

CITY OF ALBUQUERQUE

Planning Department
Brennon Williams, Director



Mayor Timothy M. Keller

October 2, 2020

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

**RE: Golden Townhomes
5915 Golden Ave. NW
Grading and Drainage Plan
Engineer's Stamp Date: 08/06/20
Hydrology File: E10D079**

Dear Mr. Soule:

PO Box 1293

Based upon the information provided in your submittal received 09/21/2020, the Grading & Drainage Plan is approved for Building Permit and SO-19 Permit.

Albuquerque

Please attach a copy of this approved plan in the construction sets for Building Permit processing along with a copy of this letter. Prior to approval in support of Permanent Release of Occupancy by Hydrology, Engineer Certification per the DPM checklist will be required.

NM 87103

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.

www.cabq.gov

Also as a reminder, please provide Drainage Covenant for the stormwater quality ponds per Article 6-15(C) of the DPM prior to Permanent Release of Occupancy. There is a recording fee (\$25, payable to Bernalillo County). Please contact Charlotte LaBadie (clabadie@cabq.gov, 924-3996). Due to COVID-19, please follow the instructions:

Either email a pdf copy of the executed drainage covenant and the exhibit to clabadie@cabq.gov or either mail or drop off the originals. Please mail the \$25.00 recording fee check made payable to Bernalillo County to:

Planning Dept./DRC
Attn: Charlotte LaBadie
600 2nd St. NW, Ste. 400
ABQ, NM, 87102

CITY OF ALBUQUERQUE

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If you drop off the originals, there is a drop box outside the building labeled DRC. Once approved and recorded, Charlotte will email you a copy.

If you have any questions, please contact me at 924-3995 or rbrissette@cabq.gov.

Sincerely,

A handwritten signature in purple ink that reads '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: GOLDEN TOWNHOMES **Building Permit #:** _____ **Hydrology File #:** _____
DRB#: _____ **EPC#:** _____ **Work Order#:** _____
Legal Description: LOT 0-37-A VOLCANO CLIFFS UNIT 1
City Address: UN ADDRESSED AT SWQ MONTANO AND GOLDEN

Applicant: AHMET TIRYAKI **Contact:** _____
Address: _____
Phone#: _____ **Fax#:** _____ **E-mail:** _____

Other Contact: RIO GRANDE ENGINEERING **Contact:** DAVID SOULE
Address: PO BOX 93924 ALB NM 87199
Phone#: 505.321.9099 **Fax#:** 505.872.0999 **E-mail:** david@riograndeengineering.com

TYPE OF DEVELOPMENT: ☐ PLAT ☐ RESIDENCE ☐ DRB SITE ☒ ADMIN SITE

Check all that Apply:

DEPARTMENT:
☒ HYDROLOGY/ DRAINAGE
☐ TRAFFIC/ TRANSPORTATION

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?

IS THIS A RESUBMITTAL?: ☐ Yes ☒ No

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: _____ **By:** _____

COA STAFF:

ELECTRONIC SUBMITTAL RECEIVED: _____

FEE PAID: _____

DRAINAGE REPORT

For

GOLDEN TOWN HOMES
Albuquerque, New Mexico

Prepared by

Rio Grande Engineering
PO Box 93924
Albuquerque, New Mexico 87199

SEPTEMBER 2020



9/20/20

David Soule P.E. No. 14522

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Map

Site Grading and Drainage Plan

PURPOSE

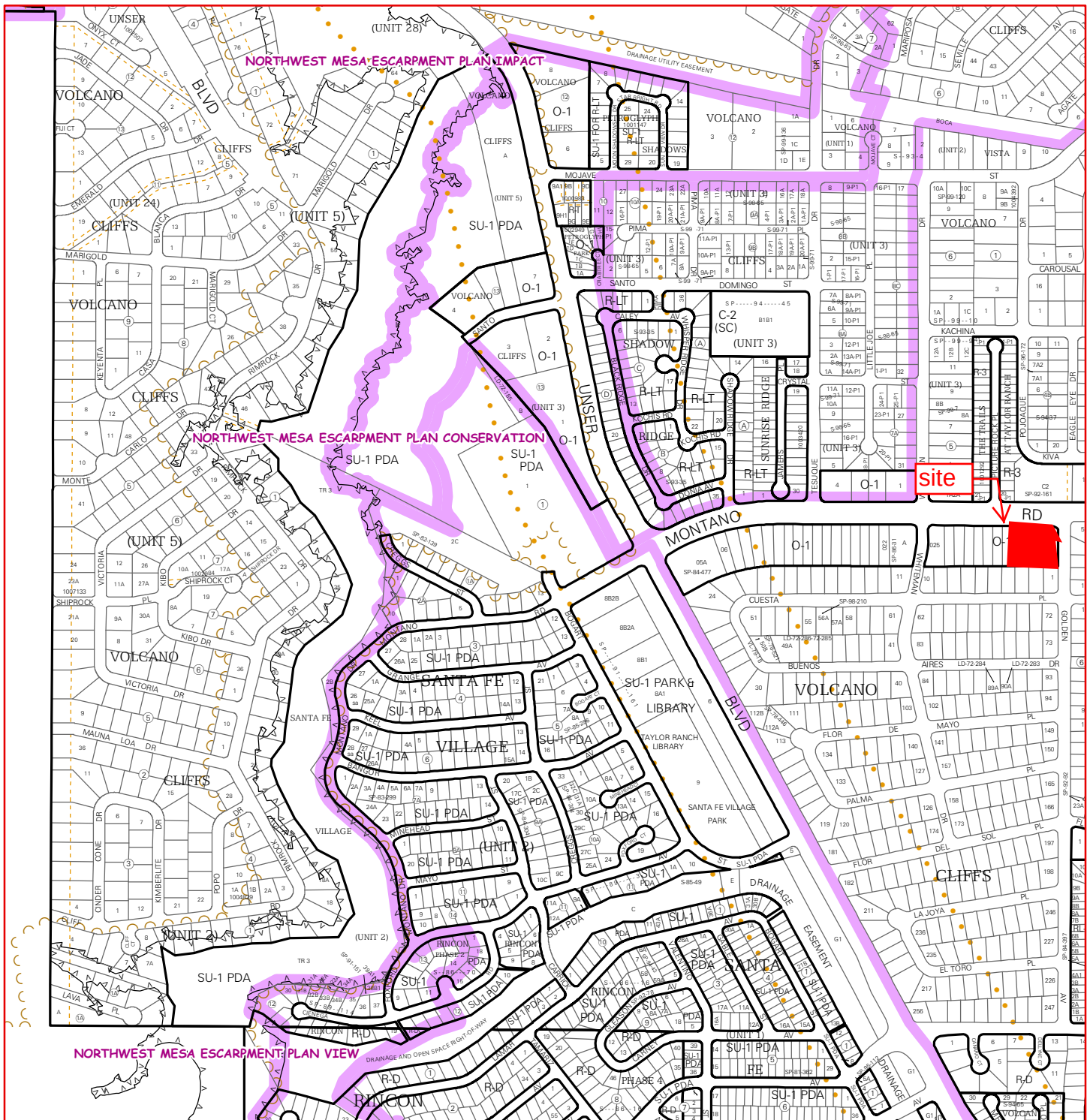
The purpose of this report is to provide the Drainage Management Plan for the development of a 1.5 acre apartment complex located at the southwest corner of Golden Avenue and Montano Road NW. This plan was prepared in accordance with the City of Albuquerque design regulations, utilizing the City of Albuquerque's Development Process Manual drainage guidelines. This report will demonstrate that the grading does not adversely affect the surrounding properties, nor the upstream or downstream facilities.

