

CITY OF ALBUQUERQUE



February 10, 2017

Richard J. Berry, Mayor

David Soule, P.E.
Rio Grande Engineering.
Po box 93924
Albuquerque, NM, 87199

RE: UNM Starbucks and Freddie's
Grading and Drainage Plan ^{MA}
Engineer's Stamp Date 1-27-2017 (File: K16D075)

Dear Mr. David:

Based upon the information provided in your submittal received 1-30-2017, the above referenced Grading and Drainage Plan cannot be approved for building permit until the following comments are addressed:

1. Provide build note and grade elevation for the dumpster.
2. Provide narrative for offsite flow.

If you have any questions, you can contact me at 924-3999.

Sincerely,

Shahab Biazar, P.E.
City Engineer, Planning Dept.
Development Review Services

MA/SB

PO Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov



City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 11/2016)

Project Title: _____ **Building Permit #:** _____ **Hydrology File #:** _____

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

Legal Description: _____

City Address: _____

Applicant: _____ **Contact:** _____

Address: _____

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

Other Contact: _____ **Contact:** _____

Address: _____

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

Check all that Apply:

DEPARTMENT:

☐ HYDROLOGY/ DRAINAGE
☐ TRAFFIC/ TRANSPORTATION

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)

☐ OTHER (SPECIFY) _____

☐ PRE-DESIGN MEETING?

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

☐ OTHER (SPECIFY) _____

IS THIS A RESUBMITTAL?: ☐ Yes ☐ No

DATE SUBMITTED: _____ **By:** _____

COA STAFF:

ELECTRONIC SUBMITTAL RECEIVED: _____

FEE PAID: _____

DRAINAGE REPORT

For

STARBUCKS/FREDDIES
2550 CENTRAL SE
Albuquerque, New Mexico

Prepared by

Rio Grande Engineering
PO Box 93924
Albuquerque, New Mexico 87199

JANUARY 2017



1/29/17

David Soule P.E. No. 14522

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Site Hydrology	A
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Map

Site Grading and Drainage Plan

PURPOSE

The purpose of this report is to provide the Drainage Management Plan for the development of a 0.48 acre restaurant redevelopment project. This plan was prepared in accordance with the City of Albuquerque design regulations, utilizing the City of Albuquerque's Development Process Manual drainage guidelines. This report will demonstrate that the grading does not adversely affect the surrounding properties, nor the upstream or downstream facilities.

INTRODUCTION

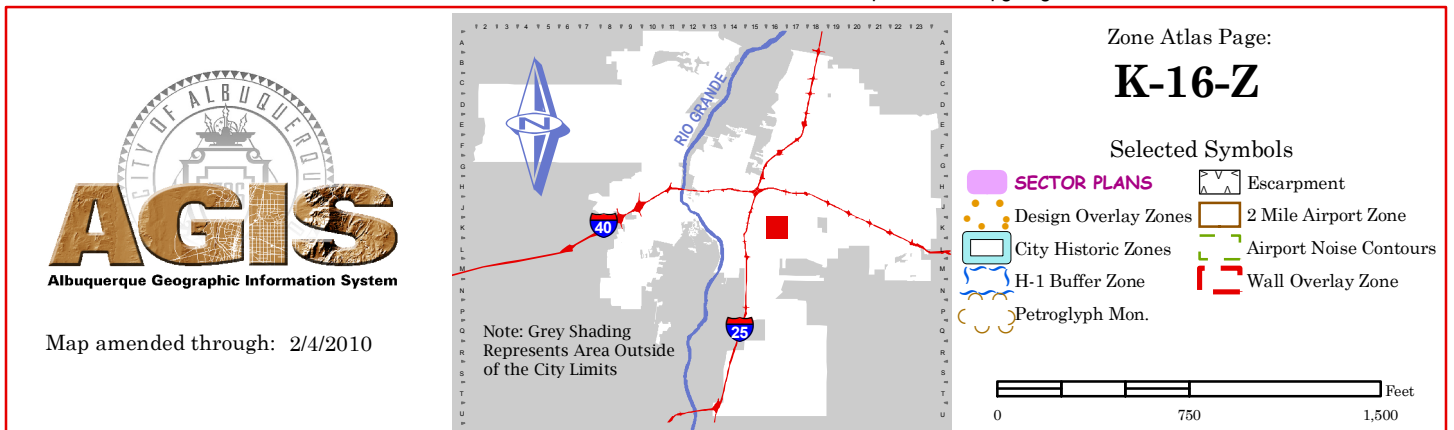
The subject of this report, as shown on the Exhibit A, is a 0.48-acre parcel of land located on the southwest corner of Central Avenue and Columbia Drive Southeast. The legal description of this site is Lots 22-24, Block 18, University Heights Addition. As shown on FIRM map35001C0353H, the entire site is located within Flood Zone X. The site is currently a gas station. The entire site is paved, with very little landscaping the site is located in a fully developed watershed where the entire supporting drainage infrastructure is completed.

EXISTING CONDITIONS

The site is currently a developed gas station. As shown in appendix A, the site is paved and has very little landscaping. The site currently discharges 2.22 cfs as sheet flow to the west. The flow enters a public alley and discharges to Central Avenue. All downstream improvements are in place and maintained by the city of Albuquerque.



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



PROPOSED CONDITIONS

The proposed improvements consist of demolishing the entire site and the construction of a new 5,500 square foot building with its associated parking and landscaping. As shown in Appendix A, The site is to be graded such that there are three drainage basins. Basin A contains the building and the southerly half of the site, and discharges to the parking field and drains 1.51 cfs as concentrated flow west to the alley. Basin B contains several parking spaces and the westerly sidewalk, and drains 0.47cfs as sheet flow to the alley. Basin C contains the front patio and building overhangs and discharges 0.17 cfs as sheet flow to central. The dumpster will have an area drain that discharges to the sanitary sewer upstream of a grease interceptor. The site will capture the first flush volume of 507 cubic feet by installing an inlet and mc 3500 infiltrator system at the outfall flow line of basin A. The system specifics are found in appendix B.

SUMMARY AND RECOMMENDATIONS

This project is a redevelopment of an existing fully developed site. The proposed developed conditions from this site will capture 809 cubic feet of the first flush which is greater than the required 507 cubic feet. The site will discharge 2.15 cfs during the 100-year, 6-hour design storm, which is less than the 2.22 cfs the site currently discharges. The site will discharge to the existing alley and tie to the existing grades at the edge of the ally. The development of this site will not negatively impact the upstream nor down stream facilities. Since this site does not exceed 1 acre, erosion and sediment Control Plan should not be required prior to any construction activity.

