CITY OF ALBUQUERQUE

Planning Department
Brennon Williams, Director

Mayor Timothy M. Keller

June 30, 2020

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

RE: Apartments Golf Course Rd. NW
Conceptual Grading and Drainage Plan
Engineer's Stamp Date: 06/26/20
Hydrology File: A12S008D

Dear Mr. Bohannan:

Based upon the information provided in your submittal received 06/26/2020, the Conceptual Grading & Drainage Plan is approved for action by the DRB on Site Plan for Building Permit.

As a reminder, if the project total area of disturbance (including the staging area and any work within the adjacent Right-of-Way) is 1 acre or more, then an Erosion and Sediment Control (ESC) Plan and Owner's certified Notice of Intent (NOI) is required to be submitted to the Stormwater Quality Engineer (Doug Hughes, PE, jhughes@cabq.gov, 924-3420) 14 days prior to any earth disturbance.

Also as a reminder, please provide Drainage Covenant for the stormwater quality ponds per Chapter 17 of the DPM 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 rbrissette@cabq.gov.

Sincerely,

Renée C. Brissette

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

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 6/2018)

Project Title: Apartments Golf Course Rd NW Building Permit #: _____ Hydrology File #: _____

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

Legal Description: TR E-1 Plat of TRS D-1, E-1 AMAFCA Black Arroyo Channel ROW Paradise Heights Unit 1

City Address: Golf Course RD NW Albuquerque, NM 87114

Applicant: Tierra West, LLC Contact: Richard Stevenson

Address: 5571 Midway Park Pl NE Albuquerque NM 87109

Phone#: 505-858-3100 Fax#: 505-858-1118 E-mail: rstevenson@tierrawestllc.com

Other Contact: _____ Contact: _____

Address: _____

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

TYPE OF DEVELOPMENT: _____ PLAT (# of lots) _____ RESIDENCE X DRB SITE ___ ADMIN SITE

IS THIS A RESUBMITTAL? _____ Yes X No

DEPARTMENT _____ TRANSPORTATION X HYDROLOGY/DRAINAGE

Check all that Apply:

TYPE OF SUBMITTAL:

____ ENGINEER/ARCHITECT CERTIFICATION
____ PAD CERTIFICATION
____ CONCEPTUAL G & D PLAN
X GRADING PLAN
X DRAINAGE REPORT
____ DRAINAGE MASTER PLAN
____ FLOODPLAIN DEVELOPMENT PERMIT APPLIC
____ ELEVATION CERTIFICATE
____ CLOMR/LOMR
____ TRAFFIC CIRCULATION LAYOUT (TCL)
____ TRAFFIC IMPACT STUDY (TIS)
____ STREET LIGHT LAYOUT
____ OTHER (SPECIFY) _____
____ PRE-DESIGN MEETING?

TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

X BUILDING PERMIT APPROVAL
____ CERTIFICATE OF OCCUPANCY

____ PRELIMINARY PLAT APPROVAL
____ SITE PLAN FOR SUB'D APPROVAL
X 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: 6/26/2020 By: Richard Stevenson

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: _____

FEE PAID: _____

CONCEPTUAL DRAINAGE REPORT FOR

WINTERGREEN APARTMENTS

TRACT E-1 PARADISE HEIGHTS, UNIT 1

ALBUQERUQUE, NM

Prepared by:

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

June, 2020

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
NEW MEXICO
7868
06/26/2020
PROFESSIONAL ENGINEER

Ronald R. Bohannan
PE # 7868

PAGE LEFT BLANK

TW# 2020013

TABLE OF CONTENTS

Contents

Purpose....1
Location and Background....1
Flood Plain....3
Calculations....5
Subdivision Existing Conditions....6
Proposed Conditions....7
Stormwater Quality Volume Management....8
AMAFCA....8
Summary....9

Appendices

Drainage Basin Maps & Hydrology Tables/Calculations....APPENDIX A
Existing AMAFCA Concrete Flume capacity calculations and photos....APPENDIX B
Property Plat detailing cross drainage....APPENDIX C

PAGE LEFT BLANK

Purpose

The purpose of this report is to outline the concept Drainage Plan intent and present a concept solution for the development of the vacant tract E-1 of Paradise Heights, Unit 1 Albuquerque, New Mexico. The developed site is a proposed four 52 apartment units and associated clubhouse and site amenities.

This report outlines the developed flows associated in developing the ±8.7 acre site and describes the on-site surface improvements needed to safely convey the developed flows. The drainage analysis improvements also considers the vacant site to the north, a ±7.6 acre parcel Tract D-1, whose runoff passes through the subject property.

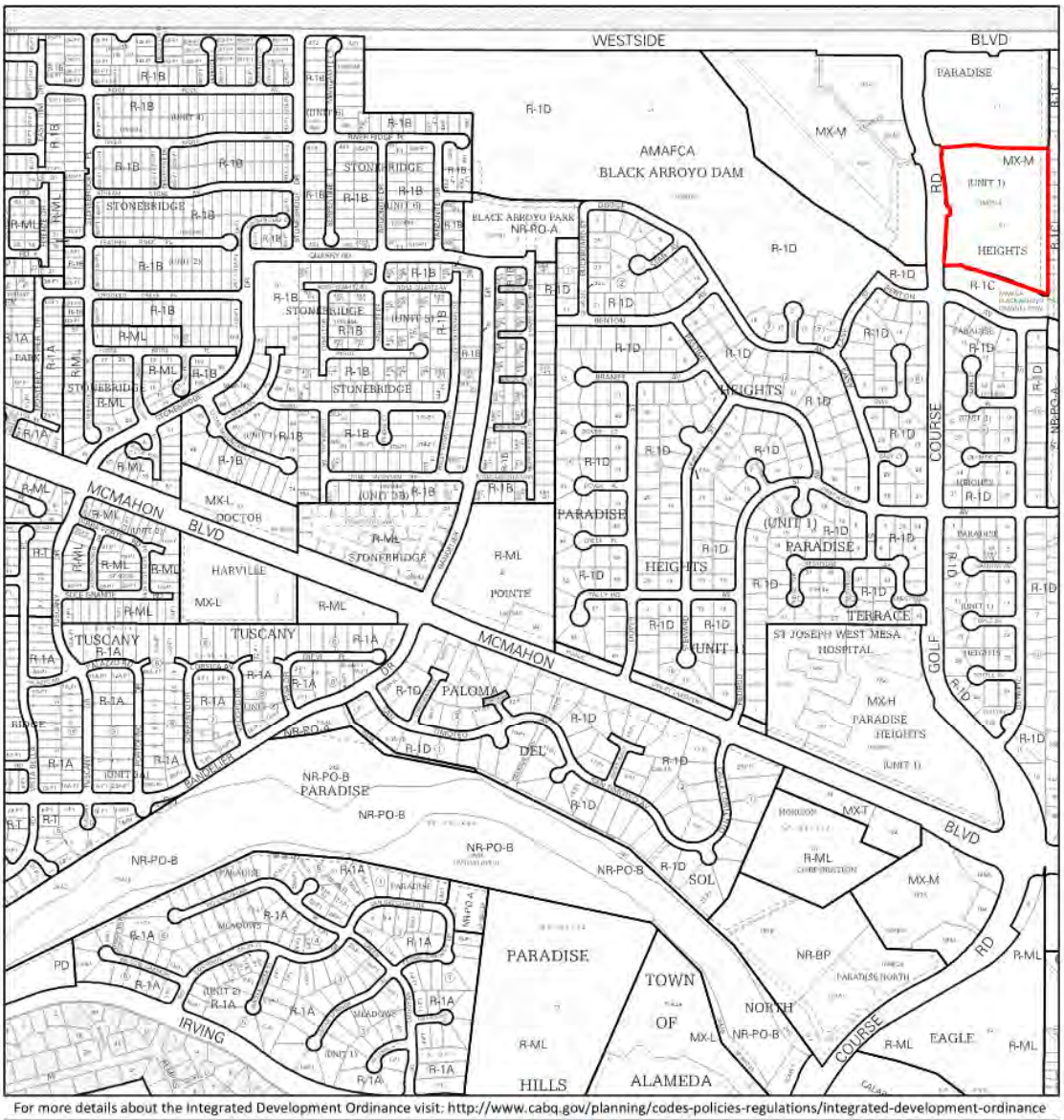
In 2008 a platting action was completed for the property and a conceptual grading and drainage plan with engineers stamp date 10-1-08 was approved by COA Hydrology with the plat subsequently approved by DRB and recorded on 6/2/2009. Included in the appendix is the hydrology approval letter and current plat.

Location and Background

The site is located on the north east corner of Golf Course Rd and the AMAFCA Black Arroyo Channel. The address of both undeveloped parcels is 10800 Golf Course Rd NW, Albuquerque, NM, 87114. The proposed development will occur across the entire vacant tract E-1, legally described as TRACT E-1, AMAFCA BLACK ARROYO CHANNEL ROW, PARADISE HEIGHTS, UNIT 1, BERNALILLO COUNTY, NEW MEXICO. As mentioned the existing parcel is undeveloped with areas of scrub, small vegetation and some minor disturbance by dumping of soils.

The site is bordered to the north by Tract D-1, also undeveloped, by Golf Course Rd to the west and Black Arroyo Channel to the south. Single Family residential dwellings border the site to the east.

Exhibit A – Vicinity Map



For more details about the Integrated Development Ordinance visit: http://www.cabq.gov/planning/codes-policies-regulations/integrated-development-ordinance

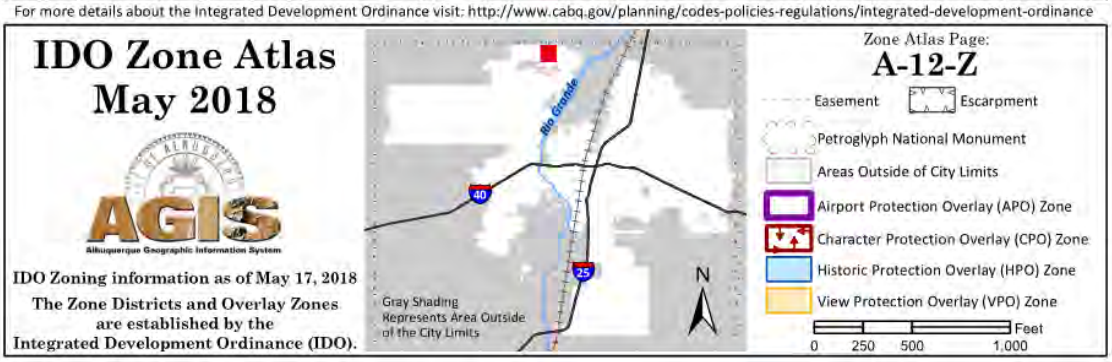


Exhibit B – Site Aerial Image

Flood Plain

The floodplain information is published for the site by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for Bernalillo County, New Mexico and Incorporated Areas. The subject site is detailed on Community Panel Number 35001C0108G dated August 26, 2008 and is shown below.

The subject site is located within Flood Zone X, which is which is defined as, “Areas determined to be outside the 0.2% annual chance floodplain”. The site does not lie within a Flood Hazard Area as shown on the FEMA map requiring no further flood-proofing or other flood mitigation.

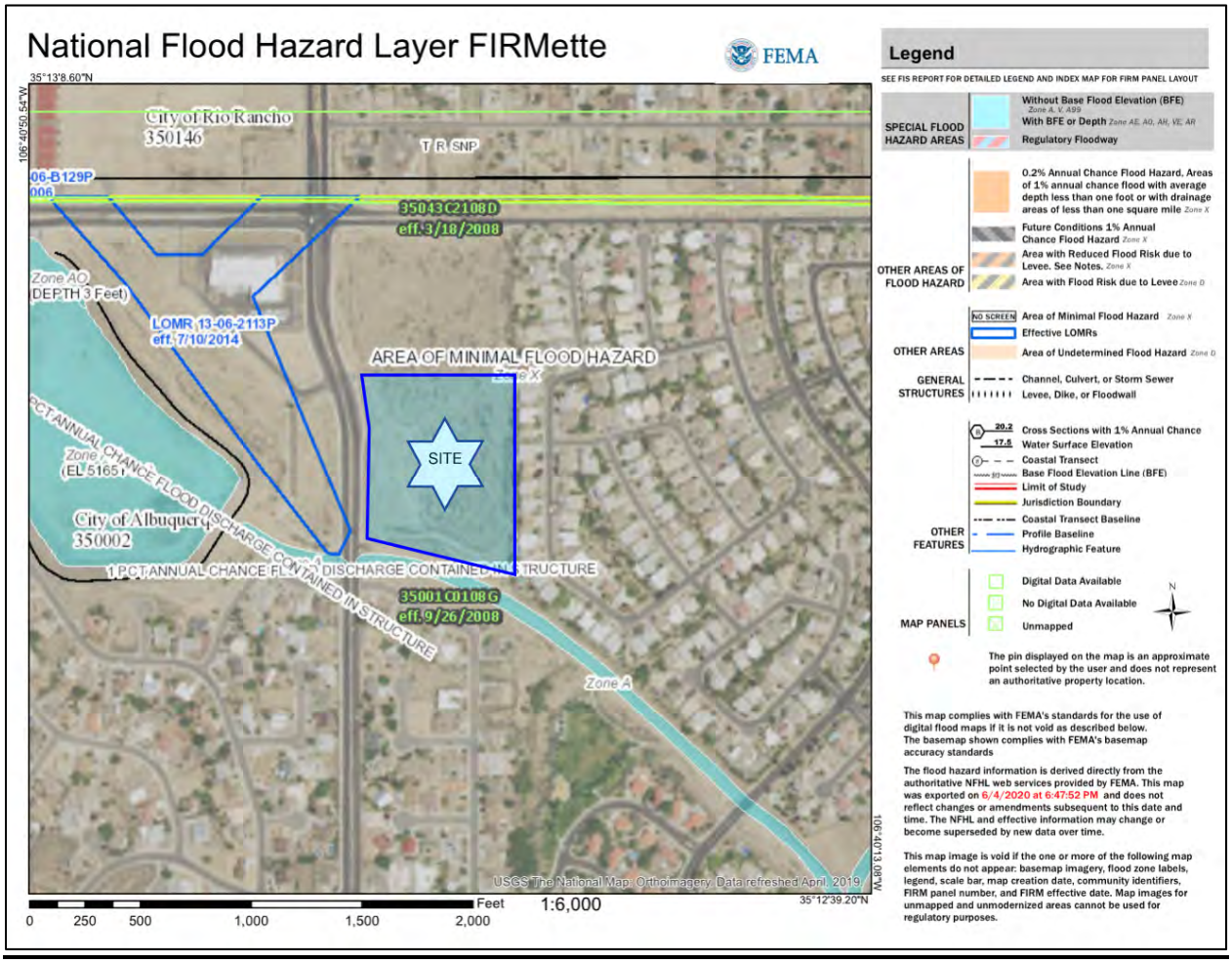


Exhibit C – FIRM Map

Calculations

The proposed site is divided into appropriate drainage basins related to existing topography and existing drainage conveyance plans. The onsite project area includes 16.46 acres of developable acreage, including private vehicle driveway accesses, open areas for landscaping and buffer zones, and asphalt parking areas. At this site there are no offsite flows which contribute to the sites drainage as both Tracts D-1 and E-1 are considered in this analysis.

