



City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: _____ **Building Permit #:** _____ **City Drainage #:** _____

DRB#: _____ **EPC#:** _____ **Work Order#:** _____

Legal Description: _____

City Address: _____

Engineering Firm: _____ **Contact:** _____

Address: _____

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

Owner: _____ **Contact:** _____

Address: _____

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

Architect: _____ **Contact:** _____

Address: _____

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

Other Contact: _____ **Contact:** _____

Address: _____

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

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) _____

IS THIS A RESUBMITTAL?: ☐ Yes ☐ No

DATE SUBMITTED: _____ **By:** _____

COA STAFF: _____ ELECTRONIC SUBMITTAL RECEIVED: _____

gaw

TIERRA WEST, LLC

March 17, 2016

Mr. Abiel Carrillo, P.E.
Principal Engineer-Hydrology
City of Albuquerque
600 2nd Street NW
Albuquerque, NM 87102

**RE: LOT 2A & 3A DEL NORTE PLAZA
GRADING AND DRAINAGE PLAN
ENGINEER'S STAMP DATE 2-17-2016 (C18-D042D)**

Dear Mr. Carrillo:

Per your correspondence dated March 9, 2016, please find the following responses addressing the comments listed below:

1. An Erosion and Sediment Control Plan needs to be approved by the Storm Water Quality Engineer.
Response: An erosion and sediment control plan is being submitted along with this drainage resubmittal.
2. If Transportation Development will require a sidewalk along the south frontage, the open-channel curb cuts proposed will need to be sidewalk culverts that comply with City Standard Details. The metal plate will need to extend 1-foot behind the sidewalk.
Response: Transportation Development is not requiring any further sidewalk along the frontage, therefore there will only be one sidewalk culvert for the Pond 2 outfall where there is existing sidewalk.
3. The existing inlet in the proposed "Pond 1" is called to be modified. Clarify what the modification involves.
 - a. The grate is shown on the slope of the pond; it is assumed that the box will be perched to ensure that the inlet elevation is level and set at EL 45.60 as called out.
Response: The modification to the existing inlet is to raise the grate elevation from 42.45 to 45.60. This modification has been called out on the plan to be raised and perched.
4. Provide benchmark information, unless it is called out on a different sheet of the construction set.
Response: Benchmark Information has been added and can be seen on the SE corner of the site.
5. Detail B describes the use of a trench drain to provide an outfall for the roof drains of the larger building. A type of grate should be called out that complies with ADA standards and is "heel safe", since it is proposed along the center of the sidewalk. If the sidewalk is intended to drain to the west (without needing to enter the trench drain) we recommend calling out a solid metal top.
Response: As discussed with you on the phone, Section A-A has been updated to call out the metal grate to be ADA compliant and "Heel Safe". Because the sidewalk would be draining into the trench drain, the metal grate has also been called out to be an open grate.

5571 Midway Park Place NE Albuquerque, NM 87109
(505) 858-3100 Fax (505) 858-1118 1-800-245-3102
tierrawestllc.com

6. Label the intended cross slope of the sidewalk on Section A-A.

Response: The cross slope of the sidewalk has been called out on Section A-A as 1.0% sloped towards the trench drain.

7. We recommend shifting the 12:1 wheelchair ramp that is in front of the easternmost retail space of the larger building slightly to the west so that the top of the ramp lines up with the parking curb; this would remove a potential tripping hazard and provide a better turning space for wheelchairs at the top of the ramp.

Response: The wheelchair ramp in the mentioned location has been shifted slightly towards the west to line up with the parking curb.

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

Sincerely,



Ronald R. Bohannon, PE

JN: 2015064
RRB/vp

DRAINAGE REPORT

For

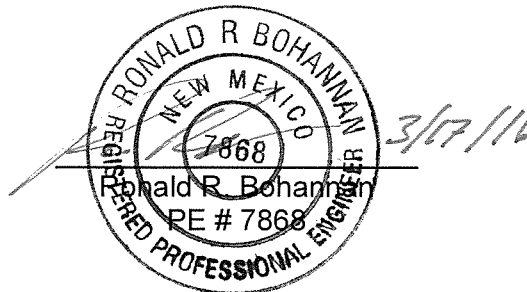
Lot 2-A and 3-A Del Norte Plaza

Prepared by:

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

March 17, 2016

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.



Job No. 2015064

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Drainage Basin Maps.....	APPENDIX A
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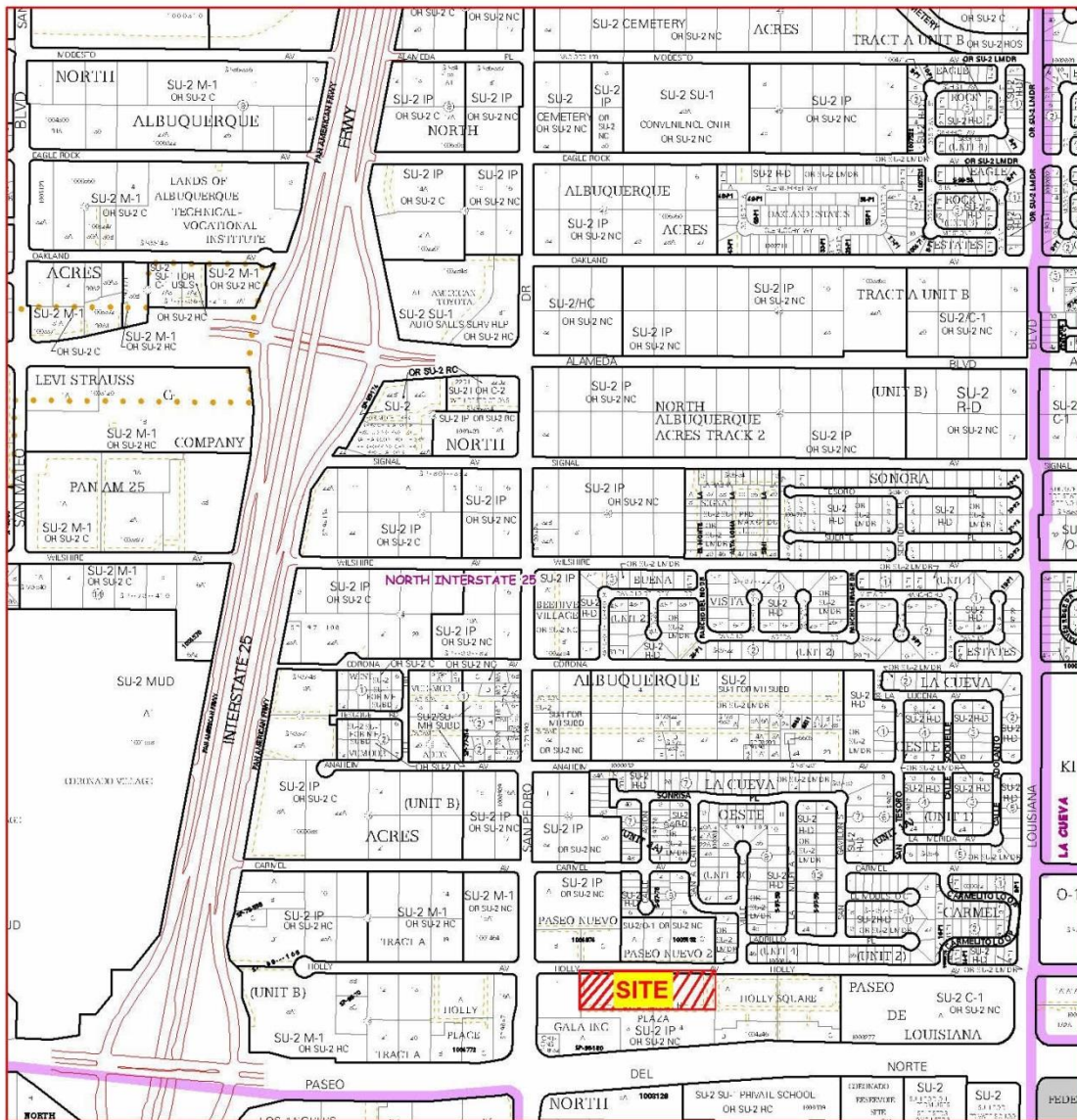
Purpose

The purpose of this report is to develop a Drainage Management Plan for a 2.99 acre parcel of land, which is a all of Lot 2A & a portion of Lot 3A Del Norte Plaza. The 2.99 acres of development will be for retail/restaurant and parking use within the Del Norte Plaza Shopping Center.