APPENDIX A

SITE HYDROLOGY

Weighted E Method

2550 CENTRAL SE

Existing Developed Basins

											100-Year, 6-hr.			10-day
Basin	Area (sf)	Area (acres)	Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Volume (ac-ft)
			%	(acres)	%	(acres)	%	(acres)	%	(acres)				
EXISTING	21117	0.485	0%	0	2.0%	0.010	5.0%	0.02424	93.0%	0.451	2.044	0.083	2.22	0.143
PROPOSED BASIN A	14912.00	0.342	0%	0	5.0%	0.017	10.0%	0.03423	85.0%	0.291	1.954	0.056	1.51	0.095
PROPOSED BASIN B	4661.00	0.107	0%	0	0.0%	0.000	21.0%	0.02247	79.0%	0.085	1.912	0.017	0.47	0.028
PROPOSED BASIN C	1544.00	0.035	0%	0	0.0%	0.000	0.0%	0	100.0%	0.035	2.120	0.006	0.17	0.011
PROPOSED	21117.00	0.485	0%	0	3.5%	0.017117	11.7%	0.0567	84.8%	0.410959	1.957	0.079	2.15	0.134
COMPARISON(onsite historical to proposed)					2%	0.01	7%	0.03	-8%	-0.04		-0.076	-0.07	-0.132

Equations:

Weighted E = $E_a \cdot A_a + E_b \cdot A_b + E_c \cdot A_c + E_d \cdot A_d$ / (Total Area)

Volume = Weighted D * Total Area

Flow = $Q_a \cdot A_a + Q_b \cdot A_b + Q_c \cdot A_c + Q_d \cdot A_d$

Where for 100-year, 6-hour storm (zone 2)

$E_a = 0.53$

$E_b = 0.78$

$E_c = 1.13$

$E_d = 2.12$

$Q_a = 1.56$

$Q_b = 2.28$

$Q_c = 3.14$

$Q_d = 4.7$

FIRST FLUSH REQUIREMENT

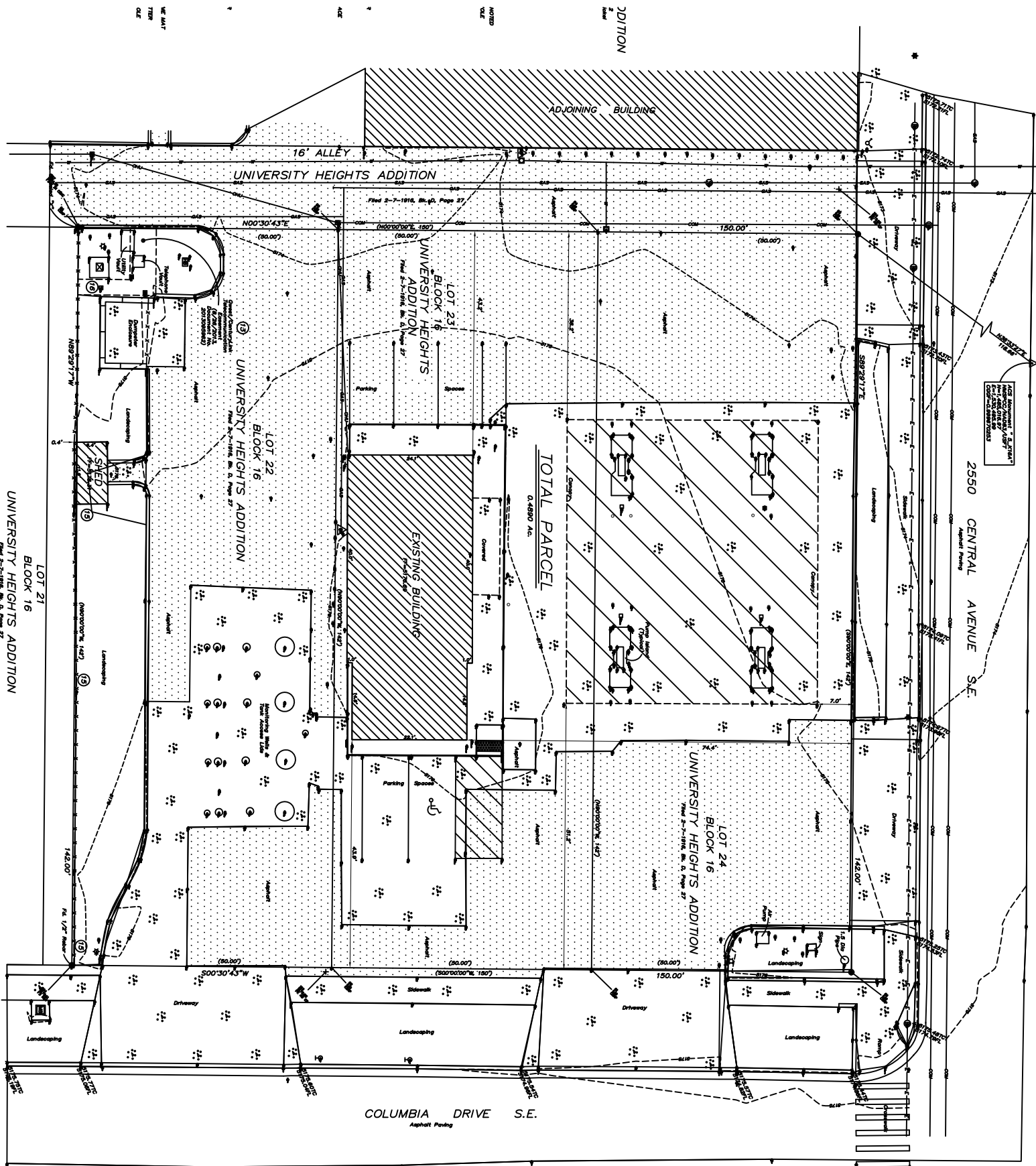
507.2061 CUBIC FEET REQUIRED

809 CUBIC FEET PROVIDED

NARRATIVE

THIS SITE IS A REDEVELOPMENT OF AN EXISTING SITE . THE EXISTING SITE DISCAHRGES 2.22 CFS TO A PUBLIC ALLEY. THE PROPOSED DEVELOPMENT GENERATES LESS THAN EXISTING FLOW RATES. THE FIRST FLUSH VOLUME WILL BE RETAINED BY THE PLACEMENT OF A INFILTRATOR SYSTEM AT THE OUTFALL FLOW LINE. THE SITE MATCHES THE EXIS DRAINAGE PATTERNS. AND WILL TIE TO THE EXISTING ALLEY.

