



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 PI 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 DRB SITE _____ ADMIN SITE _____

IS THIS A RESUBMITTAL? _____ Yes No

DEPARTMENT _____ TRANSPORTATION HYDROLOGY/DRAINAGE

Check all that Apply:

TYPE OF SUBMITTAL:

- ENGINEER/ARCHITECT CERTIFICATION
- PAD CERTIFICATION
- CONCEPTUAL G & D PLAN
- GRADING PLAN
- 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:

- BUILDING PERMIT APPROVAL
- CERTIFICATE OF OCCUPANCY
- PRELIMINARY PLAT APPROVAL
- SITE PLAN FOR SUB'D APPROVAL
- SITE PLAN FOR BLDG. PERMIT APPROVAL
- FINAL PLAT APPROVAL
- SIA/ RELEASE OF FINANCIAL GUARANTEE
- FOUNDATION PERMIT APPROVAL
- GRADING PERMIT APPROVAL
- SO-19 APPROVAL
- PAVING PERMIT APPROVAL
- GRADING/ PAD CERTIFICATION
- WORK ORDER APPROVAL
- CLOMR/LOMR
- FLOODPLAIN DEVELOPMENT PERMIT
- OTHER (SPECIFY) _____

DATE SUBMITTED: 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
ALBUQUERQUE, 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.



A handwritten signature in black ink, appearing to read "Ron R. Bohannon".

Ronald R. Bohannon
PE # 7868

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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 redeveloping 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 redevelopment 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 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.

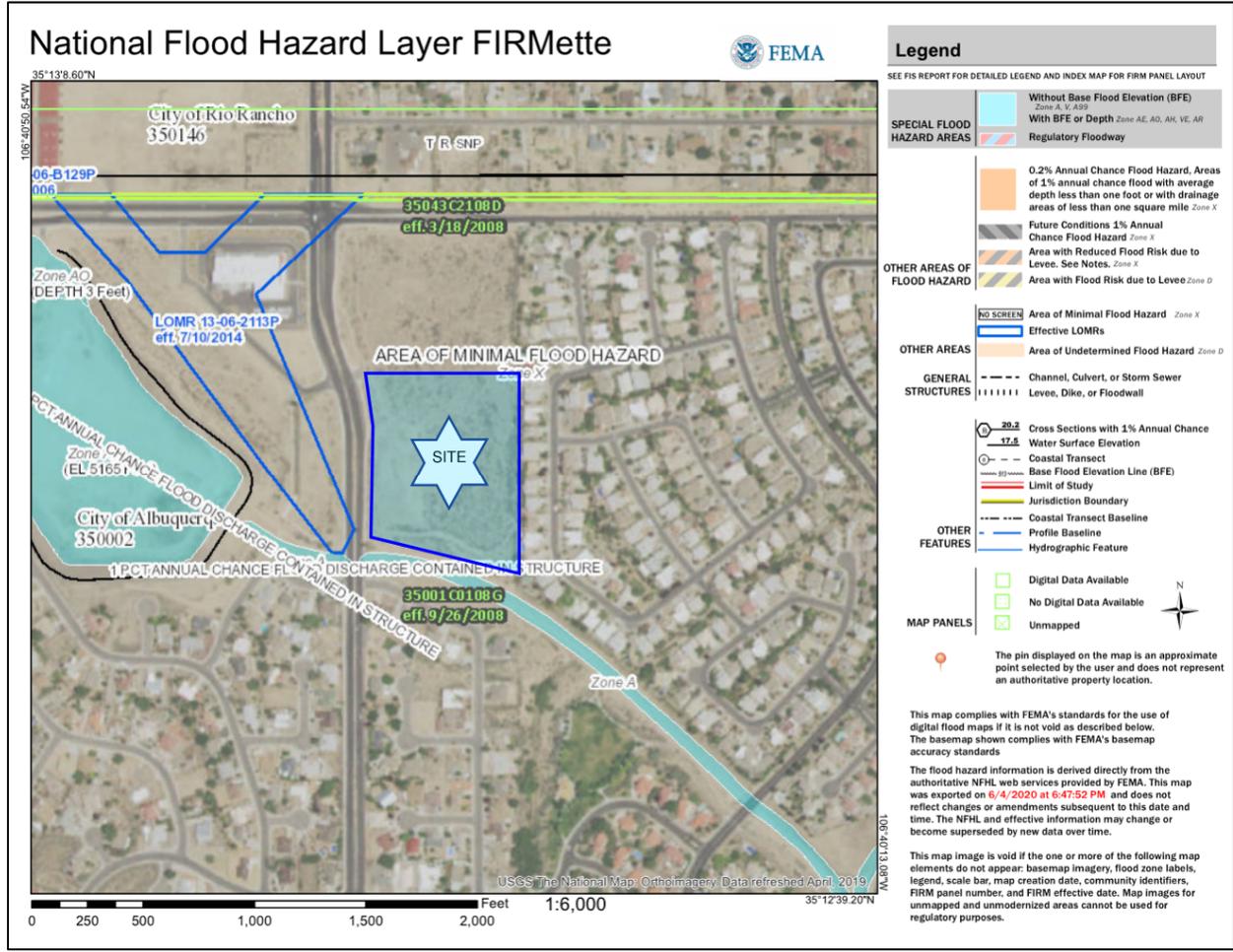


Exhibit C – FIRM Map

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.

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 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.

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 safely convey stormwater runoff.

As detailed on the subdivision plat 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 is detailed on the design calculations in the appendix of the report and the required volume to be retained onsite is provided.

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-

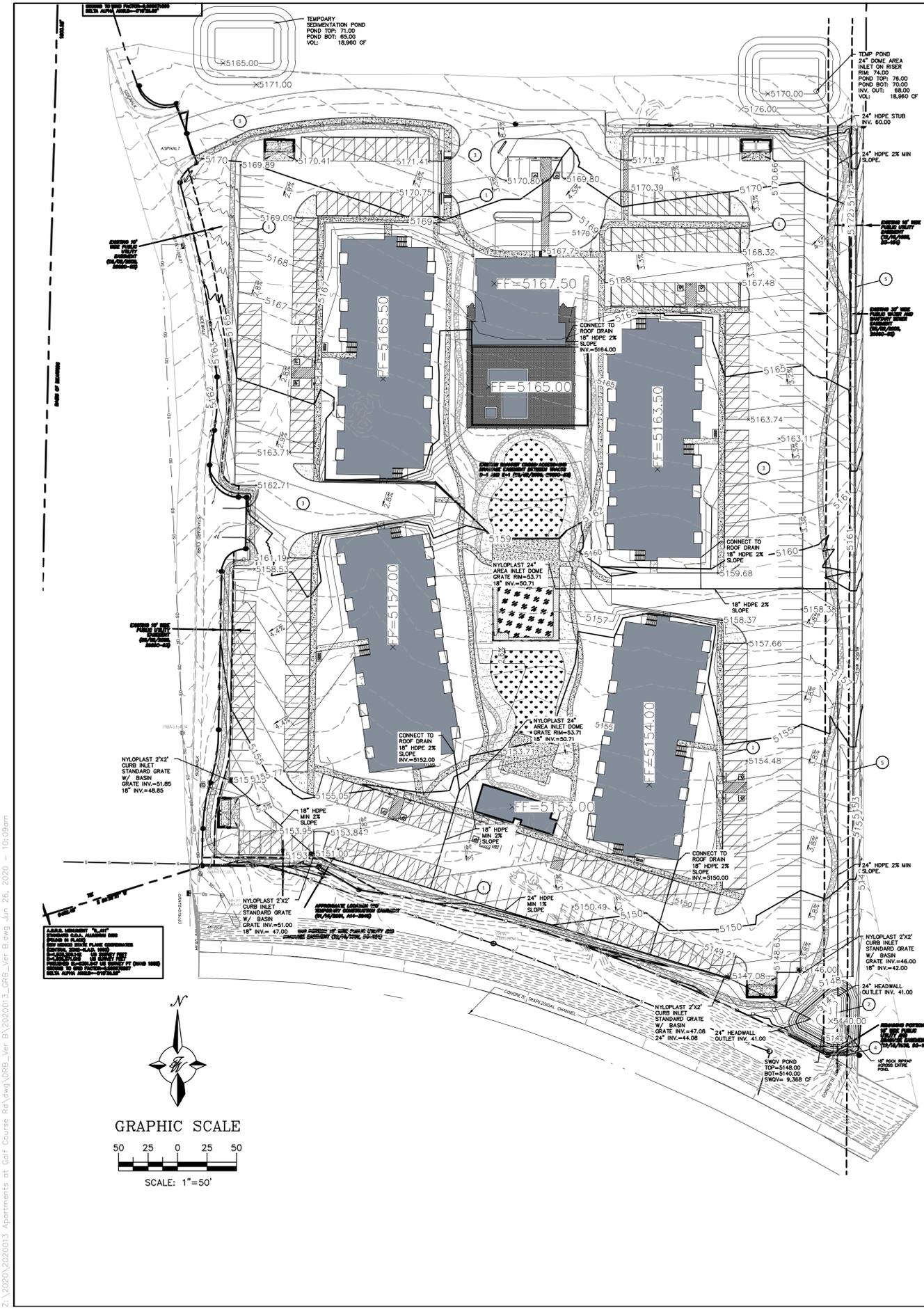
foot wide bottom with 2.5-ft side walls and has excess capacity to discharge the developed flows of both Tract D-1 and E-1. Included in the appendix are the discharge calculations for the existing flume at maximum capacity.