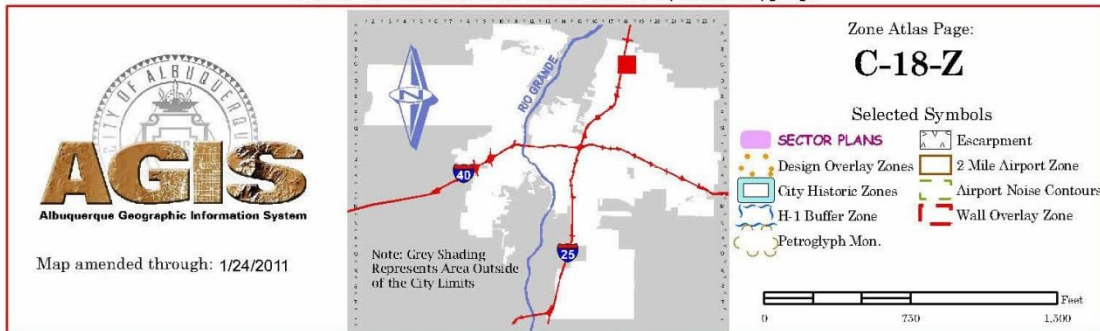
Location

The site is located near the northeast corner of the Paseo Del Norte Blvd/San Pedro Dr. Intersection. The site is bounded by a paved private road for the Del Norte Plaza Shopping Center along the east, west and south property lines and is bounded by Holly Ave. to the north. The site location is shown on the Zone Atlas Page, C-18-Z found in Exhibit A.

Exhibit A – Vicinity Map



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



Existing Conditions

The site is undeveloped and rough graded with the overall surface drainage flowing from northeast to southeast. There are two existing drainage basins for the lot which essentially splits the lot in half.

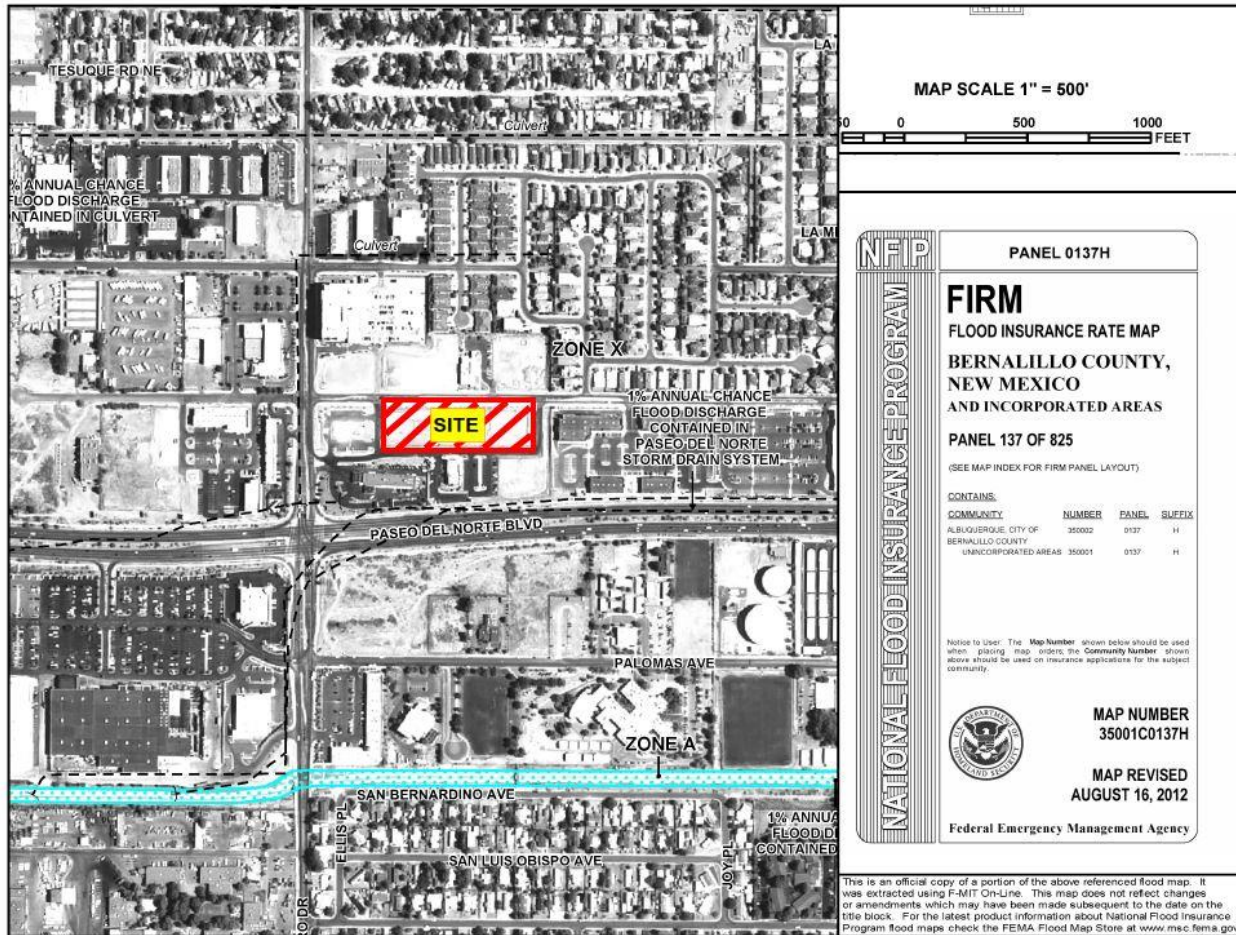
The western drainage basin (Existing Basin 1) surface flows to the southwest corner of the site towards an existing Single D drop inlet. The inlet conveys the collected flows via storm drain towards the public storm drain underneath Holly Avenue. The eastern drainage basin (Existing Basin 2) surface flows south towards the private roadway directly south of the site and flows west, making its way towards Holly Ave. and entering the public storm drain system.

There is an approved drainage report for the site titled "Lot 1A Block 35 Tract A Unit B of North Albuquerque Acres" stamped 11-1-06 (C18/D42). The drainage report calls for allowing a discharge of 11.15 cfs from lots 2A & 3A to the Holly Avenue storm drain system. This report was approved prior to the change in the drainage ordinance.

Flood Plain

The site is located on FIRM Map 35001C0137H. The map indicates that the site does not lie within a 100-year flood plain. This FIRM Map can be found in Exhibit B.

Exhibit B – FIRM Map



Proposed Conditions

The site will be built in its entirety for all paving and landscape improvements. There are three developed basins to the site which all send the drainage flow from northeast to southwest. The furthest western basin (Basin 1) includes all three buildings and the parking area south and east of the furthest west building. All flows within this basin will be conveyed towards a landscaped pond in the southwest corner of the property with a raised single D inlet for discharge and first flush retention with a total discharge of 6.96 cfs. The landscaped pond will be depressed enough to retain the first flush volume of this basin (1666 cubic feet) before all remaining runoff will discharge into the raised single D inlet.

The two easternmost buildings and patios will drain on the north side of the respective buildings via roof drain and area drain connections to a grated trench drain that will run along the span of the proposed sidewalk behind these buildings. The trench drain will daylight along the parking area west of these buildings and flow towards the landscaped pond with raised inlet. Capacity calculations for the trench drain can be found in Appendix C.

Basin 2 consists of the paved and parking area directly south of the middle building. All flows in this basin flow towards a depressed landscaped area for first flush retention before being conveyed through a 2 foot wide sidewalk culvert to the existing private road with a discharge of 1.06 cfs. The landscaped pond in this basin will be depressed enough to retain the first flush volume of this basin (283 cubic feet) before the remaining runoff discharges through the sidewalk culvert towards the private road.

Basin 3 consists of the paved parking area directly south and east of the easternmost building. All flows will flow similar to Basin 2 towards a landscaped depressed area onsite for first flush retention before being conveyed through a 2 foot sidewalk culvert towards the existing private road with a discharge of 3.13 cfs. The landscaped pond will be depressed enough to retain the first flush volume of this basin (735 cubic feet) before the remaining runoff discharges through the sidewalk culvert towards the private road.

All runoff from this developed site will ultimately be directed towards the storm drain system in Holly Avenue with a total discharge of 11.15 cfs, which is the allowable developed discharge rate for this site per the approved drainage report (C18/D42) for this subdivision.