The site is located within Precipitation Zone 1, west of the Rio Grande, as specified in Chapter 22, Section A.1 of the City of Albuquerque Development Process Manual Volume I – Design Criteria, 2006 Revision (DPM). The principal design storm is the 100-year, 6 hour event.

The appropriate land treatments A through D, as defined in the DPM Chapter 22 Section A.3, will be applied to the various pervious and impervious areas for the proposed site.

Excess precipitation is the depth of runoff remaining after the initial volume of rainfall retained on the surface and infiltration has been subtracted from the design storm hydrograph. The DPM defines the excess precipitation for the 100-year, 6 hour event in Chapter 22 Table A-8 for Zone 1 with the corresponding land treatments.

A weighted excess precipitation rate is used to calculate the volume runoff as defined in the DPM Chapter 22 (a-5, a-6). The calculation requires the sum of excess precipitation multiplied by the corresponding treatment areas divided by the total area, multiplied by the weighted excess precipitation of the watershed area.

To determine the peak discharge for the development the corresponding treatment areas are multiplied by the peak rate for each treatment and sum to compute the total flow. The peak rates for the treatment areas are defined in the DPM Chapter 22 Table A-9 for the 100-year event.

New development sites are required to capture and infiltrate the “stormwater quality volume” from the 90th percentile storm. The methodology used in the EPA report "estimating predevelopment hydrology in the middle Rio Grande watershed" April 2014, yields a runoff value of 0.42 inches for the 90th percentile storm. Therefore the required stormwater quality volume to be captured and infiltrated is the product of the impervious area multiplied by 0.42 inches for new development sites.

Subdivision Existing Conditions

The subdivision is does not fall within any previous master drainage management plans on file with the City. Currently the subdivision lies in an undeveloped condition with vegetation typical of the west mesa. The subdivision slopes consistently from the northeast to the southwest with the flows predominately overland with a moderately defined drainage course along the east side of Golf Course Rd. and along the east side of the subdivision adjacent to the residential dwellings. The sheet flow consolidates and is directed to an existing concrete rundown at the southeast corner of the subdivision. The subdivision is allocated as treatment A. No offsite flows enter the subdivision parcels of Tract D-1 and E-1. Offsite flows are contained in the surrounding roadway and directed to curb inlets along Golf Course Rd. before discharging to the Black Arroyo channel at the overpass.

The site is divided into two drainage basins as shown in Exhibit D. Basin E-1 covers the northern Tract D-1 and basin E-2 reflects the southern Tract E-1. The runoff and volume calculations for the existing condition, based on the drainage criteria detailed in the DPM is included in appendix A.

Exhibit D – Existing Drainage Basin Map

Proposed Conditions

The developed site, including consideration for Tract D-1 in its future developed state, was analyzed to determine the total subdivision runoff and the required drainage improvements necessary to safety convey stormwater runoff.

As detailed on the subdivision plat an there is an existing 30-foot public water and sanitary sewer easement extending along the entire eastern boundary of the site. A blanket cross access and drainage easement is in place between Tracts D-1 and E-1, with the maintenance of the easement the responsibility of the underlying owner/s.

There is an existing concrete flume rundown connecting to AMAFCAs Black Arroyo channel exists at the south east corner and is in acceptable condition to support the developed flows. The onsite stormwater shall be collected by a combination of curb inlets and area drains, and shall discharge to the SWQV pond at the south east corner of the site. The capacity charts of the inlets are included in the appendix. A new concrete flume shall be installed and connected to the existing rundown. The dimensions of the rundown shall match the existing flume, and be 10-ft wide with 2.5-ft high 3H:1V slope side walls. This channel adequately handles the design flows and the capacity calculations are included in the appendix.

The site was divided into eight drainage basins to determine the developed flows and to size the stormdrain pipes and inlets accordingly. Included in the appendix is the drainage basin calculations for the runoff associated with each basin and the total developed flow discharged from the site. As there is no downstream capacity constraint the developed flows are discharged into the Black Arroyo channel.

Exhibit E – Drainage Basin Map

Stormwater Quality Volume Management

As this site is a new development, the water quality volume is calculated based on the 0.62 inch storm. The methodology used in the EPA Report, Estimating Predevelopment Hydrology in the Middle Rio Grande Watershed, New Mexico, TetraTech, April 2014, EPA Publication Number 832-R-14-007, yields a runoff value of 0.42 inches for the 90th percentile storm. Therefore to calculate the Stormwater Quality Volume the impervious area is multiplied by 0.42 inches. The formula used is SWQV= I*43,560*0.42*(1/12) where I is the impervious area in acres.

The impervious areas and SWQV ponding required for Tract E-1 is detailed on the design calculations in the appendix of the report and the required volume to be retained onsite is provided for Tract E-1. For Tract D-1, appropriate onsite SWQV ponding must be provided within Tract D-1 at time of development.

AMAFCA

Approval is being sought from AMAFCA to connect to the concrete lined Black Arroyo channel to the south of the property. An existing concrete rundown was previously built as is in

acceptable condition to provide a rundown for stormwater and a connection directly to the arroyo. Photographs of the flume are included in the appendix. The channel flume has a 10-foot wide bottom with 2.5-ft side walls and has excess capacity to discharge the developed flows of both Tract D-1 and E-1. Included in the appendix are the discharge calculations for the existing flume at maximum capacity.

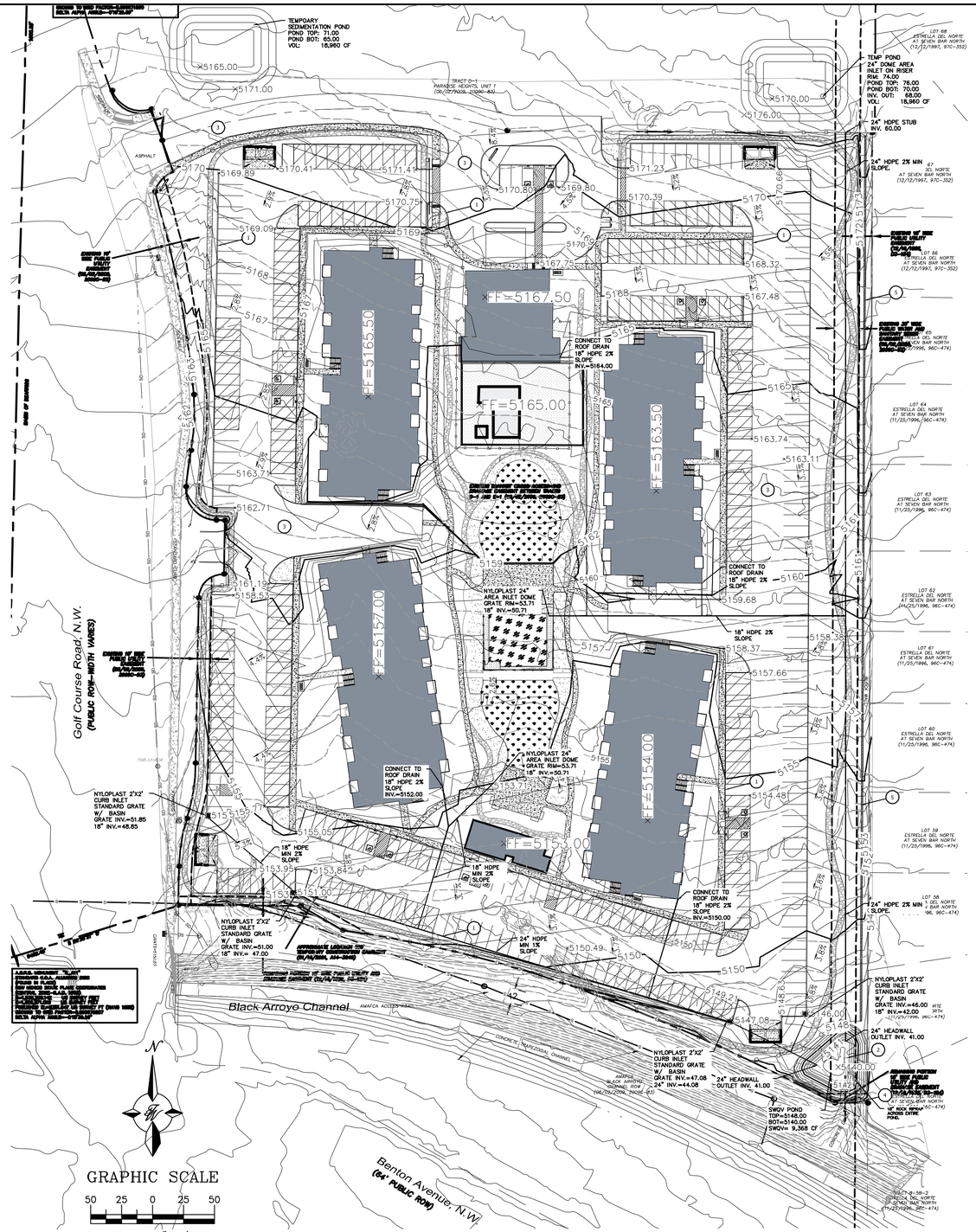
Summary

This report outlines the conceptual Drainage Plan and presents the on-site BMP SWQV ponding and drainage improvements needed to safely convey the developed flows for both tracts D-1 and E-1. Tract D-1 will be developed some time in the future therefore temporary sedimentation ponds will be constructed to manage the historic flows prior to entering into the developed tract E-1. When Tract D-1 is developed in the future onsite SWQV ponding must be provided within Tract D-1 to meet EPA requirements. The required SWQV ponding for Tract E-1 is achieved with a suitable size pond located at the southeast corner of Tract E-1.

Developed stormwater runoff shall be collected through combination of curb inlets and area drains, and discharged to the SWQV pond at the southeast corner of the site, before passing directly into the Black Arroyo Channel through a concrete rundown.

Prior to application for building permit a detailed site grading and drainage plan shall be submitted to the City for review and approval.

APPENDIX A



NOTICE TO CONTRACTORS

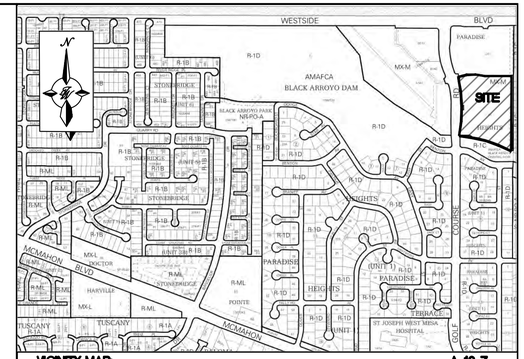
1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY.
2. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED HERON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF ALBUQUERQUE INTERIM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1985.
3. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, THE CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL, DIAL "811" [OR (505) 260-1990] FOR THE LOCATION OF EXISTING UTILITIES.
4. 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.
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.
8. CONTRACTOR MUST CONTACT JASON RODRIGUEZ AT 235-8016 AND CONSTRUCTION COORDINATION AT 924-3416 TO SCHEDULE AN INSPECTION.

LEGEND

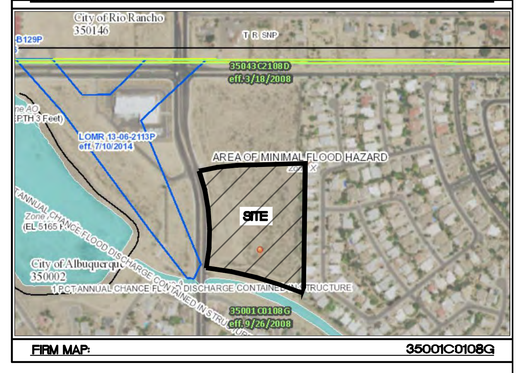
- CURB & GUTTER
- BOUNDARY LINE
- EASEMENT
- CENTERLINE
- RIGHT-OF-WAY
- BUILDING
- SIDEWALK
- SCREEN WALL
- RETAINING WALL
- 5010 — CONTOUR MAJOR
- 5011 — CONTOUR MINOR
- x 5048.25 — SPOT ELEVATION
- FLOW ARROW
- EXISTING CURB & GUTTER
- EXISTING BOUNDARY LINE
- 5010 — EXISTING CONTOUR MAJOR
- 5011 — EXISTING CONTOUR MINOR
- x 5048.25 — EXISTING SPOT ELEVATION

KEYED NOTES

1. 6" ONSITE CURB AND GUTTER
2. SWQV POND - SEE PLAN FOR NUMBER AND VOLUME THIS SHEET
3. ASPHALT PAVING (SEE GEOTECTH REPORT)
4. BUILD NEW CONCRETE RUNDOWN CONNECTION TO EXISTING FLUME 10-FT WIDE, 2.5-FT HEIGHT. SEE DETAIL SHEET.
5. NEW BOUNDARY/SCREEN WALL 6-FT HIGH, CMU BLOCK WALL, BY OWNER.