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 flows prior to entering into the developed 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.

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

APPENDIX A



NOTICE TO CONTRACTORS

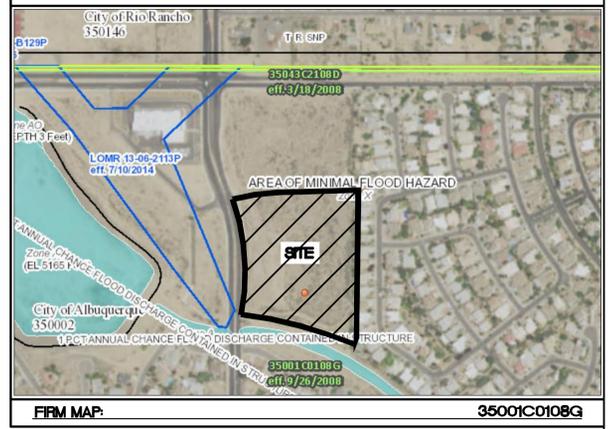
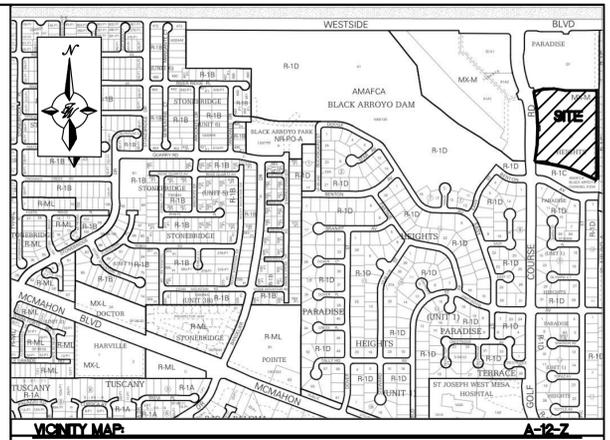
1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY.
2. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED HERON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF ALBUQUERQUE INTERIM STANDARD SPECIFICATIONS FOR 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. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.
6. WORK ON ARTERIAL STREETS SHALL BE PERFORMED ON A 24-HOUR BASIS. 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 GEOTECH 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.



Existing Conditions

Basin ID	Tract	Area (sf)	Area (acres)	Area (sq miles)	Basin Descriptions				100-Year, 6-Hr			10-Year, 6-Hr				
					Treatment A %	Treatment B %	Treatment C %	Treatment D %	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	0.440	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	0.440	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	0.000	0.603	21.23		0.110	3.95	

Proposed Conditions

Basin ID	Tract	Area (sf)	Area (acres)	Area (sq miles)	Basin Descriptions				100-Year, 6-Hr			10-Year, 6-Hr						
					Treatment A %	Treatment B %	Treatment C %	Treatment D %	Weighted E (in)	Volume (ac-ft)	Flow cfs	Weighted E (in)	Volume (ac-ft)	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	0.000	3.932		12.526		2.381	66.024		1.439	42.059	

Basin ID	SWQV	
	Vol Required (cf)	Provided (cf)
D1	0	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*Ad
 Volume = Weighted E * Total Area
 Flow = Qa*Aa + Qb*Ab + Qc*Ac + Qd*Ad

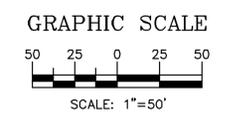
Zone	Excess Precipitation, E (in.)	
	100-Year	10-Year
Ea	0.44	0.08
Eb	0.67	0.22
Ec	0.99	0.44
Ed	1.97	1.24

Zone	Peak Discharge (cfs/acre)	
	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"
 Retention depth = 0.42" Per DPM Pg. 272
 Retention Volume = 0.035 x area
 = 0.035 x area

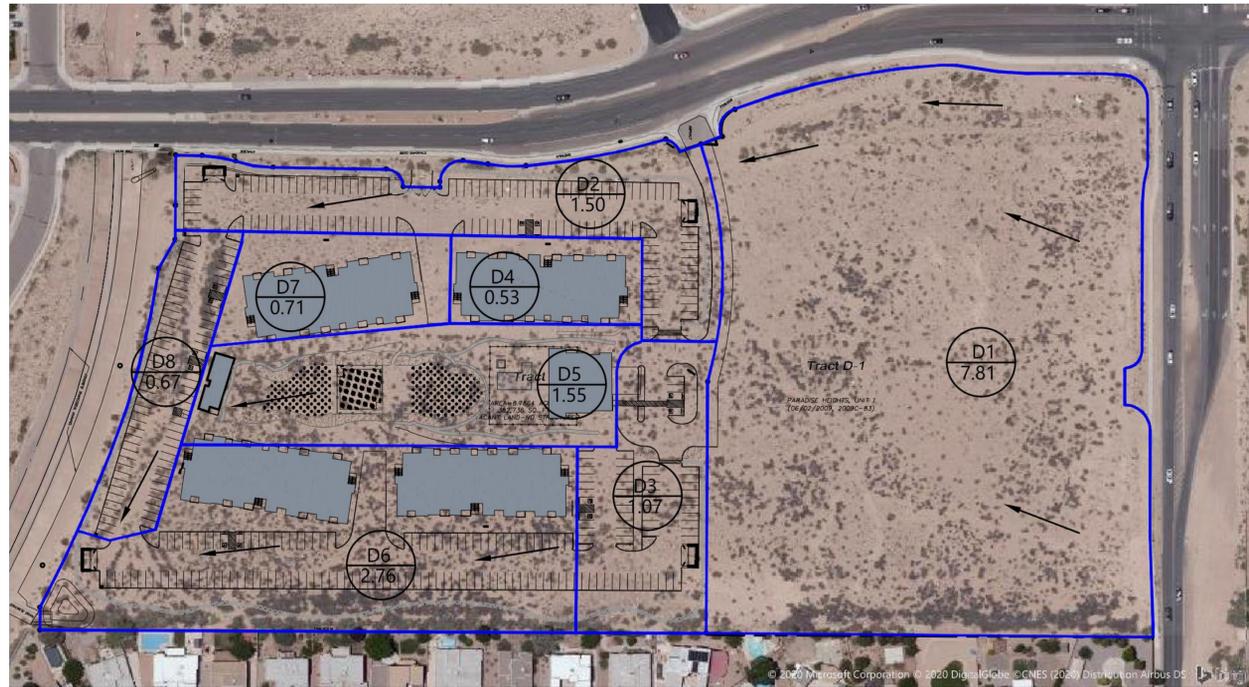
ALL EXISTING UTILITIES SHOWN WERE OBTAINED FROM RESEARCH, AS-BUILTS, SURVEYS OR INFORMATION PROVIDED BY OTHERS. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CONDUCT ALL NECESSARY FIELD INVESTIGATIONS PRIOR TO AND INCLUDING ANY EXCAVATION, TO DETERMINE THE ACTUAL LOCATION OF UTILITIES AND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