Calculations and Water Quality

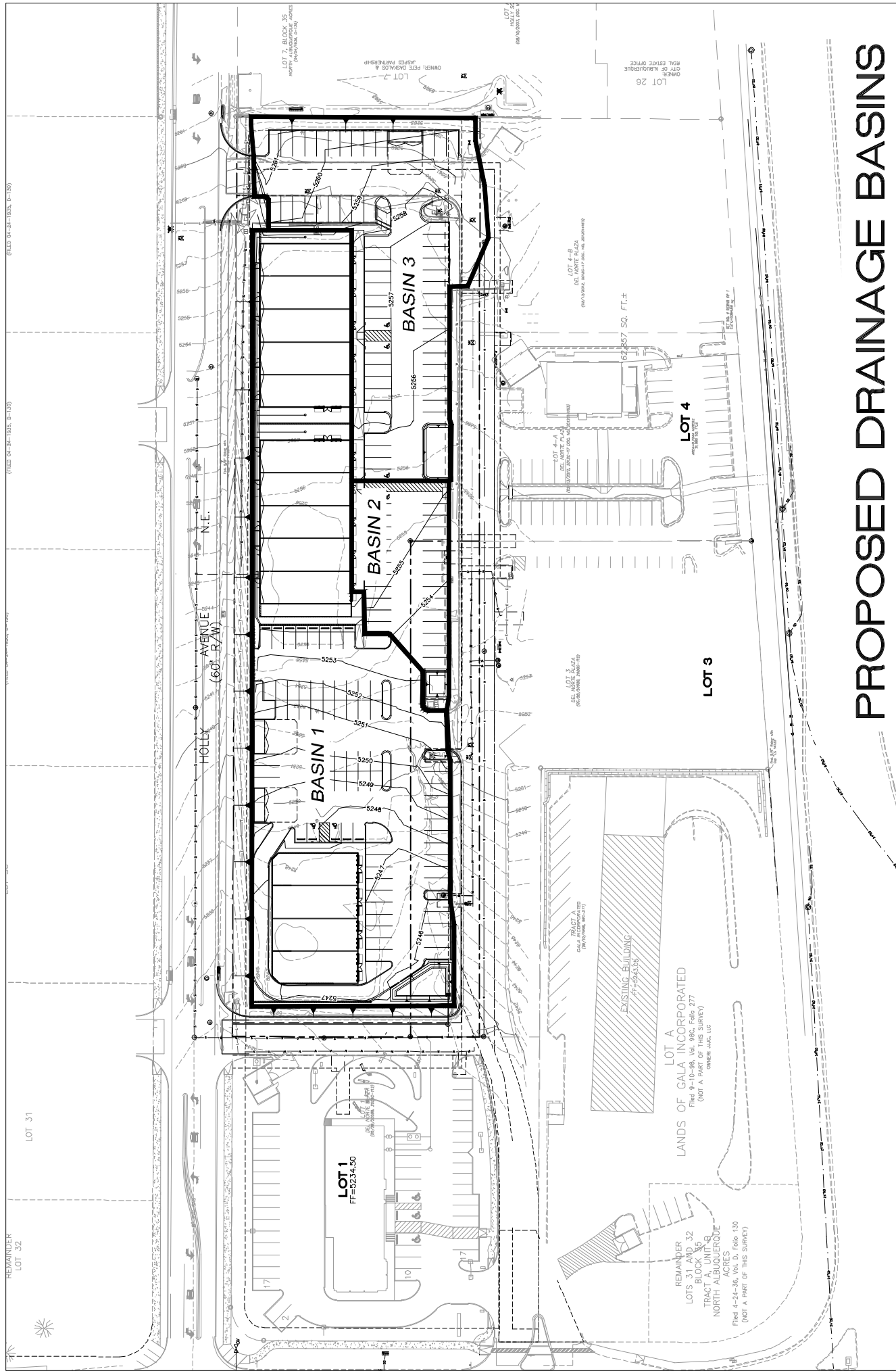
The Weighted E Method from the “City of Albuquerque Development Process Manual Volume I – Design Criteria, 2006 Revision” was used to calculate the runoff and volume for the site, the hydrology table can be found in Appendix B. Drainage capacities for the sidewalk culverts, single D inlet, and trench drain can be found in Appendix C. Also included on the weighted E table is the first flush retention volume calculations for the fully developed site calculated per the City of Albuquerque drainage ordinance as 0.44” of the impervious area.

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 three drainage basins that all flow from northeast to southwest towards a landscaped ponding area within each respective basin. Basin 1 will convey the non-retained flows through an existing single D inlet towards the storm drain in Holly Avenue. Basins 2 and 3 will convey the non-retained flows through a proposed sidewalk culvert for each basin and free discharge to the private roadway that bounds the property. The total discharge of the proposed development will be 11.15 cfs which is the allowable discharge per the approved drainage report entitled "Lot 1A Block 35 Tract A Unit B of North Albuquerque Acres" stamped 11-1-06 (C18/D42).

APPENDIX A:
Drainage Basin Maps



PROPOSED DRAINAGE BASINS

APPENDIX B:

Hydrology Calculations

DPM Weighted E Method

Precipitation Zone 3
SE Corner of San Pedro Dr. and Holly Ave.
Lot 2 Del Norte Plaza
TWLLC Date 2/15/2016

Existing Conditions

Basin Descriptions										100-Year, 6-Hr			10-Year, 6-Hr				
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
				%	(acres)	%	(acres)	%	(acres)	%	(acres)						
1	63,540.68	1.459	0.00228	0%	0.000	97%	1.415	0%	0.000	3%	0.044	0.963	0.117	3.90	0.394	0.048	1.83
2	46,090.02	1.058	0.00165	0%	0.000	88%	0.931	0%	0.000	12%	0.127	1.093	0.096	3.06	0.497	0.044	1.54
Total	109,630.70	2.517	0.00393										0.213	6.96		0.092	3.37

Proposed Conditions

Basin Descriptions																	100-Year, 6-Hr				10-Year, 6-Hr			
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs							
				%	(acres)	%	(acres)	%	(acres)	%	(acres)													
1	64,767.60	1.487	0.00232	0%	0.000	14%	0.208	0%	0.000	86%	1.279	2.158	0.267	6.96	1.340	0.166	4.58							
2	9,800.50	0.225	0.00035	0%	0.000	13%	0.029	0%	0.000	87%	0.196	2.173	0.041	1.06	1.352	0.025	0.70							
3	29,877.37	0.686	0.00107	0%	0.000	19%	0.130	0%	0.000	81%	0.556	2.086	0.119	3.13	1.283	0.073	2.04							
Total	104,445.47	2.398	0.00375										0.427	11.15		0.265	7.32							

Equations:

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

$$\text{Volume} = \text{Weighted D} * \text{Total Area}$$

$$\text{Flow} = \text{Qa} * \text{Aa} + \text{Qb} * \text{Ab} + \text{Qc} * \text{Ac} + \text{Qd} * \text{Ad}$$

Excess Precipitation, E (in.)		
Zone 1	100-Year	10-Year
Ea	0.44	0.08
Eb	0.67	0.22
Ec	0.99	0.44
Ed	1.97	1.24

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

First Flush

$$\text{Total Impervious Area} = 2.03 \text{ acres} = 88,426.8 \text{ SF}$$

$$\text{Retainage depth} = 0.44'' - \text{IA} = 0.44'' - 0.1'' = 0.34'' = 0.028'$$

$$\text{Retention Volume} = 0.028 * 88426.8 = 2502.5 \text{ CF} = 0.058 \text{ ac-ft}$$

APPENDIX C:
Trench Drain, Inlet, and Sidewalk Culvert Capacities

Worksheet for Trench Drain Capacity

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013
Channel Slope	0.00500 ft/ft
Normal Depth	0.88 ft
Bottom Width	1.00 ft

Results

Discharge	3.32 ft ³ /s
Flow Area	0.88 ft ²
Wetted Perimeter	2.76 ft
Hydraulic Radius	0.32 ft
Top Width	1.00 ft
Critical Depth	0.70 ft
Critical Slope	0.00891 ft/ft
Velocity	3.77 ft/s
Velocity Head	0.22 ft
Specific Energy	1.10 ft
Froude Number	0.71
Flow Type	Subcritical

Although the trench drain varies in height, the capacity was calculated using the minimum height (0.88 ft) as a conservative approach. The maximum discharge capacity with these parameter (3.32 cfs) is greater than the maximum discharge of the eastern buildings' roofs, patios, and rear sidewalk (2.24 cfs), therefore the trench drain capacity is OK.

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	0.88 ft
Critical Depth	0.70 ft
Channel Slope	0.00500 ft/ft
Critical Slope	0.00891 ft/ft

Worksheet for Basin 1 Curb Cut Capacities

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Normal Depth	0.50	ft
Bottom Width	2.50	ft

Results

Discharge	7.19	ft ³ /s
Flow Area	1.25	ft ²
Wetted Perimeter	3.50	ft
Hydraulic Radius	0.36	ft
Top Width	2.50	ft
Critical Depth	0.64	ft
Critical Slope	0.00496	ft/ft
Velocity	5.75	ft/s
Velocity Head	0.51	ft
Specific Energy	1.01	ft
Froude Number	1.43	
Flow Type	Supercritical	

Discharge capacity of a 2.5' curb cut (7.19 cfs) is greater than the discharge of Basin 1 (6.96 cfs), therefore curb cuts within these respective basins are OK.