VICINITY MAP: A-12-Z



FIRM MAP: 35001C0108G

Existing Conditions

Basin ID	Tract	Area (sf)	Area (acres)	Area (sq miles)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	100-Year, 6-Hr Weighted E (in)	100-Year, 6-Hr Volume (ac-ft)	100-Year, 6-Hr Flow cfs	10-Year, 6-Hr Weighted E (in)	10-Year, 6-Hr Volume (ac-ft)	10-Year, 6-Hr Flow cfs
H1	D-1	334,175	7.67	0.01199	100%	7.672	0%	0.000	0%	0.000	0%	0.000	0.440	0.281	9.90	0.080	0.051	1.84
H2	E-1	382,736	8.79	0.01373	100%	8.786	0%	0.000	0%	0.000	0%	0.000	0.440	0.322	11.33	0.080	0.059	2.11
Total		**716,911**	**16.46**	**0.02572**		**16.458**		**0.000**		**0.000**		**0.000**		**0.603**	**21.23**		**0.110**	**3.95**

Proposed Conditions

Basin ID	Tract	Area (sf)	Area (acres)	Area (sq miles)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	100-Year, 6-Hr Weighted E (in)	100-Year, 6-Hr Volume (ac-ft)	100-Year, 6-Hr Flow cfs	10-Year, 6-Hr Weighted E (in)	10-Year, 6-Hr Volume (ac-ft)	10-Year, 6-Hr Flow cfs
D1	D-1	334,175	7.67	0.01199	0%	0.000	0%	0.000	15%	1.151	85%	6.521	1.823	1.165	31.80	1.120	0.716	20.56
D2	E-1	65,162	1.50	0.00234	0%	0.000	0%	0.000	30%	0.449	70%	1.047	1.676	0.209	5.86	1.000	0.125	3.69
D3	E-1	46,626	1.07	0.00167	0%	0.000	0%	0.000	22%	0.235	78%	0.835	1.754	0.156	4.32	1.064	0.095	2.76
D4	E-1	23,011	0.53	0.00083	0%	0.000	0%	0.000	26%	0.137	74%	0.391	1.715	0.076	2.10	1.032	0.045	1.33
D5	E-1	67,494	1.55	0.00242	0%	0.000	0%	0.000	75%	1.162	25%	0.387	1.235	0.159	5.03	0.640	0.083	2.85
D6	E-1	120,421	2.76	0.00432	0%	0.000	0%	0.000	25%	0.691	75%	2.073	1.725	0.397	11.04	1.040	0.240	7.02
D7	E-1	30,869	0.71	0.00111	0%	0.000	0%	0.000	15%	0.106	85%	0.602	1.823	0.108	2.94	1.120	0.066	1.90
D8	E-1	29,154	0.67	0.00105	0%	0.000	0%	0.000	0%	0.000	100%	0.669	1.970	0.110	2.92	1.240	0.069	1.93
Total		**716,911**	**16.46**	**0.02572**		**0.000**		**0.000**		**3.932**		**12.526**		**2.381**	**66.024**		**1.439**	**42.059**

Basin ID	SWQV Vol Required (cf)	SWQV Provided (cf)
D1	-	0
D2	1,596	0
D3	1,273	0
D4	596	0
D5	591	0
D6	3,161	9,368
D7	918	0
D8	1,020	0
Total	**9,156**	**9,368**

Equations:

Weighted E = Ea*Aa + Eb*Ab + Ec*Ac + Ed

Volume = Weighted E * Total Area

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

SWQV Pond Volume Calculation		
Area at Mid Depth	1,171	Sq. Ft.
Depth of Pond	8	Ft.
Total Volume	9,368	Cubic Ft.

Stormwater Quality Volume

Total Impervious Area = ΣArea in "Treatment D"

Retainage depth = 0.42" Per DPM Pg. 272 — 0.035 foot

Retention Volume = **=0.035 x area** CF

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.

PRELIMINARY - NOT FOR CONSTRUCTION

ENGINEER'S SEAL

RONALD R. BOHANNAN NEW MEXICO 7868 PROFESSIONAL ENGINEER

6/26/2020

RONALD R. BOHANNAN P.E. #7868

WINTERGREEN LUXUARY APARTMENTS

GOLF COURSE RD NE

CONCEPTUAL GRADING & DRAINAGE PLAN

DRAWN BY: BF

DATE: 6/26/2020

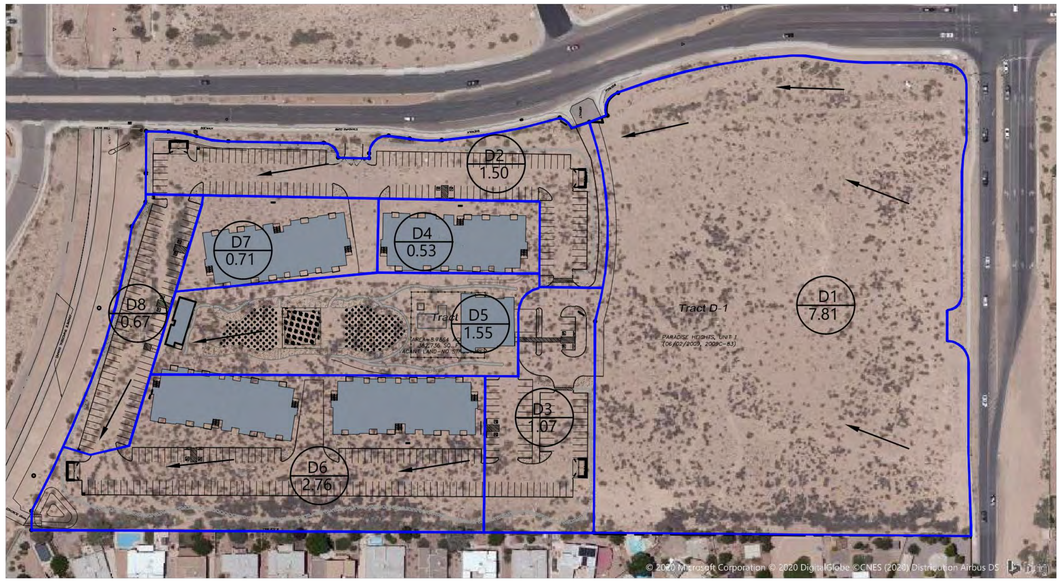
2020013_GRB_VER B

SHEET # C2

JOB # 2020013

TIERRA WEST, LLC
5571 MIDWAY PARK PLACE NE
ALBUQUERQUE, NM 87109
(505) 858-3100
www.tierrawestllc.com

Z:\2020\2020013 Apartments at Golf Course Rd\dwg\GRB_Ver B\2020013_GRB_Ver B.dwg Jun 30, 2020 - 8:07am



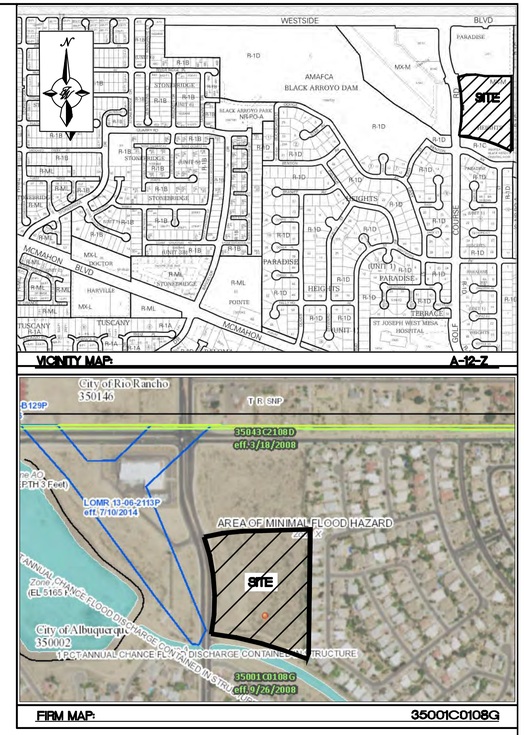
PROPOSED BASIN MAP

DEVELOPED CONDITION - 10800 GOLF COURSE RD. NW

LEGEND

BOUNDARY

BASIN AREA (AC)



Pipe Number	D	Slope	Area	R	Q Provided
	(in)	(%)	(ft^ 2)		(cfs)
1	30	2.00	4.91	0.625	58.16
2	30	1.00	4.91	0.625	41.13
3	24	2.00	3.14	0.500	32.08
4	24	1.00	3.14	0.500	22.68
5	18	2.00	1.77	0.375	14.90
6	18	1.00	1.77	0.375	10.53

Manning's Equation:

Q = 1.49/n * A * R^(2/3) * S^(1/2)

A = Area

R = D/4

S = Slope

n = 0.013

HISTORIC BASIN MAP

EXISTING CONDITION - 10800 GOLF COURSE RD. NW

LEGEND

BOUNDARY

BASIN AREA (AC)

PRELIMINARY - NOT FOR CONSTRUCTION

ENGINEER'S SEAL

RONALD R. BOHANNAN NEW MEXICO 7868 PROFESSIONAL ENGINEER

6/26/2020

RONALD R. BOHANNAN P.E. #7868

WINTERGREEN LUXUARY APARTMENTS

GOLF COURSE RD NE

CONCEPTUAL GRADING & DRAINAGE PLAN

TIERRA WEST, LLC
5571 MIDWAY PARK PLACE NE
ALBUQUERQUE, NM 87109
(505) 858-3100
www.tierrawestllc.com