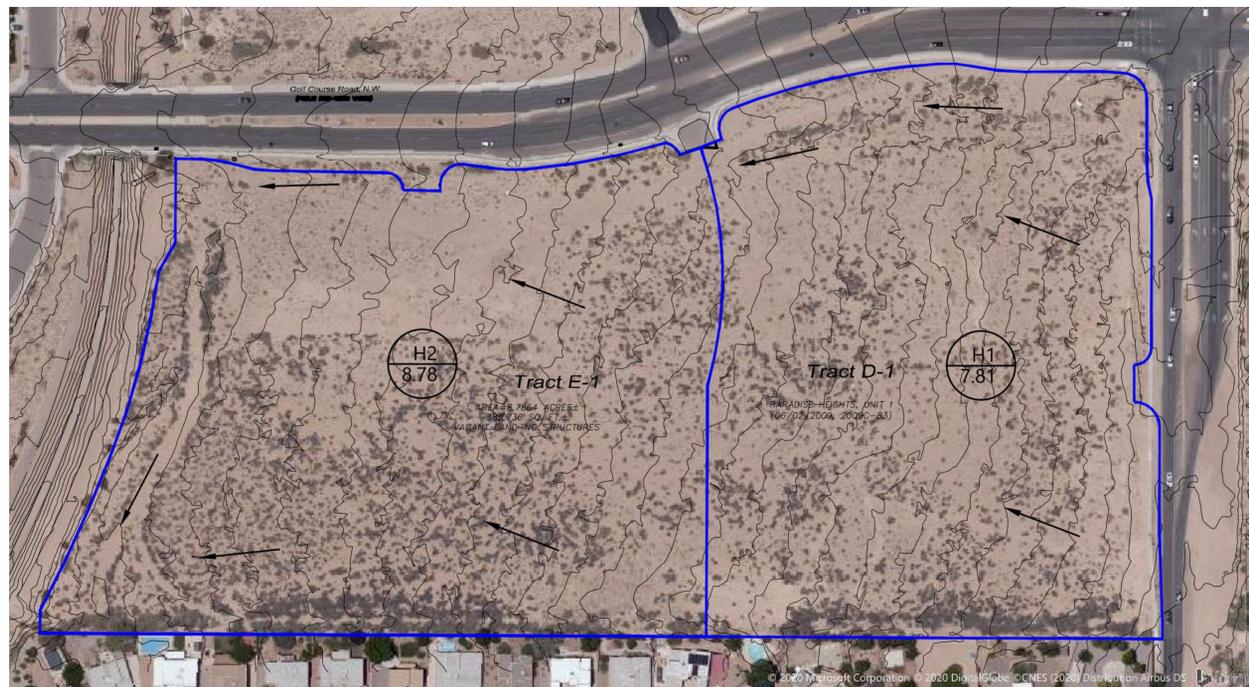
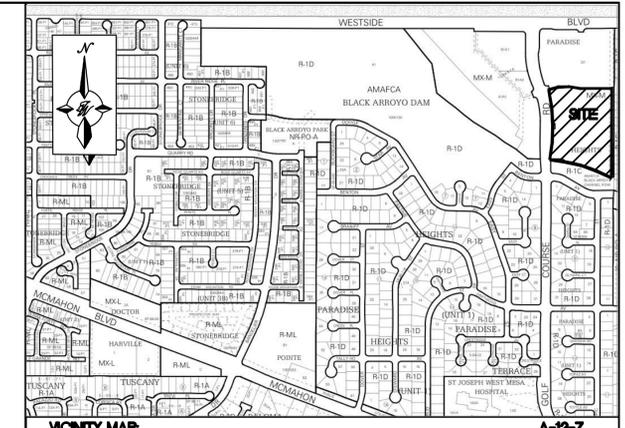
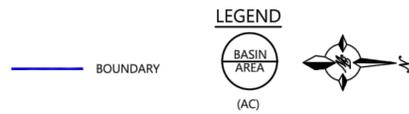
PRELIMINARY - NOT FOR CONSTRUCTION

	ENGINEER'S SEAL WINTERGREEN LUXURY APARTMENTS GOLF COURSE RD NE	DRAWN BY BF
	DATE 6/26/2020	PROJECT # 2020013_GRB_VER B
CONCEPTUAL GRADING & DRAINAGE PLAN		SHEET # C2
TIERRA WEST, LLC 5571 MIDWAY PARK PLACE NE ALBUQUERQUE, NM 87109 (505) 858-3100 www.tierrawestllc.com		JOB # 2020013

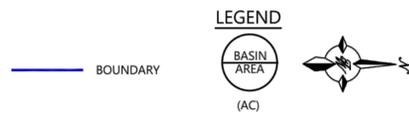
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PROPOSED BASIN MAP
DEVELOPED CONDITION - 10800 GOLF COURSE RD. NW



HISTORIC BASIN MAP
EXISTING CONDITION - 10800 GOLF COURSE RD. NW



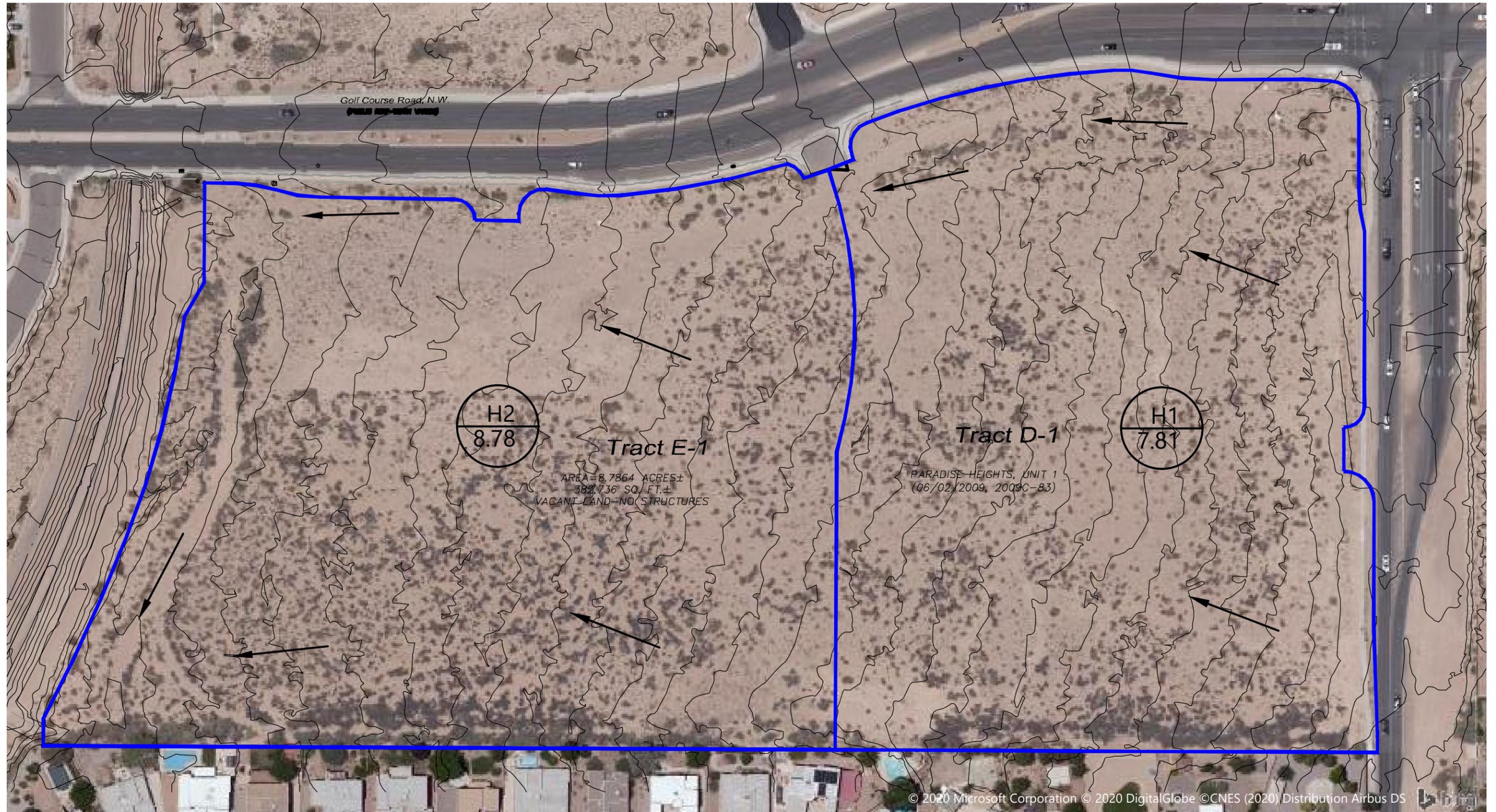
Pipe Number	D (in)	Slope (%)	Area (ft ²)	R	Q Provided (cfs)
1	30	2.00	4.91	0.625	58.16
2	30	1.00	4.91	0.625	41.13
3	24	2.00	3.14	0.500	32.08
4	24	1.00	3.14	0.500	22.68
5	18	2.00	1.77	0.375	14.90
6	18	1.00	1.77	0.375	10.53

Manning's Equation:
 $Q = 1.49/n * A * R^{(2/3)} * S^{(1/2)}$
 A = Area
 R = D/4
 S = Slope
 n = 0.013

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PRELIMINARY - NOT FOR CONSTRUCTION

