

CITY OF ALBUQUERQUE



October 28, 2016

Richard J. Berry, Mayor

David Soule, P.E.
Rio Grande Engineering
P.O. Box 93924
Albuquerque, NM 87199

**RE: State Employees Federal Credit Union
Grading and Drainage Plan
Engineer's Stamp Date 10-19-16 (File: F16D001)**

Dear Mr. Soule:

Based upon the information provided in your submittal received 10-21-16 (Drainage Report dated 9-15-16), the above-referenced plan is approved for Site Plan for Building Permit. It is also approved for Building Permit with the following condition:

1. The comments from AMAFCA regarding the outfall from the pond into and within their property will be approved through a turnkey agreement. The constructed improvements will need to be approved prior to approval for Occupancy.

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.

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

Sincerely,

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

Orig: Drainage file



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: DAVID SOULE

COA STAFF: _____ ELECTRONIC SUBMITTAL RECEIVED: _____

DRAINAGE REPORT

For

STATE EMPLOYEE FEDERAL CREDIT UNION

3521 MONTGOMERY BLVD NE

Albuquerque, New Mexico

Prepared by

Rio Grande Engineering
PO Box 93924
Albuquerque, New Mexico 87199

SEPTEMBER 2016



David Soule P.E. No. 14522

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Appendix

Site Hydrology A

Hydraulic calculations..... B

Map

Site Grading and Drainage Plan

PURPOSE

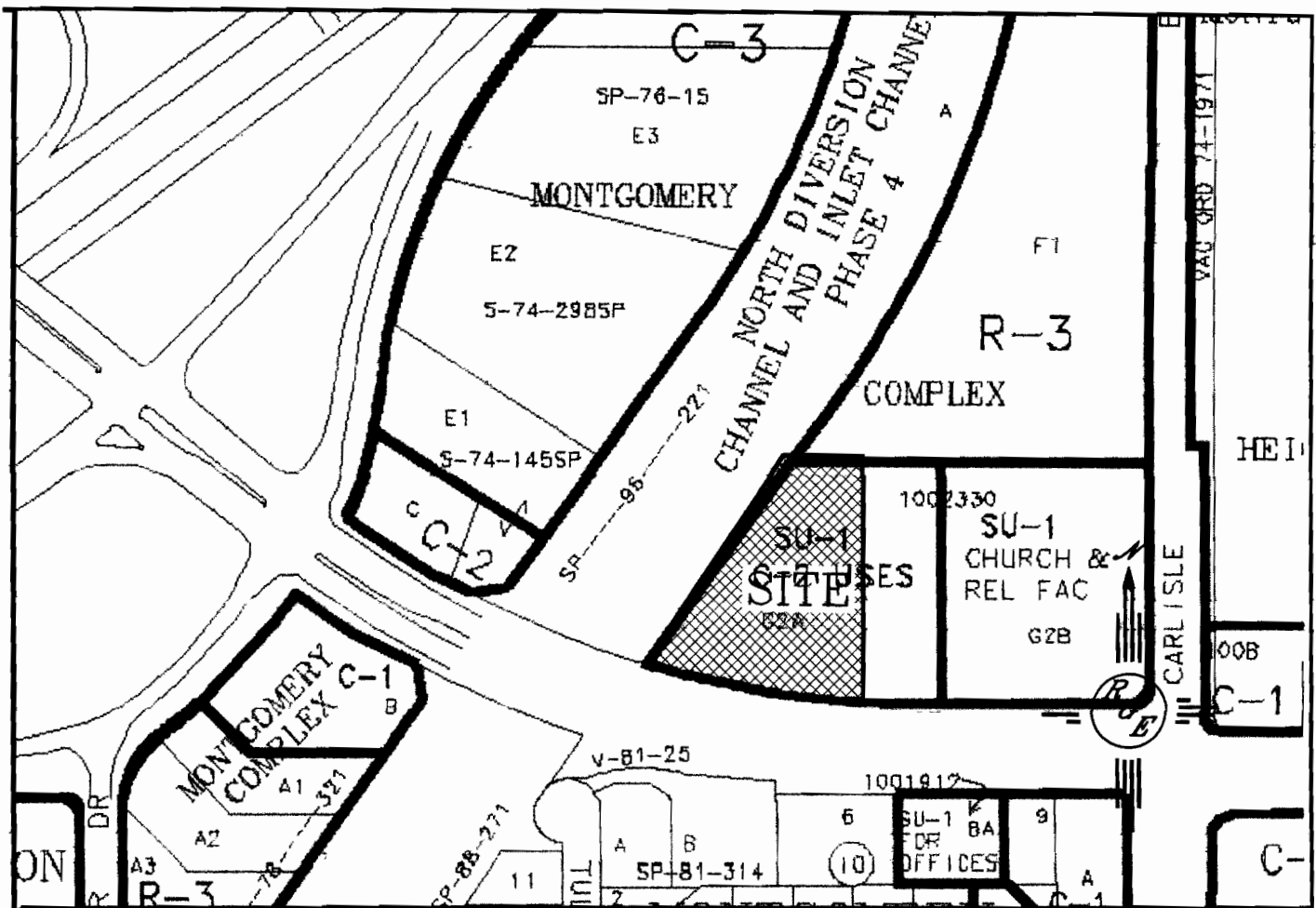
The purpose of this report is to provide the Drainage Management Plan for the development of a 1.55 acre bank site located at 3521 Montgomery NE. This plan was prepared in accordance with the City of Albuquerque design regulations, utilizing the City of Albuquerque's Development Process Manual drainage 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 1.55 acre parcel of land located on the north side of Montgomery between Interstate 25 and Carlisle Northeast. The legal description of this site is tract G2A1 Montgomery Complex. As shown on FIRM map35013C0138H, the entire site is located within Flood Zone X. The site has been graded in the past. Due to the grading and an existing concrete valley gutter, the site is not impacted by upland flow. The site is directly adjacent to the AMAFCA's north diversion channel. The site is surrounded by fully developed sites on all sides. The site currently free discharges as sheet flow to an existing side inlet of the channel. The development of the site will allow the site to free discharge to the existing inlet and retain the first flush water quality volume onsite.