INTRODUCTION

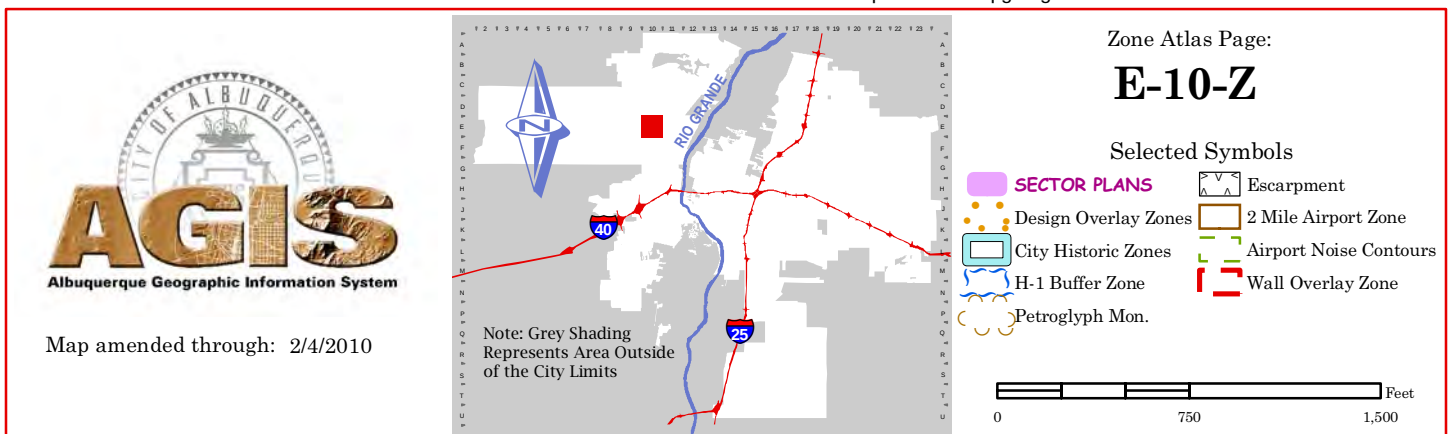
The subject of this report, as shown on the Exhibit A, is a 1.5-acre parcel of land located on the south west corner of Montano and Golden Northwest. The legal description of this site is Lot 0-37-A, Volcano Cliffs Unit 1. As shown on FIRM map35001C0114H, the entire site is located within Flood Zone X. The site does not appear to have been graded in the past, yet has significant pedestrian activity. The site contains native grasses and hard packed paths. Due to the upstream construction of a parking lot and pond, the site is not affected by any upland flows from the east. The site is surrounded by fully developed sites on all sides with walls on the south side and roads on the north and east side. The site currently free discharges as sheet flow to the adjacent Golden Avenue roadway. The development of the site will require the site to discharge at a rate equal to or less than the existing conditions and retain the first flush water quality volume onsite.

EXISTING CONDITIONS

The site is currently undeveloped and not impacted by upland flows. The site is located in flood zone x. The site currently discharges 2.13 cfs as sheet flow to the site to the east. All downstream improvements are in place and maintained by the city of Albuquerque.



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



PROPOSED CONDITIONS

The proposed improvements consist of a new 32 unit townhome style apartment complex. A drainage sub basin map and hydraulic spread sheet is included in appendix A. The proposed development contains three drainage basins. The north basin contains the northern portion of the roof of the north buildings and the rear yards. This basin generates 0.9 cfs and requires 180 cf treated for water quality. This basin retains 180 cf for water quality and the outfall is controlled by a 4" pipe acting as an orifice control. This basin discharges .25 cfs after routing through the pond with maximum water surface elevation of 5138.99. The south basin contains the southern portion of the roof of the south and the rear yards. This basin generates 0.9 cfs and requires 180 cf treated for water quality. This basin retains 200 cf for water quality and the outfall is controlled by a 3" pipe acting as an orifice control. This basin discharges 0.13 cfs after routing through the pond, with maximum water surface elevation of 5137.969. The middle of the lot contains the front of all buildings and the parking area. This basin generates 3.17 cfs and requires 950 cf treated for water quality. This basin retains 1043 cf for water quality and the outfall is controlled by a 8" pipe acting as an orifice control. The maximum water surface elevation is predicted to be 5138.08.

A stage-storage chart is included in appendix B. A model of this site and pond routing was performed using AHYMO, and located within appendix B. As shown the site will discharge 2.10 cfs to golden via 2- 2' sidewalk culverts. In the event of clogging, the ponds will overflow to Golden which is the historic outfall. As shown in appendix B, the sidewalk culverts, ponds and curb cut into pond have adequate capacity. The first flush volume provided exceeds the volume required; therefore the first flush volume is managed onsite.

SUMMARY AND RECOMMENDATIONS

This project is a development of multifamily residential infill development within the fully

developed northwest heights watershed. The development of this site will retain the first flush volume onsite. The site will discharge 2.10 cfs which is less than existing conditions of 2.13 cfs via two sidewalk culverts to Golden. The site will outfall over the sidewalk and out the driveway to Golden as an emergency overflow. The drainage structures have been adequately sized. The development of this site will not negatively impact the upstream nor down stream facilities. Since this site exceeds 1 acre, erosion and sediment Control Plan will be required, a NPDES permit will also be required prior to any construction activity.

APPENDIX A
SITE HYDROLOGY

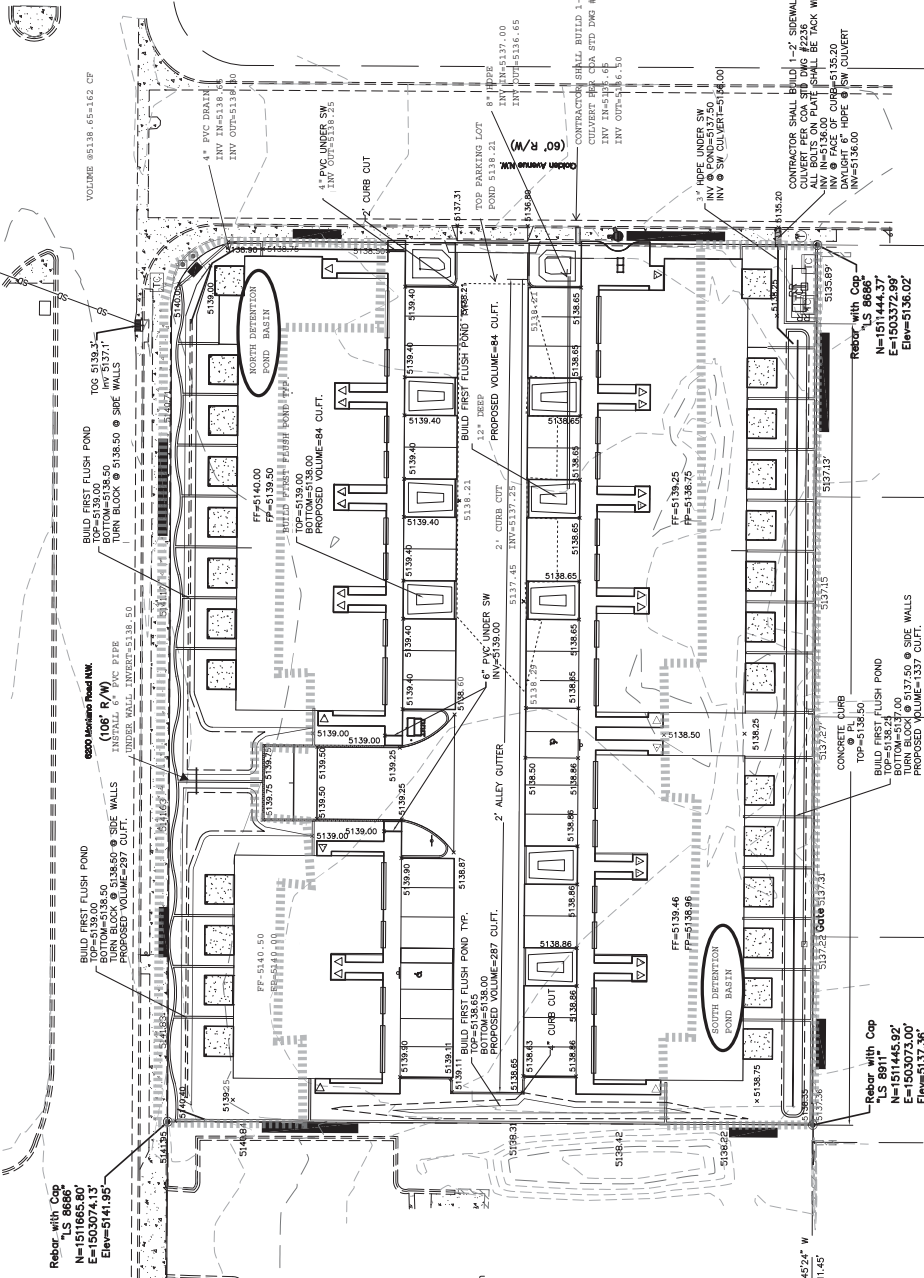
EROSION CONTROL NOTES:

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



Private Drainage Facilities within City Right-of-Way
(Special Order 15 "5013")

1. An excavation permit will be required before beginning any work.
2. All work on this project shall be performed in accordance with applicable federal, state and local laws, rules and regulations concerning construction safety and health.
3. The contractor shall be responsible for obtaining all necessary permits for the location of existing utilities.
4. Prior to construction, the contractor shall excavate and verify the location of all existing utilities.
5. Backfill compaction shall be according to traffic/street use.
6. The contractor shall be responsible for the responsibility of the owner of the property being served.
7. Work on arterial streets may be required on a 24-hour basis.
8. Contractor must contact Albuquerque Department of Public Works, Construction Division at (505) 257-3607 and inspection.



CAUTION:
EXISTING UTILITIES ARE NOT SHOWN.
IT SHALL BE THE SOLE RESPONSIBILITY
OF THE CONTRACTOR TO OBTAIN ALL
NECESSARY FIELD INVESTIGATIONS PRIOR
TO ANY EXCAVATION TO DETERMINE THE
LOCATION OF UTILITIES & OTHER
IMPROVEMENTS.