	ENGINEER'S SEAL WINTERGREEN LUXURY APARTMENTS GOLF COURSE RD NE	DRAWN BY BF
	GRADING & DRAINAGE PLAN	DATE 6/26/2020
6/26/2020 RONALD R. BOHANNAN P.E. #7868	 5571 MIDWAY PARK PLACE NE ALBUQUERQUE, NM 87109 (505) 858-3100 www.tierrawestllc.com	SHEET # C2-B
		JOB # 2020013



HISTORIC BASIN MAP

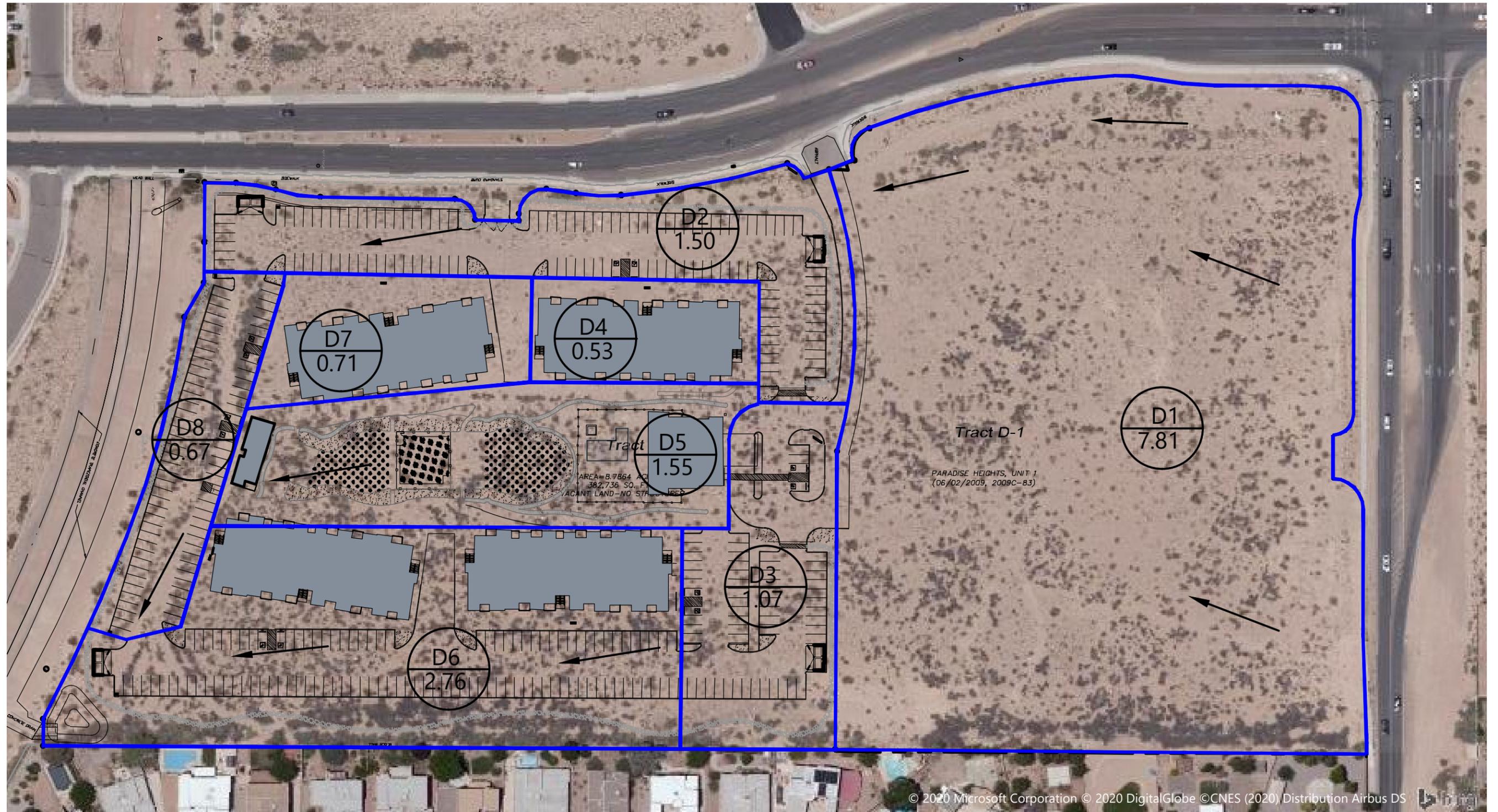
EXISTING CONDITION - 10800 GOLF COURSE RD. NW

— BOUNDARY

LEGEND

○ 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 ID	Tract	Area (sf)	Area (acres)	Area (sq miles)	Basin Descriptions								100-Year, 6-Hr			10-Year, 6-Hr		
					Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (in)	Volume (ac-ft)	Flow cfs	Weighted E (in)	Volume (ac-ft)	Flow cfs
					%	(acres)	%	(acres)	%	(acres)	%	(acres)						
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)	Basin Descriptions								100-Year, 6-Hr			10-Year, 6-Hr			SWQV	
					Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (in)	Volume (ac-ft)	Flow cfs	Weighted E (in)	Volume (ac-ft)	Flow cfs	Vol Required (cf)	Provided (cf)
					%	(acres)	%	(acres)	%	(acres)	%	(acres)								
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 = Σ Area in "Treatment D"
 Retainage depth = 0.42" Per DPM Pg. 272 0.035 foot
 Retention Volume = $=0.035 \times \text{area}$ 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

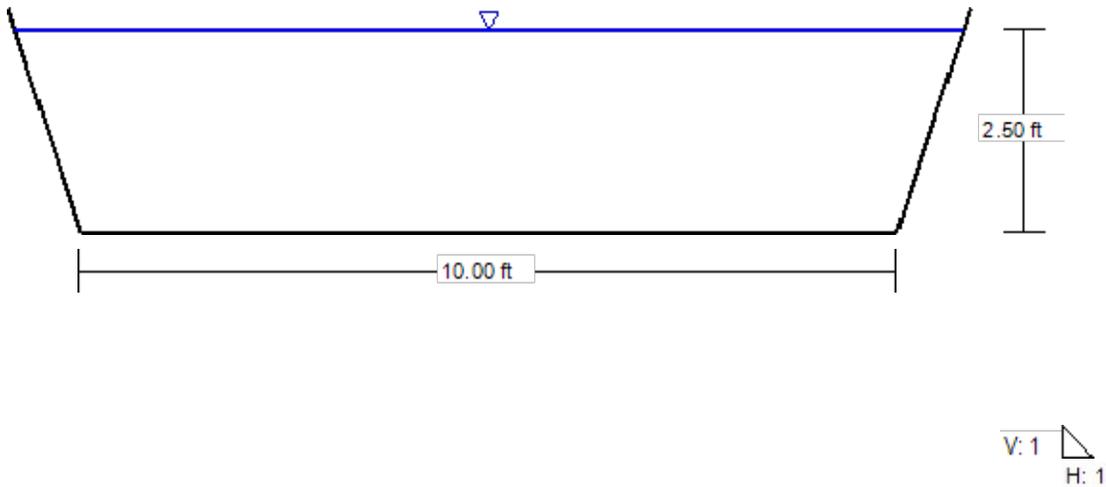
Project Description

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 ft ³ /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