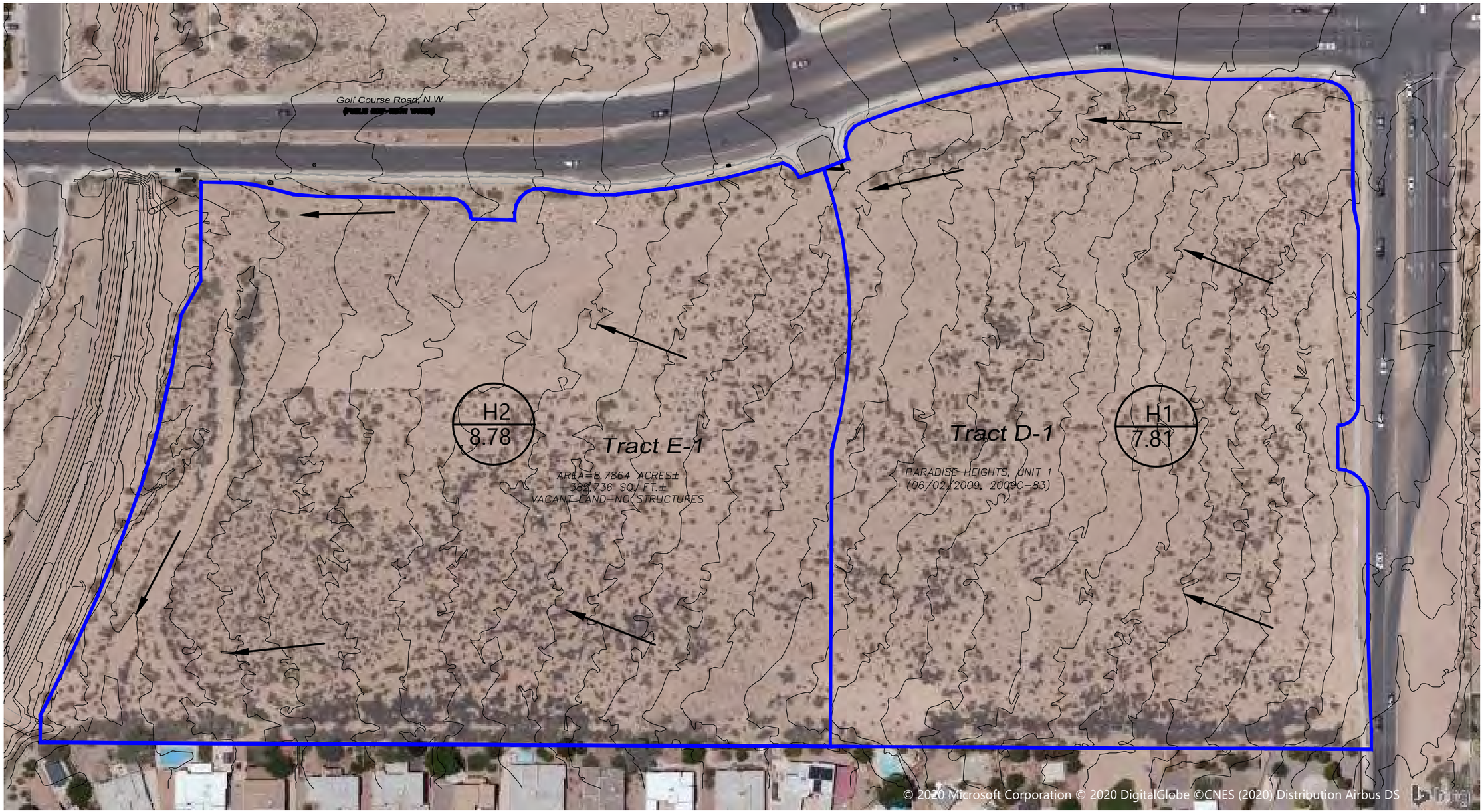
DRAWN BY: BF

DATE: 6/26/2020

2020013_GRB_VER B

SHEET # C2-B

JOB # 2020013



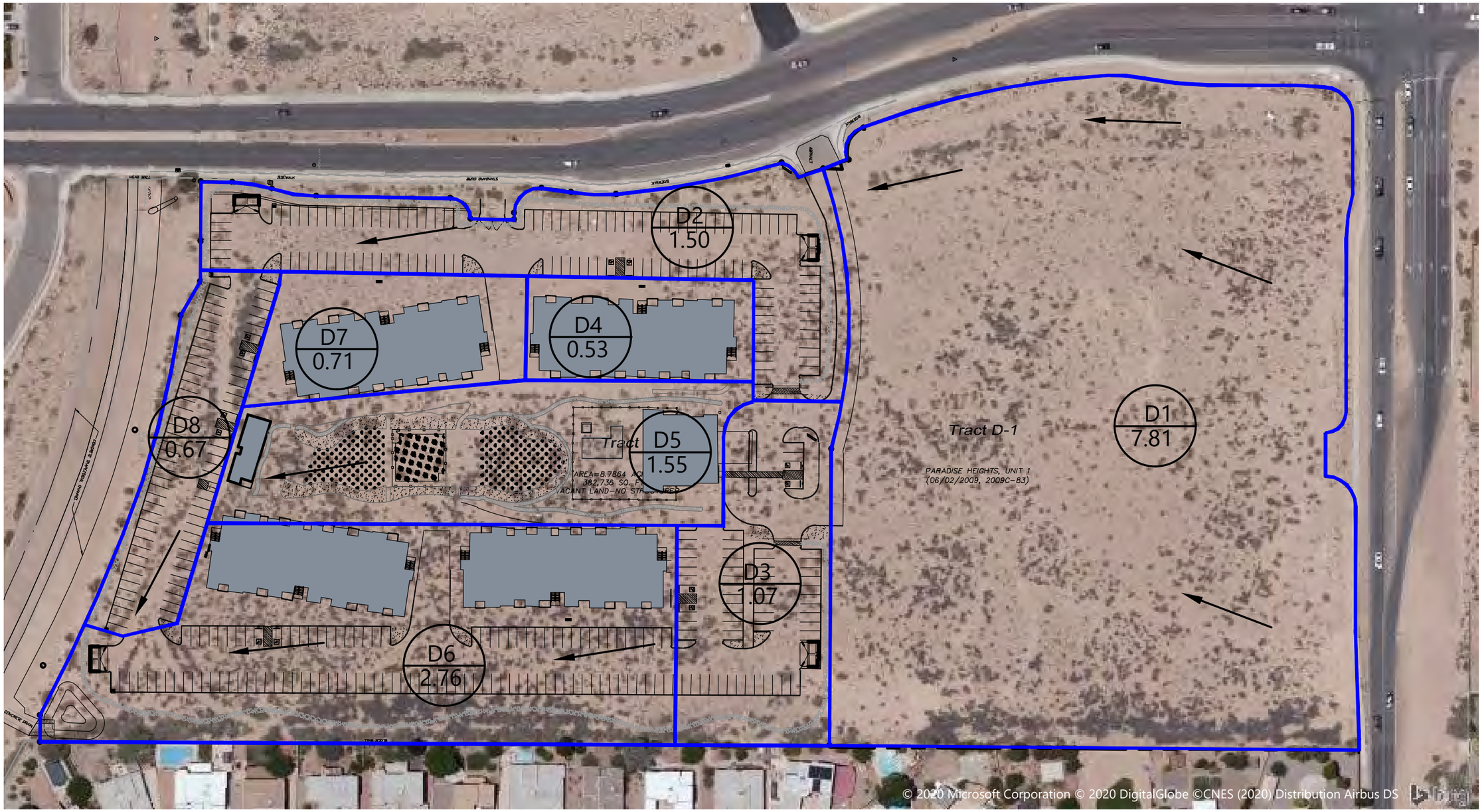
HISTORIC BASIN MAP

EXISTING CONDITION - 10800 GOLF COURSE RD. NW

LEGEND

BOUNDARY

BASIN / AREA (AC)



PROPOSED BASIN MAP

DEVELOPED CONDITION - 10800 GOLF COURSE RD. NW

LEGEND

BOUNDARY

BASIN / AREA

(AC)

DPM Weighted E Method

Precipitation Zone 1
Wintergreen Apartments Golf Course Rd
TWLLC **Date** 6/26/2020

Existing Conditions

Basin Descriptions												100-Year, 6-Hr			10-Year, 6-Hr		
Basin ID	Tract	Area (sf)	Area (acres)	Area (sq miles)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	Weighted E (in)	Volume (ac-ft)	Flow cfs	Weighted E (in)	Volume (ac-ft)	Flow cfs
H1	D-1	334,175	7.67	0.01199	100%	7.672	0%	0.000	0%	0.000	0%	0.000	0.440	0.281	9.90	0.080	0.051	1.84
H2	E-1	382,736	8.79	0.01373	100%	8.786	0%	0.000	0%	0.000	0%	0.000	0.440	0.322	11.33	0.080	0.059	2.11
Total		**716,911**	**16.46**	**0.02572**		**16.458**		**0.000**		**0.000**		**0.000**		**0.603**	**21.23**		**0.110**	**3.95**

Proposed Conditions

Basin Descriptions												100-Year, 6-Hr			10-Year, 6-Hr			SWQV	
Basin ID	Tract	Area (sf)	Area (acres)	Area (sq miles)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	Weighted E (in)	Volume (ac-ft)	Flow cfs	Weighted E (in)	Volume (ac-ft)	Flow cfs	Vol Required (cf)	Provided (cf)
D1	D-1	334,175	7.67	0.01199	0%	0.000	0%	0.000	15%	1.151	85%	6.521	1.823	1.165	31.80	1.120	0.716	20.56	-	0
D2	E-1	65,162	1.50	0.00234	0%	0.000	0%	0.000	30%	0.449	70%	1.047	1.676	0.209	5.86	1.000	0.125	3.69	1,596	0
D3	E-1	46,626	1.07	0.00167	0%	0.000	0%	0.000	22%	0.235	78%	0.835	1.754	0.156	4.32	1.064	0.095	2.76	1,273	0
D4	E-1	23,011	0.53	0.00083	0%	0.000	0%	0.000	26%	0.137	74%	0.391	1.715	0.076	2.10	1.032	0.045	1.33	596	0
D5	E-1	67,494	1.55	0.00242	0%	0.000	0%	0.000	75%	1.162	25%	0.387	1.235	0.159	5.03	0.640	0.083	2.85	591	0
D6	E-1	120,421	2.76	0.00432	0%	0.000	0%	0.000	25%	0.691	75%	2.073	1.725	0.397	11.04	1.040	0.240	7.02	3,161	9,368
D7	E-1	30,869	0.71	0.00111	0%	0.000	0%	0.000	15%	0.106	85%	0.602	1.823	0.108	2.94	1.120	0.066	1.90	918	0
D8	E-1	29,154	0.67	0.00105	0%	0.000	0%	0.000	0%	0.000	100%	0.669	1.970	0.110	2.92	1.240	0.069	1.93	1,020	0
Total		**716,911**	**16.46**	**0.02572**		**0.000**		**0.000**		**3.932**		**12.526**		**2.381**	**66.024**		**1.439**	**42.059**	**9,156**	**9,368**

Equations:

Weighted E = Ea*Aa + Eb*Ab + Ec*Ac + Ed*Ad / (Total Area)
Volume = Weighted E * Total Area
Flow = Qa*Aa + Qb*Ab + Qc*Ac + Qd*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

SWQV Pond Volume Calculation		
Area at Mid Depth	1,171	Sq. Ft.
Depth of Pond	8	Ft.
Total Volume	9,368	Cubic Ft.

Stormwater Quality Volume

Total Impervious Area =	ΣArea in "Treatment D"	
Retainage depth = 0.42" Per DPM Pg. 272	0.035	foot
Retention Volume =	**=0.035 x area**	CF

Pipe Capacity Tables

Pipe Number	D	Slope	Area	R	Q Provided
	(in)	(%)	(ft^2)		(cfs)
1	30	2.00	4.91	0.625	58.16
2	30	1.00	4.91	0.625	41.13
3	24	2.00	3.14	0.500	32.08
4	24	1.00	3.14	0.500	22.68
5	18	2.00	1.77	0.375	14.90
6	18	1.00	1.77	0.375	10.53

Manning's Equation:

Q = 1.49/n * A * R^(2/3) * S^(1/2)

A = Area
R = D/4
S = Slope
n = 0.013

APPENDIX B

Worksheet for Existing Concrete Flume connecting to Black Arroyo

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.016	
Channel Slope	0.02000	ft/ft
Normal Depth	2.50	ft
Left Side Slope	0.33	ft/ft (H:V)
Right Side Slope	0.33	ft/ft (H:V)
Bottom Width	10.00	ft

Results

Discharge	520.64	ft^3/s
Flow Area	27.06	ft^2
Wetted Perimeter	15.27	ft
Hydraulic Radius	1.77	ft
Top Width	11.65	ft
Critical Depth	4.18	ft
Critical Slope	0.00403	ft/ft
Velocity	19.24	ft/s
Velocity Head	5.75	ft
Specific Energy	8.25	ft
Froude Number	2.23	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	2.50	ft
Critical Depth	4.18	ft
Channel Slope	0.02000	ft/ft

Cross Section for Trapezoidal Channel - 1

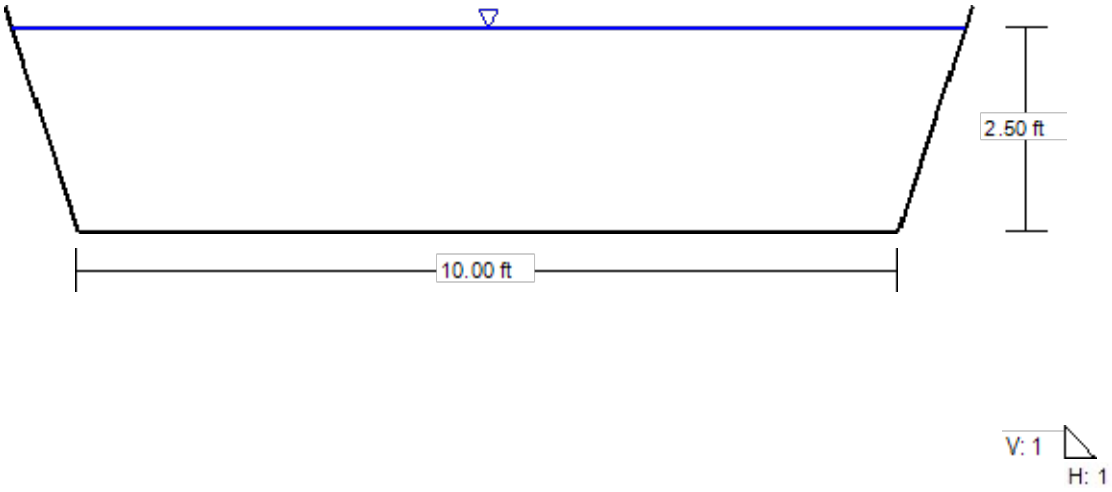
Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.016	
Channel Slope	0.02000	ft/ft
Normal Depth	2.50	ft
Left Side Slope	0.33	ft/ft (H:V)
Right Side Slope	0.33	ft/ft (H:V)
Bottom Width	10.00	ft
Discharge	520.64	ft³/s

Cross Section Image



EXISTING CONCRETE FLUME CHANNEL AT SOUTH WEST CORNER OF THE PROPERTY CONNECTING TO THE AMAFCA BLACK ARROYO CHANNEL

Cross Section for Trapezoidal Channel - 1

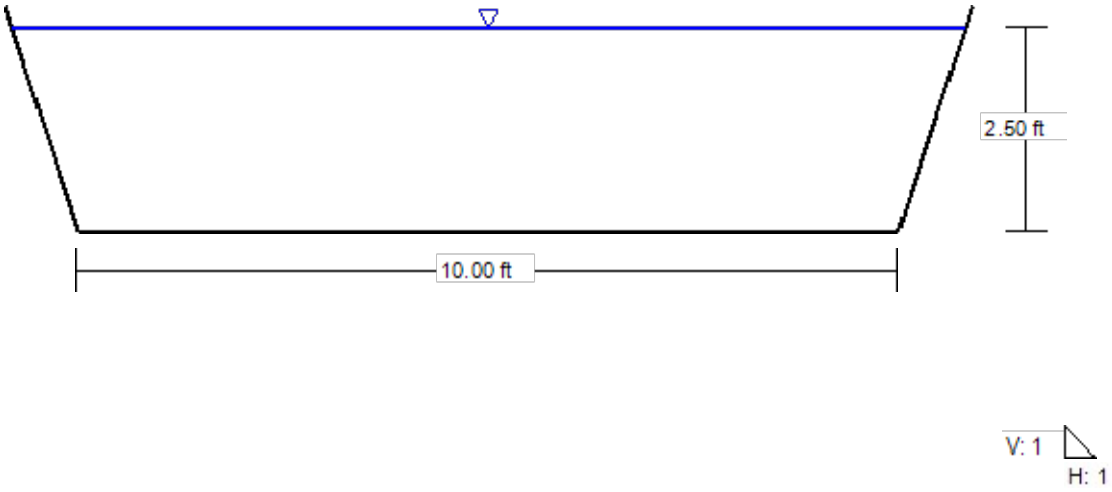
Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.016	
Channel Slope	0.02000	ft/ft
Normal Depth	2.50	ft
Left Side Slope	0.33	ft/ft (H:V)
Right Side Slope	0.33	ft/ft (H:V)
Bottom Width	10.00	ft
Discharge	520.64	ft³/s

Cross Section Image



Nyloplast® | Tomorrow's Storm Drainage Structures Today.

Nyloplast Grate Inlet Capacity Charts

These charts are based on equations from the USDOT/FAA Advisory Circular pertaining to Surface Drainage Design, AC No: AC150/5320-5C and the USDOT/FHWA Urban Drainage Design Manual, Hydraulic Engineering Circular No. 22, Third Edition, Publication No. FHWA-NHI-10-009. Certain assumptions have been made, and no two installations will necessarily perform the same way. Safety factors should change with site conditions and is left to the discretion of the design engineer.