LEGAL DESCRIPTION:
LOT 0-37-A, Volcano Cliff Subdivision

NOTES:

1. ALL SPOT ELEVATIONS REPRESENT FLOWLINE ELEVATION UNLESS OTHERWISE NOTED.
2. ALL CURBS AND GUTTER TO 6" HEADER UNLESS OTHERWISE NOTED.
3. ALL RETAINING WALL DESIGN SHALL BE BY OTHERS.
4. ANY CURBS OR PAVEMENT NEGATIVELY IMPACTED BY CONSTRUCTION ACTIVITY SHALL BE REPLACED TO MATCH EXISTING CONDITIONS.
5. ALL SITE WORK SHALL CONFORM TO CITY OF ALBUQUERQUE STANDARDS FOR PUBLIC WORKS CONSTRUCTION EDITION 9

LEGEND

- EXISTING CONTOUR
- EXISTING INDEX CONTOUR
- PROPOSED CONTOUR
- PROPOSED INDEX CONTOUR
- SLOPE TIE
- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- BOUNDARY
- CENTERLINE
- RIGHT-OF-WAY
- PROPOSED CURB
- EXISTING CURB AND GUTTER
- EXISTING SIDEWALK
- RETAINING WALL (DESIGN BY OTHERS)
- ROCK PLATING-SEE DETAIL THIS SHEET

N



GRAPHIC SCALE

ENGINEER'S SEAL	5915 GOLDEN	DRAWN BY: MCAU	SHEET #
	GRADING AND DRAINAGE PLAN	DATE	JOB #
		8-05-20	2102058
		PROJECT: 2019-0001-0-0-05	
RIO GRANDE ENGINEERING		SHEET #	
1808 CENTRAL AVENUE SE		JOB #	
ALBUQUERQUE, NM 87108		2102058	
DAVID SOULE		P.E. #14522	

BASIN DATA

Basin	Area (sf)	Area (acres)	Treatment A		Treatment B		Treatment C		Treatment D		Q100 GENERATED	Q100 DISCHARGED	FIRST FLUSH REQUIRED	MWSEL
			%	(acres)	%	(acres)	%	(acres)	%	(acres)				
TOTAL SITE EXISTING	65772	1.510	75%	0.0000	20.0%	0.1483	3.0%	0.2102	2.0%	0.9149	2.13	2.13	0	0.00
NORTH DETENTION	12934	0.297	0%	0.0000	16.0%	0.0475	35.0%	0.1039	49.0%	0.1455	0.9	0.25	180	38.99
SOUTH DETENTION	12942	0.297	0%	0.0000	16.0%	0.0475	35.0%	0.1040	49.0%	0.1456	0.9	0.13	180	37.96
MIDDLE FREE DISCHARGE	39896	0.916	0%	0.0000	11.0%	0.1007	5.0%	0.0458	84.0%	0.7693	3.17	1.72	950	38.08
TOTAL SITE PROPOSE	65772.00	1.510		0.000	9.8%	0.148	9.9%	0.150	60.6%	0.915		2.10		

* SITE DISCHARGE CALCULATED UTILIZING AHYMO. THE DETENTION PONDS HAVE DIFFERENT Tp THEREFORE THE CUMULATIVE DISCHARGE IS SLIGHTLY LESS THAT THE SUMMATION OF EACH BASIN

APPENDIX B
HYDRAULIC CALCULATIONS

AHYMO.OUT

AHYMO PROGRAM (AHYMO-S4) - Version: S4.01a - Rel: 01a
 RUN DATE (MON/DAY/YR) = 09/21/2020
 START TIME (HR:MIN:SEC) = 18:32:40 USER NO.=
 RioGrandeSingleA41963517
 INPUT FILE = uments and Settings\Owner\Desktop\2020 JOBS\202079-GOLDEN
 AVE\pondrout091620.txt

*S AHYMO - GOLDEN TOWNHOMES-
 *S POND ROUTING

START TIME=0.0 PUNCH CODE=0

RAINFALL TYPE=2
 QUARTER=0.0 ONE= 1.69 IN
 SIX=2.15 IN DAY= 2.49 IN DT = 0.05 HR

24-HOUR RAINFALL DIST. - BASED ON NOAA ATLAS 14 FOR CONVECTIVE
 AREAS (NM & AZ) - D1

DT =	0.050000	HOURS	END TIME =	24.000002	HOURS
0.0000	0.0031	0.0062	0.0096	0.0133	0.0170
0.0274	0.0369	0.0471	0.0577	0.0692	0.0809
0.1054	0.1181	0.1321	0.1467	0.1626	0.1841
0.2413	0.2784	0.3242	0.3854	0.4542	0.5730
1.0740	1.2964	1.4718	1.5599	1.6372	1.6927
1.7753	1.8035	1.8294	1.8507	1.8677	1.8826
1.9085	1.9195	1.9300	1.9402	1.9500	1.9581
1.9672	1.9717	1.9758	1.9799	1.9840	1.9879
1.9955	1.9991	2.0027	2.0062	2.0096	2.0129
2.0194	2.0226	2.0257	2.0287	2.0317	2.0346
2.0404	2.0432	2.0459	2.0487	2.0514	2.0541
2.0593	2.0619	2.0644	2.0670	2.0695	2.0719
2.0768	2.0792	2.0815	2.0839	2.0862	2.0885
2.0930	2.0952	2.0974	2.0996	2.1018	2.1039
2.1081	2.1102	2.1123	2.1143	2.1163	2.1183
2.1223	2.1242	2.1262	2.1281	2.1300	2.1319
2.1356	2.1375	2.1393	2.1411	2.1429	2.1447
2.1482	2.1500	2.1517	2.1535	2.1552	2.1570
2.1604	2.1621	2.1638	2.1656	2.1673	2.1690
2.1724	2.1741	2.1757	2.1774	2.1791	2.1808
2.1841	2.1858	2.1874	2.1891	2.1907	2.1924
2.1956	2.1973	2.1989	2.2005	2.2021	2.2037
2.2069	2.2085	2.2101	2.2117	2.2133	2.2149
2.2180	2.2196	2.2212	2.2227	2.2243	2.2258
2.2289	2.2305	2.2320	2.2335	2.2350	2.2366
2.2396	2.2411	2.2426	2.2441	2.2456	2.2471
2.2500	2.2515	2.2530	2.2544	2.2559	2.2573
2.2602	2.2617	2.2631	2.2646	2.2660	2.2674
2.2703	2.2717	2.2731	2.2745	2.2759	2.2773
2.2800	2.2814	2.2828	2.2842	2.2855	2.2869
2.2896	2.2910	2.2923	2.2936	2.2950	2.2963
2.2990	2.3003	2.3016	2.3029	2.3042	2.3055
2.3081	2.3094	2.3107	2.3119	2.3132	2.3145
2.3170	2.3183	2.3195	2.3208	2.3220	2.3232
2.3257	2.3269	2.3281	2.3294	2.3306	2.3318
2.3342	2.3354	2.3366	2.3377	2.3389	2.3401
2.3424	2.3436	2.3447	2.3459	2.3470	2.3482
2.3505	2.3516	2.3527	2.3538	2.3549	2.3561
2.3583	2.3594	2.3605	2.3615	2.3626	2.3637
2.3659	2.3669	2.3680	2.3690	2.3701	2.3711
2.3732	2.3743	2.3753	2.3763	2.3773	2.3784

AHYMO.OUT

2.3804	2.3814	2.3824	2.3834	2.3844	2.3853	2.3863
2.3873	2.3883	2.3892	2.3902	2.3912	2.3921	2.3931
2.3940	2.3950	2.3959	2.3968	2.3977	2.3987	2.3996
2.4005	2.4014	2.4023	2.4032	2.4041	2.4050	2.4059
2.4068	2.4076	2.4085	2.4094	2.4102	2.4111	2.4120
2.4128	2.4136	2.4145	2.4153	2.4162	2.4170	2.4178
2.4186	2.4194	2.4202	2.4210	2.4218	2.4226	2.4234
2.4242	2.4250	2.4258	2.4266	2.4273	2.4281	2.4288
2.4296	2.4303	2.4311	2.4318	2.4326	2.4333	2.4340
2.4348	2.4355	2.4362	2.4369	2.4376	2.4383	2.4390
2.4397	2.4404	2.4410	2.4417	2.4424	2.4431	2.4437
2.4444	2.4450	2.4457	2.4463	2.4470	2.4476	2.4483
2.4489	2.4495	2.4501	2.4507	2.4513	2.4519	2.4525
2.4531	2.4537	2.4543	2.4549	2.4555	2.4561	2.4566
2.4572	2.4577	2.4583	2.4589	2.4594	2.4599	2.4605
2.4610	2.4615	2.4621	2.4626	2.4631	2.4636	2.4641
2.4646	2.4651	2.4656	2.4661	2.4666	2.4670	2.4675
2.4680	2.4684	2.4689	2.4694	2.4698	2.4703	2.4707
2.4711	2.4716	2.4720	2.4724	2.4728	2.4732	2.4737
2.4741	2.4745	2.4749	2.4752	2.4756	2.4760	2.4764
2.4768	2.4771	2.4775	2.4779	2.4782	2.4786	2.4789
2.4792	2.4796	2.4799	2.4802	2.4806	2.4809	2.4812
2.4815	2.4818	2.4821	2.4824	2.4827	2.4830	2.4833
2.4835	2.4838	2.4841	2.4843	2.4846	2.4849	2.4851
2.4854	2.4856	2.4858	2.4861	2.4863	2.4865	2.4867
2.4869	2.4871	2.4874	2.4876	2.4877	2.4879	2.4881
2.4883	2.4885	2.4887	2.4888	2.4890	2.4891	2.4893
2.4894	2.4896	2.4897	2.4899	2.4900		