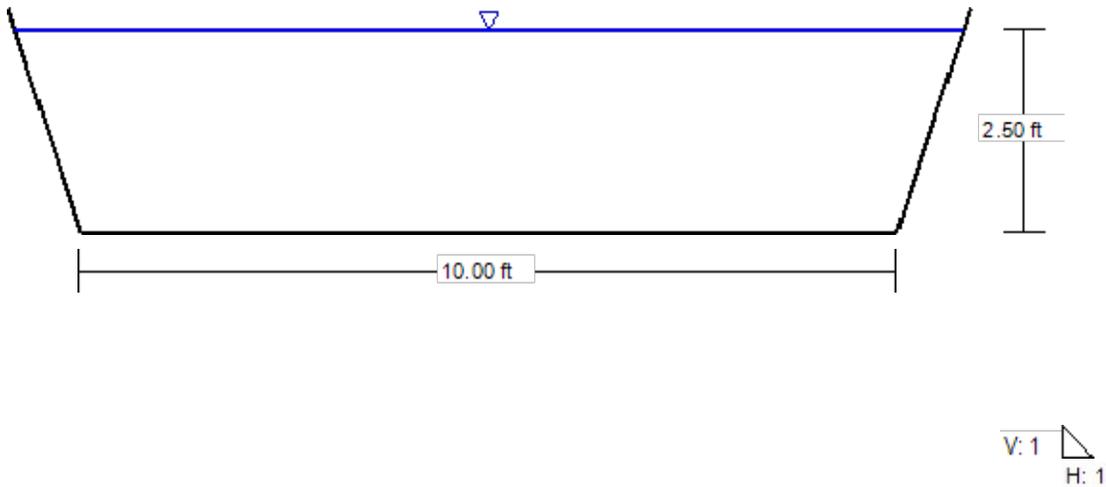
Project Description

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 ft ³ /s

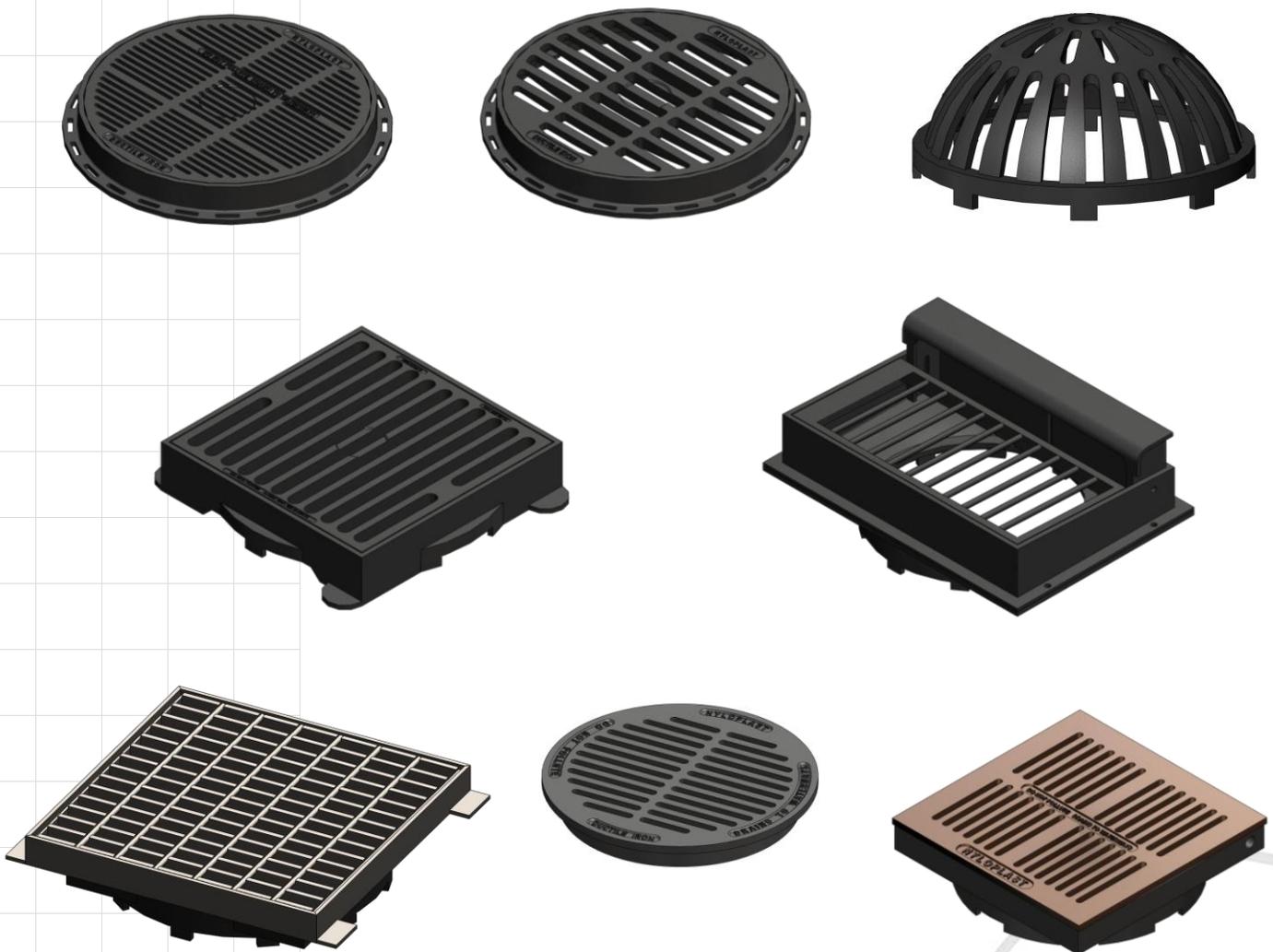
Cross Section Image





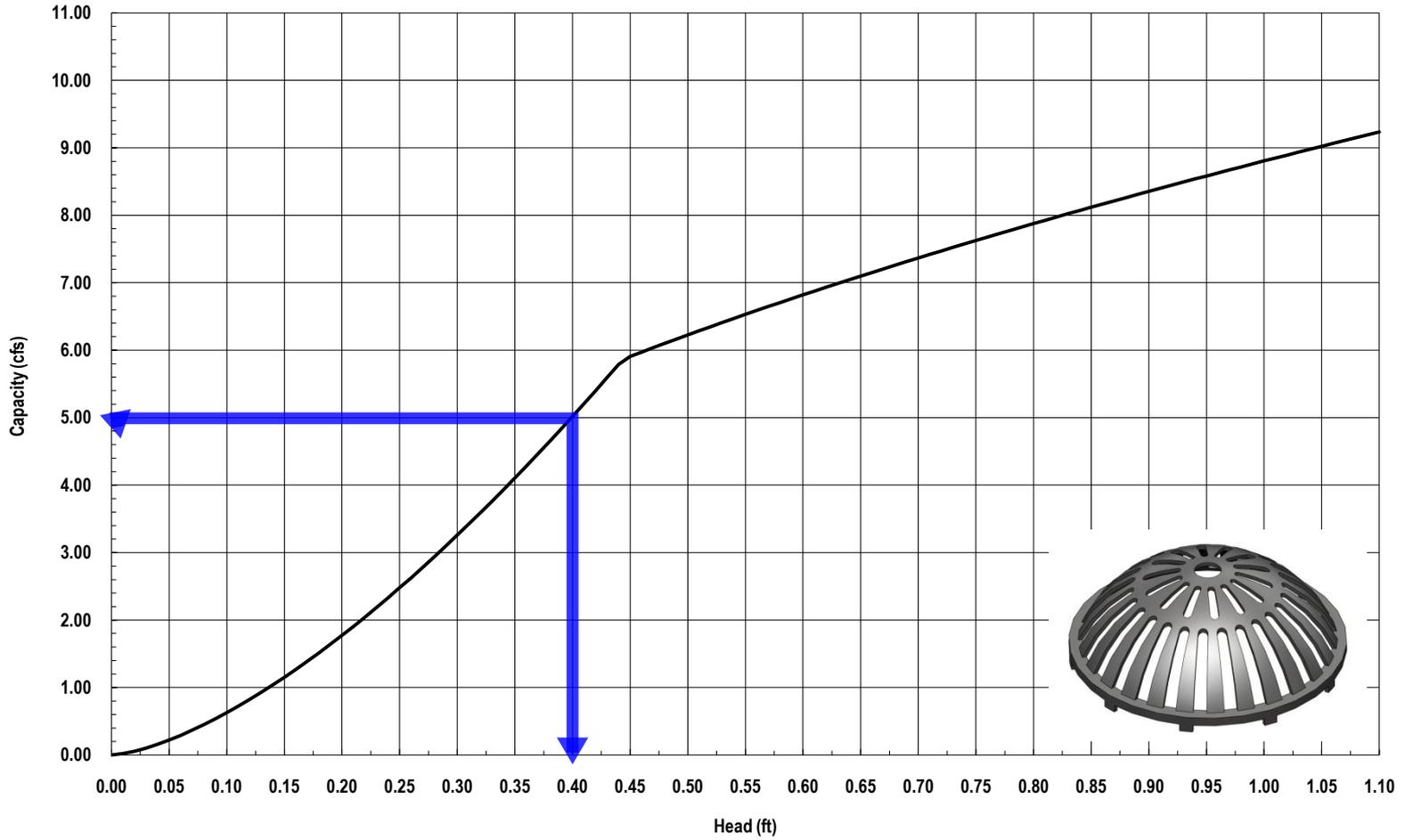
Nyloplast Grate Inlet Capacity Charts

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.