EXISTING CONDITIONS

The site is currently disturbed yet undeveloped and is not impacted by upland flows. The site is located in flood zone x. The site currently discharged flow from east to west, where it enter into a earthen swale which is collected by and existing side inlet rundown at the north diversion channel All downstream improvements are in place and maintained by AMAFCA.



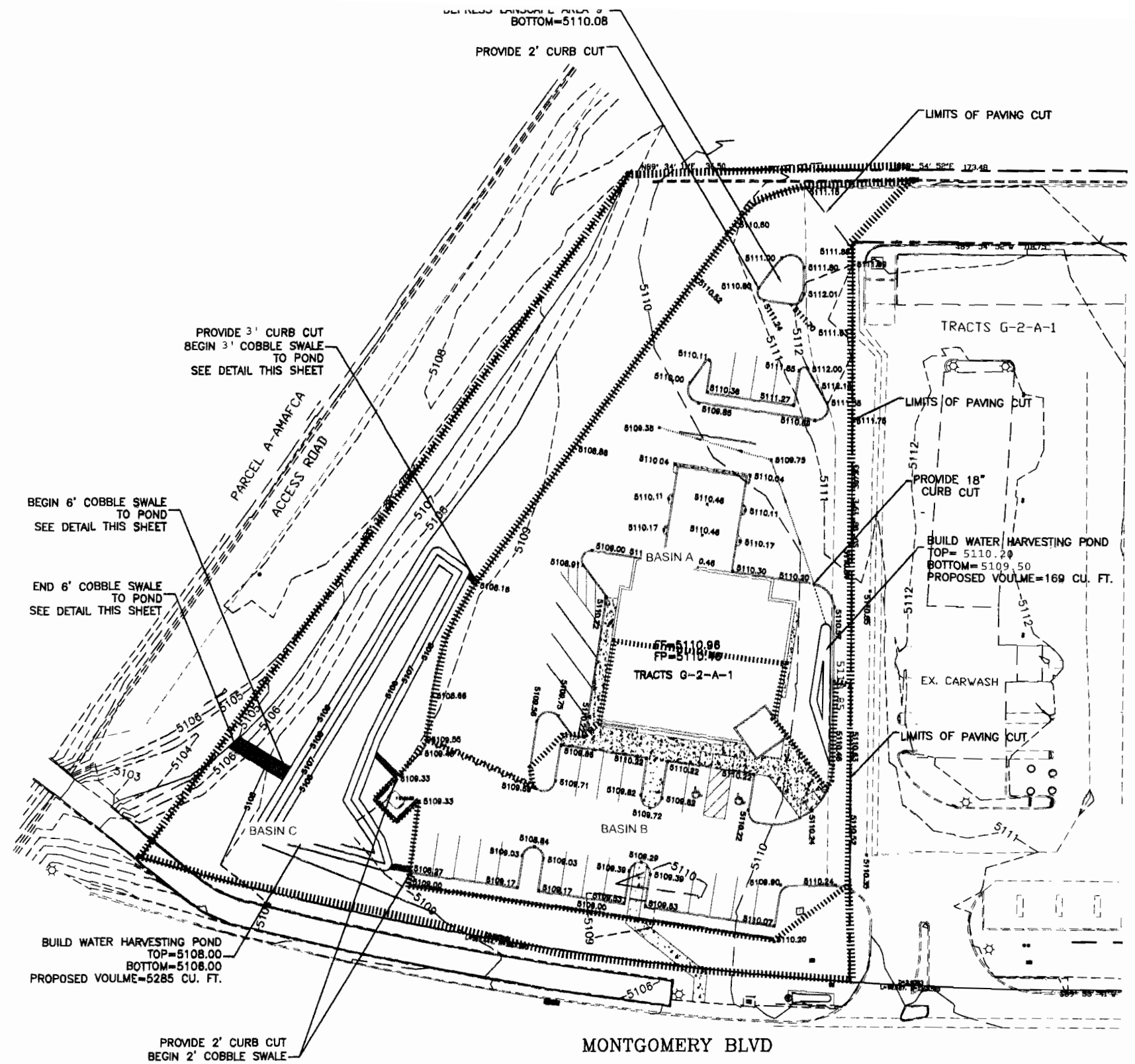
PROPOSED CONDITIONS

The proposed improvements consist of a new bank building and associated parking lot. A drainage sub-basin map and hydraulic spread sheet is included in Appendix A. The proposed development will drain from east to west, passing thru landscape areas and shallow ponds located within the landscape areas before discharging north to the existing earthen swale within the north diversion channel right of way. The entire site will generate 5.7 cfs. The required first flush volume is 1016 cubic feet. Due to the proximity to the AMAFCA's channel, the pond has been increased to 5454 cubic feet and 2' deep. This capture 60% of the entire 100-year, 6-hour event and will allow for percolation and solar irradiation/ evaporation of developed storm water for most storm events. As shown in appendix B, the rundowns and curb openings have been sized to convey the design storm.

SUMMARY AND RECOMMENDATIONS

This project is a development of an in fill lot within a fully developed water shed. This site has been designed to free discharge. The water quality ponds have been enlarged to minimize discharge to the North Diversion channel. The historic discharge point is maintained and the flow enters the NDC via an existing side inlet rundown. The onsite drainage structures have been adequately sized. The development of this site will not negatively impact the upstream nor downstream facilities. Since this site exceed 1 acre, erosion and sediment Control Plan will be required, a NPDES permit will also be required prior to any construction activity.

APPENDIX A
SITE HYDROLOGY



Weighted E Method
SECU-MONTGOMERY

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)				
UPLAND (DIVERTED WITH VALLEY GUTTER														
BASIN A	24621	0.565	0%	0	5.0%	0.028	8.0%	0.045	86%	0.486	1.953	0.092	2.49	0.157
BASINB	15616	0.358	0%	0	5.0%	0.018	8.0%	0.029	87%	0.312	1.974	0.059	1.60	0.101
BASIN C	27655	0.635	0%	0	46.0%	0.292	50.0%	0.31744	4%	0.025	1.009	0.053	1.78	0.057
TOTAL	67892.00	1.559	0%	0	21.7%	0.338	25.1%	0.391	53%	0.823	1.573	0.204	5.87	0.314

COMPARISON

Equations:

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

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

Ea= 0.53

Eb= 0.78

Ec= 1.13

Ed= 2.12

Qa= 1.56

Qb= 2.28

Qc= 3.14

Qd= 4.7

FIRST FLUSH REQUIREMENT

1016.208 CUBIC FEET

5454 CUBIC FEET PROVIDED

8899 100-YEAR 6-HOUR VOLUME

weir calculation

Q=2.95XLX.5^1.5

3' OPENING 3.12 CFS

2' OPENING 2.08 CFS

DRAINAGE NARRATIVE

THIS SITE IS AN INFILL SITE DIRECTLY ADJACENT TO THE AMFACA NORTH DIRVERSION CHANNEL. THE SITE DOES NOT HAVE UPLAND FLOW DUE TO AN EXISTING VALLEY GUTTER CONSTRUCTED WITH THE ADJACENT CAR WASH. WE ARE PROPOSING FREE DISCHARGE TO AN EXISTING SIDE INLET TO THE NORHT DIVERSION. THE SITE EX THE FIRST FLUSH VOLUME BY A SIGNIFICANT FACTOR TO ALLOW FOR MORE STORAGE TO IMPROVE WATER QUALITY ENTERING THE DIVERSION CHANNEL. THE CURB OPENINGS AND SWALES HAVE BEEN DESIGNED TO CONVEY THE 100-YEAR, 6-HOUR RATES. THE SITE WILL DISCHARGE 5.87 CFS TO THE NORTH DIRVERSON CHANNEL.

APPENDIX B
HYDRAULIC CALCULATIONS