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	0.50	ft
Critical Depth	0.64	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.00496	ft/ft

Worksheet for Basin 2 and 3 Curb Cut Capacities

Project Description

Friction Method Manning Formula
Solve For Discharge

Input Data

Roughness Coefficient 0.013
Channel Slope 0.01000 ft/ft
Normal Depth 0.50 ft
Bottom Width 2.00 ft

Results

Discharge 5.50 ft³/s
Flow Area 1.00 ft²
Wetted Perimeter 3.00 ft
Hydraulic Radius 0.33 ft
Top Width 2.00 ft
Critical Depth 0.62 ft
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

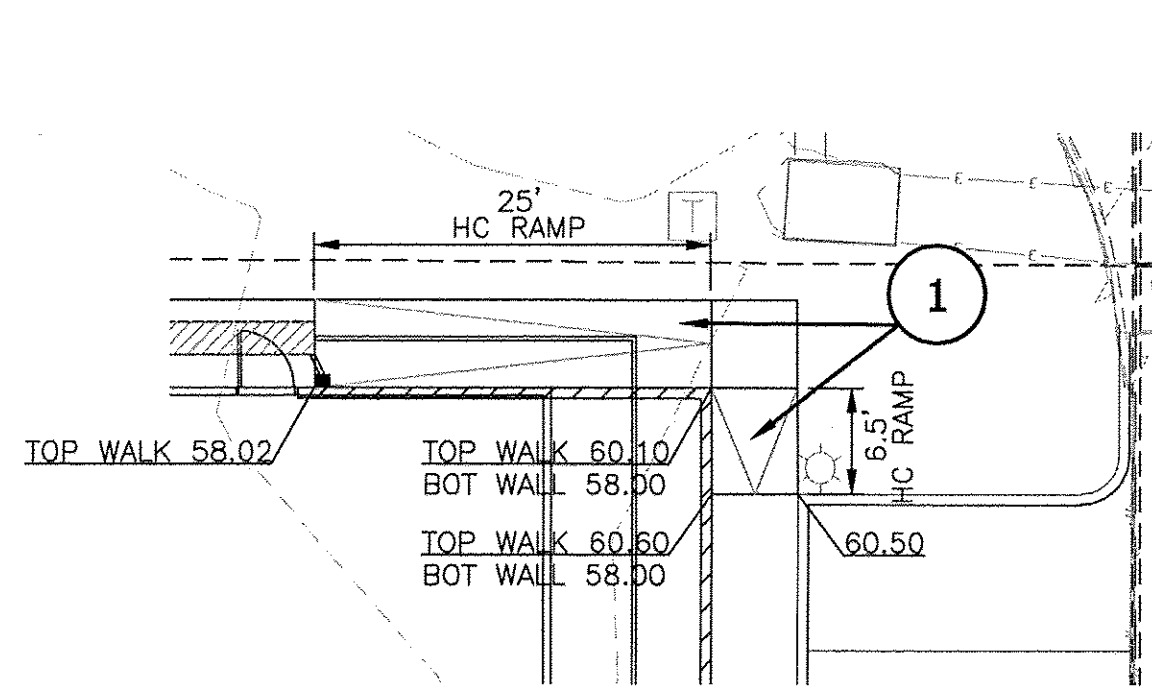
Discharge capacity of a 2' curb cut (5.5 cfs) is greater than discharge of Basin 2 (1.06 cfs) and Basin 3 (3.13 cfs), therefore curb cuts within these respective basins are OK.

GVF Input Data

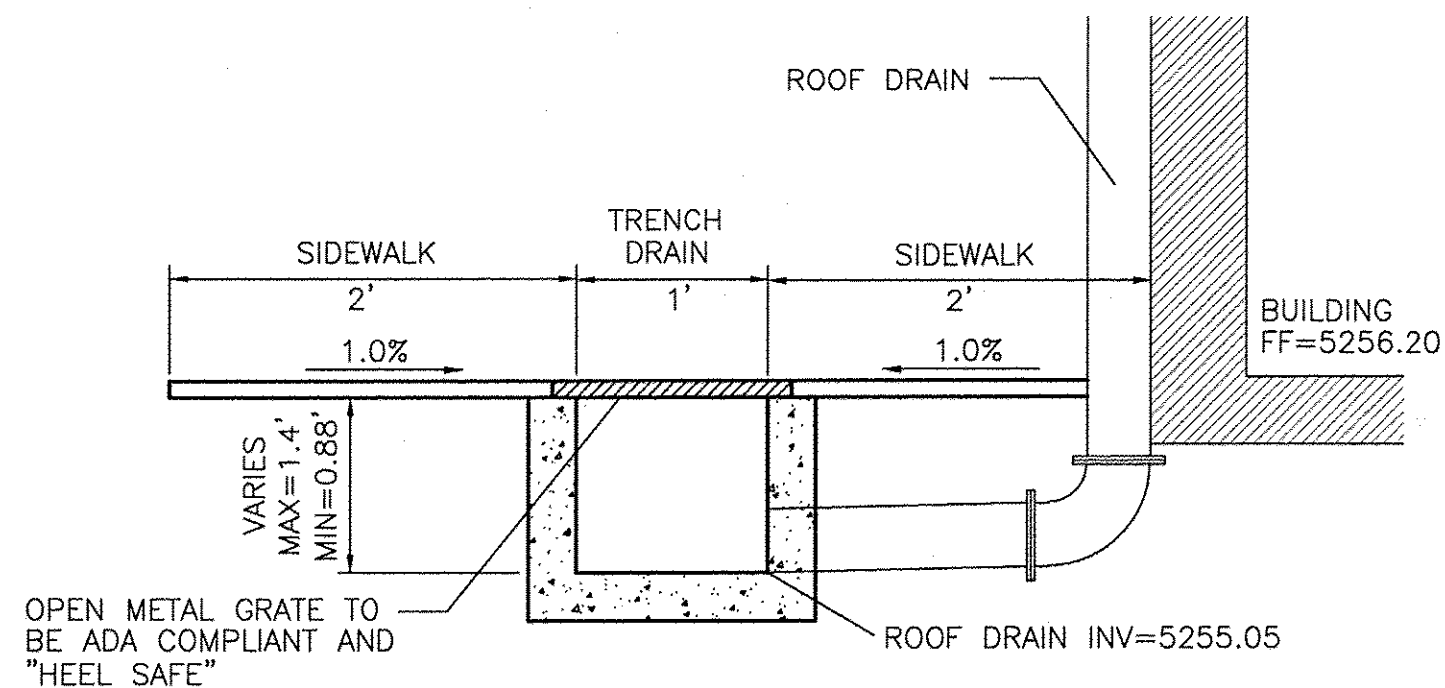
Downstream Depth 0.00 ft
Length 0.00 ft
Number Of Steps 0

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 0.50 ft
Critical Depth 0.62 ft
Channel Slope 0.01000 ft/ft
Critical Slope 0.00549 ft/ft