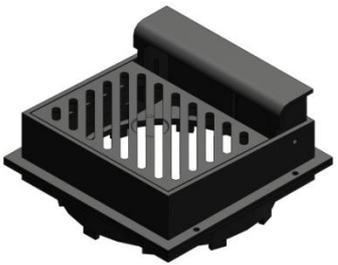
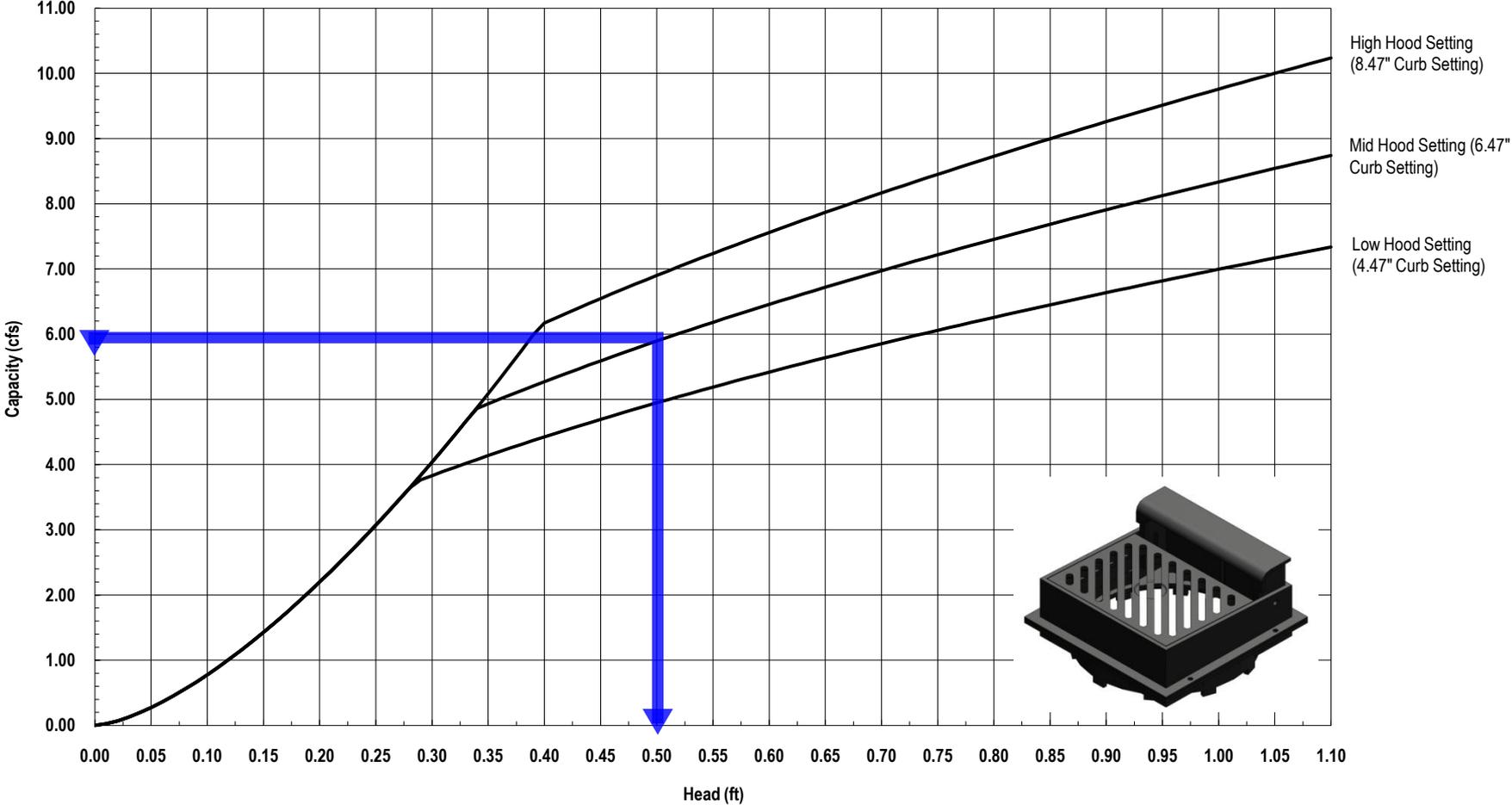
3130 Verona Avenue • Buford, Georgia 30518 • (866) 888-8479 / (770) 932-2443 • Fax: (770) 932-2490

Nyloplast 24" Dome Grate Inlet Capacity Chart



3130 Verona Avenue • Buford, GA 30518
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© Nyloplast Inlet Capacity Charts June 2012

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



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 © Nyloplast Inlet Capacity Charts June 2012

APPENDIX C

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, 1998 IN BK. D3, PAGE 154 AND ON JULY 26, 1974 IN BK. D6, PAGE 61 AND ON FEB. 27, 1990 IN BK. 90-5, PAGES 8788-8789 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.,

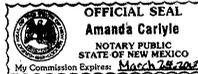
- S00°17'07"W, 1430.00 FEET TO A POINT ON THE NORTHERLY RIGHT-OF-WAY OF BENTON AVE.; THENCE,
 - N89°42'15"W, 170.20 FEET ALONG THE NORTHERLY RIGHT-OF-WAY OF BENTON AVE. TO A POINT; THENCE,
 - NORTHWESTERLY, 81.40 FEET ALONG THE ARC OF A CURVE RIGHT, HAVING A RADIUS OF 158.45 FEET AND A LONG CHORD BEARING 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°11'54"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°18'28"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°08'42"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,
 - S89°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: *[Signature]*



STATE OF NEW MEXICO SS
COUNTY OF BERNALILLO

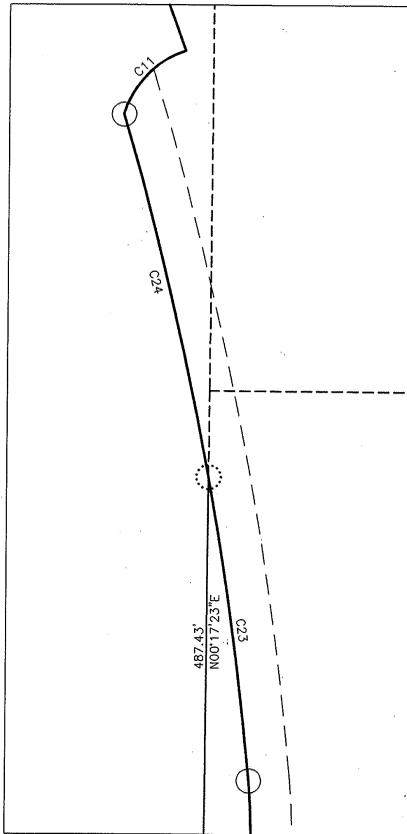
This instrument was acknowledged before me on 27th of May, 2009.

My Commission Expires: March 24, 2013 *Amanda Carlyle*
Notary Public

NOTES

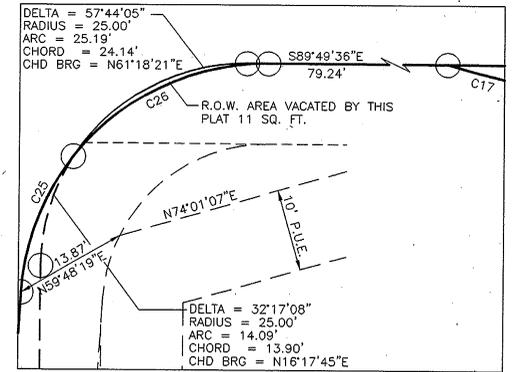
1. MILES OF FULL WIDTH PRIVATE STREETS CREATED BY THIS PLAT = 0.0000 MILES.
 2. TOTAL NUMBER OF TRACTS CREATED = 3
 3. BASIS OF POSITION AND BEARINGS
 - ACS 8-A11 (NAD 1983 & NAVD 1988)
 - NORTHING = 1534934.957
 - EASTING = 1507071.174
 - ELEVATION = 0.000
 - ACS 9-A11 (NAD 1983 & NAVD 1988)
 - NORTHING = 1533206.142
 - EASTING = 1506571.019
 - ELEVATION = 5301.647
 - DELTA ALPHA = 00°15'26.89" GROUND TO GRID FACTOR = 0.999671590
 - 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'



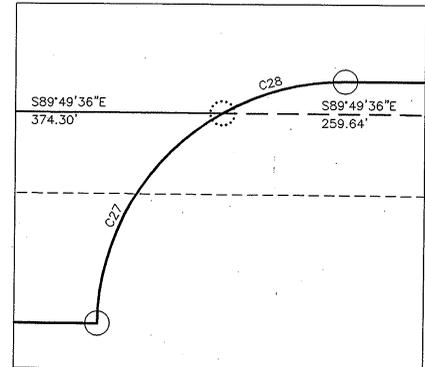
**PLAT OF TRACTS D-I, E-I
AMAFCA BLACK ARROYO CHANNEL ROW
PARADISE HEIGHTS, UNIT 1
ALBUQUERQUE, NEW MEXICO
MARCH, 2009**

INSET 2 SCALE 1" = 10'