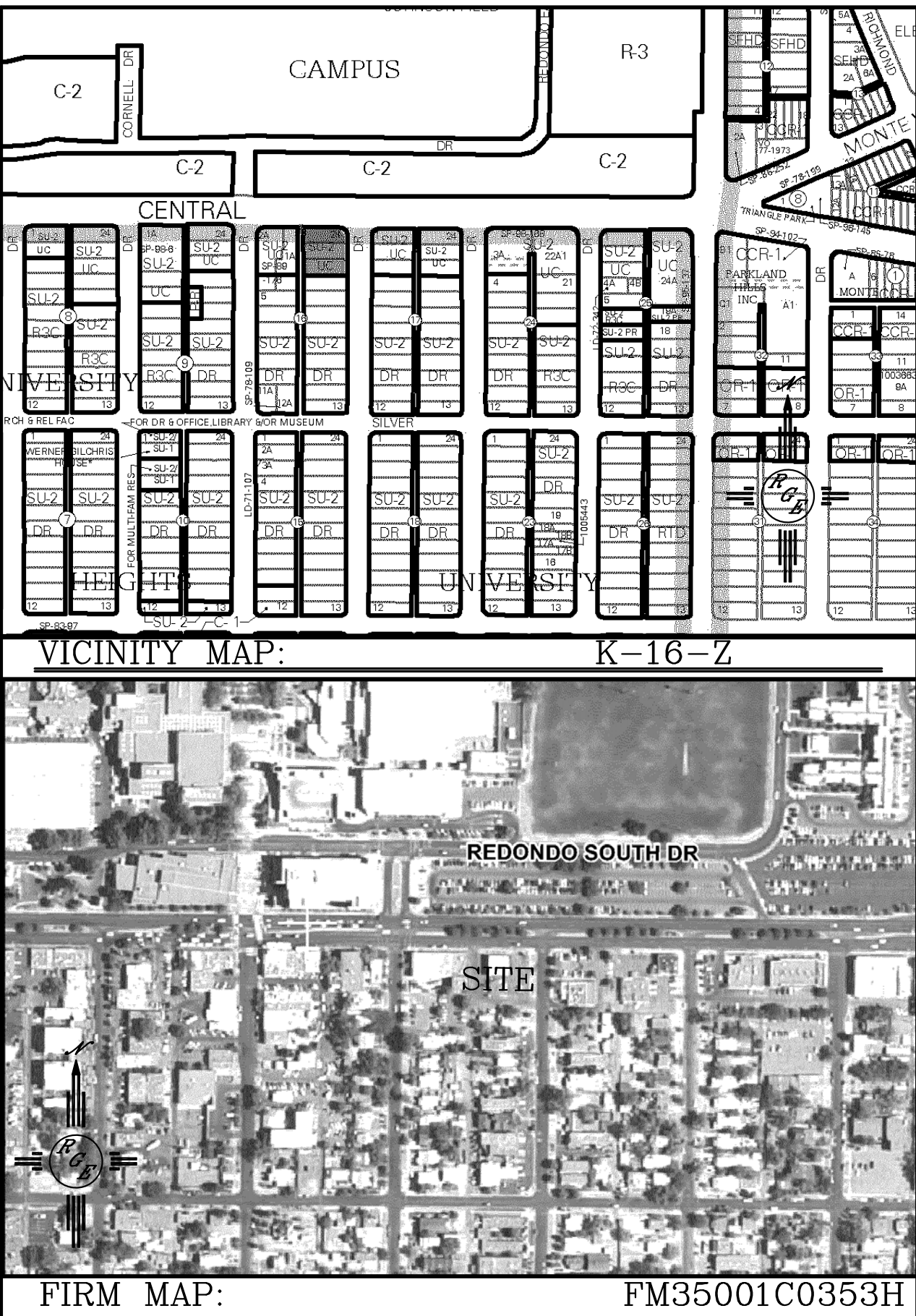
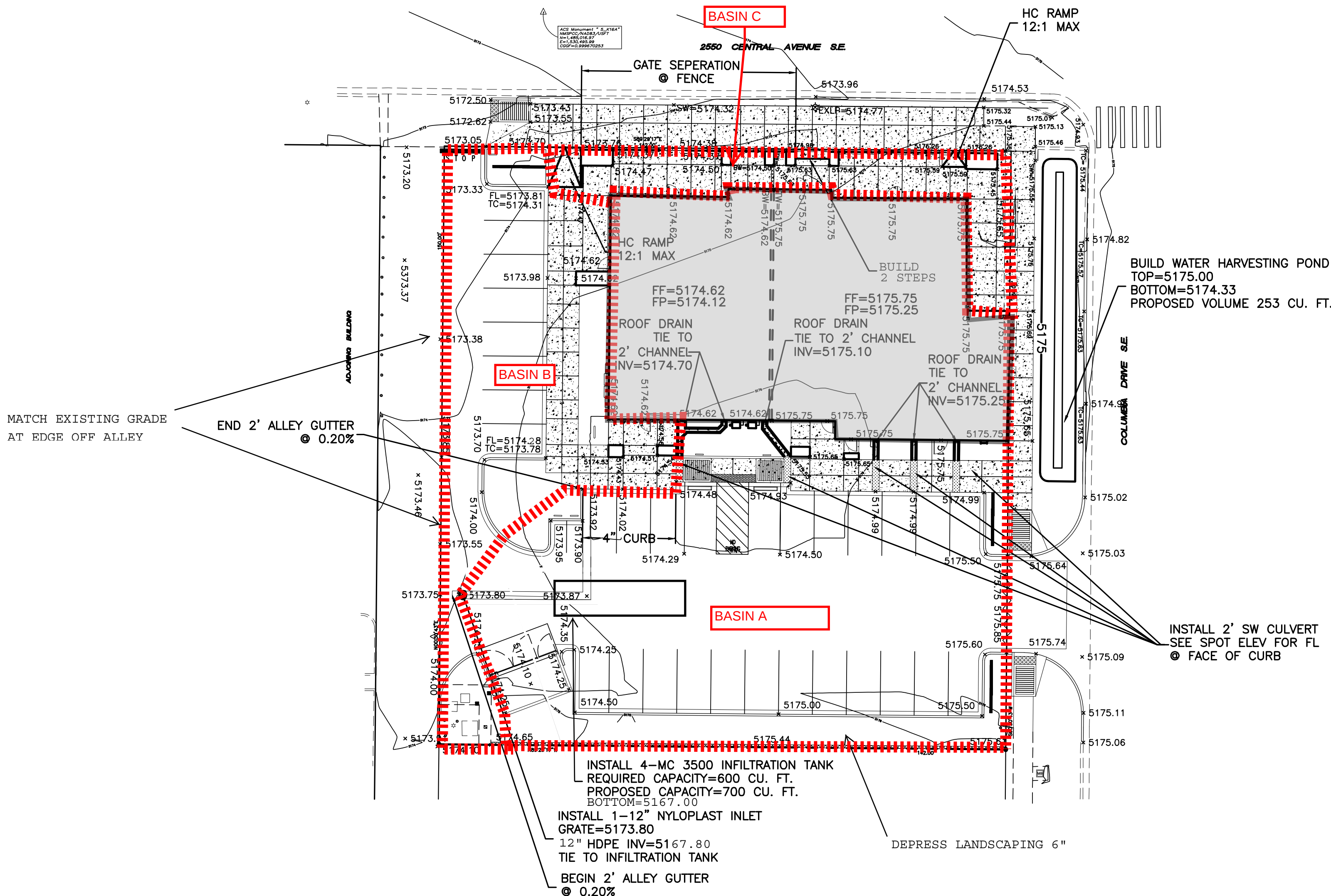
EXISTING CONDITIONS