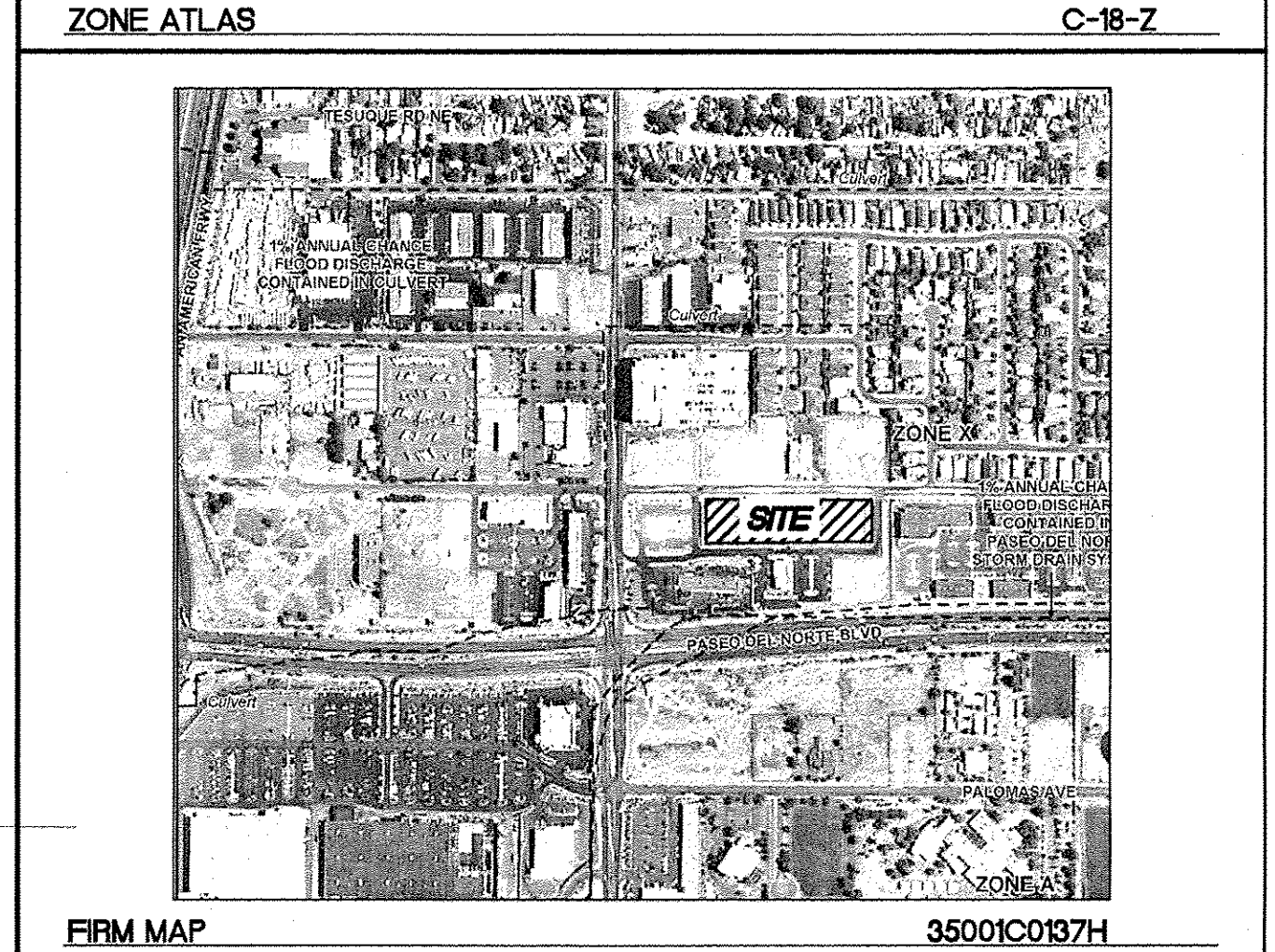
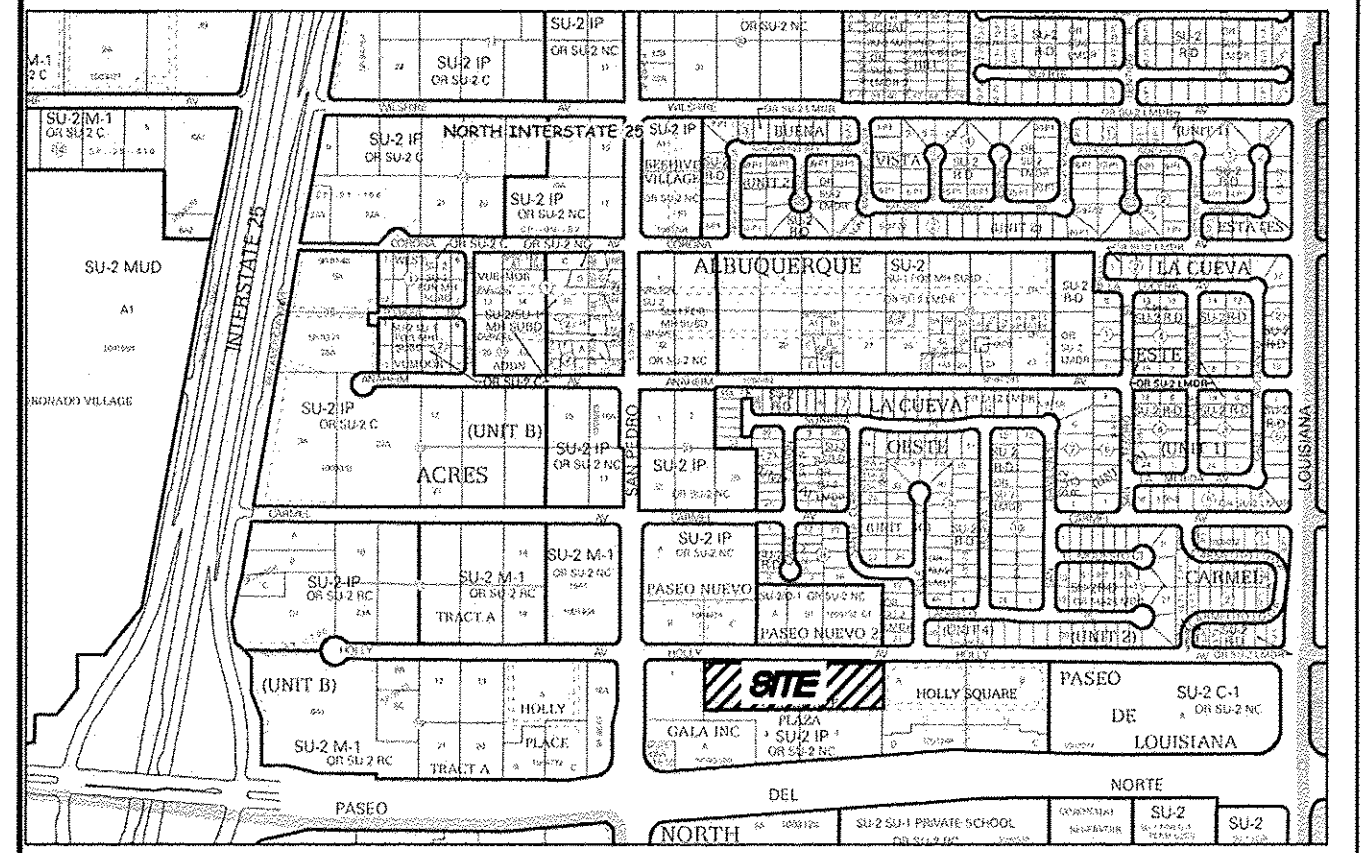
DETAIL A - HC RAMP
NTS



SECTION A-A
NTS

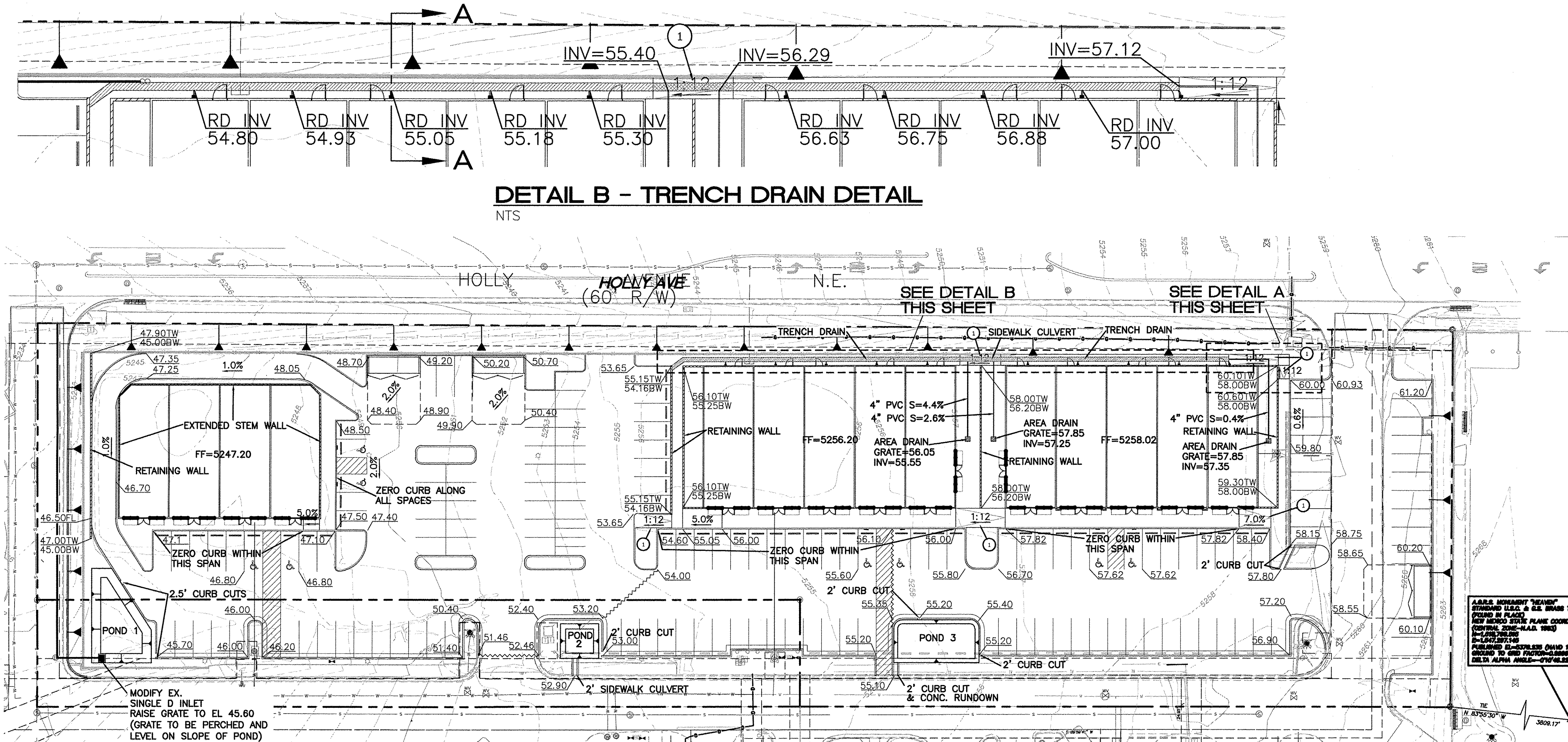
- NOTICE TO CONTRACTORS**
1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY.
 2. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF ALBUQUERQUE INTERIM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1985.
 3. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE, 765-1234, FOR LOCATION OF EXISTING UTILITIES.
 4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL CONSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
 5. BACKFILL COMPACTION SHALL BE ACCORDING TO TRAFFIC/STREET USE.
 6. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.
 7. WORK ON ARTERIAL STREETS SHALL BE PERFORMED ON A 24-HOUR BASIS.