*OVERALL SITE EXISTING

COMPUTE NM HYD ID=1 HYD NO=101 DA= .0023594 SQ MI
 PER A=75 PER B=20 PER C=3 PER D=2
 TP=-.170 MASSRAIN=-1

K = 0.092650HR TP = 0.170000HR K/TP RATIO = 0.545000 SHAPE
 CONSTANT, N = 7.106428
 UNIT PEAK = 0.14608 CFS UNIT VOLUME = 0.9293 B = 526.28
 P60 = 1.6900
 AREA = 0.000047 SQ MI IA = 0.10000 INCHES INF = 0.04000
 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
 0.050000

K = 0.203157HR TP = 0.170000HR K/TP RATIO = 1.195042 SHAPE
 CONSTANT, N = 2.972344
 UNIT PEAK = 3.8024 CFS UNIT VOLUME = 0.9955 B = 279.57
 P60 = 1.6900
 AREA = 0.002312 SQ MI IA = 0.61020 INCHES INF = 1.55857
 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
 0.050000

PRINT HYD ID=1 CODE=3

PARTIAL HYDROGRAPH 101.00

TIME	TIME FLOW	FLOW	TIME	TIME FLOW	FLOW	TIME	FLOW
HRS	HRS CFS	CFS	HRS	HRS CFS	CFS	HRS	CFS
4.500	0.000	0.0	1.500	1.500	1.9	3.000	0.0
	0.0			0.0			
	0.150	0.0	1.650	1.650	1.7	3.150	0.0

AHYMO.OUT							
4.650	0.0		6.150	0.0			
	0.300	0.0		1.800	0.9	3.300	0.0
4.800	0.0		6.300	0.0			
	0.450	0.0		1.950	0.4	3.450	0.0
4.950	0.0		6.450	0.0			
	0.600	0.0		2.100	0.2	3.600	0.0
5.100	0.0		6.600	0.0			
	0.750	0.0		2.250	0.2	3.750	0.0
5.250	0.0		6.750	0.0			
	0.900	0.0		2.400	0.1	3.900	0.0
5.400	0.0		6.900	0.0			
	1.050	0.0		2.550	0.1	4.050	0.0
5.550	0.0		7.050	0.0			
	1.200	0.0		2.700	0.1	4.200	0.0
5.700	0.0		7.200	0.0			
	1.350	0.2		2.850	0.1	4.350	0.0
5.850	0.0		7.350	0.0			

RUNOFF VOLUME = 0.60904 INCHES = 0.0766 ACRE-FEET
 PEAK DISCHARGE RATE = 2.13 CFS AT 1.550 HOURS BASIN AREA =
 0.0024 SQ. MI.

*NORTH BASIN
COMPUTE NM HYD

ID=2 HYD NO=102 DA= .0004641 SQ MI
 PER A=00 PER B=16 PER C=35 PER D=49
 TP=-.170 MASSRAIN=-1

K = 0.092650HR TP = 0.170000HR K/TP RATIO = 0.545000 SHAPE
 CONSTANT, N = 7.106428
 UNIT PEAK = 0.70400 CFS UNIT VOLUME = 0.9831 B = 526.28
 P60 = 1.6900
 AREA = 0.000227 SQ MI IA = 0.10000 INCHES INF = 0.04000
 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
 0.050000

K = 0.144557HR TP = 0.170000HR K/TP RATIO = 0.850333 SHAPE
 CONSTANT, N = 4.186022
 UNIT PEAK = 0.51151 CFS UNIT VOLUME = 0.9747 B = 367.39
 P60 = 1.6900
 AREA = 0.000237 SQ MI IA = 0.39706 INCHES INF = 0.96176
 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
 0.050000

PRINT HYD ID=2 CODE=3

PARTIAL HYDROGRAPH 102.00

TIME	TIME	FLOW	TIME	TIME	FLOW	TIME	FLOW
HRS	FLOW	CFS	HRS	FLOW	CFS	HRS	CFS
	HRS			HRS			
	CFS			CFS			
	0.000	0.0	4.500	0.0	9.000	0.0	
13.500	0.0		18.000	0.0			
	0.150	0.0	4.650	0.0	9.150	0.0	
13.650	0.0		18.150	0.0			
	0.300	0.0	4.800	0.0	9.300	0.0	

AHYMO.OUT						
13.800	0.0		18.300	0.0		
	0.450	0.0		4.950	0.0	9.450
13.950	0.0		18.450	0.0		
	0.600	0.0		5.100	0.0	9.600
14.100	0.0		18.600	0.0		
	0.750	0.0		5.250	0.0	9.750
14.250	0.0		18.750	0.0		
	0.900	0.0		5.400	0.0	9.900
14.400	0.0		18.900	0.0		
	1.050	0.0		5.550	0.0	10.050
14.550	0.0		19.050	0.0		
	1.200	0.1		5.700	0.0	10.200
14.700	0.0		19.200	0.0		
	1.350	0.2		5.850	0.0	10.350
14.850	0.0		19.350	0.0		
	1.500	0.8		6.000	0.0	10.500
15.000	0.0		19.500	0.0		
	1.650	0.7		6.150	0.0	10.650
15.150	0.0		19.650	0.0		
	1.800	0.3		6.300	0.0	10.800
15.300	0.0		19.800	0.0		
	1.950	0.2		6.450	0.0	10.950
15.450	0.0		19.950	0.0		
	2.100	0.1		6.600	0.0	11.100
15.600	0.0		20.100	0.0		
	2.250	0.1		6.750	0.0	11.250
15.750	0.0		20.250	0.0		
	2.400	0.0		6.900	0.0	11.400
15.900	0.0		20.400	0.0		
	2.550	0.0		7.050	0.0	11.550
16.050	0.0		20.550	0.0		
	2.700	0.0		7.200	0.0	11.700
16.200	0.0		20.700	0.0		
	2.850	0.0		7.350	0.0	11.850
16.350	0.0		20.850	0.0		
	3.000	0.0		7.500	0.0	12.000
16.500	0.0		21.000	0.0		
	3.150	0.0		7.650	0.0	12.150
16.650	0.0		21.150	0.0		
	3.300	0.0		7.800	0.0	12.300
16.800	0.0		21.300	0.0		
	3.450	0.0		7.950	0.0	12.450
16.950	0.0		21.450	0.0		
	3.600	0.0		8.100	0.0	12.600
17.100	0.0		21.600	0.0		
	3.750	0.0		8.250	0.0	12.750
17.250	0.0		21.750	0.0		
	3.900	0.0		8.400	0.0	12.900
17.400	0.0					
	4.050	0.0		8.550	0.0	13.050
17.550	0.0					
	4.200	0.0		8.700	0.0	13.200
17.700	0.0					
	4.350	0.0		8.850	0.0	13.350
17.850	0.0					

RUNOFF VOLUME = 1.54169 INCHES = 0.0382 ACRE-FEET
 PEAK DISCHARGE RATE = 0.90 CFS AT 1.550 HOURS BASIN AREA =
 0.0005 SQ. MI.