ADDITION
NOTED
NOTED
NOTED
NOTED

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.

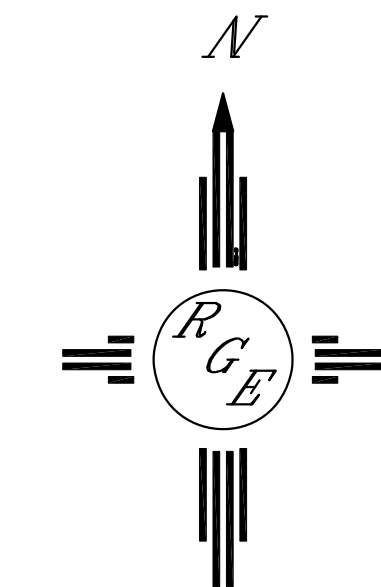


LEGAL DESCRIPTION:
LOT 22, 23, 24, BLOCK 16, UNIVERSITY HEIGHTS ADDITION

- NOTES:
- ALL SPOT ELEVATIONS REPRESENT FLOWLINE ELEVATION UNLESS OTHERWISE NOTED.
 - ALL CURB AND GUTTER TO 6" HEADER UNLESS OTHERWISE NOTED.
 - ALL RETAINING WALL DESIGN SHALL BE BY OTHERS.
 - ALL NEW PAVING SHALL BE 6" PCC OVER 8" SUBGRADE PREPARATION IN CONFORMANCE TO ACI 330R-08. UNLESS OTHERWISE NOTED.
 - ANY CURBS OR PAVEMENT NEGATIVELY IMPACTED BY CONSTRUCTION ACTIVITY SHALL BE REPLACED TO MATCH EXISTING CONDITIONS.
 - ALL SITE WORK SHALL CONFORM TO CITY OF ALBUQUERQUE STANDARDS FOR PUBLIC WORKS CONSTRUCTION EDITION 9

- LEGEND
- EXISTING CONTOUR
 - EXISTING INDEX CONTOUR
 - PROPOSED CONTOUR
 - PROPOSED INDEX CONTOUR
 - SLOPE TIE
 - EXISTING SPOT ELEVATION
 - PROPOSED SPOT ELEVATION
 - BOUNDARY
 - CENTERLINE
 - RIGHT-OF-WAY
 - PROPOSED CURB
 - EXISTING CURB AND GUTTER
 - PROPOSED SIDEWALK
 - EXISTING SIDEWALK
 - PROPOSED SCREEN WALL
 - NEW CONCRETE SIDEWALK

CAUTION:
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IT SHALL BE THE SOLE RESPONSIBILITY
OF THE CONTRACTOR TO CONDUCT ALL
NECESSARY FIELD INVESTIGATIONS PRIOR
TO ANY EXCAVATION TO DETERMINE THE
ACTUAL LOCATION OF UTILITIES & OTHER
IMPROVEMENTS.



GRAPHIC SCALE
20 10 0 10 20
SCALE: 1"=20'

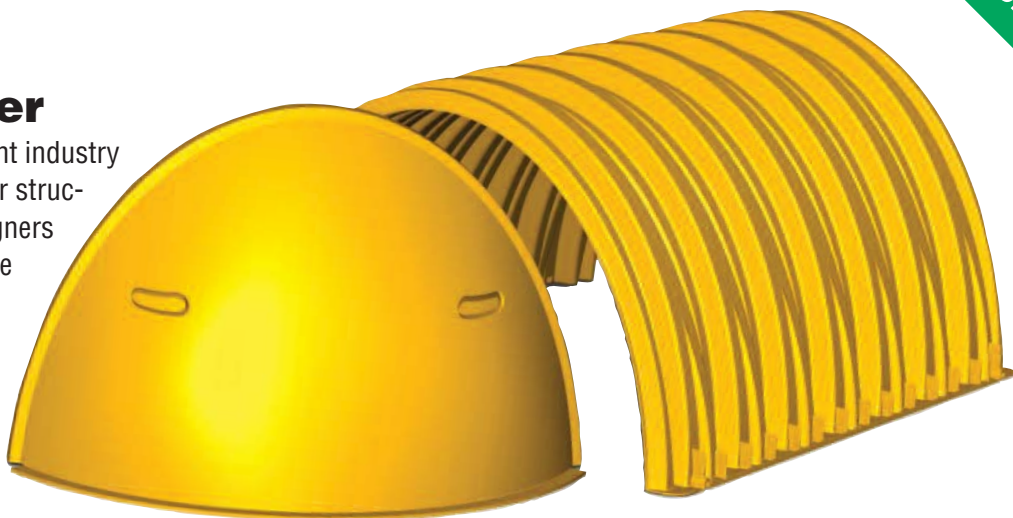
ENGINEER'S SEAL	STARBUCKS/FREDDY'S	DRAWN BY WCWJ
	PROPOSED DRAINAGE BASINS	DATE 12-27-17
		21702-LAYOUT-1-16-17
		SHEET # —
		JOB # 21702

APPENDIX B

INFILTRATOR TANK SPECIFICATIONS

StormTech MC-3500 Chamber

Designed to meet the most stringent industry performance standards for superior structural integrity while providing designers with a cost-effective method to save valuable land and protect water resources. The StormTech system is designed primarily to be used under parking lots thus maximizing land usage for commercial and municipal applications.