swale capacities

	Top Width	Bottom Width	Depth	Area	WP	R	Slope	Q Provided	Q Required	Velocity
	(ft)	(ft)	(ft)	(ft^2)	(ft)		(%)	(cfs)	(cfs)	(ft/s)
6' channle	6	0.25	1	3.13	6.34	0.4930657	1	8.30	5.87	1.88
2' channle	2	0.25	1	1.13	2.91	0.3869255	1	2.54	1.78	1.58
3' channel	3	0.25	1	1.63	3.65	0.4451606	1	4.03	2.49	1.53

Manning's Equation:
 $Q = 1.49/n * A * R^{(2/3)} * S^{(1/2)}$
A = Area
R = D/4
S = Slope
n = 0.035

swale capacities

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Equations:

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

Volume = Weighted D * Total Area

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

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swale capacities

	Top Width (ft)	Bottom Width (ft)	Depth (ft)	Area (ft ²)	WP (ft)	R	Slope (%)	Q Provided (cfs)	Q Required (cfs)	Velocity (ft/s)
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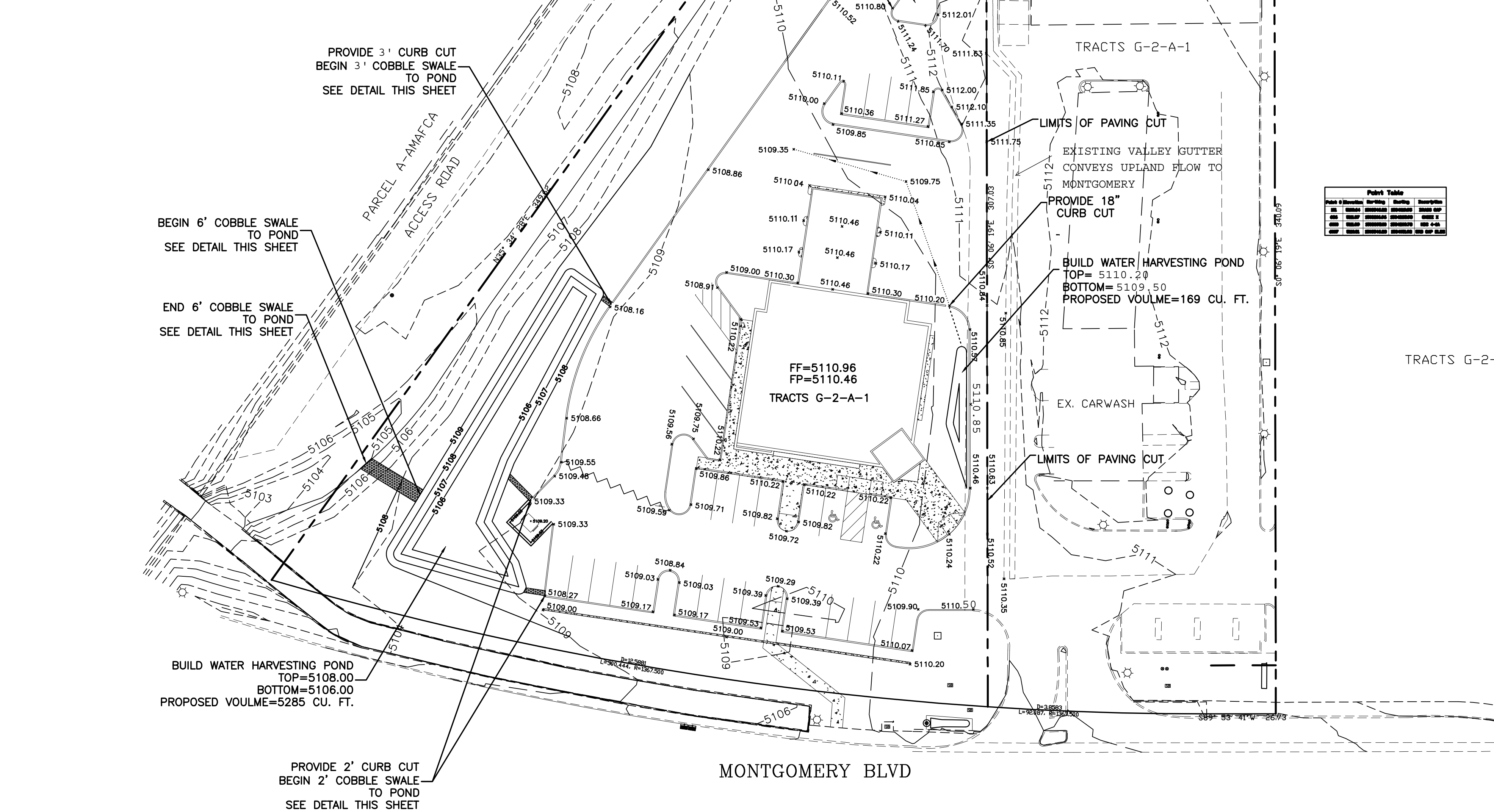
Q = 1.49n * A * R^(2/3) * S^(1/2)