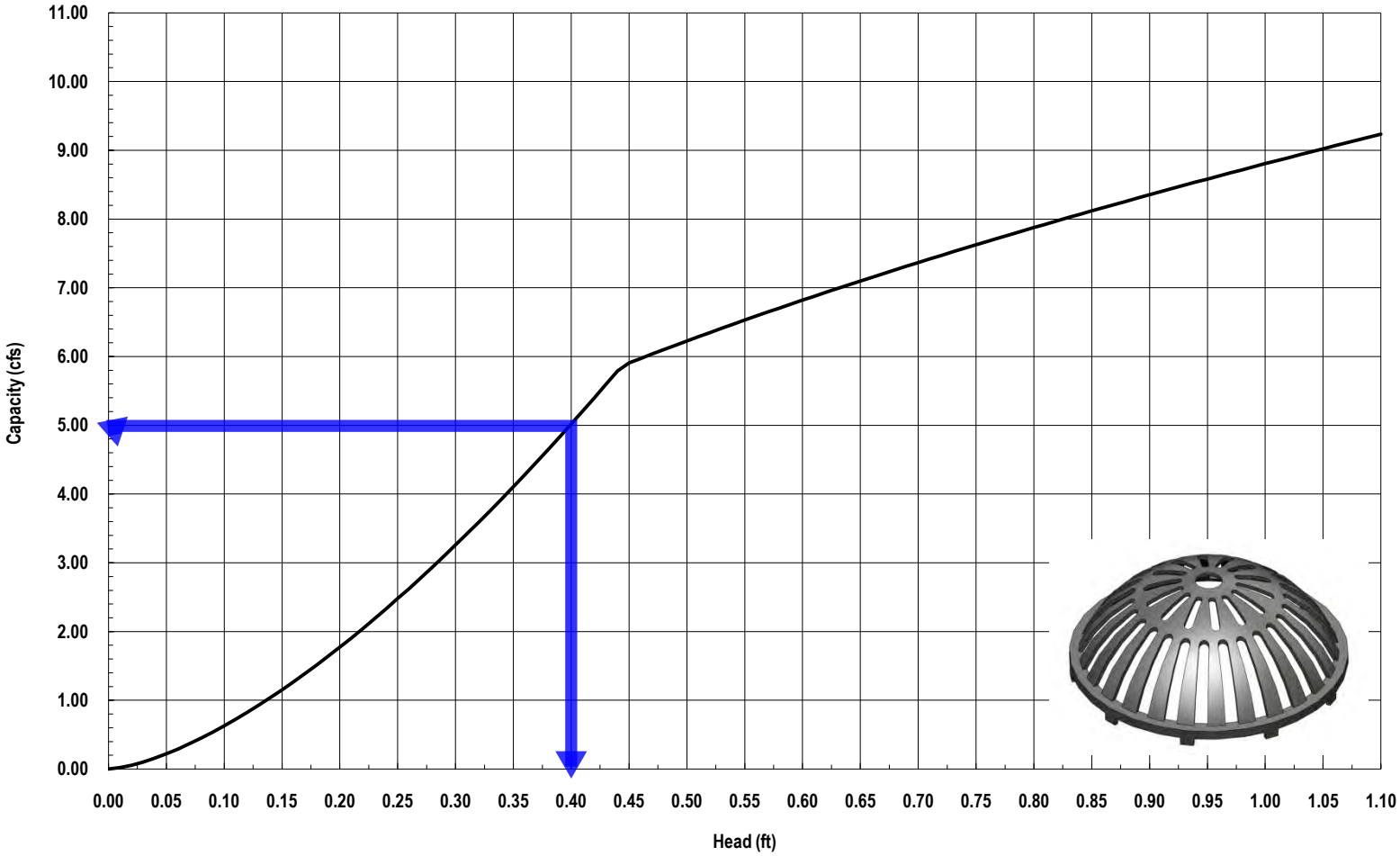



Nyloplast

3130 Verona Avenue • Buford, Georgia 30518 • (866) 888-8479 / (770) 932-2443 • Fax: (770) 932-2490

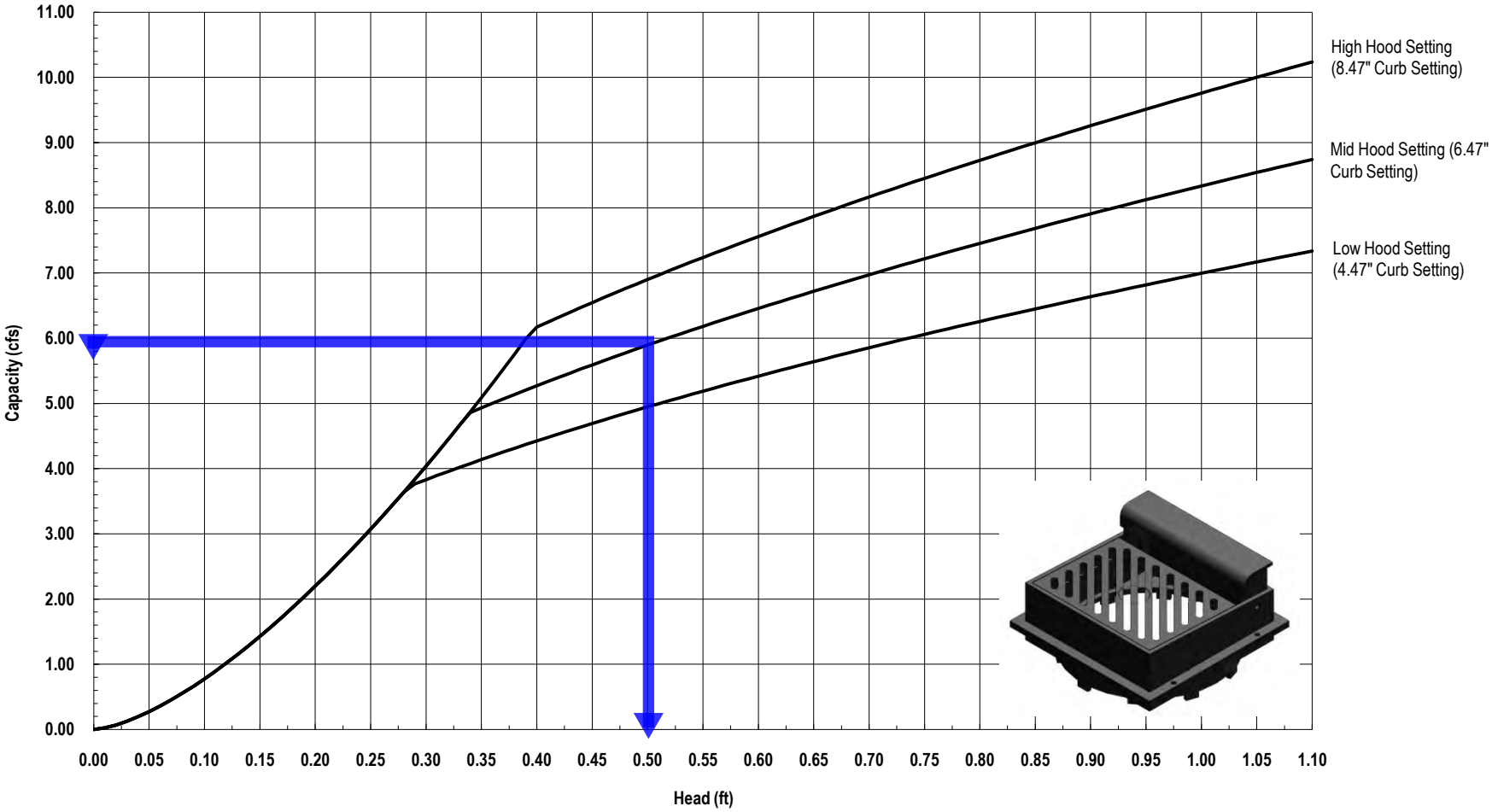
June 2012

Nyloplast 24" Dome Grate Inlet Capacity Chart



Nyloplast®
3130 Verona Avenue • Buford, GA 30518
(866) 888-8479 / (770) 932-2443 • Fax: (770) 932-2490

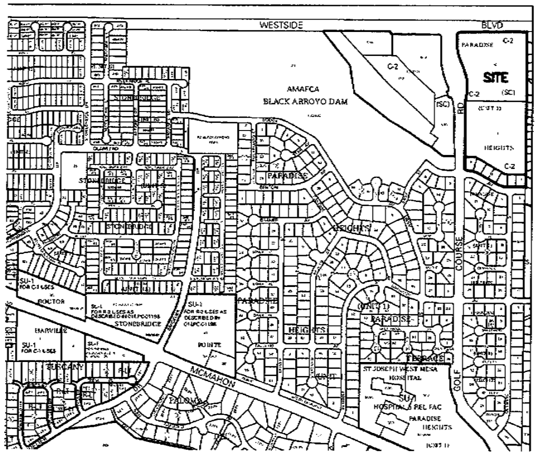
Nyloplast 2' x 2' Curb Inlet Diagonal Grate Inlet Capacity Chart



Nyloplast®
3130 Verona Avenue • Buford, GA 30518
(866) 888-8479 / (770) 932-2443 • Fax: (770) 932-2490

APPENDIX C

PLAT OF TRACTS D-I, E-I
AMAFCA BLACK ARROYO CHANNEL ROW
PARADISE HEIGHTS, UNIT I
ALBUQUERQUE, NEW MEXICO
MARCH, 2009



LOCATION MAP ZONE ATLAS SHEET A-12
SCALE 1" = 750' +/-

PUBLIC UTILITY EASEMENTS

5/22/09
QWEST COMMUNICATIONS DATE

5/29/09
PNM ELECTRIC SERVICES DATE

5/27/2009
NEW MEXICO GAS CO. DATE

5-29-09
COMCAST CABLE DATE

PUBLIC UTILITY EASEMENTS SHOWN ON THIS PLAT ARE GRANTED FOR THE COMMON AND AND JOINT USE OF:

1. PUBLIC SERVICE COMPANY OF NEW MEXICO ELECTRIC SERVICES FOR THE INSTALLATION, MAINTENANCE AND SERVICE OF OVERHEAD AND UNDERGROUND ELECTRICAL LINES, TRANSFORMERS, POLES AND ANY OTHER EQUIPMENT, FIXTURES, STRUCTURES AND RELATED FACILITIES REASONABLY NECESSARY TO PROVICE ELECTRICAL SERVICE.
2. ~~PUBLIC SERVICE COMPANY OF~~ NEW MEXICO GAS CO. ~~SERVICES~~ FOR THE INSTALLATION, MAINTENANCE AND SERVICE OF NATURAL GAS LINES, VALVES AND OTHER EQUIPMENT AND FACILITIES REASONABLY NECESSARY TO PROVIDE NATURAL GAS SERVICE.
3. QWEST COMMUNICATIONS FOR THE INSTALLATION, MAINTENANCE AND SERVICE OF ALL BURIED AND AERIAL COMMUNICATION LINESAND OTHER RELATED EQUIPMENT AND FACILITIES REASONABLY NECESSARY TO PROVIDE COMMUNICATION SERVICES, INCLUDING BUT NOT LIMITED TO ABOVE GROUND PEDESTALS AND CLOSURES.
4. COMCAST CABLE FOR THE INSTALLATION, MAINTENANCE AND SERVICE OF SUCH LINES, CABLE AND OTHER EQUIPMENT AND FACILITIES REASONABLY NECESSARY TO PROVIDE CABLE TV SERVICE.

INCLUDED IS THE RIGHT TO BUILD, REBUILD, CONSTRUCT, RECONSTRUCT, LOCATE, RELOCATE, CHANGE REMOVE, MODIFY, RENEW, OPERATE AND MAINTAIN FACILITIESFOR THE PURPOSES DESCRIBED ABOVE, TOGETHER WITH FREE ACCESS, TO, FROM AND OVER SAID EASEMENTS, INCLUDING SUFFICIENT WORKING AREA SPACE FOR ELECTRIC TRANSFORMERS, WITH THE RIGHT TO TRIM AND REMOVE TREES, SHRUBS OR BUSHES WHICH INTERFERE WITH THE PURPOSES SET FORTH HEREIN. NO BUILDING, SIGN, POOL (ABOVE GROUND OR SUBSURFACE), HOT TUB, CONCRETE OR WOOD DECKING OR OTHER STRUCTURE SHALL BE ERECTED OR CONSTRUCTED ON SAID EASEMENTS, NOR SHALL ANY WELL BE DRILLED OR OR OPERATED THEREON. PROPERTY OWNERS SHALL BE SOLELY RESPONSIBLE FOR CORRECTING ANY VIOLATIONS OF THE NATIONAL ELECTRIC OR SAFETY CODE CAUSED BY CONSTRUCTION OF POOLS, DECKING, OR ANY STRUCTURES ADJACENT TO OR WITHIN OR NEAR EASEMENT SHOWN ON THIS PLAT.

DOC# 2009061460
06/02/2009 04:11 PM Page: 1 of 3
tyPLAT R:$17.30 B: 2009C P: 0083 M. Toulous Olivere, Bernalillo Cour

TREASURER'S CERTIFICATION

THIS IS TO CERTIFY THAT TAXES ARE CURRENT AND PAID ON UPC# 101406504251I302
PROPERTY OWNER OF RECORD: CALABAC ILLAS GROUP
BERNALILLO COUNTY TREASURER'S OFFICE: 1e2-09

NOTICE OF SUBDIVISION PLAT CONDITIONS

A VARIANCE OR WAIVER FROM CERTAIN SUBDIVISION REQUIREMENTS HAS BEEN GRANTED BY THE CITY AND THE ALBUQUERQUE METROPOLITAN ARROYO FLOOD CONTROL AUTHORITY IN CONNECTION WITH THIS PLAT.

FUTURE SUBDIVISION OF LANDS WITHIN THIS PLAT, ZONING AND SITE DEVELOPMENT PLAN APPROVALS, AND DEVELOPMENT PERMITS MAY BE CONDITIONED UPON DEDICATION OF RIGHTS-OF-WAY AND EASEMENTS, AND/OR UPON INFRASTRUCTURE IMPROVEMENTS BY THE OWNER FOR WATER, SANITARY SEWER, STREETS, DRAINAGE, GRADING AND PARKS IN ACCORDANCE WITH CURRENT RESOLUTIONS, ORDINANCES AND POLICIES IN EFFECT AT THE TIME FOR ANY SPECIFIC PROPOSAL.

THE CITY (AND AMAFCA WITH REFERENCE TO DRAINAGE) MAY REQUIRE AND/OR PERMIT EASEMENTS TO BE ADDED, MODIFIED OR REMOVED WHEN FUTURE PLANS OR SITE DEVELOPMENT PLANS ARE APPROVED.