StormTech MC-3500 Chamber (not to scale)

Nominal Chamber Specifications

Size (L x W x H)	90" (2286 mm) x 77" (1956 mm) x 45" (1143 mm)
Chamber Storage	109.9 ft³ (3.11 m³)
Min. Installed Storage*	178.9 ft³ (5.06 m³)
Weight	134 lbs (60.8 kg)

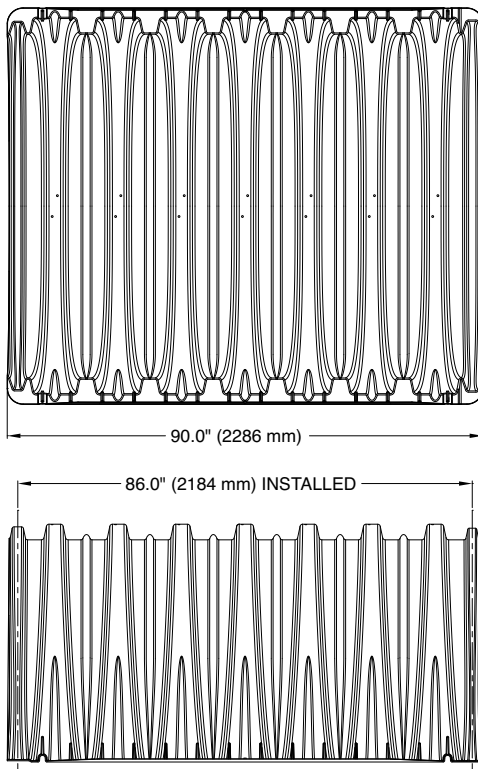
* This assumes a minimum of 12" (305 mm) of stone above, 9" (229 mm) of stone below chambers, 9" (229 mm) row spacing, and 40% stone porosity.

Shipping

15 chambers/pallet

16 end caps/pallet

7 pallets/truck

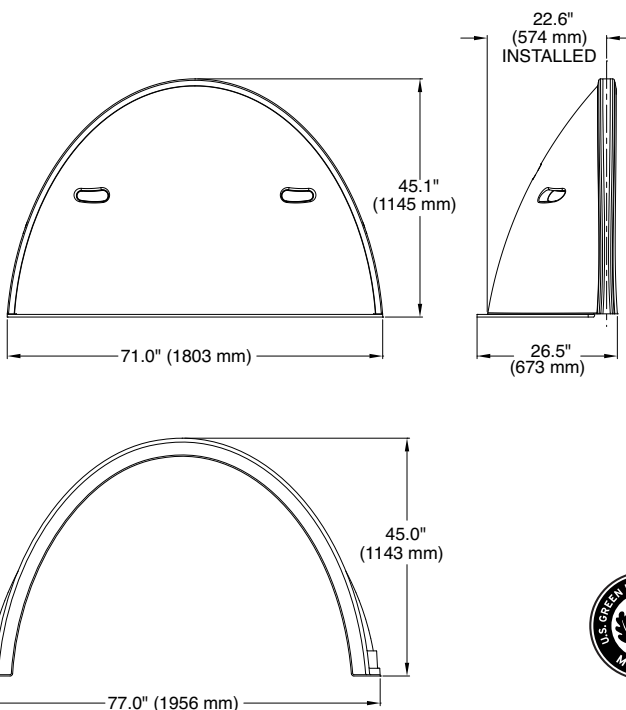


StormTech MC-3500 End Cap (not to scale)

Nominal End Cap Specifications

Size (L x W x H)	26.5" (673 mm) x 71" (1803 mm) x 45.1" (1145 mm)
End Cap Storage	15.6 ft³ (0.44 m³)
Min. Installed Storage*	46.9 ft³ (1.33 m³)
Weight	43 lbs (19.5 kg)

*This assumes a minimum of 12" (305 mm) of stone above, 9" (229 mm) of stone below, 9" (229 mm) row spacing, 6" (152 mm) of stone perimeter, and 40% stone porosity.



Storage Volume Per Chamber/End Cap ft³ (m³)

	Bare Unit Storage ft ³ (m ³)	Chamber/End Cap and Stone Volume — Stone Foundation Depth in. (mm)			
		9 (229)	12 (305)	15 (381)	18 (457)
MC-3500 Chamber	109.9 (3.11)	178.9 (5.06)	184.0 (5.21)	189.2 (5.36)	194.3 (5.5)
MC-3500 End Cap	15.64 (0.44)	46.9 (1.33)	48.6 (1.38)	50.3 (1.43)	52.0 (1.47)

NOTE: Assumes 9" (229 mm) row spacing, 40% stone porosity 12" (305 mm) stone above and includes the bare chamber/end cap volume. End Cap volume assumes 6" (152 mm) stone perimeter.

Volume of Excavation Per Chamber/End Cap in yd³ (m³)

	Stone Foundation Depth in. (mm)			
	9 (229)	12 (305)	15 (381)	18 (457)
MC-3500	12.4 (9.5)	12.8 (9.8)	13.3 (10.2)	13.8 (10.5)
End Cap	4.1 (3.1)	4.3 (3.3)	4.4 (3.4)	4.6 (3.5)

NOTE: Assumes 9" (229 mm) of separation between chamber rows and 24" (610 mm) of cover. The volume of excavation will vary as the depth of cover increases.