*SOUTH BASIN
 COMPUTE NM HYD ID=3 HYD NO=103 DA= .0004641 SQ MI

AHYMO.OUT
 PER A=0 PER B=16 PER C=35 PER D=49
 TP=-.170 MASSRAIN=-1

K = 0.092650HR TP = 0.170000HR K/TP RATIO = 0.545000 SHAPE
 CONSTANT, N = 7.106428
 UNIT PEAK = 0.70400 CFS UNIT VOLUME = 0.9831 B = 526.28
 P60 = 1.6900
 AREA = 0.000227 SQ MI IA = 0.10000 INCHES INF = 0.04000
 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
 0.050000

K = 0.144557HR TP = 0.170000HR K/TP RATIO = 0.850333 SHAPE
 CONSTANT, N = 4.186022
 UNIT PEAK = 0.51151 CFS UNIT VOLUME = 0.9747 B = 367.39
 P60 = 1.6900
 AREA = 0.000237 SQ MI IA = 0.39706 INCHES INF = 0.96176
 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
 0.050000

PRINT HYD ID=3 CODE=3

PARTIAL HYDROGRAPH 103.00

TIME	TIME	FLOW	TIME	TIME	FLOW	TIME	FLOW
HRS	FLOW	CFS	HRS	FLOW	CFS	HRS	CFS
	HRS			HRS			
	0.000	0.0		4.500	0.0	9.000	0.0
13.500	0.0	0.0	18.000	0.0	0.0	9.150	0.0
13.650	0.0	0.0	18.150	0.0	0.0	9.300	0.0
13.800	0.0	0.0	18.300	0.0	0.0	9.450	0.0
13.950	0.0	0.0	18.450	0.0	0.0	9.600	0.0
14.100	0.0	0.0	18.600	0.0	0.0	9.750	0.0
14.250	0.0	0.0	18.750	0.0	0.0	9.900	0.0
14.400	0.0	0.0	18.900	0.0	0.0	10.050	0.0
14.550	0.0	0.0	19.050	0.0	0.0	10.200	0.0
14.700	0.0	0.1	19.200	0.0	0.0	10.350	0.0
14.850	0.0	0.2	19.350	0.0	0.0	10.500	0.0
15.000	0.0	0.8	19.500	0.0	0.0	10.650	0.0
15.150	0.0	0.7	19.650	0.0	0.0	10.800	0.0
15.300	0.0	0.3	19.800	0.0	0.0	10.950	0.0
15.450	0.0	0.2	19.950	0.0	0.0	11.100	0.0
15.600	0.0	0.1	20.100	0.0	0.0	11.250	0.0
15.750	0.0	0.1	20.250	0.0	0.0	11.400	0.0
15.900	0.0	0.0	20.400	0.0	0.0		

	AHYMO.OUT					
16.050	2.550	0.0	7.050	0.0	11.550	0.0
	0.0		20.550	0.0		
16.200	2.700	0.0	7.200	0.0	11.700	0.0
	0.0		20.700	0.0		
16.350	2.850	0.0	7.350	0.0	11.850	0.0
	0.0		20.850	0.0		
16.500	3.000	0.0	7.500	0.0	12.000	0.0
	0.0		21.000	0.0		
16.650	3.150	0.0	7.650	0.0	12.150	0.0
	0.0		21.150	0.0		
16.800	3.300	0.0	7.800	0.0	12.300	0.0
	0.0		21.300	0.0		
16.950	3.450	0.0	7.950	0.0	12.450	0.0
	0.0		21.450	0.0		
17.100	3.600	0.0	8.100	0.0	12.600	0.0
	0.0		21.600	0.0		
17.250	3.750	0.0	8.250	0.0	12.750	0.0
	0.0		21.750	0.0		
17.400	3.900	0.0	8.400	0.0	12.900	0.0
	0.0					
17.550	4.050	0.0	8.550	0.0	13.050	0.0
	0.0					
17.700	4.200	0.0	8.700	0.0	13.200	0.0
	0.0					
17.850	4.350	0.0	8.850	0.0	13.350	0.0
	0.0					

RUNOFF VOLUME = 1.54169 INCHES = 0.0382 ACRE-FEET
 PEAK DISCHARGE RATE = 0.90 CFS AT 1.550 HOURS BASIN AREA =
 0.0005 SQ. MI.

*MIDDLE BASIN
 COMPUTE NM HYD

ID=4 HYD NO=104 DA= .001431 SQ MI
 PER A=0 PER B=11PER C=5 PER D=84
 TP=-.170 MASSRAIN=-1

K = 0.092650HR TP = 0.170000HR K/TP RATIO = 0.545000 SHAPE
 CONSTANT, N = 7.106428
 UNIT PEAK = 3.7212 CFS UNIT VOLUME = 0.9970 B = 526.28
 P60 = 1.6900
 AREA = 0.001202 SQ MI IA = 0.10000 INCHES INF = 0.04000
 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
 0.050000

K = 0.159011HR TP = 0.170000HR K/TP RATIO = 0.935358 SHAPE
 CONSTANT, N = 3.781043
 UNIT PEAK = 0.45833 CFS UNIT VOLUME = 0.9707 B = 340.30
 P60 = 1.6900
 AREA = 0.000229 SQ MI IA = 0.45312 INCHES INF = 1.11875
 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
 0.050000

PRINT HYD ID=4 CODE=3

PARTIAL HYDROGRAPH 104.00

TIME	FLOW	TIME	FLOW	TIME	FLOW
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		AHYMO.OUT					
TIME	FLOW		TIME	FLOW			
HRS	HRS	CFS	HRS	HRS	CFS	HRS	CFS
	CFS			CFS			
	0.000	0.0		4.950	0.0	9.900	0.0
14.850	0.0		19.800	0.0			
	0.150	0.0		5.100	0.0	10.050	0.0
15.000	0.0		19.950	0.0			
	0.300	0.0		5.250	0.0	10.200	0.0
15.150	0.0		20.100	0.0			
	0.450	0.0		5.400	0.0	10.350	0.0
15.300	0.0		20.250	0.0			
	0.600	0.0		5.550	0.0	10.500	0.0
15.450	0.0		20.400	0.0			
	0.750	0.0		5.700	0.0	10.650	0.0
15.600	0.0		20.550	0.0			
	0.900	0.1		5.850	0.0	10.800	0.0
15.750	0.0		20.700	0.0			
	1.050	0.2		6.000	0.0	10.950	0.0
15.900	0.0		20.850	0.0			
	1.200	0.4		6.150	0.0	11.100	0.0
16.050	0.0		21.000	0.0			
	1.350	0.9		6.300	0.0	11.250	0.0
16.200	0.0		21.150	0.0			
	1.500	2.9		6.450	0.0	11.400	0.0
16.350	0.0		21.300	0.0			
	1.650	2.4		6.600	0.0	11.550	0.0
16.500	0.0		21.450	0.0			
	1.800	1.2		6.750	0.0	11.700	0.0
16.650	0.0		21.600	0.0			
	1.950	0.7		6.900	0.0	11.850	0.0
16.800	0.0		21.750	0.0			
	2.100	0.4		7.050	0.0	12.000	0.0
16.950	0.0		21.900	0.0			
	2.250	0.3		7.200	0.0	12.150	0.0
17.100	0.0		22.050	0.0			
	2.400	0.2		7.350	0.0	12.300	0.0
17.250	0.0		22.200	0.0			
	2.550	0.1		7.500	0.0	12.450	0.0
17.400	0.0		22.350	0.0			
	2.700	0.1		7.650	0.0	12.600	0.0
17.550	0.0		22.500	0.0			
	2.850	0.0		7.800	0.0	12.750	0.0
17.700	0.0		22.650	0.0			
	3.000	0.0		7.950	0.0	12.900	0.0
17.850	0.0		22.800	0.0			
	3.150	0.0		8.100	0.0	13.050	0.0
18.000	0.0		22.950	0.0			
	3.300	0.0		8.250	0.0	13.200	0.0
18.150	0.0		23.100	0.0			
	3.450	0.0		8.400	0.0	13.350	0.0
18.300	0.0		23.250	0.0			
	3.600	0.0		8.550	0.0	13.500	0.0
18.450	0.0		23.400	0.0			
	3.750	0.0		8.700	0.0	13.650	0.0
18.600	0.0		23.550	0.0			
	3.900	0.0		8.850	0.0	13.800	0.0
18.750	0.0		23.700	0.0			
	4.050	0.0		9.000	0.0	13.950	0.0
18.900	0.0		23.850	0.0			
	4.200	0.0		9.150	0.0	14.100	0.0
19.050	0.0		24.000	0.0			
	4.350	0.0		9.300	0.0	14.250	0.0
19.200	0.0		24.150	0.0			
	4.500	0.0		9.450	0.0	14.400	0.0
19.350	0.0						
	4.650	0.0		9.600	0.0	14.550	0.0

AHYMO.OUT

19.500 0.0
 4.800 0.0 9.750 0.0 14.700 0.0
 19.650 0.0

RUNOFF VOLUME = 2.00807 INCHES = 0.1533 ACRE-FEET
 PEAK DISCHARGE RATE = 3.17 CFS AT 1.550 HOURS BASIN AREA =
 0.0014 SQ. MI.