BY ITS APPROVAL THE CITY MAKES NO REPRESENTATION OR WARRANTIES AS TO AVAILABILITY OF UTILITIES, OR FINAL APPROVAL OF ALL REQUIREMENTS INCLUDING (BUT NOT LIMITED TO) THE FOLLOWING ITEMS: WATER AND SANITARY SEWER AVAILABILITY; FUTURE STREET DEDICATIONS AND/OR IMPROVEMENTS; PARK AND OPEN SPACE REQUIREMENTS; DRAINAGE REQUIREMENTS AND/OR IMPROVEMENTS; AND EXCAVATION, FILLING OR GRADING REQUIREMENTS. ANY PERSON INTENDING DEVELOPMENT OF LANDS WITHIN THIS SUBDIVISION IS CAUTIONED TO INVESTIGATE THE STATUS OF THESE ITEMS.

DISCLOSURE STATEMENT

THE PURPOSE OF THIS PLAT IS TO: REDEFINE THE BOUNDARY BETWEEN TRACTS D AND E; DELETE ALL INTERNAL LOT LINES IN BLOCK 19 TO FORM A SINGLE TRACT; DEDICATE NEW RIGHT-OF-WAY ON BOTH GOLF COURSE RD. NW AND WESTSIDE BLVD. NW AND VACATE A PORTION ROAD RIGHT-OF-WAY ON GOLF COURSE RD. NW AND WESTSIDE BLVD. NW; VACATE EASEMENT(S); GRANT NEW EASEMENTS AND ESTABLISH A WAIVER OR VARIANCE FROM CERTAIN SUBDIVISION REQUIREMENTS AS NOTED ABOVE.

SURVEYOR'S CERTIFICATION

I, JEAN J. BORDENAVE, A REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR UNDER THE LAWS OF THE STATE OF NEW MEXICO, DO HEREBY CERTIFY THAT THIS PLAT WAS PREPARED BY ME OR UNDER MY SUPERVISION: MEETS THE MINIMUM REQUIREMENTS OF MONUMENTATION AND SURVEYS OF THE ALBUQUERQUE SUBDIVISION ORDINANCE; SHOWS EASEMENTS OF RECORD AND/OR INDICATED IN TITLE COMMITMENT NO. 6218002146, DATED FEBRUARY 19, 2007, ISSUED BY LAND AMERICA ALBUQUERQUE TITLE AND OR MADE KNOWN TO ME BY THE OWNERS; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

03/05/09
JEAN J. BORDENAVE, NMPE&LS NO. 5110

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR NO. 5110 NEW MEXICO JEAN J. BORDENAVE

APPROVALS

PROJECT NO: 1002556 APPLICATION NO: 09DRB-70099

3-6-09 DATE
CITY SURVEYOR

4/1/09 DATE
PARKS AND RECREATION DEPARTMENT

4-1-09 DATE
CITY ENGINEER

5-29-09 DATE
A.M.A.F.C.A.

4-1-09 DATE
UTILITIES DEVELOPMENT

04-14-09 DATE
TRAFFIC ENGINEERING, TRANSPORTATION DIVISION

06-02-09 DATE
DRB CHAIRPERSON, PLANNING DEPARTMENT

TALOS LOG NO. 2009101434

FREE CONSENT AND DEDICATION

THE SUBDIVISION OF THE LAND DESCRIBED ON THIS PLAT IS WITH THE FREE CONSENT OF AND IN ACCORDANCE WITH THE DESIRE OF THE UNDERSIGNED OWNERS OF THE LAND. THE OWNERS DO HEREBY:

WARRANT THAT THEY HOLD AMONG THEM COMPLETE AND INDEFEASIBLE TITLE TO THE LAND SUBDIVIDED,

GRANT SPECIFIC SURFACE AND SUBSURFACE POWER, GAS, WATER, SEWER AND COMMUNICATION EASEMENTS AS DELINEATED ON THIS PLAT;

ACKNOWLEDGE EXISTING EASEMENTS AS SHOWN ON THIS PLAT;

STATE THAT THIS SUBDIVISION LIES WITHIN THE SUBDIVISION REGULATION JURISDICTION OF THE CITY OF ALBUQUERQUE, NEW MEXICO.

IN ADDITION THE OWNER OF TRACTS D AND E DOES HEREBY DEDICATE PUBLIC RIGHTS-OF-WAY, SHOWN HEREON, IN FEE SIMPLE WITH WARRANTY COVENANTS TO THE CITY OF ALBUQUERQUE.

TRACTS D & E (CALABACILLAS GROUP, A NEW MEXICO GENERAL PARTNERSHIP)

Donald D. Harville
DONALD. D. HARVILLE, GENERAL PARTNER

STATE OF NEW MEXICO } SS
COUNTY OF BERNALILLO }
THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME ON 03/05/09 BY
Donald D. Harville, GENERAL PARTNER.

NOTARY PUBLIC: Paul M Jayson 06-07-2012

OFFICIAL SEAL PAUL M. JAYSON NOTARY PUBLIC STATE OF NEW MEXICO My Commission Expires 06-07-2012

AMAFCA BLACK ARROYO CHANNEL (AMAFCA)

John P Kelly
JOHN P. KELLY, P.E., EXECUTIVE ENGINEER

STATE OF NEW MEXICO } SS
COUNTY OF BERNALILLO }
THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME ON 3/5/09 BY
John P. Kelly, EXECUTIVE ENGINEER

NOTARY PUBLIC:

OFFICIAL SEAL Notary Public State of New Mexico My Commission Expires 2-25-11

BORDENAVE DESIGNS
P.O. BOX 91194, ALBUQUERQUE, NM 87199
(505)823-1344 FAX (505)821-9105

PLAT OF TRACTS D-1, E-1
AMAFCA BLACK ARROYO CHANNEL ROW
PARADISE HEIGHTS, UNIT 1
ALBUQUERQUE, NEW MEXICO
MARCH, 2009

LEGAL DESCRIPTION

A TRACT OF LAND SITUATED IN PROJECTED SECTION 1, T11N, R2E, N.M.P.M., TOWN OF ALAMEDA GRANT, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO; SAID TRACT BEING THE SAME AS TRACTS D AND E AND BLOCK 19, AS SHOWN ON THE PLAT OF "PARADISE HEIGHTS UNIT 1" AS MODIFIED BY THE PLAT OF "REALIGNMENT OF GOLF COURSE ROAD" AND A WARRANTY DEED FILED IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, NEW MEXICO ON DEC. 13, 1966 IN BK. D3, PAGE 154 AND ON JULY 26, 1974 IN BK. D6, PAGE 61 AND ON FEB. 27, 1990 IN BK. 90-3, PAGES 9788-9789 RESPECTIVELY; AND MORE PARTICULARLY DESCRIBED USING NEW MEXICO STATE PLANE BEARINGS (CENTRAL ZONE) AND HORIZONTAL GROUND DISTANCES AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF THE TRACT HEREIN DESCRIBED, FROM WHENCE THE ACS MONUMENT ACS 8-A11 BEARS N88°25'44"W A DISTANCE OF 6504.75 FEET, SAID POINT BEING ON THE SOUTHERLY RIGHT-OF-WAY OF WESTSIDE BLVD; THENCE DEPARTING THE SOUTHERLY RIGHT-OF-WAY OF WESTSIDE BLVD,

S00°17'07"W, 1430.00 FEET TO A POINT ON THE NORTHERLY RIGHT-OF-WAY OF BENTON AVE.; THENCE,

N89°42'15"W, 170.20 FEET ALONG THE NORTHERLY RIGHT-OF-WAY OF BENTON AVE. TO A POINT; THENCE,

NORTHWESTERLY, 81.40 FEET ALONG THE ARC OF A CURVE RIGHT, HAVING A RADIUS OF 158.45 FEET AND A LONG CHORD BEARING N74°59'10"W A DISTANCE OF 80.51 FEET TO A POINT; THENCE,

N60°18'05"W, 200.82 FEET TO A POINT; THENCE,

NORTHWESTERLY, 114.29 FEET ALONG THE ARC OF A CURVE LEFT, HAVING A RADIUS OF 222.45 FEET AND A LONG CHORD BEARING N74°59'10"W A DISTANCE OF 113.03 FEET TO A POINT; THENCE,

NORTHWESTERLY, 39.27 FEET ALONG THE ARC OF A CURVE RIGHT, HAVING A RADIUS OF 25.00 FEET AND A LONG CHORD BEARING N44°41'54"W A DISTANCE OF 35.36 FEET TO A POINT AND TRANSITIONING FROM THE NORTHERLY RIGHT-OF-WAY OF BENTON AVE TO THE EASTERLY RIGHT-OF-WAY OF GOLF COURSE RD.; THENCE,

N00°18'26"E 104.10 FEET ALONG THE EASTERLY RIGHT-OF-WAY OF GOLF COURSE RD. TO A POINT; THENCE,

N00°17'23"E, 487.42 FEET ALONG THE VACATED EASTERLY RIGHT-OF-WAY OF GOLF COURSE RD. TO A POINT ON THE NEW RIGHT-OF-WAY OF GOLF COURSE RD.; THENCE,

NORTHWESTERLY, 91.76 FEET ALONG THE ARC OF A CURVE LEFT, HAVING A RADIUS OF 857.00 FEET AND A LONG CHORD BEARING N13°22'53"W A DISTANCE OF 91.72 FEET TO A POINT; THENCE,

NORTHEASTERLY, 22.64 FEET ALONG THE ARC OF A CURVE RIGHT, HAVING A RADIUS OF 23.50 FEET AND A LONG CHORD BEARING N43°04'17"E A DISTANCE OF 21.77 FEET TO A POINT; THENCE,

N19°20'02"W, 53.83 FEET TO A POINT; THENCE,

N70°59'58"W, 5.12 FEET TO A POINT; THENCE,

NORTHWESTERLY, 38.68 FEET ALONG THE ARC OF A CURVE RIGHT, HAVING A RADIUS OF 25.00 FEET AND A LONG CHORD BEARING N65°00'35"W A DISTANCE OF 34.94 FEET TO A POINT; THENCE,

NORTHWESTERLY, 250.27 FEET ALONG THE ARC OF A CURVE RIGHT, HAVING A RADIUS OF 825.00 FEET AND A LONG CHORD BEARING N11°59'41"W A DISTANCE OF 249.31 FEET TO A POINT; THENCE,

NORTHEASTERLY, 37.24 FEET ALONG THE ARC OF A CURVE RIGHT, HAVING A RADIUS OF 140.00 FEET AND A LONG CHORD BEARING N04°19'02"E A DISTANCE OF 37.13 FEET TO A POINT; THENCE,

NORTHEASTERLY, 63.05 FEET ALONG THE ARC OF A CURVE LEFT, HAVING A RADIUS OF 310.00 FEET AND A LONG CHORD BEARING N06°06'42"E A DISTANCE OF 62.94 FEET TO A POINT; THENCE,

N00°17'07"E, 90.00 FEET TO A POINT; THENCE,

N03°30'00"E, 26.03 FEET TO A POINT; THENCE,

NORTHEASTERLY, 18.00 FEET ALONG THE ARC OF A CURVE RIGHT, HAVING A RADIUS OF 30.00 FEET AND A LONG CHORD BEARING N20°41'13"E A DISTANCE OF 17.73 FEET TO A POINT ON THE VACATED EASTERLY RIGHT-OF-WAY OF GOLF COURSE RD.; THENCE,

NORTHEASTERLY, 25.19 FEET ALONG THE ARC OF A CURVE RIGHT, HAVING A RADIUS OF 25.00 FEET AND A LONG CHORD BEARING N61°18'21"E A DISTANCE OF 24.14 FEET TO A POINT AND TRANSITIONING FROM THE VACATED EASTERLY RIGHT-OF-WAY OF GOLF COURSE RD. TO THE SOUTHERLY RIGHT-OF-WAY OF WESTSIDE BLVD.; THENCE,

S89°49'36"E, 79.24 FEET TO A POINT; THENCE,

S89°49'36"E, 295.05 FEET ALONG THE VACATED RIGHT-OF-WAY OF WESTSIDE BLVD. TO A POINT ON THE NEW RIGHT-OF-WAY OF WESTSIDE BLVD.; THENCE,

NORTHEASTERLY, 15.67 FEET ALONG THE ARC OF A CURVE RIGHT, HAVING A RADIUS OF 30.00 FEET AND A LONG CHORD BEARING N75°12'36"E A DISTANCE OF 15.49 FEET TO A POINT; THENCE,

S89°49'36"E, 122.51 FEET TO A POINT; THENCE,

S86°04'18"E, 109.08 FEET TO A POINT; THENCE,

S89°49'36"E, 13.20 FEET TO A POINT; SAID POINT BEING THE POINT OF BEGINNING

SAID TRACT CONTAINS 18.6713 ACRES MORE OR LESS.

NEW MEXICO GAS COMPANY EASEMENT RELEASE APPROVAL

New Mexico Gas Company, Inc., a Delaware corporation, does hereby release, waive quitclaim and discharge its right, title and interest in the easement(s) (granted by prior plat, replat or document) shown to be vacated on this plat.

NEW MEXICO GAS COMPANY

By: _____

OFFICIAL SEAL
Amanda Carlyle
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires: March 24, 2013

STATE OF NEW MEXICO
COUNTY OF BERNALILLO SS

This instrument was acknowledged before me on 27th of May, 2009.