Amount of Stone Per Chamber

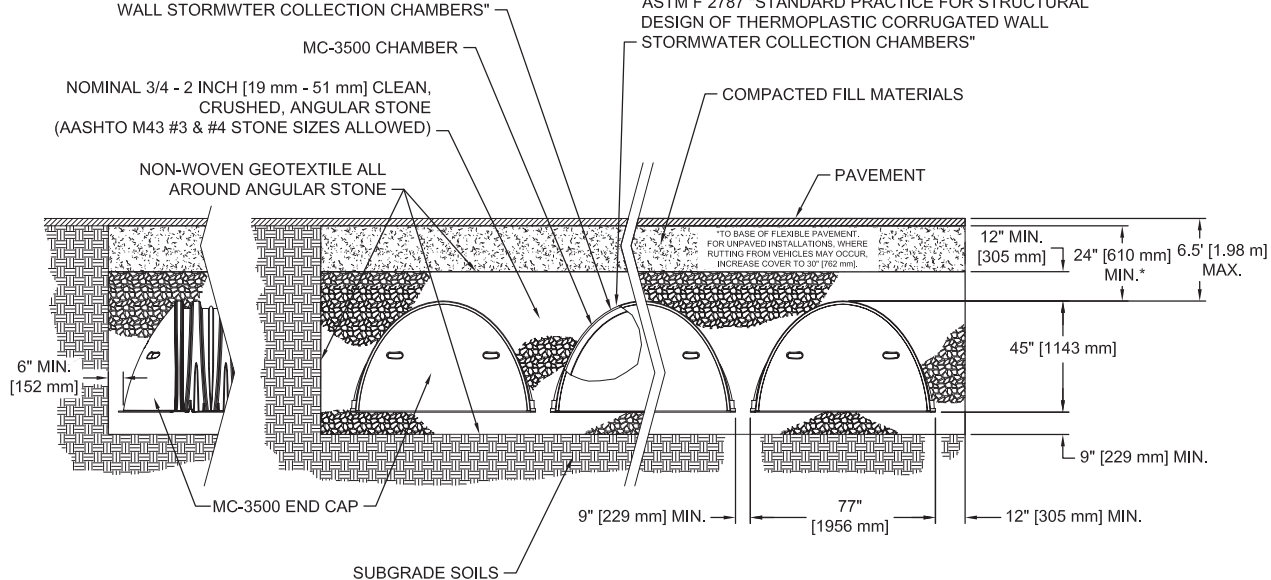
ENGLISH tons (yd ³)	Stone Foundation Depth			
	9 in.	12 in.	15 in.	18 in.
MC-3500	9.1 (6.4)	9.7 (6.9)	10.4 (7.3)	11.1 (7.8)
End Cap	4.1 (2.9)	4.3 (3.1)	4.6 (3.2)	4.8 (3.4)
METRIC kg (m ³)				
	229 mm	305 mm	381 mm	457 mm
MC-3500	8220 (4.9)	8831 (5.3)	9443 (5.6)	10054 (6.0)
End Cap	3729 (2.2)	3933 (2.3)	4136 (2.5)	4339 (2.6)

NOTE: Assumes 12" (305 mm) of stone above, and 9" (229 mm) between chambers/end caps.

stone treatment

General Cross Section

CHAMBERS SHALL MEET ASTM F 2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS"



NOTES:

1. THIS CROSS SECTION PROVIDES GENERAL INFORMATION FOR THE MC-3500 CHAMBER. STORMTECH MC-3500 CHAMBERS MUST BE DESIGNED AND INSTALLED IN ACCORDANCE WITH THE MC-3500 DESIGN MANUAL AND MC-3500 CONSTRUCTION GUIDE.
2. PROPERLY INSTALLED MC-3500 CHAMBERS PROVIDE THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR EARTH AND LIVE LOADS WITH CONSIDERATION FOR IMPACT AND MULTIPLE PRESENCES.
3. PERIMETER STONE MUST ALWAYS BE BROUGHT UP EVENLY WITH BACKFILL OF BED. PERIMETER STONE MUST EXTEND HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH STRAIGHT OR SLOPED SIDEWALLS.



A division of ADS

70 Inwood Road, Suite 3 | Rocky Hill | Connecticut | 06067

860.529.8188 | 888.892.2694 | fax 866.328.8401 | fax 860-529-8040 | www.stormtech.com



ADS "Terms and Conditions of Sale" are available on the ADS website, www.ads-pipe.com.

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StormTech® is a registered trademark of StormTech, Inc

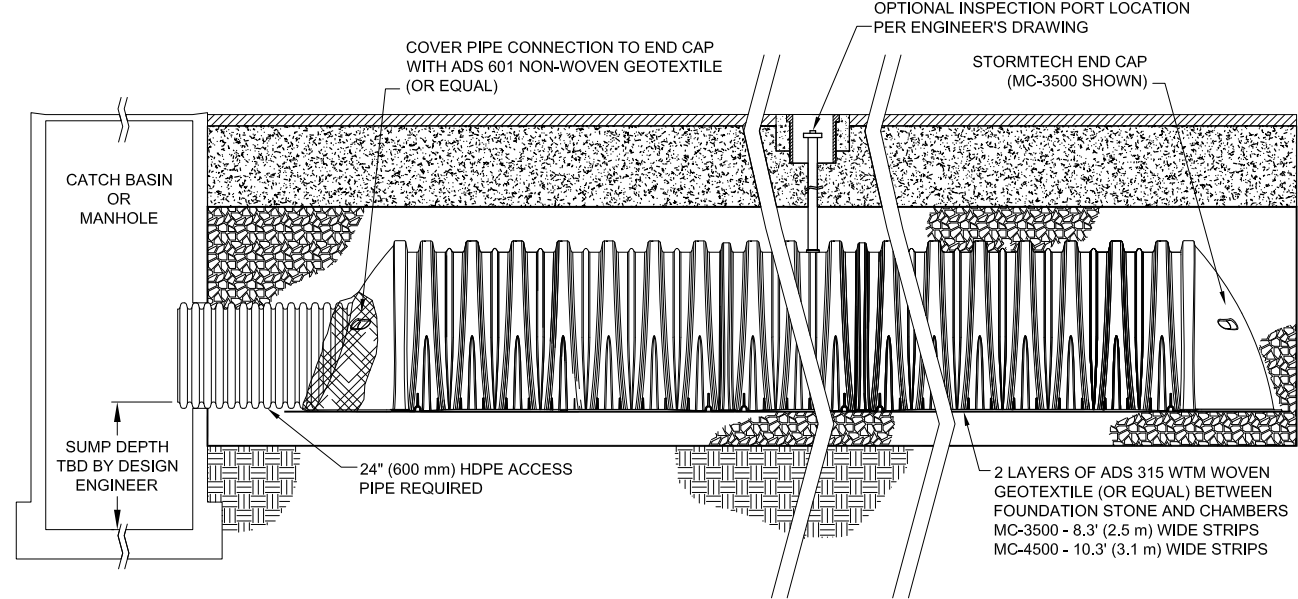
The Green Building Council Member logo is a registered trademark of the U.S. Green Building Council.