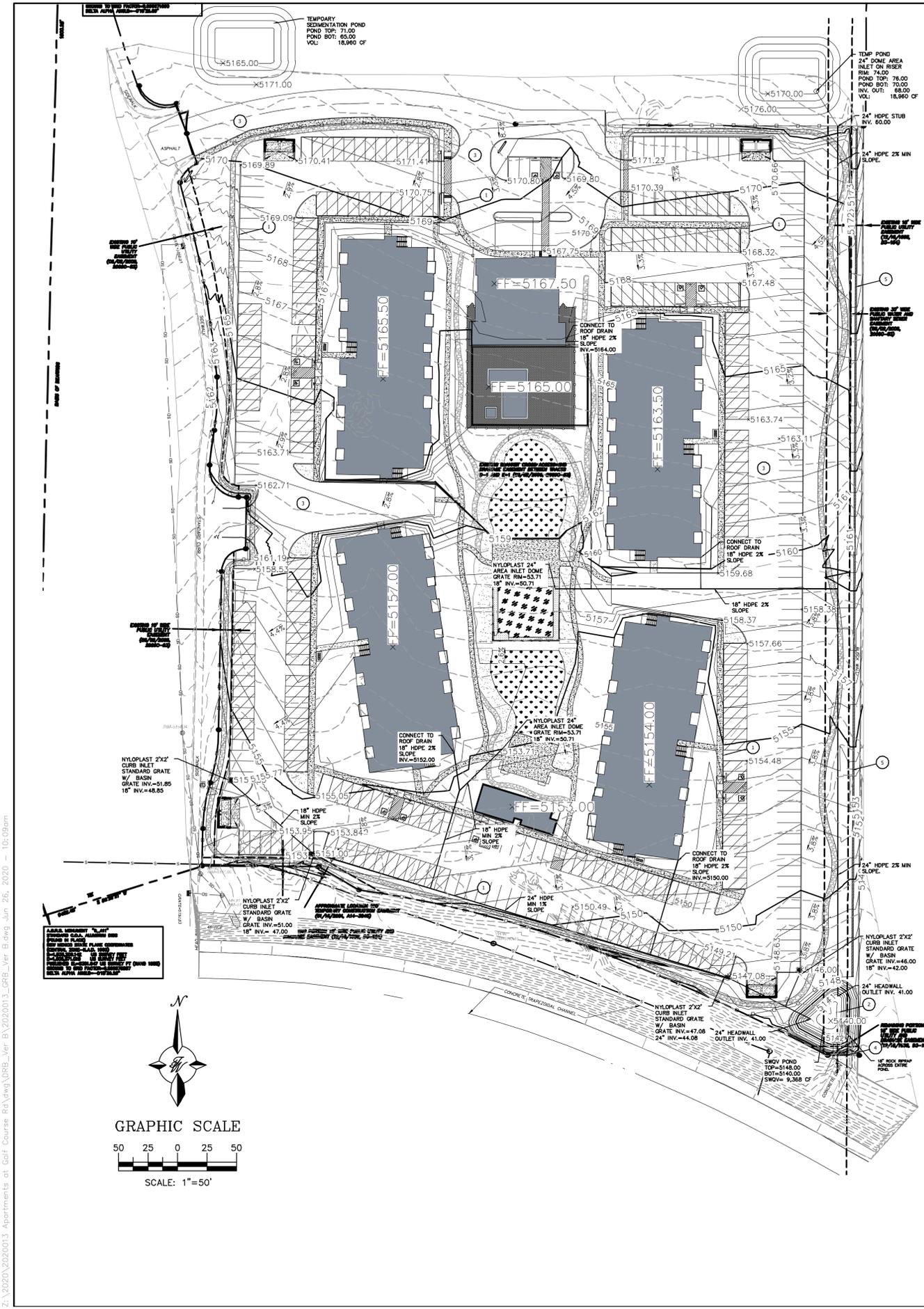
NOTE: SEE SHEET 3 FOR CURVE DATA NOT SHOWN ON THIS SHEET

INSET 3 SCALE 1" = 10'



DOCH 2009061460
06/02/2009 04:11 PM Page: 2 of 3
PLAT R: 517.00 91 20090 P: 0003 N. Yolous Oliveira, Bernalillo Cour
[Barcode]

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



NOTICE TO CONTRACTORS

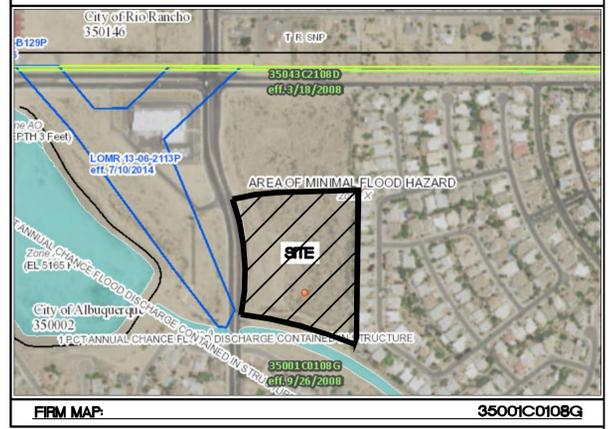
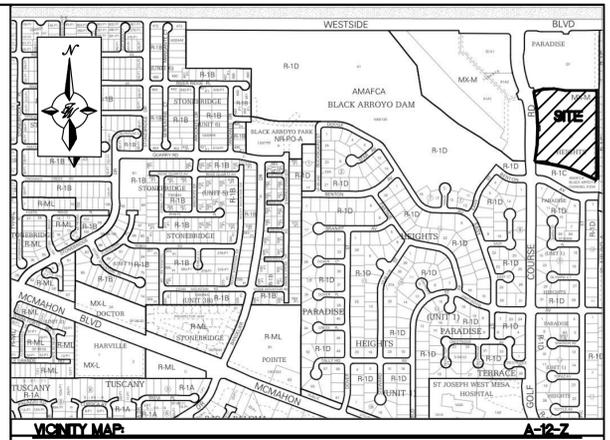
1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY.
2. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED HERON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF ALBUQUERQUE INTERIM STANDARD SPECIFICATIONS FOR 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. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.
6. WORK ON ARTERIAL STREETS SHALL BE PERFORMED ON A 24-HOUR BASIS. 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 GEOTECH 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.



Existing Conditions

Basin ID	Tract	Basin Descriptions								100-Year, 6-Hr			10-Year, 6-Hr			
		Area (sf)	Area (acres)	Area (sq miles)	Treatment A %	Treatment B %	Treatment C %	Treatment D %	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	0.440	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	0.440	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	0.000	0.603	21.23		0.110	3.95	

Proposed Conditions

Basin ID	Tract	Basin Descriptions								100-Year, 6-Hr			10-Year, 6-Hr					
		Area (sf)	Area (acres)	Area (sq miles)	Treatment A %	Treatment B %	Treatment C %	Treatment D %	Weighted E (in)	Volume (ac-ft)	Flow cfs	Weighted E (in)	Volume (ac-ft)	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	0.000	3.932	12.526		2.381	66.024		1.439	42.059		

Basin ID	SWQV	
	Vol Required (cf)	Provided (cf)
D1	0	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

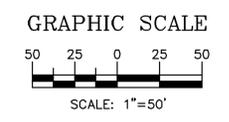
Zone	Excess Precipitation, E (in.)	
	100-Year	10-Year
Ea	0.44	0.08
Eb	0.67	0.22
Ec	0.99	0.44
Ed	1.97	1.24

Zone	Peak Discharge (cfs/acre)	
	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"
 Retention depth = 0.42" Per DPM Pg. 272
 Retention Volume = 0.035 x area
 foot
 CF