* ROUTE THE NORTH BASIN FLOW THROUGH THE PROPOSED RESERVOIR
 ROUTE RESERVOIR ID=5 HYD NO=105 INFLOW=2 CODE=3
 OUTFLOW(CFS) STORAGE(AC-FT) ELEV(FT)
 0.00 0.0037 38.65
 0.25 0.0240 39.00

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
0.00	0.00	38.65	0.004	0.00
0.15	0.00	38.65	0.004	0.00
0.30	0.00	38.65	0.004	0.00
0.45	0.00	38.65	0.004	0.00
0.60	0.00	38.65	0.004	0.00
0.75	0.00	38.65	0.004	0.00
0.90	0.02	38.65	0.004	0.00
1.05	0.04	38.66	0.004	0.01
1.20	0.08	38.67	0.005	0.01
1.35	0.22	38.69	0.006	0.03
1.50	0.82	38.79	0.012	0.10
1.65	0.70	38.93	0.020	0.20
1.80	0.33	38.99	0.023	0.24
1.95	0.17	38.99	0.023	0.24
2.10	0.11	38.97	0.022	0.23
2.25	0.07	38.94	0.021	0.21
2.40	0.05	38.91	0.019	0.19
2.55	0.03	38.88	0.017	0.17
2.70	0.01	38.85	0.015	0.14
2.85	0.01	38.83	0.014	0.13
3.00	0.01	38.80	0.012	0.11
3.15	0.00	38.78	0.011	0.09
3.30	0.00	38.76	0.010	0.08
3.45	0.00	38.75	0.009	0.07
3.60	0.00	38.74	0.009	0.06
3.75	0.00	38.72	0.008	0.05
3.90	0.00	38.71	0.007	0.05
4.05	0.00	38.71	0.007	0.04
4.20	0.00	38.70	0.007	0.03
4.35	0.00	38.69	0.006	0.03
4.50	0.00	38.69	0.006	0.03
4.65	0.00	38.68	0.006	0.02
4.80	0.00	38.68	0.005	0.02
4.95	0.00	38.68	0.005	0.02
5.10	0.00	38.67	0.005	0.02
5.25	0.00	38.67	0.005	0.01
5.40	0.00	38.67	0.005	0.01
5.55	0.00	38.67	0.005	0.01
5.70	0.00	38.67	0.005	0.01

AHYMO.OUT

5.85	0.00	38.66	0.005	0.01
6.00	0.00	38.66	0.004	0.01
6.15	0.01	38.66	0.004	0.01
6.30	0.01	38.66	0.004	0.01
6.45	0.01	38.66	0.004	0.01
6.60	0.01	38.66	0.004	0.01
6.75	0.01	38.66	0.004	0.01
6.90	0.00	38.66	0.004	0.01
7.05	0.00	38.66	0.004	0.01
7.20	0.00	38.66	0.004	0.01
7.35	0.00	38.66	0.004	0.01
7.50	0.00	38.66	0.004	0.01
7.65	0.00	38.66	0.004	0.01
7.80	0.00	38.66	0.004	0.01
7.95	0.00	38.66	0.004	0.01
8.10	0.00	38.66	0.004	0.01
8.25	0.00	38.66	0.004	0.01

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
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8.40	0.00	38.66	0.004	0.01
8.55	0.00	38.66	0.004	0.01
8.70	0.00	38.66	0.004	0.00

PEAK DISCHARGE = 0.246 CFS - PEAK OCCURS AT HOUR 1.85

MAXIMUM WATER SURFACE ELEVATION = 38.994

MAXIMUM STORAGE = 0.0237 AC-FT INCREMENTAL TIME= 0.050000HRS

* ROUTE THE SOUTH BASIN FLOW THROUGH THE PROPOSED RESERVOIR

ROUTE RESERVOIR	ID=6	HYD NO=106	INFLOW=3	CODE=3
	OUTFLOW(CFS)	STORAGE(AC-FT)	ELEV(FT)	
	0.00	0.001	37.50	
	0.20	0.041	38.25	

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
---------------	-----------------	----------------	-------------------	------------------

0.00	0.00	37.50	0.001	0.00
0.15	0.00	37.50	0.001	0.00
0.30	0.00	37.50	0.001	0.00
0.45	0.00	37.50	0.001	0.00
0.60	0.00	37.50	0.001	0.00
0.75	0.00	37.50	0.001	0.00
0.90	0.02	37.50	0.001	0.00
1.05	0.04	37.51	0.002	0.00
1.20	0.08	37.52	0.002	0.01
1.35	0.22	37.55	0.004	0.01
1.50	0.82	37.66	0.010	0.04
1.65	0.70	37.84	0.019	0.09
1.80	0.33	37.93	0.024	0.11
1.95	0.17	37.96	0.025	0.12
2.10	0.11	37.96	0.026	0.12
2.25	0.07	37.95	0.025	0.12
2.40	0.05	37.94	0.024	0.12
2.55	0.03	37.92	0.023	0.11
2.70	0.01	37.90	0.022	0.11
2.85	0.01	37.88	0.021	0.10
3.00	0.01	37.86	0.020	0.10
3.15	0.00	37.84	0.019	0.09
3.30	0.00	37.82	0.018	0.08
3.45	0.00	37.80	0.017	0.08

			AHYMO.OUT	
3.60	0.00	37.78	0.016	0.08
3.75	0.00	37.77	0.015	0.07
3.90	0.00	37.75	0.014	0.07
4.05	0.00	37.74	0.014	0.06
4.20	0.00	37.72	0.013	0.06
4.35	0.00	37.71	0.012	0.06
4.50	0.00	37.70	0.012	0.05
4.65	0.00	37.69	0.011	0.05
4.80	0.00	37.68	0.010	0.05
4.95	0.00	37.67	0.010	0.04
5.10	0.00	37.66	0.009	0.04
5.25	0.00	37.65	0.009	0.04
5.40	0.00	37.64	0.009	0.04
5.55	0.00	37.63	0.008	0.04
5.70	0.00	37.63	0.008	0.03
5.85	0.00	37.62	0.007	0.03
6.00	0.00	37.61	0.007	0.03
6.15	0.01	37.61	0.007	0.03
6.30	0.01	37.60	0.007	0.03
6.45	0.01	37.60	0.006	0.03
6.60	0.01	37.59	0.006	0.02
6.75	0.01	37.59	0.006	0.02
6.90	0.00	37.58	0.006	0.02
7.05	0.00	37.58	0.005	0.02
7.20	0.00	37.58	0.005	0.02
7.35	0.00	37.57	0.005	0.02
7.50	0.00	37.57	0.005	0.02
7.65	0.00	37.57	0.005	0.02
7.80	0.00	37.56	0.004	0.02
7.95	0.00	37.56	0.004	0.02
8.10	0.00	37.56	0.004	0.02
8.25	0.00	37.56	0.004	0.01

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
8.40	0.00	37.55	0.004	0.01
8.55	0.00	37.55	0.004	0.01
8.70	0.00	37.55	0.004	0.01
8.85	0.00	37.55	0.004	0.01
9.00	0.00	37.55	0.003	0.01
9.15	0.00	37.54	0.003	0.01
9.30	0.00	37.54	0.003	0.01
9.45	0.00	37.54	0.003	0.01
9.60	0.00	37.54	0.003	0.01
9.75	0.00	37.54	0.003	0.01
9.90	0.00	37.54	0.003	0.01
10.05	0.00	37.54	0.003	0.01
10.20	0.00	37.53	0.003	0.01
10.35	0.00	37.53	0.003	0.01
10.50	0.00	37.53	0.003	0.01
10.65	0.00	37.53	0.003	0.01
10.80	0.00	37.53	0.003	0.01
10.95	0.00	37.53	0.003	0.01
11.10	0.00	37.53	0.002	0.01
11.25	0.00	37.53	0.002	0.01
11.40	0.00	37.53	0.002	0.01
11.55	0.00	37.53	0.002	0.01
11.70	0.00	37.53	0.002	0.01
11.85	0.00	37.52	0.002	0.01
12.00	0.00	37.52	0.002	0.01
12.15	0.00	37.52	0.002	0.01
12.30	0.00	37.52	0.002	0.01
12.45	0.00	37.52	0.002	0.01
12.60	0.00	37.52	0.002	0.01
12.75	0.00	37.52	0.002	0.01

AHYMO.OUT

12.90	0.00	37.52	0.002	0.01
13.05	0.00	37.52	0.002	0.01
13.20	0.00	37.52	0.002	0.01
13.35	0.00	37.52	0.002	0.01
13.50	0.00	37.52	0.002	0.00

PEAK DISCHARGE = 0.123 CFS - PEAK OCCURS AT HOUR 2.05
 MAXIMUM WATER SURFACE ELEVATION = 37.963
 MAXIMUM STORAGE = 0.0257 AC-FT INCREMENTAL TIME= 0.050000HRS

