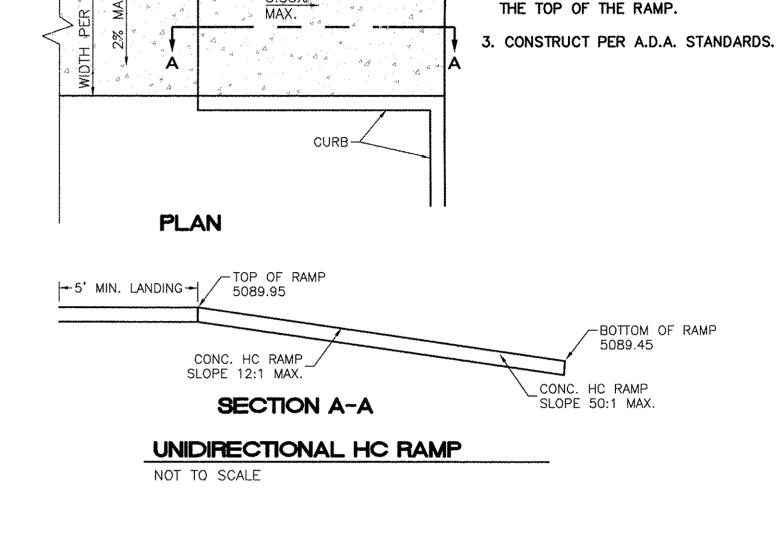
The owner will have to purchase floodplain insurance if a federally backed loan is used. The insurance requirement can be removed if the owner wants to submit an additional application to FEMA. A LOMR-F can be requested from FEMA by filling out an MT-1 form (with all of the items on the checklist included with the form and paying a review fee to FEMA. However FEMA may reject the MT-1 form saying that a much more detailed process, a LOMR using the MT-2 form, is required to remove the floodplain and the flood insurance requirement. In 2017 FEMA rejected two LOMR-F applications because those projects included floodplain relocation and storm drain improvements which requires a LOMR instead. If the owner elects to have the flood insurance requirement removed the applications will need to be submitted and approved by the City of Albuquerque before they are sent to FEMA.

Please feel free to call to discuss further. Sincerely Doug Hughes PE CFM Principal Engineer Planning Dept. jhughes@cabq.gov 924-3986









CONC. HC RAMP-

SLOPE 12:1 MAX.

SIDEWALK-

NOTES:

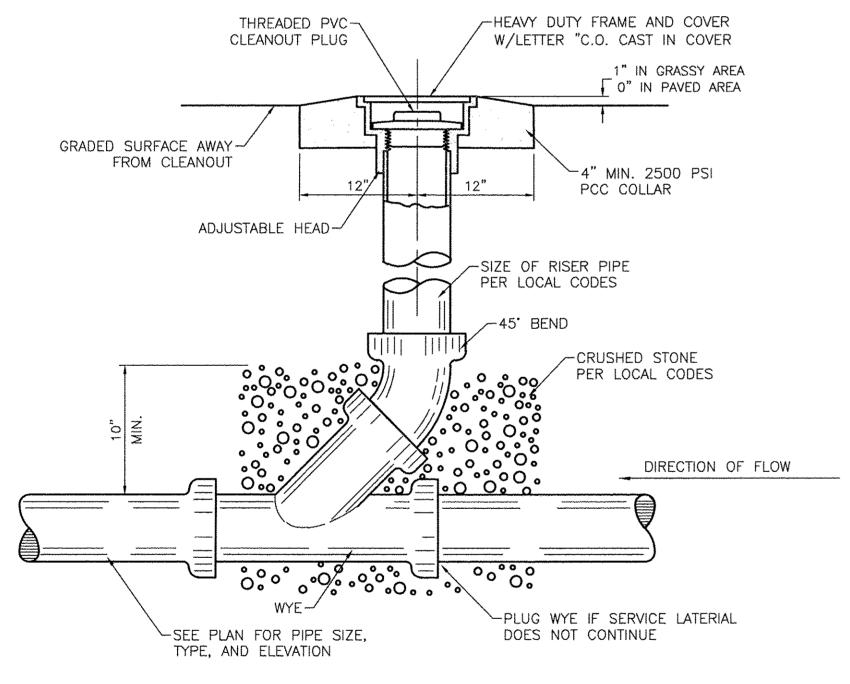
1. THE SURFACE OF RAMP AND SIDES SHALL HAVE A