A = Area

R = D/4

S = Slope

n = 0.035



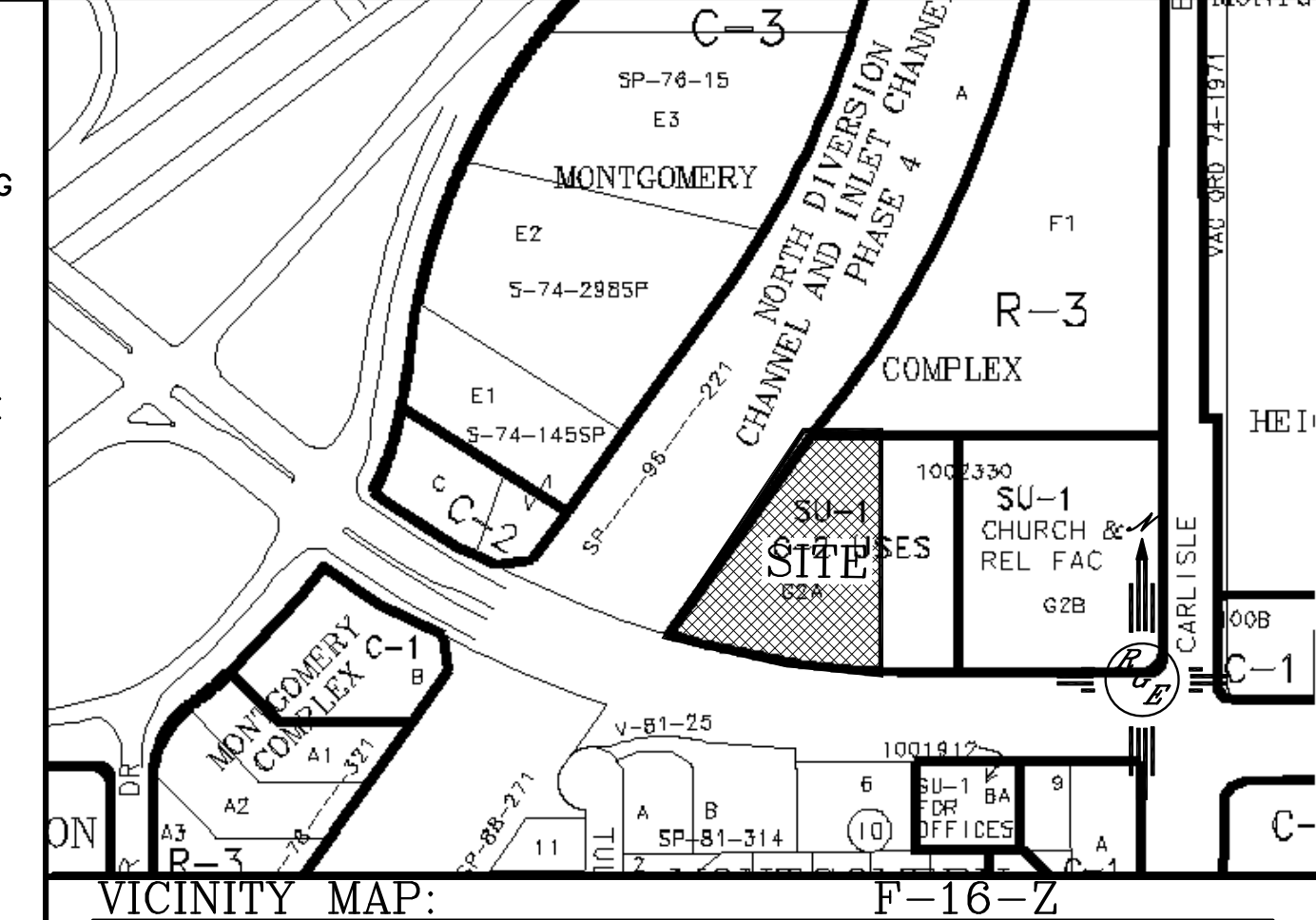
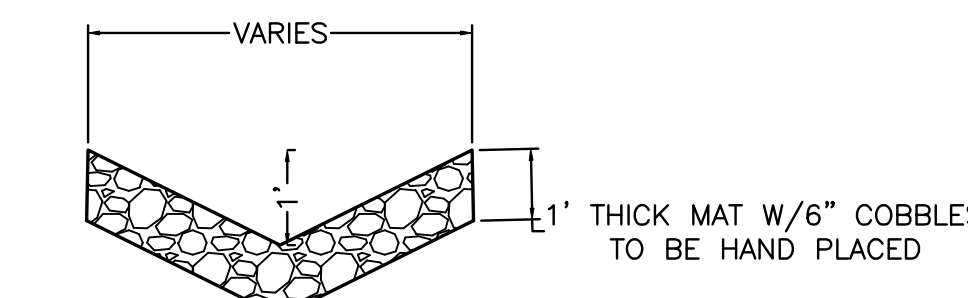
- EROSION CONTROL NOTES:
1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING A TOPSOIL DISTURBANCE PERMIT PRIOR TO BEGINNING WORK.