* ROUTE THE PARKING LOTBASIN FLOW THROUGH THE PROPOSED RESERVOIR
 ROUTE RESERVOIR ID=7 HYD NO=107 INFLOW=4 CODE=3

OUTFLOW(CFS)	STORAGE(AC-FT)	ELEV(FT)
0.00	0.0001	37.00
0.99	0.001	37.35
1.85	0.036	38.21

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
0.00	0.00	37.00	0.000	0.00
0.15	0.00	37.00	0.000	0.00
0.30	0.00	37.00	0.000	0.00
0.45	0.00	37.00	0.000	0.00
0.60	0.00	37.00	0.000	0.00
0.75	0.01	37.00	0.000	0.01
0.90	0.11	37.04	0.000	0.11
1.05	0.22	37.07	0.000	0.21
1.20	0.42	37.14	0.000	0.40
1.35	0.91	37.30	0.001	0.85
1.50	2.89	37.58	0.010	1.22
1.65	2.44	38.03	0.028	1.67
1.80	1.23	38.05	0.029	1.69
1.95	0.71	37.85	0.021	1.49
2.10	0.44	37.60	0.011	1.24
2.25	0.29	37.37	0.002	1.01
2.40	0.21	37.08	0.000	0.21
2.55	0.12	37.05	0.000	0.13
2.70	0.08	37.03	0.000	0.08
2.85	0.05	37.02	0.000	0.05
3.00	0.03	37.01	0.000	0.04
3.15	0.03	37.01	0.000	0.03
3.30	0.02	37.01	0.000	0.02
3.45	0.02	37.01	0.000	0.02
3.60	0.02	37.01	0.000	0.02
3.75	0.02	37.01	0.000	0.02
3.90	0.02	37.01	0.000	0.02
4.05	0.02	37.01	0.000	0.02
4.20	0.02	37.01	0.000	0.02
4.35	0.02	37.01	0.000	0.02
4.50	0.02	37.01	0.000	0.02
4.65	0.02	37.01	0.000	0.02
4.80	0.02	37.01	0.000	0.02
4.95	0.02	37.01	0.000	0.02
5.10	0.02	37.01	0.000	0.02
5.25	0.02	37.01	0.000	0.02
5.40	0.02	37.01	0.000	0.02
5.55	0.02	37.01	0.000	0.02
5.70	0.02	37.01	0.000	0.02
5.85	0.03	37.01	0.000	0.03
6.00	0.03	37.01	0.000	0.03
6.15	0.03	37.01	0.000	0.03
6.30	0.03	37.01	0.000	0.03
6.45	0.03	37.01	0.000	0.03
6.60	0.03	37.01	0.000	0.03

AHYMO.OUT				
6.75	0.03	37.01	0.000	0.03
6.90	0.03	37.01	0.000	0.03
7.05	0.03	37.01	0.000	0.03
7.20	0.03	37.01	0.000	0.03
7.35	0.03	37.01	0.000	0.03
7.50	0.03	37.01	0.000	0.03
7.65	0.03	37.01	0.000	0.03
7.80	0.02	37.01	0.000	0.02
7.95	0.02	37.01	0.000	0.02
8.10	0.02	37.01	0.000	0.02
8.25	0.02	37.01	0.000	0.02
TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
8.40	0.02	37.01	0.000	0.02
8.55	0.02	37.01	0.000	0.02
8.70	0.02	37.01	0.000	0.02
8.85	0.02	37.01	0.000	0.02
9.00	0.02	37.01	0.000	0.02
9.15	0.02	37.01	0.000	0.02
9.30	0.02	37.01	0.000	0.02
9.45	0.02	37.01	0.000	0.02
9.60	0.02	37.01	0.000	0.02
9.75	0.02	37.01	0.000	0.02
9.90	0.02	37.01	0.000	0.02
10.05	0.02	37.01	0.000	0.02
10.20	0.02	37.01	0.000	0.02
10.35	0.02	37.01	0.000	0.02
10.50	0.02	37.01	0.000	0.02
10.65	0.02	37.01	0.000	0.02
10.80	0.02	37.01	0.000	0.02
10.95	0.02	37.01	0.000	0.02
11.10	0.02	37.01	0.000	0.02
11.25	0.02	37.01	0.000	0.02
11.40	0.02	37.01	0.000	0.02
11.55	0.02	37.01	0.000	0.02
11.70	0.02	37.01	0.000	0.02
11.85	0.02	37.01	0.000	0.02
12.00	0.02	37.01	0.000	0.02
12.15	0.02	37.01	0.000	0.02
12.30	0.02	37.01	0.000	0.02
12.45	0.02	37.01	0.000	0.02
12.60	0.02	37.01	0.000	0.02
12.75	0.02	37.01	0.000	0.02
12.90	0.02	37.01	0.000	0.02
13.05	0.02	37.01	0.000	0.02
13.20	0.02	37.01	0.000	0.02
13.35	0.02	37.01	0.000	0.02
13.50	0.02	37.01	0.000	0.02
13.65	0.02	37.01	0.000	0.02
13.80	0.02	37.01	0.000	0.02
13.95	0.02	37.01	0.000	0.02
14.10	0.02	37.01	0.000	0.02
14.25	0.02	37.01	0.000	0.02
14.40	0.02	37.01	0.000	0.02
14.55	0.02	37.01	0.000	0.02
14.70	0.02	37.01	0.000	0.02
14.85	0.02	37.01	0.000	0.02
15.00	0.02	37.01	0.000	0.02
15.15	0.01	37.01	0.000	0.01
15.30	0.01	37.01	0.000	0.01
15.45	0.01	37.01	0.000	0.01
15.60	0.01	37.00	0.000	0.01
15.75	0.01	37.00	0.000	0.01
15.90	0.01	37.00	0.000	0.01

			AHYMO.OUT	
16.05	0.01	37.00	0.000	0.01
16.20	0.01	37.00	0.000	0.01
16.35	0.01	37.00	0.000	0.01
16.50	0.01	37.00	0.000	0.01
16.65	0.01	37.00	0.000	0.01

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
16.80	0.01	37.00	0.000	0.01
16.95	0.01	37.00	0.000	0.01
17.10	0.01	37.00	0.000	0.01
17.25	0.01	37.00	0.000	0.01
17.40	0.01	37.00	0.000	0.01
17.55	0.01	37.00	0.000	0.01
17.70	0.01	37.00	0.000	0.01
17.85	0.01	37.00	0.000	0.01
18.00	0.01	37.00	0.000	0.01
18.15	0.01	37.00	0.000	0.01
18.30	0.01	37.00	0.000	0.01
18.45	0.01	37.00	0.000	0.01
18.60	0.01	37.00	0.000	0.01
18.75	0.01	37.00	0.000	0.01
18.90	0.01	37.00	0.000	0.01
19.05	0.01	37.00	0.000	0.01
19.20	0.01	37.00	0.000	0.01
19.35	0.01	37.00	0.000	0.01
19.50	0.01	37.00	0.000	0.01
19.65	0.01	37.00	0.000	0.01
19.80	0.01	37.00	0.000	0.01
19.95	0.01	37.00	0.000	0.01
20.10	0.01	37.00	0.000	0.01
20.25	0.01	37.00	0.000	0.01
20.40	0.01	37.00	0.000	0.01
20.55	0.01	37.00	0.000	0.01
20.70	0.01	37.00	0.000	0.01
20.85	0.01	37.00	0.000	0.01
21.00	0.01	37.00	0.000	0.01
21.15	0.01	37.00	0.000	0.01
21.30	0.01	37.00	0.000	0.01
21.45	0.01	37.00	0.000	0.01
21.60	0.01	37.00	0.000	0.01
21.75	0.01	37.00	0.000	0.01
21.90	0.01	37.00	0.000	0.01
22.05	0.01	37.00	0.000	0.01
22.20	0.00	37.00	0.000	0.00

PEAK DISCHARGE = 1.718 CFS - PEAK OCCURS AT HOUR 1.75
 MAXIMUM WATER SURFACE ELEVATION = 38.078
 MAXIMUM STORAGE = 0.0306 AC-FT INCREMENTAL TIME= 0.050000HRS

* TOTAL DISCHARGE PROPOSED- ONSITE ROUTED

ADD HYD	ID=8	HYD NO=108	ID I=5	ID II=6
ADD HYD	ID=9	HYD NO=109	ID I=7	ID II=8

PRINT HYD ID=9 CODE=3

PARTIAL HYDROGRAPH 109.00

TIME	TIME FLOW	FLOW	TIME	TIME FLOW	FLOW	TIME	FLOW
HRS	HRS CFS	CFS	HRS	HRS CFS	CFS	HRS	CFS
	0.000	0.0		4.950	0.1		9.900
							0.0