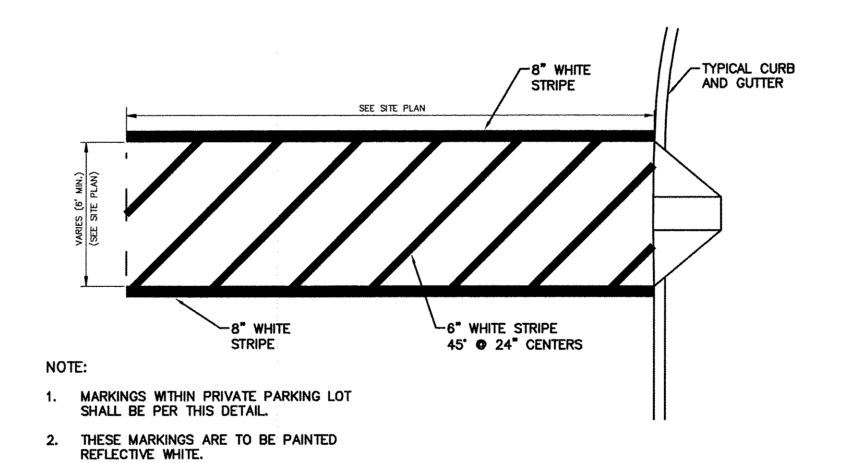
WITH LONGITUDINAL SIDEWALK SLOPE ADJACENT TO

2. RAMP SIDE SLOPE VARIES UNIFORMLY FROM A MAXIMUM OF UP TO 10% AT CURB TO CONFORM

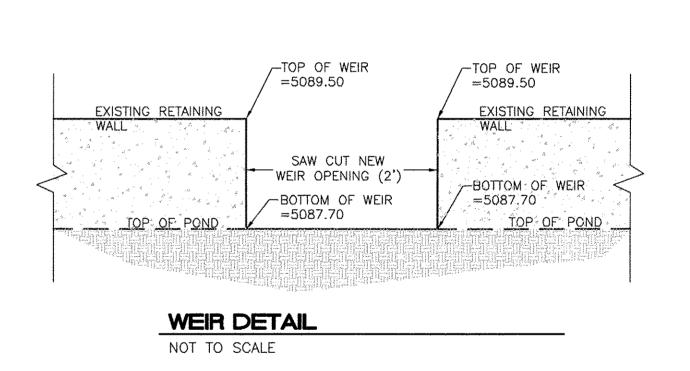
THAN THE SURROUNDING SIDEWALK.

TRANSVERSE BROOMED SURFACE TEXTURE ROUGHER

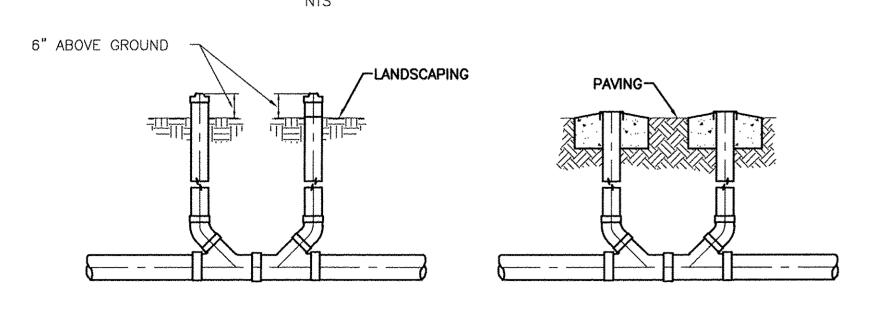




CROSSWALK/PED. CROSSING







7 3 1/2" ASPHALTIC CONCRETE TO BE COMPACTED TO MINIMUM OF 96% OF MAXIMUM MARSHALL DENSITY (75 BLOWS) -6" AGGREGATE BASE COURSE TO BE COMPACTED TO A MINIMUM OF 95% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D-1557 10" SUBGRADE TO BE-10" SUBGRADE TO BE COMPACTED TO A MINIMUM COMPACTED TO A MINIMUM OF 95% OF MAXIMUM OF 95% OF MAXIMUM DENSITY AS DETERMINED -ALL OTHER FILL BELOW PAVEMENT DENSITY AS DETERMINED TO BE COMPACTED TO A MINIMUM BY ASTM D-1557 BY ASTM D-1557 OF 90% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D-1557

2 1/2" ASPHALTIC CONCRETE TO BE COMPACTED
TO MINIMUM OF 96% OF MAXIMUM MARSHALL
DENSITY (75 BLOWS)

6" AGGREGATE BASE COURSE TO
BE COMPACTED TO A MINIMUM
OF 95% OF MAXIMUM DENSITY
AS DETERMINED BY ASTM D-1557

ALL OTHER FILL BELOW PAVEMENT
TO BE COMPACTED TO A MINIMUM
OF 90% OF MAXIMUM DENSITY AS

DETERMINED BY ASTM D-1557

PARKING AREAS
TYPICAL PAVING SECTION

TYPICAL PAVING SECTION FOR NEW ASPHALT PAVEMENT

PIZZA HUT DRAWN BY ENGINEER'S SEAL DY HUBBEL PLAZA DATE 6/8/2018 CIVIL DETAILS 2017015-GRE FOR BUILDING PERMIT SHEET # TIERRA WEST, LLC C4 5571 MIDWAY PARK PLACE NE ALBUQUERQUE, NM 87109 (505) 858-3100 JOB # RONALD R. BOHANNAN www.tierrawestllc.com 2017015 P.E. #7868

### SANITARY SEWER DOUBLE CLEAN-OUTS