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:

TR. G-2-A-1, MONTGOMERY COMPLEX

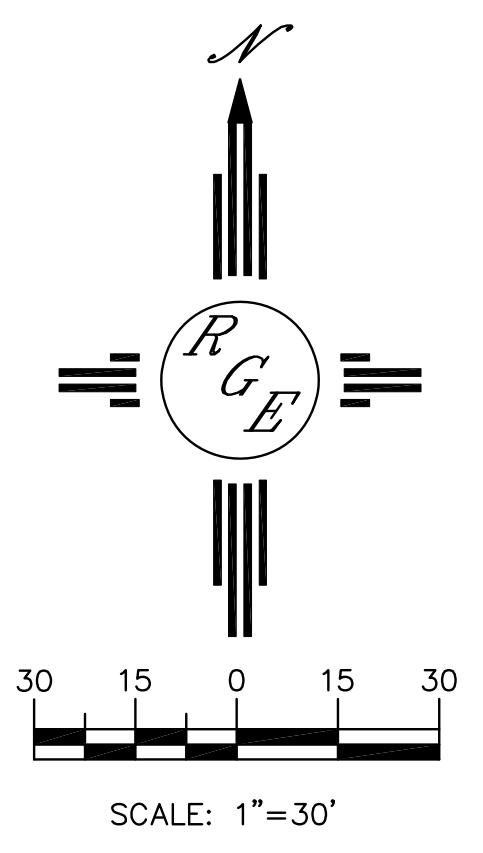
- NOTES:
1. ALL SPOT ELEVATIONS REPRESENT FLOWLINE ELEVATION UNLESS OTHERWISE NOTED.

LEGEND

---	5414	---	EXISTING CONTOUR
---	5415	---	EXISTING INDEX CONTOUR
---	5414	---	PROPOSED CONTOUR
---	5415	---	PROPOSED INDEX CONTOUR
---	3:1	---	3:1 SLOPE TIE MAX.
---	1	---	EXISTING SPOT ELEVATION
---	1	---	PROPOSED SPOT ELEVATION
---	---	---	BOUNDARY
---	---	---	PROPOSED LOT LINE
---	---	---	RIGHT-OF-WAY
---	---	---	PROPOSED CURB AND GUTTER
---	---	---	EXISTING CURB
---	---	---	PROPOSED SCREEN WALL
---	---	---	PROPOSED RETAINING WALL DESIGN BY OTHERS

CAUTION:

EXISTING UTILITIES ARE NOT SHOWN. 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.