APPROVAL	NAME	DATE
INSPECTOR		



LEGEND

- CURB & GUTTER
- BOUNDARY LINE
- EASEMENT
- SIDEWALK
- EXISTING CURB & GUTTER
- SINGLE CLEAN OUT
- DOUBLE CLEAN OUT
- EXISTING SD MANHOLE
- EXISTING SAS MANHOLE
- EXISTING FIRE HYDRANT
- EXISTING WATER METER
- EXISTING POWER POLE
- EXISTING GAS VALVE
- EXISTING OVERHEAD UTILITIES
- EXISTING GAS
- EX. 8" SAS — EXISTING SANITARY SEWER LINE
- EX. WL — EXISTING WATER LINE
- EX. RCP — EXISTING STORM SEWER LINE
- 4900 — EXISTING INDEX CONTOUR
- EXISTING CONTOUR
- WATER BLOCK



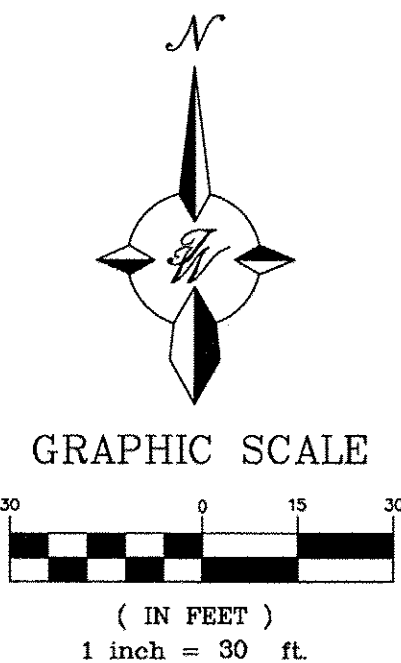
DETAIL B - TRENCH DRAIN DETAIL
NTS

DET POND	VOL REQUIRED	VOL PROVIDED	TOP ELEV	BOT ELEV
1	1665.73 CF	1731.20 CF	5245.70	5243.45
2	282.93 CF	301.84 CF	5253.00	5251.75
3	734.98 CF	737.08 CF	5255.20	5254.20

NOTE - 2:1 MAX SIDE SLOPES ON ALL PONDS

KEYED NOTES

1. ADA RAMP WITH GUARDRAIL



NOTICE TO CONTRACTORS

1. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE, 765-1234, FOR LOCATION OF EXISTING UTILITIES.
2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL CONNECTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
3. BACKFILL COMPACTION SHALL BE ACCORDING TO TRAFFIC/STREET USE.
4. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.
5. SOURCE OF TOPO IS ALTA/ACSM LAND TITLE SURVEY OF LOT 2 HARMS INDUSTRIAL PARK PREPARED BY PRECISION SURVEYS, INC DATED JUNE, 2014.

EROSION CONTROL NOTES:

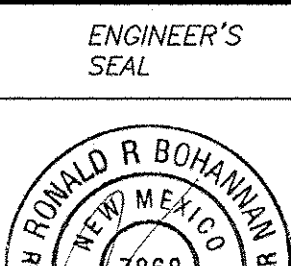

1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING A TOPSOIL DISTURBANCE PERMIT PRIOR TO BEGINNING WORK.
2. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING RUN-OFF ON SITE DURING CONSTRUCTION.
3. CONTRACTOR IS RESPONSIBLE FOR CLEANING ALL SEDIMENT THAT GETS INTO EXISTING RIGHT-OF-WAY.
4. REPAIR OF DAMAGED FACILITIES AND CLEANUP OF SEDIMENT ACCUMULATIONS ON ADJACENT PROPERTIES AND IN PUBLIC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
5. ALL EXPOSED EARTH SURFACES MUST BE PROTECTED FROM WIND AND WATER EROSION PRIOR TO FINAL ACCEPTANCE OF ANY PROJECT.

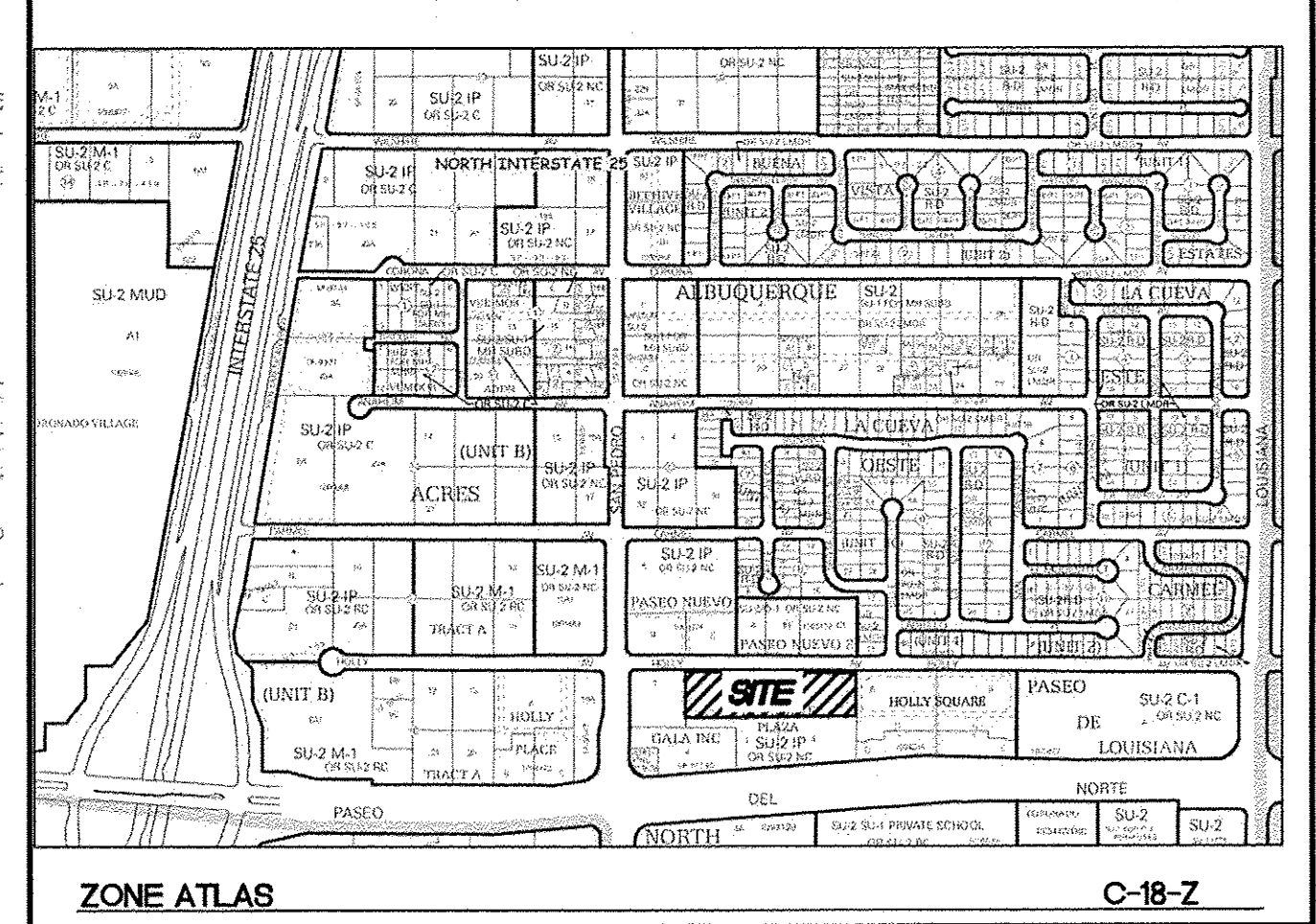
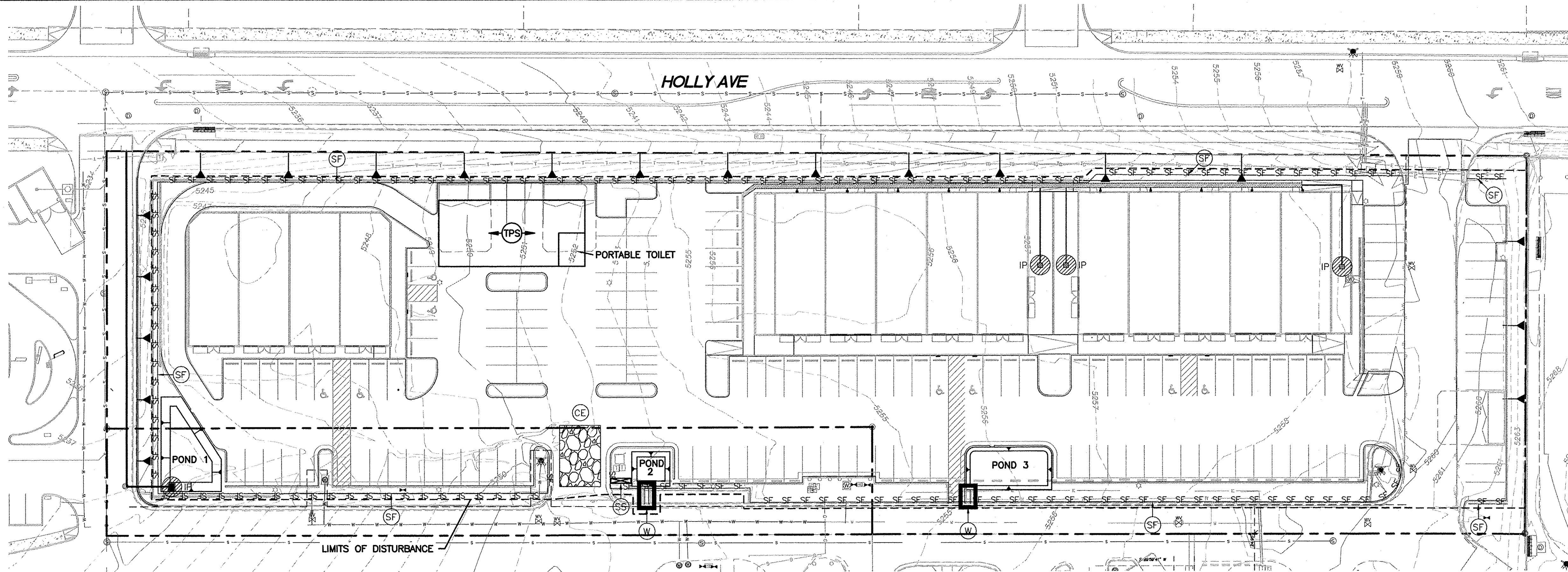
CAUTION:

ALL EXISTING UTILITIES SHOWN WERE OBTAINED FROM RESEARCH, AS-BUILTS, SURVEYS OR INFORMATION PROVIDED BY OTHERS. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CONDUCT ALL NECESSARY FIELD INVESTIGATIONS PRIOR TO AND INCLUDING ANY EXCAVATION, TO DETERMINE THE ACTUAL LOCATION OF UTILITIES AND OTHER IMPROVEMENTS, PRIOR TO STARTING THE WORK. ANY CHANGES FROM THIS PLAN SHALL BE COORDINATED WITH AND APPROVED BY THE ENGINEER.

ROUGH GRADING APPROVAL

DATE

<div>ENGINEER'S SEAL</div> <div></div> <div>RONALD R. BOHANNAN P.E. #7868</div>	<div>LOT 2 DEL NORTE PLAZA ALBUQUERQUE, NM</div> <div>GRADING AND DRAINAGE PLAN</div> <div> <i>TIERRA WEST, LLC</i> 5571 MIDWAY PARK PL NE ALBUQUERQUE, NEW MEXICO 87109 (505) 858-3100 www.tierrawestllc.com</div>	DRAWN BY pm
		DATE 3-17-16
		DRAWING 2015064-GR
		SHEET # GR-1
		JOB # 2015064



EROSION NOTES

- TPS TPS TEMPORARY PARKING AND STORAGE
- LIMITS OF DISTURBANCE
- WATTLE

EROSION DETAILS

- CE TEMPORARY STONE CONSTRUCTION EXIT
- SF TEMPORARY SILT FENCE
- ST TEMPORARY SEDIMENT TRAP
- SS SWPPP SIGN
- W WATTLE
- IP INLET PROTECTION

SEQUENCE OF CONSTRUCTION

1. INSTALL STABILIZED CONSTRUCTION ENTRANCE.
2. INSTALL SWPPP BOARD.
3. INSTALL PERIMETER SILT FENCES ON THE SITE.
4. CONSTRUCT POND #1 WITH INLET PROTECTION
5. CONSTRUCT POND #2 & #3 WITH OVERFLOW OR WADDLE.
6. INSTALL AREA DRAIN PROTECTION UPON INSTALLATION.
7. COMPLETE FINAL STABILIZATION.

GENERAL EROSION NOTES

- A. THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) IS COMPRISED OF THIS DRAWING ("SITE MAP"), THE STANDARD DETAILS, THE PLAN NARRATIVE, PLUS THE PERMIT AND ALL SUBSEQUENT REPORTS AND RELATED DOCUMENTS.
- B. ALL CONTRACTORS AND SUBCONTRACTORS INVOLVED WITH STORM WATER POLLUTION PREVENTION SHALL OBTAIN A COPY OF THE STORM WATER POLLUTION PREVENTION PLAN AND THE STATE OF NEW MEXICO NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM GENERAL PERMIT (NPDES PERMIT) AND BECOME FAMILIAR WITH THEIR CONTENTS.
- C. CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES AS REQUIRED BY THE SWPPP. ADDITIONAL BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED AS DICTATED BY CONDITIONS AT NO ADDITIONAL COST TO OWNER THROUGHOUT ALL PHASES OF CONSTRUCTION.
- D. BEST MANAGEMENT PRACTICES (BMP'S) AND CONTROLS SHALL CONFORM TO FEDERAL, STATE, OR LOCAL REQUIREMENTS OR MANUAL OF PRACTICE, AS APPLICABLE. CONTRACTOR SHALL IMPLEMENT ADDITIONAL CONTROLS AS DIRECTED BY PERMITTING AGENCY OR OWNER.
- E. SITE MAP MUST CLEARLY DELINEATE ALL STATE WATERS. PERMITS FOR ANY CONSTRUCTION ACTIVITY IMPACTING STATE WATERS OR REGULATED WETLANDS MUST BE MAINTAINED ON SITE AT ALL TIMES.
- F. CONTRACTOR SHALL MINIMIZE CLEARING TO THE MAXIMUM EXTENT PRACTICAL OR AS REQUIRED BY THE GENERAL PERMIT.
- G. GENERAL CONTRACTOR SHALL DENOTE ON PLAN THE TEMPORARY PARKING AND STORAGE AREA WHICH SHALL ALSO BE USED AS THE EQUIPMENT MAINTENANCE AND CLEANING AREA, EMPLOYEE PARKING AREA, AND AREA FOR LOCATING PORTABLE FACILITIES, OFFICE TRAILERS, AND TOILET FACILITIES.
- H. ALL WASH WATER (CONCRETE TRUCKS, VEHICLE CLEANING, EQUIPMENT CLEANING, ETC.) SHALL BE DETAINED AND PROPERLY TREATED OR DISPOSED.
- I. SUFFICIENT OIL AND GREASE ABSORBING MATERIALS AND FLOTATION BOOMS SHALL BE MAINTAINED ON SITE OR READILY AVAILABLE TO CONTAIN AND CLEAN-UP FUEL OR CHEMICAL SPILLS AND LEAKS.
- J. DUST ON THE SITE SHALL BE CONTROLLED. THE USE OF MOTOR OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST SUPPRESSION OPERATIONS IS PROHIBITED.
- K. RUBBISH, TRASH, GARBAGE, LITTER, OR OTHER SUCH MATERIALS SHALL BE DEPOSITED INTO SEALED CONTAINERS. MATERIALS SHALL BE PREVENTED FROM LEAVING THE PREMISES THROUGH THE ACTION OF WIND OR STORMWATER DISCHARGE INTO DRAINAGE DITCHES OR WATERS OF THE STATE.
- L. ALL STORM WATER POLLUTION PREVENTION MEASURES PRESENTED ON THIS PLAN, AND IN THE STORM WATER POLLUTION PREVENTION PLAN, SHALL BE INITIATED AS SOON AS PRACTICABLE.
- M. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS STOPPED FOR AT LEAST 21 DAYS, SHALL BE TEMPORARILY SEEDED. THESE AREAS SHALL BE SEEDED NO LATER THAN 14 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY OCCURRING THESE AREAS. PROVIDE ADEQUATE TEMPORARY IRRIGATION FOR GERMINATION.
- N. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS PERMANENTLY STOPPED SHALL BE PERMANENTLY SEEDED. THESE AREAS SHALL BE SEEDED NO LATER THAN 14 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY OCCURRING IN THESE AREAS. REFER TO THE GRADING PLAN AND/OR LANDSCAPE PLAN.
- O. IF THE ACTION OF VEHICLES TRAVELING OVER THE GRAVEL CONSTRUCTION ENTRANCES IS NOT SUFFICIENT TO REMOVE THE MAJORITY OF DIRT OR MUD, THEN THE TIRES MUST BE WASHED BEFORE THE VEHICLES ENTER A PUBLIC ROAD. IF WASHING IS USED, PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFF THE SITE.
- P. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.
- Q. CONTRACTORS OR SUBCONTRACTORS WILL BE RESPONSIBLE FOR REMOVING SEDIMENT IN THE DETENTION POND AND ANY SEDIMENT THAT MAY HAVE COLLECTED IN THE STORM SEWER DRAINAGE SYSTEMS IN CONJUNCTION WITH THE STABILIZATION OF THE SITE.
- R. ON-SITE & OFFSITE SOIL STOCKPILE AND BORROW AREAS SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION THROUGH IMPLEMENTATION OF BEST MANAGEMENT PRACTICES, AS REQUIRED PER THE CONSTRUCTION GENERAL PERMIT. STOCKPILE AND BORROW AREA LOCATIONS SHALL BE NOTED ON THE SITE MAP AND PERMITTED IN ACCORDANCE WITH GENERAL PERMIT REQUIREMENTS.
- S. SLOPES SHALL BE LEFT IN A ROUGHENED CONDITION DURING THE GRADING PHASE TO REDUCE RUNOFF VELOCITIES AND EROSION.
- T. DUE TO THE GRADE CHANGES DURING THE DEVELOPMENT OF THE PROJECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE EROSION CONTROL MEASURES (SILT FENCES, STRAW BALES, ETC.) TO PREVENT EROSION.
- U. ALL CONSTRUCTION SHALL BE STABILIZED AT THE END OF EACH WORKING DAY, THIS INCLUDES BACKFILLING OF TRENCHES FOR UTILITY CONSTRUCTION AND PLACEMENT OF GRAVEL OR BITUMINOUS PAVING FOR ROAD CONSTRUCTION.