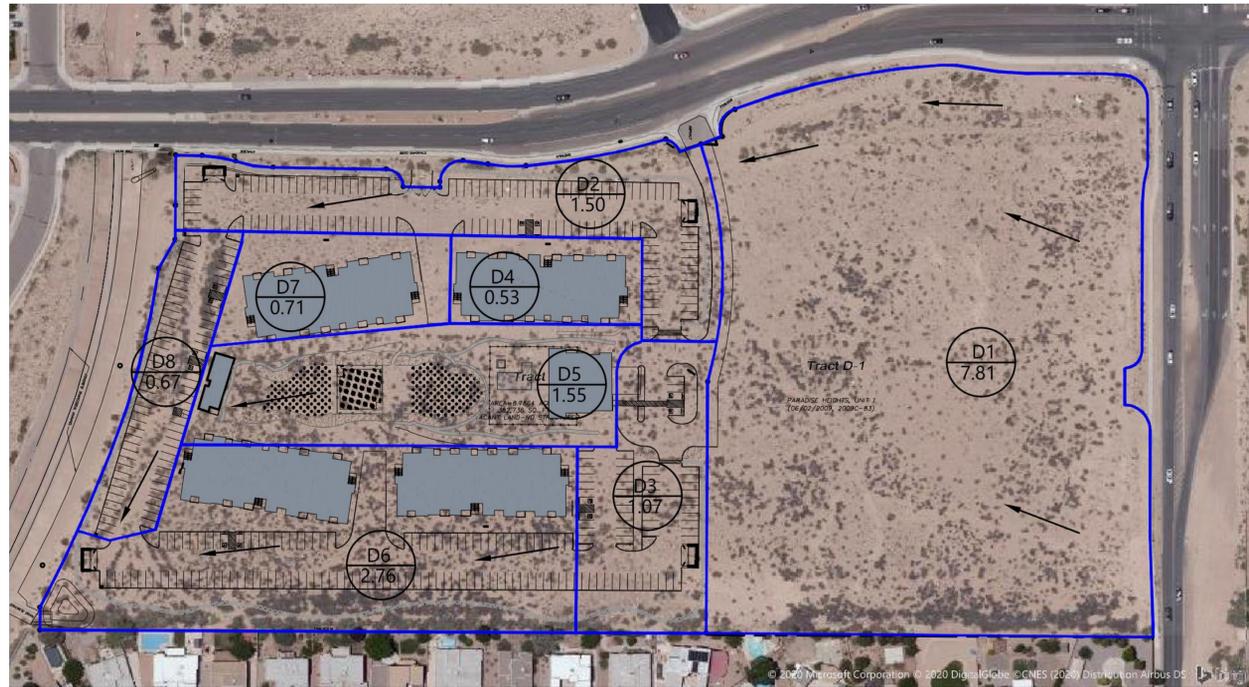
ALL EXISTING UTILITIES SHOWN WERE OBTAINED FROM RESEARCH, AS-BUILTS, SURVEYS OR INFORMATION PROVIDED BY OTHERS. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CONDUCT ALL NECESSARY FIELD INVESTIGATIONS PRIOR TO AND INCLUDING ANY EXCAVATION, TO DETERMINE THE ACTUAL LOCATION OF UTILITIES AND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



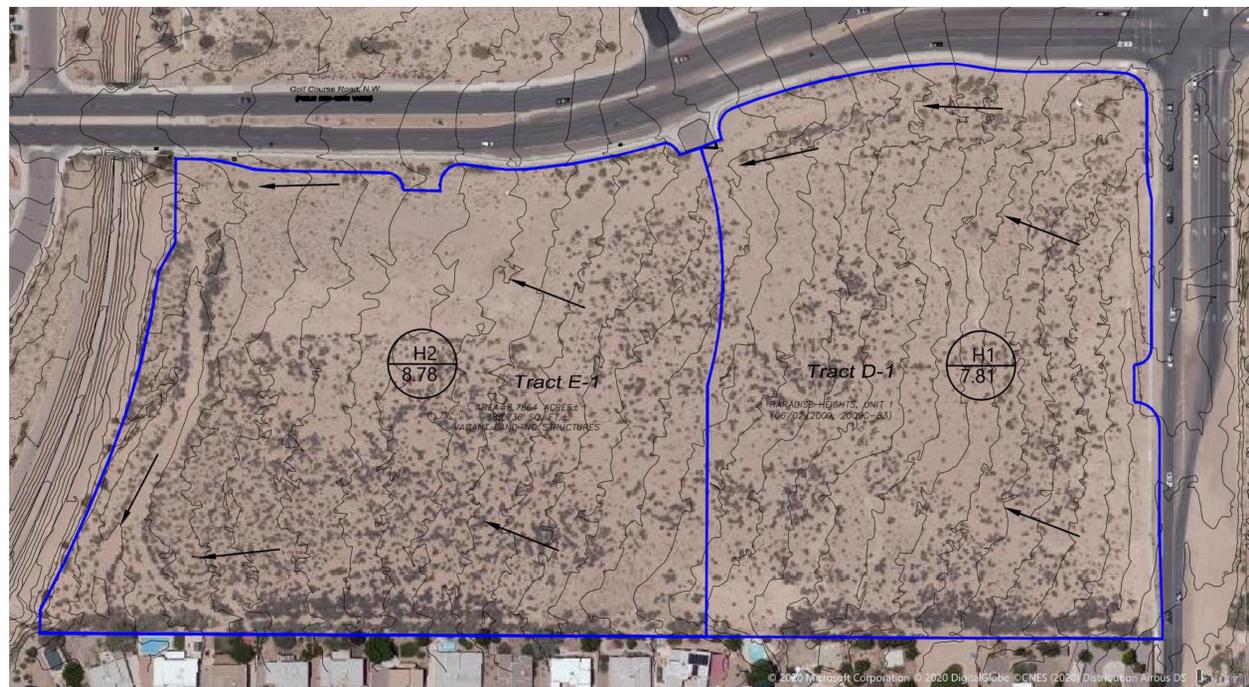
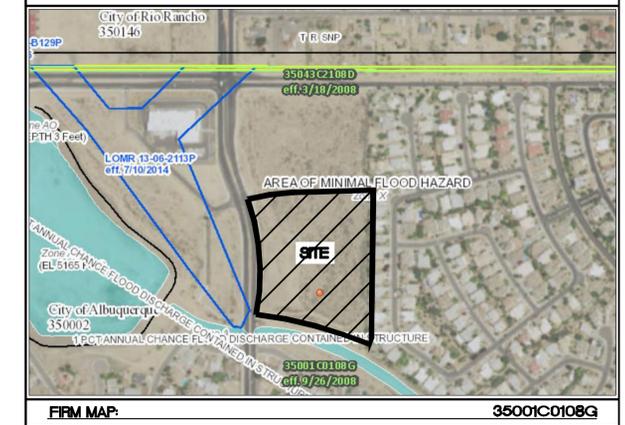
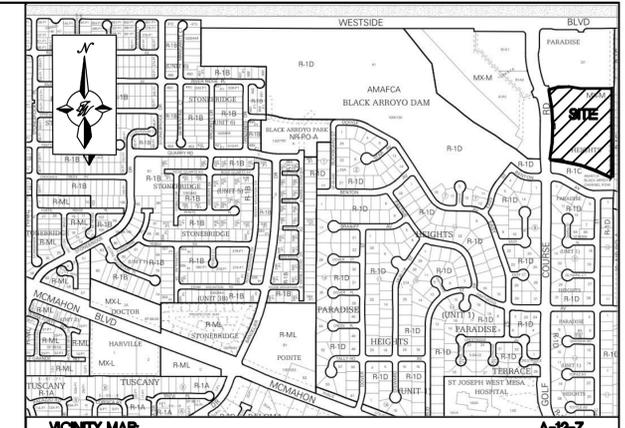
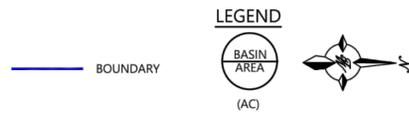
PRELIMINARY - NOT FOR CONSTRUCTION

	WINTERGREEN LUXURY APARTMENTS GOLF COURSE RD NE CONCEPTUAL GRADING & DRAINAGE PLAN	DRAWN BY BF DATE 6/26/2020 PROJECT # 2020013_GRB_VER B
6/26/2020 RONALD R. BOHANNAN P.E. #7868	5571 MIDWAY PARK PLACE NE ALBUQUERQUE, NM 87109 (505) 858-3100 www.tierrowestllc.com	SHEET # C2 JOB # 2020013

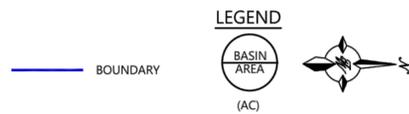
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PROPOSED BASIN MAP
DEVELOPED CONDITION - 10800 GOLF COURSE RD. NW



HISTORIC BASIN MAP
EXISTING CONDITION - 10800 GOLF COURSE RD. NW



Pipe Number	D (in)	Slope (%)	Area (ft ²)	R	Q Provided (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

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PRELIMINARY - NOT FOR CONSTRUCTION

	ENGINEER'S SEAL WINTERGREEN LUXURY APARTMENTS GOLF COURSE RD NE	DRAWN BY BF
	GRADING & DRAINAGE PLAN	DATE 6/26/2020
6/26/2020 RONALD R. BOHANNAN P.E. #7868	 5571 MIDWAY PARK PLACE NE ALBUQUERQUE, NM 87109 (505) 858-3100 www.tierrawestllc.com	SHEET # C2-B JOB # 2020013