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Printed on recycled paper

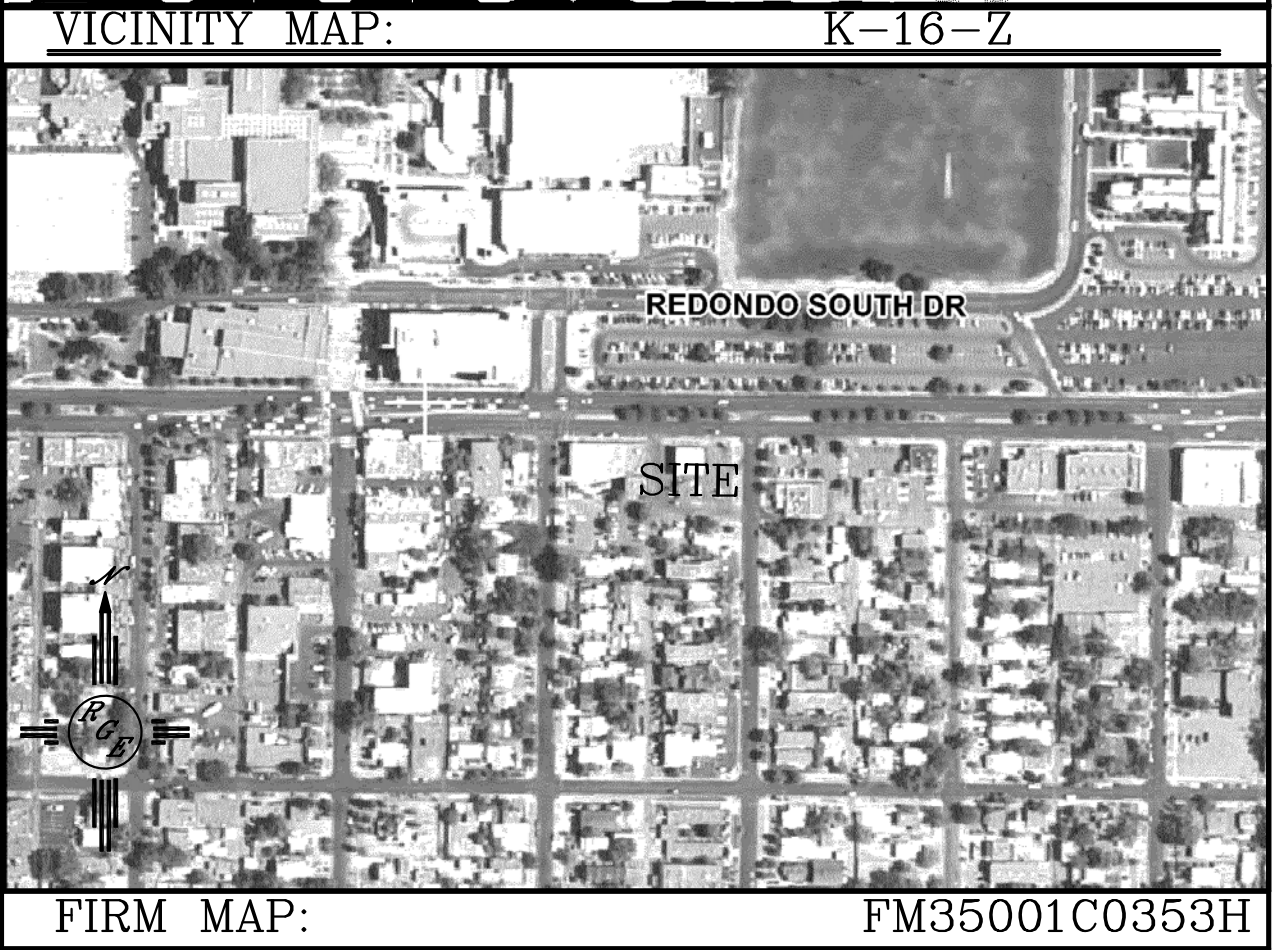
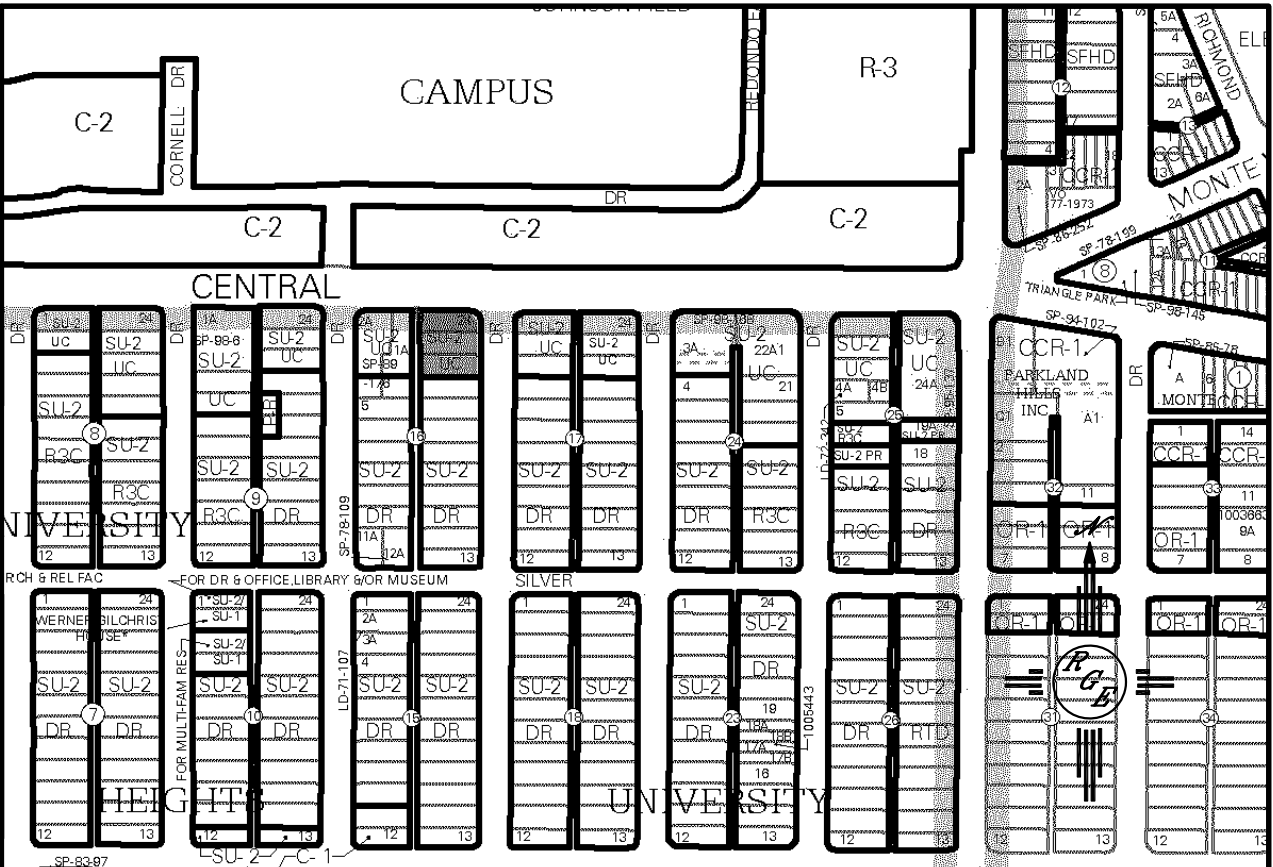
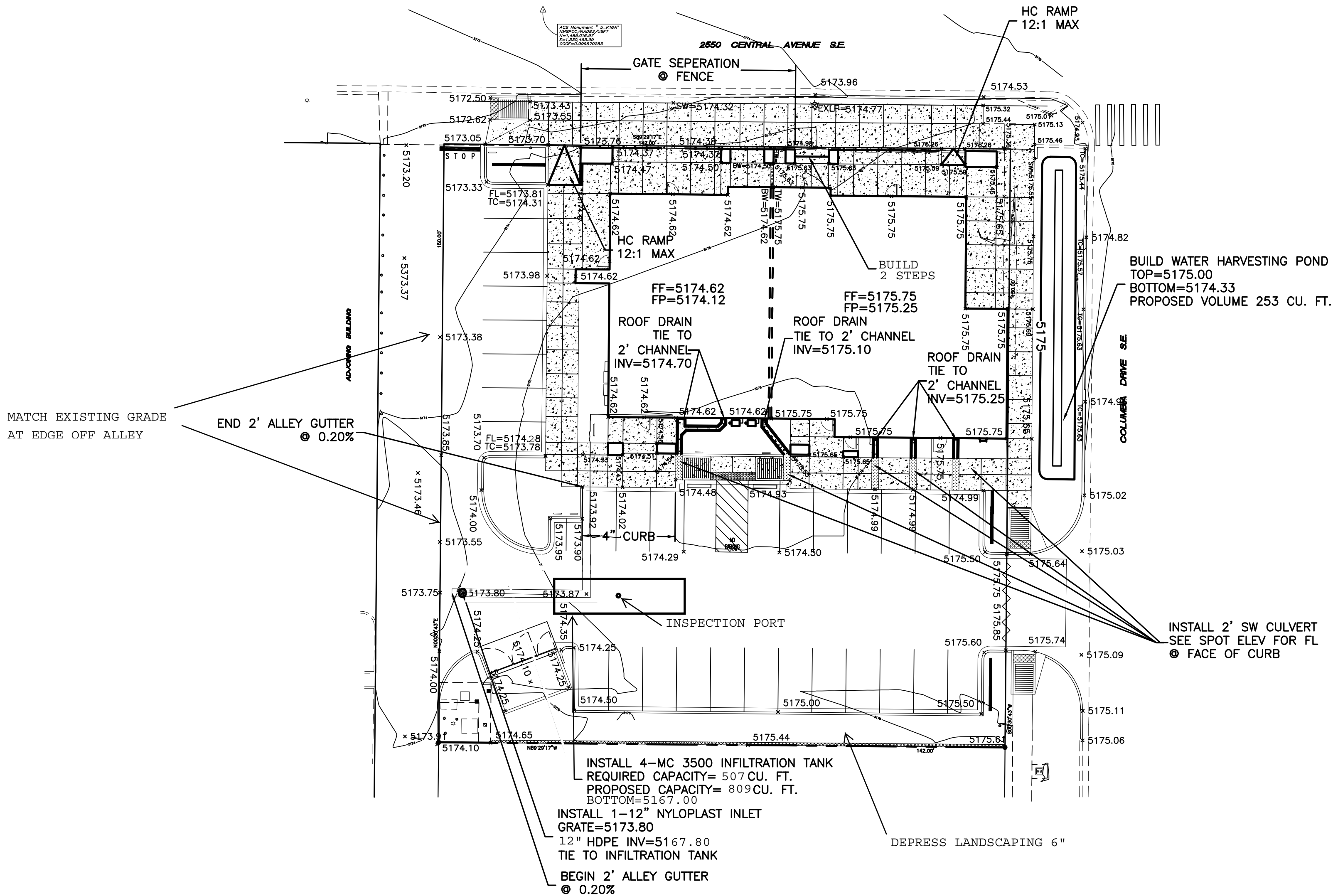