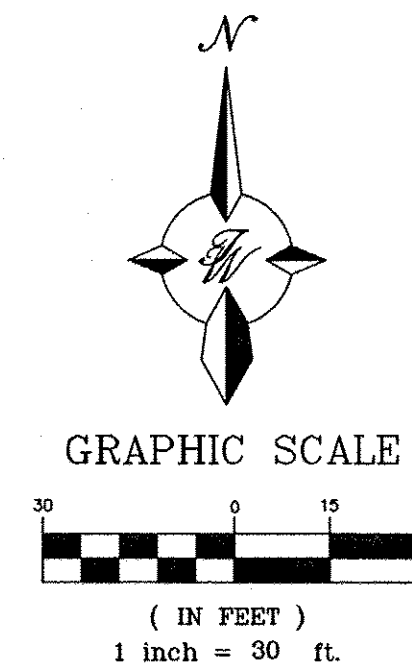
MAINTENANCE

ALL MEASURES STATED ON THIS EROSION AND SEDIMENT CONTROL PLAN, AND IN THE STORM WATER POLLUTION PREVENTION PLAN, SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A 0.5" RAINFALL EVENT, AND CLEANED AND REPAIRED IN ACCORDANCE WITH THE FOLLOWING:

1. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING, OR DETERIORATION.
2. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED, WATERED, AND RESEED AS NEEDED.
3. SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE SILT FENCES WHEN IT REACHES ONE-HALF THE HEIGHT OF THE SILT FENCE.
4. THE CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION ENTRANCES AS CONDITIONS DEMAND.
5. ANY TEMPORARY PARKING AND STORAGE AREAS SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AS CONDITIONS DEMAND. ONCE IDENTIFIED, NOTE ON THE SWPPP PLAN.
6. OUTLET STRUCTURES IN THE SEDIMENTATION BASINS SHALL BE MAINTAINED IN OPERATIONAL CONDITIONS AT ALL TIMES. SEDIMENT SHALL BE REMOVED FROM SEDIMENT BASINS OR TRAPS WHEN THE DESIGN CAPACITY HAS BEEN REDUCED BY 50%.



CAUTION:

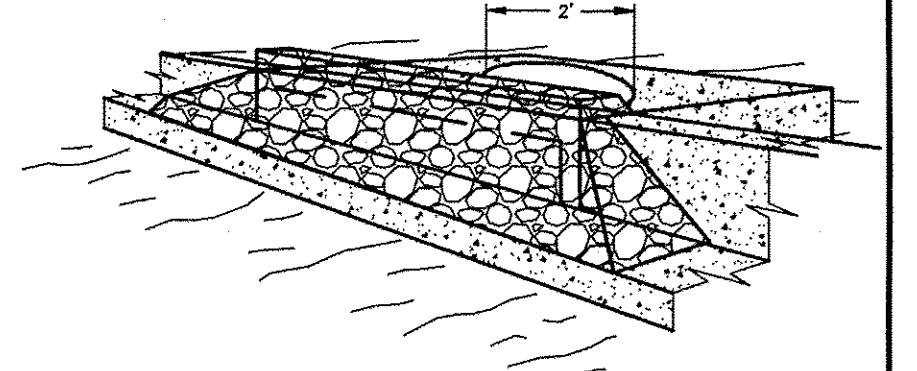
ALL EXISTING UTILITIES SHOWN WERE OBTAINED FROM RESEARCH, AS-BUILTS, SURVEYS OR INFORMATION PROVIDED BY OTHERS. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CONDUCT ALL NECESSARY FIELD INVESTIGATIONS PRIOR TO AND INCLUDING ANY EXCAVATION, TO DETERMINE THE ACTUAL LOCATION OF UTILITIES AND OTHER IMPROVEMENTS, PRIOR TO STARTING THE WORK. ANY CHANGES FROM THIS PLAN SHALL BE COORDINATED WITH AND APPROVED BY THE ENGINEER.



EROSION CONTROL NOTES

1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING A TOPSOIL DISTURBANCE PERMIT PRIOR TO BEGINNING WORK.
2. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING RUN-OFF ON SITE DURING CONSTRUCTION.
3. CONTRACTOR IS RESPONSIBLE FOR CLEANING ALL SEDIMENT THAT GETS INTO EXISTING RIGHT-OF-WAY.
4. REPAIR OF DAMAGED FACILITIES AND CLEANUP OF SEDIMENT ACCUMULATIONS ON ADJACENT PROPERTIES AND IN PUBLIC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
5. ALL EXPOSED EARTH SURFACES MUST BE PROTECTED FROM WIND AND WATER EROSION PRIOR TO FINAL (CITY) ACCEPTANCE OF ANY PROJECT.

ENGINEER'S SEAL	LOT 2 DEL NORTE PLAZA ALBUQUERQUE, NM	DRAWN BY pm
		DATE 3-17-16
	TEMPORARY EROSION CONTROL AND SEDIMENTATION PLAN	DRAWING 2015064-SWPPP
	RONALD R. BOHANNAN P.E. #7868	<div><i>TIERRA WEST, LLC</i></div> <div>5571 MIDWAY PARK PL NE ALBUQUERQUE, NEW MEXICO 87109 (505) 858-3100 www.tierrawestllc.com</div>
		JOB # 2015064







N.T.S. 1F3

- N.Y.S. IP6



N.T.S.



<p>ENGINEER'S SEAL</p>	<p>LOT 2 DEL NORTE PLAZA ALBUQUERQUE, NM</p>	<p>DRAWN BY pm</p>
	<p>TEMPORARY EROSION CONTROL AND SEDIMENTATION DETAILS</p>	<p>DATE 3-17-16</p>
<p>RONALD R. BOHANNAN P.E. #7868</p>	<p> <i>TIERRA WEST, LLC</i> 5571 MIDWAY PARK PL NE ALBUQUERQUE, NEW MEXICO 87109 (505) 858-3100 www.tierrawestllc.com</p>	<p>DRAWING 2015064-SWPPP</p>
<p>RONALD R. BOHANNAN P.E. #7868</p>	<p> <i>TIERRA WEST, LLC</i> 5571 MIDWAY PARK PL NE ALBUQUERQUE, NEW MEXICO 87109 (505) 858-3100 www.tierrawestllc.com</p>	<p>SHEET # EC-2</p>
<p>RONALD R. BOHANNAN P.E. #7868</p>	<p> <i>TIERRA WEST, LLC</i> 5571 MIDWAY PARK PL NE ALBUQUERQUE, NEW MEXICO 87109 (505) 858-3100 www.tierrawestllc.com</p>	<p>JOB # 2015064</p>

CITY OF ALBUQUERQUE



March 23, 2016

Richard J. Berry, Mayor

Ronald R. Bohannon
Tierra West, LLC
5571 Midway Park Pl, NE
Albuquerque, NM, 87109

**RE: Lot 2-A & 3A Del Norte Plaza
Drainage Report, Grading and Drainage Plan
Engineer's Stamp Date 3-17-2016 (File: C18D042D)**

Dear Mr. Bohannon:

Based upon the information provided in your submittal received 3-18-2016, the above-referenced plan is approved for Grading Permit (ESC Permit) and Building Permit.

PO Box 1293

Please attach a copy of this approved plan in the construction sets when submitting for a building permit. Prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.

Albuquerque

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

New Mexico 87103

Sincerely,

www.cabq.gov

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

Orig: Drainage file