My Commission Expires: March 24, 2013

Amanda Carlyle
Notary Public

NOTES

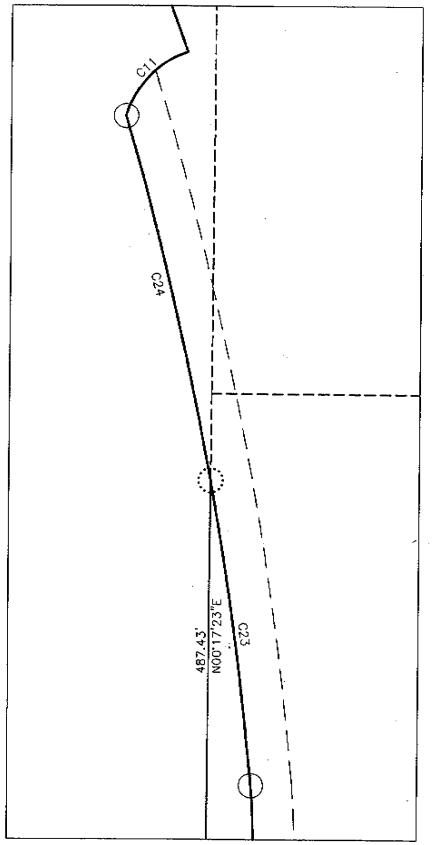
1. MILES OF FULL WIDTH PRIVATE STREETS CREATED BY THIS PLAT = 0.0000 MILES.
2. TOTAL NUMBER OF TRACTS CREATED = 3
3. BASIS OF POSITION AND BEARINGS

   ACS 8-A11 (NAD 1983 & NAVD 1988)
   NORTHING = 1534934.957
   EASTING = 1507071.174
   ELEVATION = 0.000
   DELTA ALPHA = 00°15'26.89"
   GROUND TO GRID
   FACTOR = 0.999671590

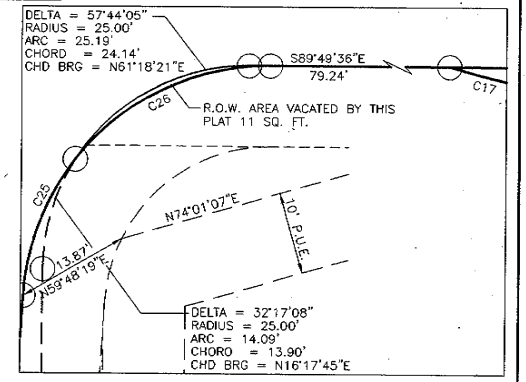
   ACS 9-A11 (NAD 1983 & NAVD 1988)
   NORTHING = 1533206.142
   EASTING = 1506571.019
   ELEVATION = 5301.647
   DELTA ALPHA = 00°15'30.20"
   GROUND TO GRID
   FACTOR = 0.999670857

   GRID BEARING FROM ACS 8-A11 TO 9-A11 IS S16°08'08"W
4. ALL DISTANCES SHOWN ARE HORIZONTAL GROUND DISTANCES.
5. ALL BOUNDARY CORNERS, LOT CORNERS AND ANGLE POINTS ARE MONUMENTED WITH A 5/8" REBAR AND YELLOW PLASTIC CAP STAMPED "BORDENAVE, LS 5110" UNLESS SHOWN OTHERWISE.
6. CURRENT ZONING OF TRACTS D & E IS C-2 AND OF LOTS 1 THRU 7 IS R-1.

INSET 1 SCALE 1" = 20'

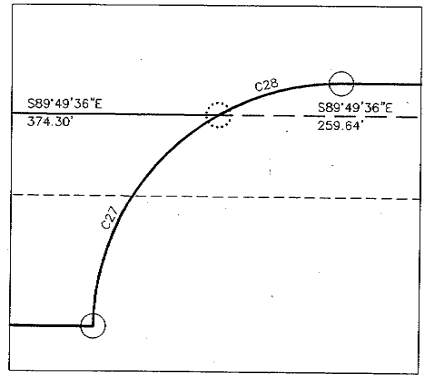


INSET 2 SCALE 1" = 10'



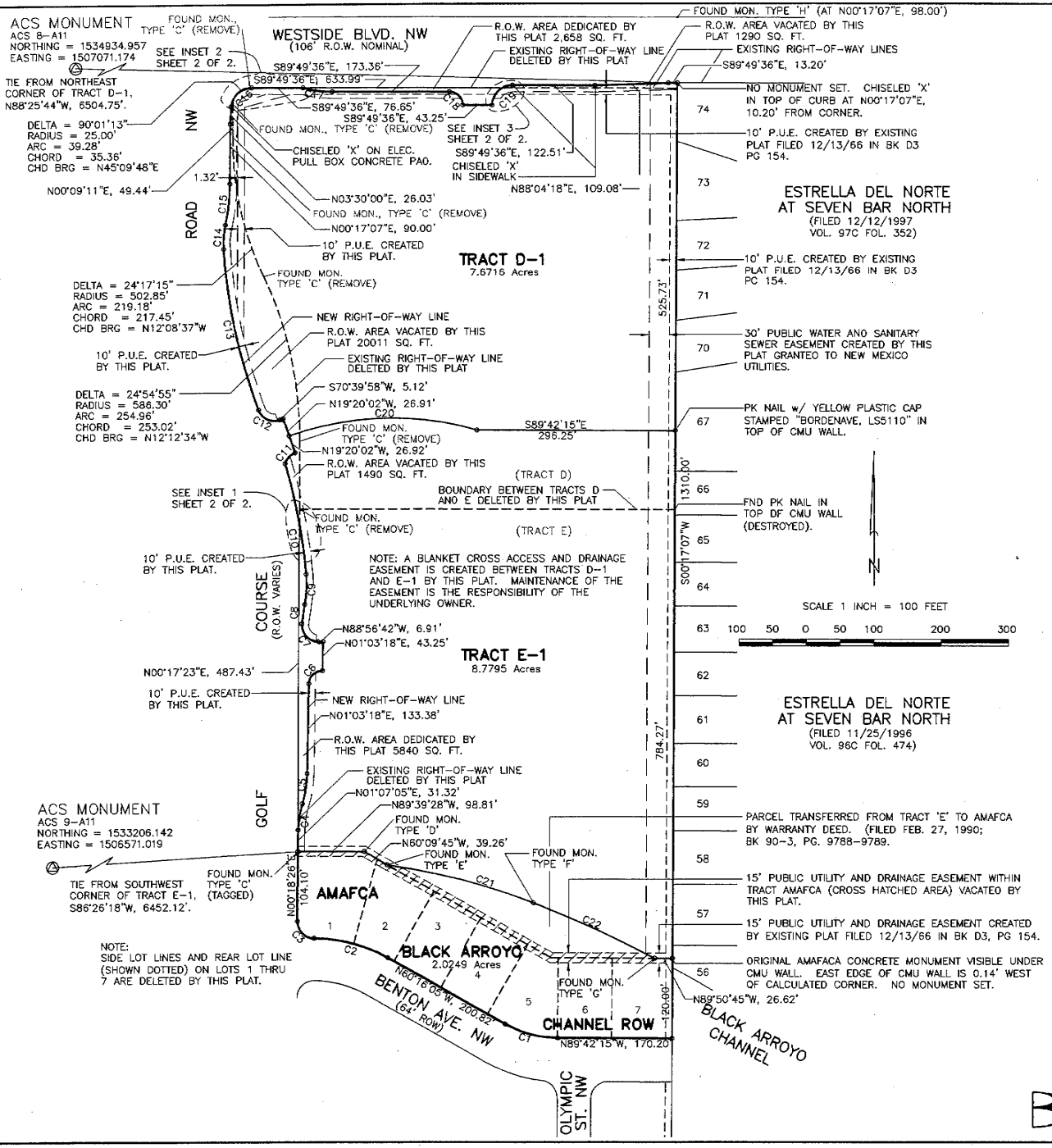
NOTE: SEE SHEET 3 FOR CURVE DATA NOT SHOWN ON THIS SHEET

INSET 3 SCALE 1" = 10'



DOC# 2009061460
06/02/2009 04:11 PM Page: 2 of 3
typPLAT R:$17.00 B: 2009C P: 0083 M. Toulous Olivera, Bernalillo Cour

BORDENAVE DESIGNS
P.O. BOX 91194, ALBUQUERQUE, NM 87199
(505)823-1344 FAX (505)821-9105



PLAT OF TRACTS D-1, E-1
AMAFCA BLACK ARROYO CHANNEL ROW
PARADISE HEIGHTS, UNIT 1

ALBUQUERQUE, NEW MEXICO
MARCH, 2009

CURVE TABLE

CURVE	DELTA	RADIUS	ARC	CHORD	CHD BRG
C1	29°26'10"	158.45'	81.40'	80.51'	N74°59'10"W
C2	29°26'10"	222.45'	114.29'	113.03'	N74°59'10"W
C3	90°00'41"	25.00'	39.27'	35.36'	N44°41'54"W
C4	16°10'26"	140.00'	39.52'	39.39'	N09°08'31"E
C5	16°10'26"	140.00'	45.17'	45.02'	N09°08'31"E
C6	90°00'00"	20.00'	31.42'	28.28'	N46°03'18"E
C7	94°03'25"	25.00'	41.04'	36.58'	N41°54'59"W
C8	05°49'13"	290.00'	29.46'	29.45'	N08°01'19"E
C9	16°10'45"	190.00'	45.18'	45.03'	N02°50'33"E
C10	11°12'07"	857.00'	167.55'	167.29'	N10°50'53"W
C11	55°11'22"	23.50'	22.64'	21.77'	N43°04'17"E
C12	88°38'55"	25.00'	38.68'	34.94'	N65°00'35"W
C13	16°22'53"	825.00'	250.27'	249.31'	N11°59'41"W
C14	15°14'32"	140.00'	37.24'	37.13'	N04°19'02"E
C15	11°39'11"	310.00'	63.05'	62.94'	N06°06'42"E
C16	86°40'24"	30.00'	45.38'	41.18'	N46°50'12"E
C17	15°44'26"	160.00'	43.96'	43.82'	S81°57'23"E
C18	90°00'00"	20.00'	31.42'	28.28'	S44°49'36"E
C19	90°00'00"	30.00'	47.12'	42.43'	N45°10'24"E
C20	35°24'30"	458.00'	283.04'	278.59'	N88°22'12"E
C21	13°21'00"	963.38'	224.47'	223.96'	N75°16'03"W
C22	06°25'00"	1772.47'	198.50'	198.40'	N65°21'54"W
C23	05°04'01"	857.00'	75.79'	75.76'	N07°46'50"E
C24	06°08'06"	857.00'	91.76'	91.72'	N13°22'53"W
C25	34°22'26"	30.00'	18.00'	17.73'	N20°41'13"E
C26	51°57'10"	30.00'	27.38'	26.44'	N64°01'25"E
C27	60°04'25"	30.00'	31.45'	30.03'	N30°12'36"E
C28	29°55'35"	30.00'	15.67'	15.49'	N75°12'36"E

DOC# 2009061460
06/02/2009 04:11 PM Page: 3 of 3
typPLAT R:$13.00 B: 2009C P: 0083 M. Toulous Olivere, Bernalillo Coun

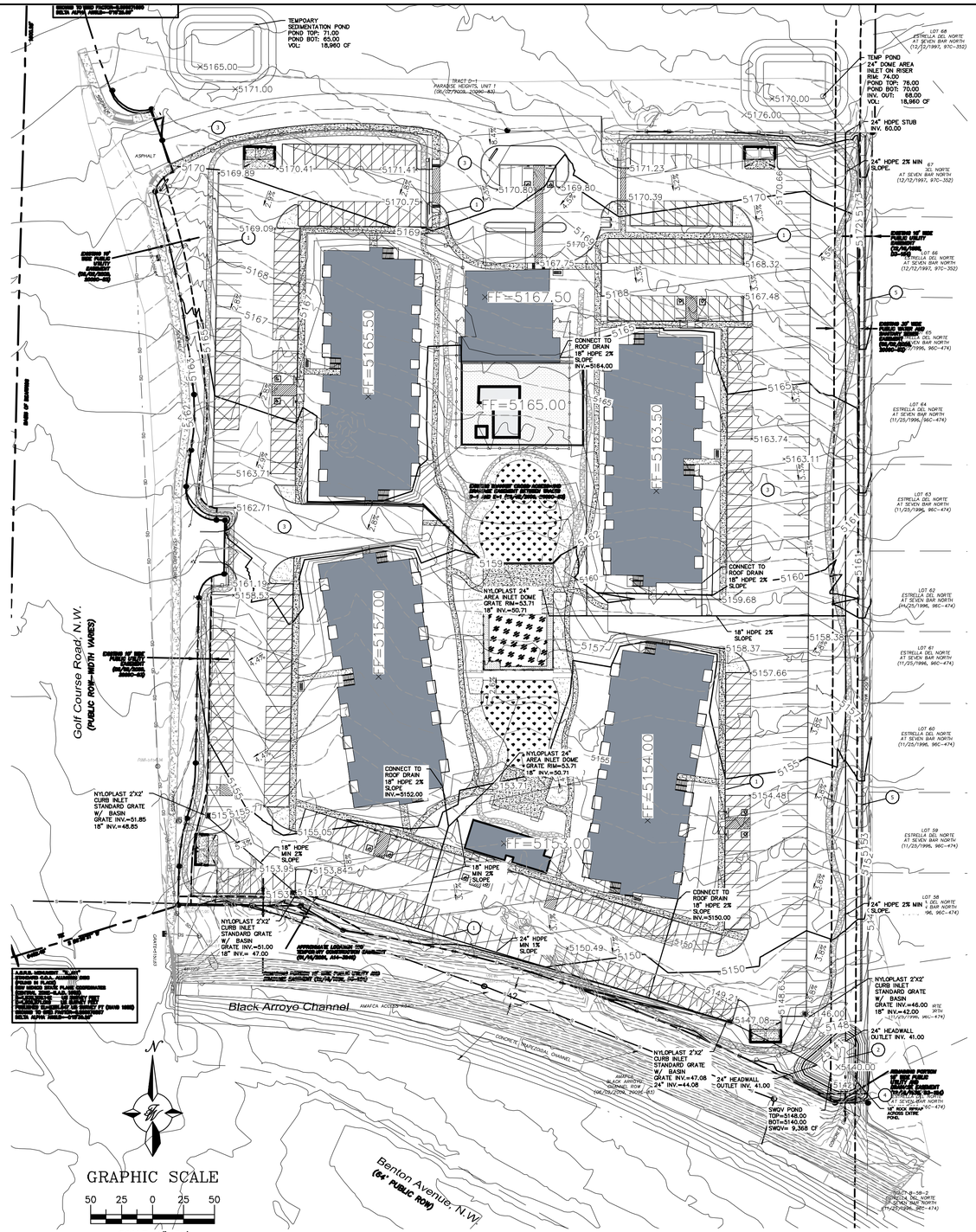
MONUMENTS

1. RECORD BEARINGS AND DISTANCES IF DIFFERENT THAN FIELD ARE SHOWN IN ( ).

2. FOUND MONUMENT TYPES
   TYPE 'A' – YELLOW PLASTIC CAP ON REBAR, STAMPED "LS7909".
   TYPE 'B' – YELLOW PLASTIC CAP ON REBAR, STAMPED "LS10283".
   TYPE 'C' – YELLOW PLASTIC CAP ON REBAR, STAMPED "RAF, PS6126".
   TYPE 'D' – 3" DISK IN CONC. STAMPED "AMAFCA FLOOD CONTROL, BA-2 · R/W, PS11009".
   TYPE 'E' – 3" DISK IN CONC. STAMPED "AMAFCA FLOOD CONTROL, BA-3 · R/W, PS11009".
   TYPE 'F' – 3" DISK IN CONC. STAMPED "AMAFCA FLOOD CONTROL, BA-4 · R/W, PS11009".
   TYPE 'G' – 3" DISK IN CONC. STAMPED "AMAFCA FLOOD CONTROL, BA-5 · R/W, PS11009".
   TYPE 'H' – 1½" IRON PIPE WITH 3" BRASS CAP. SECTION CORNER SET BY TYREE SURVEYING INC.