ENGINEER'S SEAL

DAVID SOULE

NEW MEXICO

14522

REGISTERED PROFESSIONAL ENGINEER

9/15/16

STATE EMPLOYEE
FEDERAL CREDIT UNION

GRADING
AND DRAINAGE PLAN

Rio Grande
Engineering

1608 CENTRAL AVENUE SE
SUITE 201
ALBUQUERQUE, NM 87106
(505) 872-0999

DRAWN
BY WCWJ

DATE
9/15/16

21628-LAYOUT-6-28-16

SHEET #
4

JOB #
21628



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
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☐ GRADING PLAN
☐ DRAINAGE MASTER PLAN
☐ DRAINAGE REPORT
☐ CLOMR/LOMR
- ☐ TRAFFIC CIRCULATION LAYOUT (TCL)
☐ TRAFFIC IMPACT STUDY (TIS)
☐ EROSION & SEDIMENT CONTROL PLAN (ESC)
- ☐ OTHER (SPECIFY) _____

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☐ CERTIFICATE OF OCCUPANCY
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☐ GRADING/ PAD CERTIFICATION
☐ WORK ORDER APPROVAL
☐ CLOMR/LOMR
- ☐ PRE-DESIGN MEETING
☐ OTHER (SPECIFY) _____

IS THIS A RESUBMITTAL?: ☐ Yes ☐ No

DATE SUBMITTED: _____ **By:** DAVID SOULE _____

COA STAFF: _____ ELECTRONIC SUBMITTAL RECEIVED: _____

October 21, 2016

Abiel Carrillo, PE, CFM
Principal Engineer - Hydrology
Planning Department
Development Review Services Division
City of Albuquerque

Lynn M. Mazur, P.E., C.F.M.
Development Review Engineer
Albuquerque Metropolitan Arroyo
Flood Control Authority
2600 Prospect Ave NE
Albuquerque, NM 87107

RE: Revised grading Plan for building Permit
Lot G2A1 Montgomery Complex

Dear Mr. Carrillo and Ms Mazur:

Rio Grande Engineering has revised the enclosed grading plan to incorporate AMAFCA comments regarding access to the channel as well as the nature of the out fall. We have included an outfall structure preferred by the city. The outfall has been designed to allow for 1824 cubic feet of water quality storage, which exceeds the 1,097 cfs (38,700x.34/12) required.

Should you have any questions regarding this matter, please do not hesitate to call me.