FIGURE 12 – StormTech Isolator Row Detail



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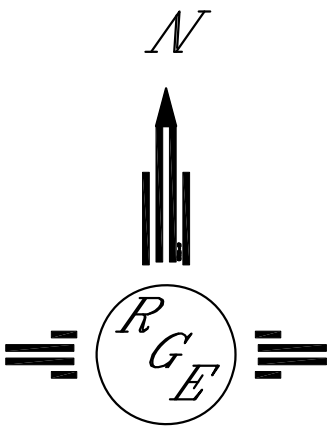


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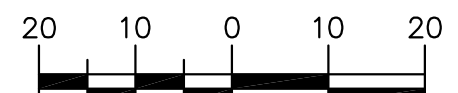
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LEGEND

- 5414 ----- EXISTING CONTOUR
- 5415 ----- EXISTING INDEX CONTOUR
- 5414 ----- PROPOSED CONTOUR
- 5415 ----- PROPOSED INDEX CONTOUR
- 5415 ----- SLOPE TIE
- 5415 ----- EXISTING SPOT ELEVATION
- 5415 ----- PROPOSED SPOT ELEVATION
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- 5415 ----- CENTERLINE
- 5415 ----- RIGHT-OF-WAY
- 5415 ----- PROPOSED CURB
- 5415 ----- EXISTING CURB AND GUTTER
- 5415 ----- PROPOSED SIDEWALK
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GRAPHIC SCALE



SCALE: 1"=20'

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ENGINEER'S SEAL	STARBUCKS/FREDDY'S	DRAWN BY WCWJ
	GRADING AND DRAINAGE PLAN	DATE 12-27-17
	 1606 CENTRAL AVENUE SE SUITE 201 ALBUQUERQUE, NM 87106 (505) 872-0999	21702-LAYOUT-1-16-17
DAVID SOULE P.E. #14522		SHEET # —
		JOB # 21702