3. SET MONUMENT TYPE
   ALL BOUNDARY CORNERS, LOT CORNERS AND ANGLE POINTS ARE MONUMENTED WITH A ⅝" REBAR AND YELLOW PLASTIC CAP STAMPED "BORDENAVE, LS 5110" UNLESS SHOWN OTHERWISE.

BORDENAVE DESIGNS
P.O. BOX 91194, ALBUQUERQUE, NM 87199
(505)823-1344 FAX (505)821-9105



NOTICE TO CONTRACTORS

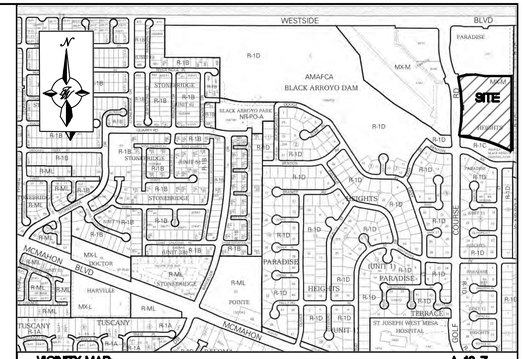
1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY.
2. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED HERON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF ALBUQUERQUE INTERIM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1985.
3. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, THE CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL, DIAL "811" [OR (505) 260-1990] FOR THE LOCATION OF EXISTING UTILITIES.
4. 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.
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.
8. CONTRACTOR MUST CONTACT JASON RODRIGUEZ AT 235-8016 AND CONSTRUCTION COORDINATION AT 924-3416 TO SCHEDULE AN INSPECTION.

LEGEND

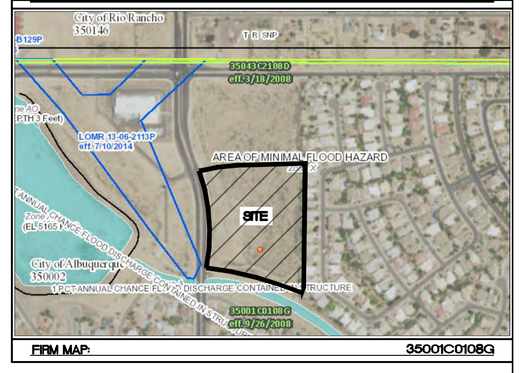
- CURB & GUTTER
- BOUNDARY LINE
- EASEMENT
- CENTERLINE
- RIGHT-OF-WAY
- BUILDING
- SIDEWALK
- SCREEN WALL
- RETAINING WALL
- 5010 — CONTOUR MAJOR
- 5011 — CONTOUR MINOR
- x 5048.25 — SPOT ELEVATION
- FLOW ARROW
- EXISTING CURB & GUTTER
- EXISTING BOUNDARY LINE
- 5010 — EXISTING CONTOUR MAJOR
- 5011 — EXISTING CONTOUR MINOR
- x 5048.25 — EXISTING SPOT ELEVATION

KEYED NOTES

1. 6" ONSITE CURB AND GUTTER
2. SWQV POND - SEE PLAN FOR NUMBER AND VOLUME THIS SHEET
3. ASPHALT PAVING (SEE GEOTECTH REPORT)
4. BUILD NEW CONCRETE RUNDOWN CONNECTION TO EXISTING FLUME 10-FT WIDE, 2.5-FT HEIGHT. SEE DETAIL SHEET.
5. NEW BOUNDARY/SCREEN WALL 6-FT HIGH, CMU BLOCK WALL, BY OWNER.



VICINITY MAP: A-12-Z



FIRM MAP: 35001C0108G

Existing Conditions

Basin ID	Tract	Area (sf)	Area (acres)	Area (sq miles)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	100-Year, 6-Hr Weighted E (in)	100-Year, 6-Hr Volume (ac-ft)	100-Year, 6-Hr Flow cfs	10-Year, 6-Hr Weighted E (in)	10-Year, 6-Hr Volume (ac-ft)	10-Year, 6-Hr Flow cfs
H1	D-1	334,175	7.67	0.01199	100%	7.672	0%	0.000	0%	0.000	0%	0.000	0.440	0.281	9.90	0.080	0.051	1.84
H2	E-1	382,736	8.79	0.01373	100%	8.786	0%	0.000	0%	0.000	0%	0.000	0.440	0.322	11.33	0.080	0.059	2.11
Total		**716,911**	**16.46**	**0.02572**		**16.458**		**0.000**		**0.000**		**0.000**		**0.603**	**21.23**		**0.110**	**3.95**

Proposed Conditions

Basin ID	Tract	Area (sf)	Area (acres)	Area (sq miles)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	100-Year, 6-Hr Weighted E (in)	100-Year, 6-Hr Volume (ac-ft)	100-Year, 6-Hr Flow cfs	10-Year, 6-Hr Weighted E (in)	10-Year, 6-Hr Volume (ac-ft)	10-Year, 6-Hr Flow cfs
D1	D-1	334,175	7.67	0.01199	0%	0.000	0%	0.000	15%	1.151	85%	6.521	1.823	1.165	31.80	1.120	0.716	20.56
D2	E-1	65,162	1.50	0.00234	0%	0.000	0%	0.000	30%	0.449	70%	1.047	1.676	0.209	5.86	1.000	0.125	3.69
D3	E-1	46,626	1.07	0.00167	0%	0.000	0%	0.000	22%	0.235	78%	0.835	1.754	0.156	4.32	1.064	0.095	2.76
D4	E-1	23,011	0.53	0.00083	0%	0.000	0%	0.000	26%	0.137	74%	0.391	1.715	0.076	2.10	1.032	0.045	1.33
D5	E-1	67,494	1.55	0.00242	0%	0.000	0%	0.000	75%	1.162	25%	0.387	1.235	0.159	5.03	0.640	0.083	2.85
D6	E-1	120,421	2.76	0.00432	0%	0.000	0%	0.000	25%	0.691	75%	2.073	1.725	0.397	11.04	1.040	0.240	7.02
D7	E-1	30,869	0.71	0.00111	0%	0.000	0%	0.000	15%	0.106	85%	0.602	1.823	0.108	2.94	1.120	0.066	1.90
D8	E-1	29,154	0.67	0.00105	0%	0.000	0%	0.000	0%	0.000	100%	0.669	1.970	0.110	2.92	1.240	0.069	1.93
Total		**716,911**	**16.46**	**0.02572**		**0.000**		**0.000**		**3.932**		**12.526**		**2.381**	**66.024**		**1.439**	**42.059**

Basin ID	SWQV Vol Required (cf)	SWQV Provided (cf)
D1	-	0
D2	1,596	0
D3	1,273	0
D4	596	0
D5	591	0
D6	3,161	9,368
D7	918	0
D8	1,020	0
Total	**9,156**	**9,368**

Equations:

Weighted E = Ea*Aa + Eb*Ab + Ec*Ac + Ed

Volume = Weighted E * Total Area

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

SWQV Pond Volume Calculation		
Area at Mid Depth	1,171	Sq. Ft.
Depth of Pond	8	Ft.
Total Volume	9,368	Cubic Ft.

Stormwater Quality Volume

Total Impervious Area = ΣArea in "Treatment D"

Retainage depth = 0.42" Per DPM Pg. 272 — 0.035 foot

Retention Volume = **=0.035 x area** CF

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.

PRELIMINARY - NOT FOR CONSTRUCTION

ENGINEER'S SEAL

RONALD R. BOHANNAN NEW MEXICO 7868 PROFESSIONAL ENGINEER

6/26/2020

RONALD R. BOHANNAN P.E. #7868

WINTERGREEN LUXUARY APARTMENTS

GOLF COURSE RD NE

CONCEPTUAL GRADING & DRAINAGE PLAN

DRAWN BY: BF

DATE: 6/26/2020

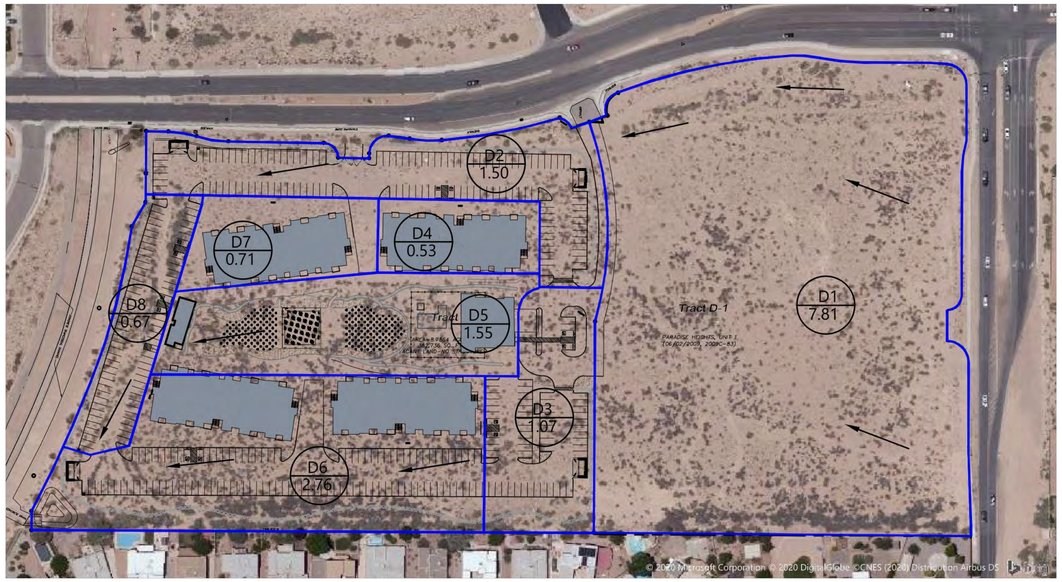
2020013_GRB_VER B

SHEET # C2

JOB # 2020013

TIERRA WEST, LLC
5571 MIDWAY PARK PLACE NE
ALBUQUERQUE, NM 87109
(505) 858-3100
www.tierrawestllc.com

Z:\2020\2020013 Apartments at Golf Course Rd\dwg\GRB_Ver B\2020013_GRB_Ver B.dwg Jun 30, 2020 - 8:07am



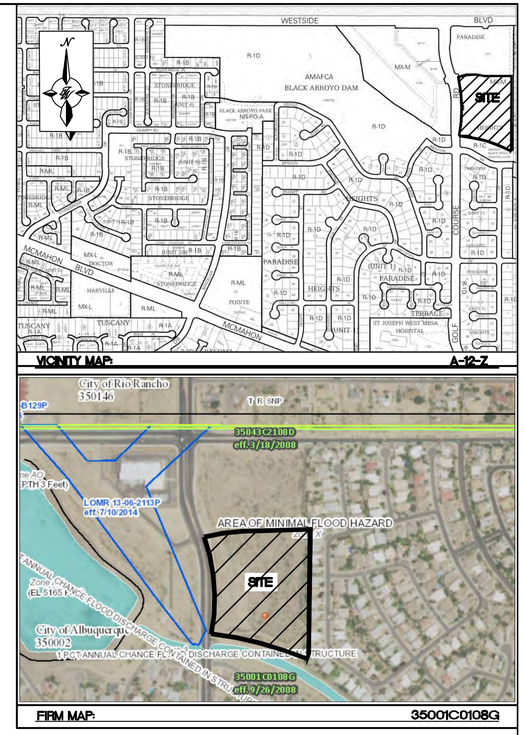
PROPOSED BASIN MAP

DEVELOPED CONDITION - 10800 GOLF COURSE RD. NW

LEGEND

BOUNDARY

BASIN AREA (AC)



Pipe Number	D	Slope	Area	R	Q Provided
	(in)	(%)	(ft^ 2)		(cfs)
1	30	2.00	4.91	0.625	58.16
2	30	1.00	4.91	0.625	41.13
3	24	2.00	3.14	0.500	32.08
4	24	1.00	3.14	0.500	22.68
5	18	2.00	1.77	0.375	14.90
6	18	1.00	1.77	0.375	10.53

Manning's Equation:

Q = 1.49/n * A * R^(2/3) * S^(1/2)

A = Area

R = D/4

S = Slope

n = 0.013

HISTORIC BASIN MAP

EXISTING CONDITION - 10800 GOLF COURSE RD. NW

LEGEND

BOUNDARY

BASIN AREA (AC)

PRELIMINARY - NOT FOR CONSTRUCTION

ENGINEER'S SEAL

RONALD R. BOHANNAN NEW MEXICO 7868 PROFESSIONAL ENGINEER

6/26/2020

RONALD R. BOHANNAN P.E. #7868

WINTERGREEN LUXUARY APARTMENTS

GOLF COURSE RD NE

CONCEPTUAL GRADING & DRAINAGE PLAN

TIERRA WEST, LLC
5571 MIDWAY PARK PLACE NE
ALBUQUERQUE, NM 87109
(505) 858-3100
www.tierrawestllc.com

DRAWN BY: BF

DATE: 6/26/2020

2020013_GRB_VER B

SHEET # C2-B

JOB # 2020013