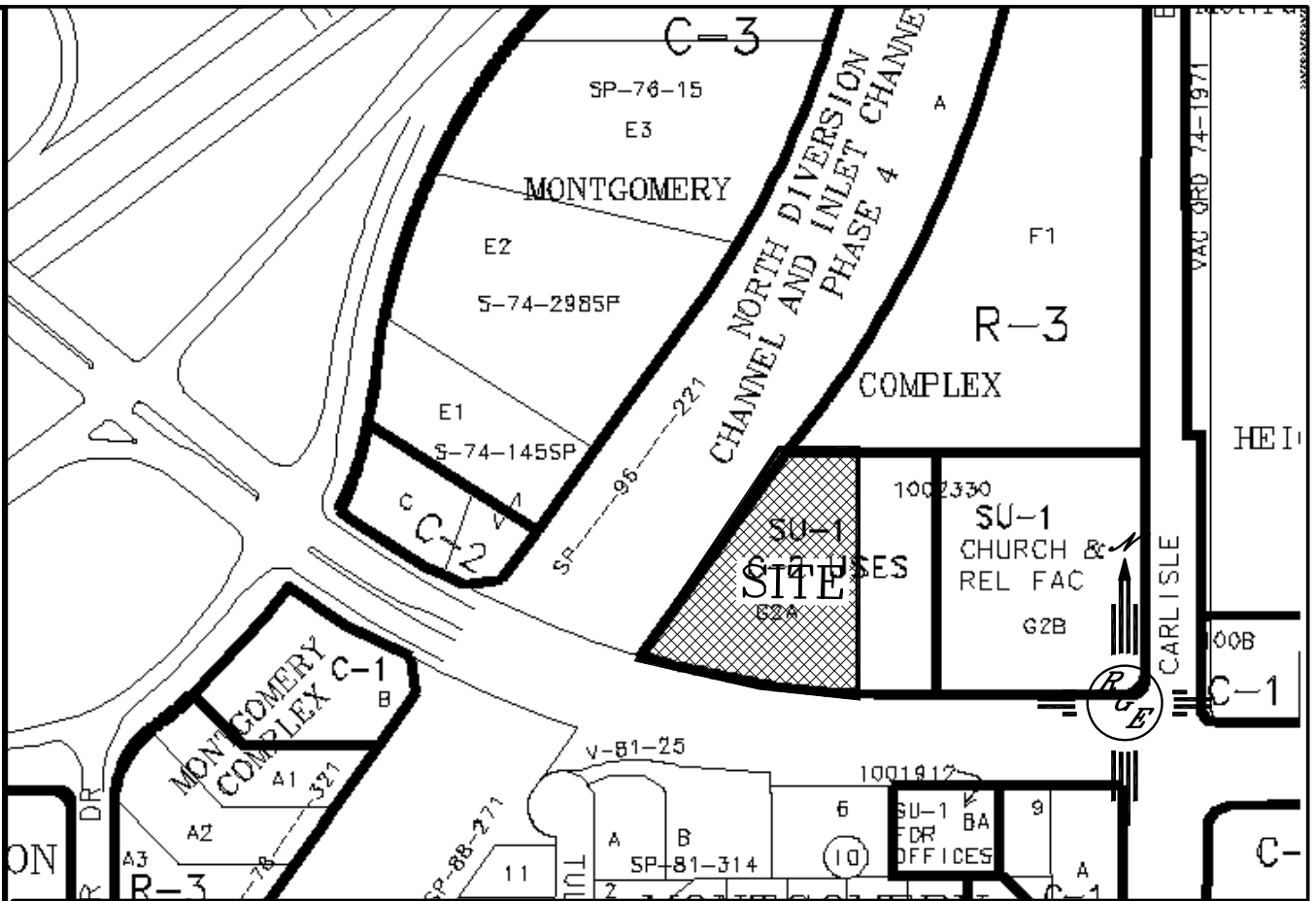
Sincerely,

David Soule, PE
RIO GRANDE ENGINEERING
PO Box 93924
ALBUQUERQUE, NM 87199
321-9099

Enclosures

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.
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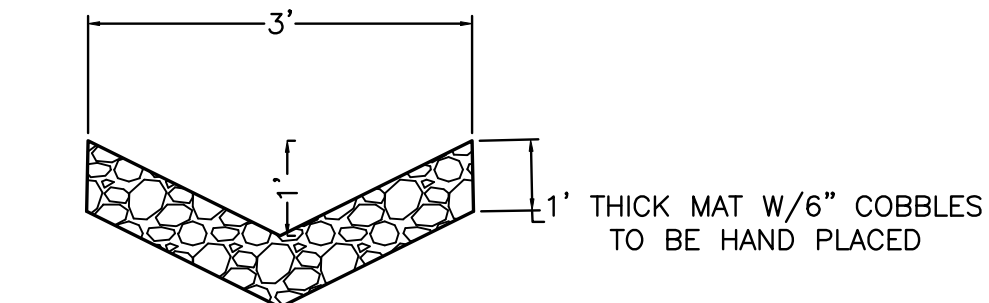


FIRM MAP: FM35001C0138H

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TR. G-2-A-1, MONTGOMERY COMPLEX

NOTES:
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LEGEND	
---	EXISTING CONTOUR
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---	RIGHT-OF-WAY
---	PROPOSED CURB AND GUTTER
---	EXISTING CURB
---	PROPOSED SCREEN WALL
---	PROPOSED RETAINING WALL DESIGN BY OTHERS



COBBLE SWALE DETAIL

Point Table	
Station	Elevation
5108.00	5108.00
5108.01	5108.01
5108.02	5108.02
5108.03	5108.03
5108.04	5108.04
5108.05	5108.05
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5108.83	5108.83
5108.84	5108.84
5108.85	5108.85
5108.86	5108.86
5108.87	5108.87
5108.88	5108.88
5108.89	5108.89
5108.90	5108.90
5108.91	5108.91
5108.92	5108.92
5108.93	5108.93
5108.94	5108.94
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