AHYMO.OUT						
14.850	0.0		19.800	0.0		
	0.150	0.0		5.100	0.1	10.050
15.000	0.0		19.950	0.0		
	0.300	0.0		5.250	0.1	10.200
15.150	0.0		20.100	0.0		
	0.450	0.0		5.400	0.1	10.350
15.300	0.0		20.250	0.0		
	0.600	0.0		5.550	0.1	10.500
15.450	0.0		20.400	0.0		
	0.750	0.0		5.700	0.1	10.650
15.600	0.0		20.550	0.0		
	0.900	0.1		5.850	0.1	10.800
15.750	0.0		20.700	0.0		
	1.050	0.2		6.000	0.1	10.950
15.900	0.0		20.850	0.0		
	1.200	0.4		6.150	0.1	11.100
16.050	0.0		21.000	0.0		
	1.350	0.9		6.300	0.1	11.250
16.200	0.0		21.150	0.0		
	1.500	1.4		6.450	0.1	11.400
16.350	0.0		21.300	0.0		
	1.650	2.0		6.600	0.1	11.550
16.500	0.0		21.450	0.0		
	1.800	2.0		6.750	0.1	11.700
16.650	0.0		21.600	0.0		
	1.950	1.9		6.900	0.1	11.850
16.800	0.0		21.750	0.0		
	2.100	1.6		7.050	0.1	12.000
16.950	0.0		21.900	0.0		
	2.250	1.3		7.200	0.1	12.150
17.100	0.0		22.050	0.0		
	2.400	0.5		7.350	0.1	12.300
17.250	0.0		22.200	0.0		
	2.550	0.4		7.500	0.1	12.450
17.400	0.0		22.350	0.0		
	2.700	0.3		7.650	0.0	12.600
17.550	0.0		22.500	0.0		
	2.850	0.3		7.800	0.0	12.750
17.700	0.0		22.650	0.0		
	3.000	0.2		7.950	0.0	12.900
17.850	0.0		22.800	0.0		
	3.150	0.2		8.100	0.0	13.050
18.000	0.0		22.950	0.0		
	3.300	0.2		8.250	0.0	13.200
18.150	0.0		23.100	0.0		
	3.450	0.2		8.400	0.0	13.350
18.300	0.0		23.250	0.0		
	3.600	0.2		8.550	0.0	13.500
18.450	0.0		23.400	0.0		
	3.750	0.1		8.700	0.0	13.650
18.600	0.0		23.550	0.0		
	3.900	0.1		8.850	0.0	13.800
18.750	0.0		23.700	0.0		
	4.050	0.1		9.000	0.0	13.950
18.900	0.0		23.850	0.0		
	4.200	0.1		9.150	0.0	14.100
19.050	0.0		24.000	0.0		
	4.350	0.1		9.300	0.0	14.250
19.200	0.0		24.150	0.0		
	4.500	0.1		9.450	0.0	14.400
19.350	0.0					
	4.650	0.1		9.600	0.0	14.550
19.500	0.0					
	4.800	0.1		9.750	0.0	14.700
19.650	0.0					

STAGE/STORAGE VOLUME CALCULATIONS

SOUTH

OUTFALL

ACTUAL ELEV.	DEPTH (FT)	AREA SF	VOLUME PER UNIT	VOLUME CUMULATIVE	VOLUME AC-FT	Q (CFS)
37.00	0.00	100.00	0	0	0.000	0.00
37.50	0.00	700.00	200.00	200.00	0.001	0.00
38.25	0.75	2774.00	1737.00	1937.00	0.044	0.20

Orifice Equation
 $Q = CA \sqrt{2gH}$

C = 0.6
Diameter (in) 3
Area (ft^2)= 0.049087385
g = 32.2
H (Ft) = Depth of water above center of orifice
Q (CFS)= Flow

STAGE/STORAGE VOLUME CALCULATIONS
NORTH

OUTFALL

ACTUAL ELEV.	DEPTH (FT)	AREA SF	VOLUME PER UNIT	VOLUME CUMULATIVE	VOLUME AC-FT	Q (CFS)
38.50	0.00	1095.00	0	0	0.000	0.00
38.65	0.00	1302.00	179.78	180	0.0041	0.00
39.00	0.35	3920.00	913.85	1094	0.025	0.25

Orifice Equation
Q = CA SQRT(2gH)

C = 0.6
Diameter (in) 4
Area (ft^2)= 0.087266463
g = 32.2
H (Ft) = Depth of water above center of orifice
Q (CFS)= Flow

STAGE/STORAGE VOLUME CALCULATIONS

PARKING LOT

OUTFALL

ACTUAL ELEV.	DEPTH (FT)	AREA SF	VOLUME PER UNIT	VOLUME CUMULATIVE	VOLUME AC-FT	Q (CFS)
37.00	0.00	27.00	0	0	0.000	0.00
37.35	0.35	122.00	63.33	63.325	0.001	0.99
38.21	1.21	3875.00	1498.88	1562.2	0.036	1.85

Orifice Equation
Q = CA SQRT(2gH)

43.56

C = 0.6
Diameter (in) 8
Area (ft^2)= 0.34906585
g = 32.2
H (Ft) = Depth of water above center of orifice
Q (CFS)= Flow

SIDEWALK CULVERTS

Weir Equation:

$$Q = CLH^{3/2}$$

West drainage swale thru walls

$$Q = 2.92 \text{ cfs}$$

$$C = 2.95$$

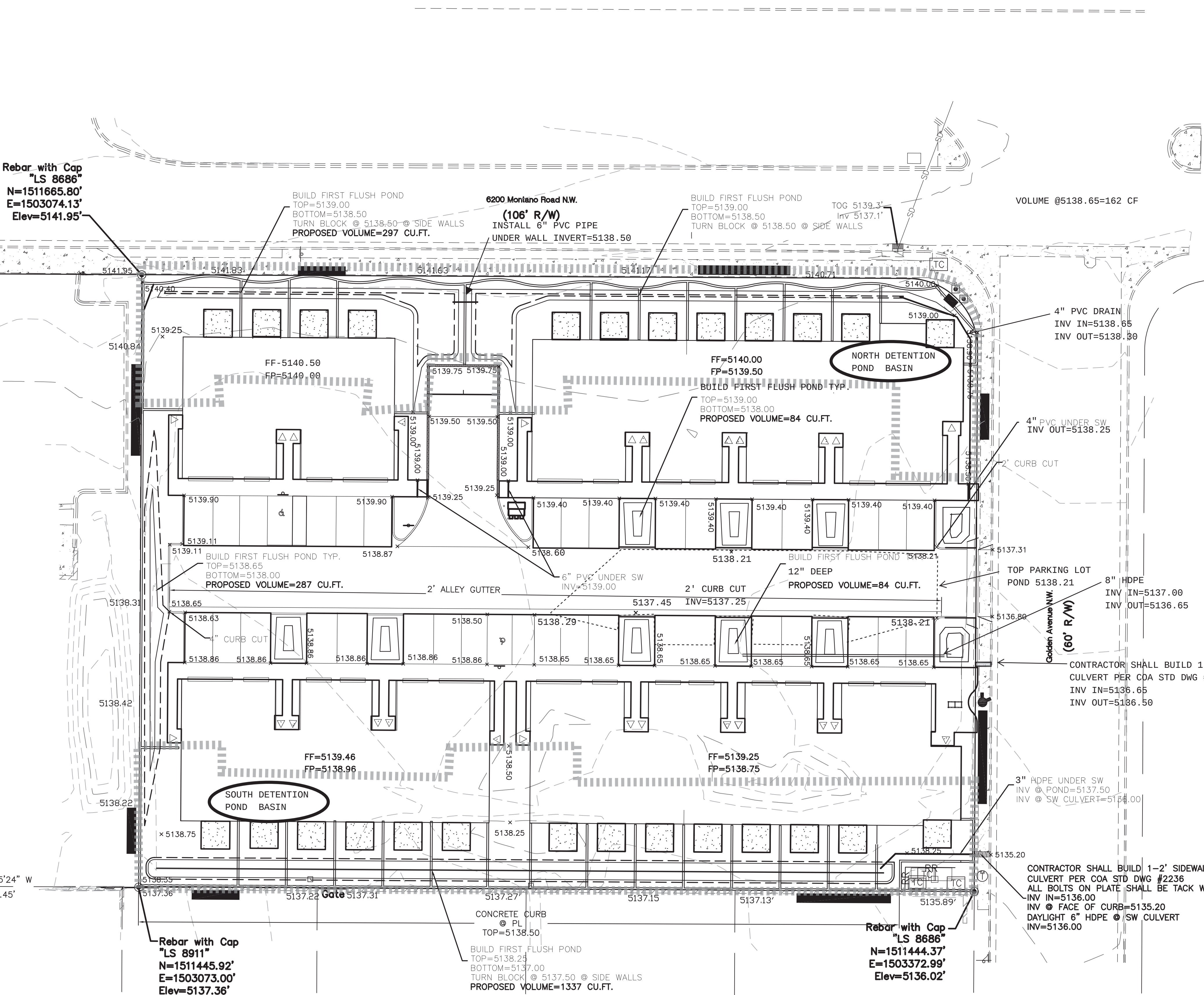
$$H = 0.67 \text{ ft}$$

L = Length of weir

$$Q = 2.95 * 2 * ((0.67)^{(3/2)})$$

Each culvert has capacity of 3.23 cfs

CAUTION:
EXISTING UTILITIES ARE NOT SHOWN.
IT SHALL BE THE SOLE RESPONSIBILITY
OF THE CONTRACTOR TO CONDUCT ALL
NECESSARY FIELD INVESTIGATIONS PRIOR
TO ANY EXCAVATION TO DETERMINE THE
ACTUAL LOCATION OF UTILITIES & OTHER
IMPROVEMENTS.

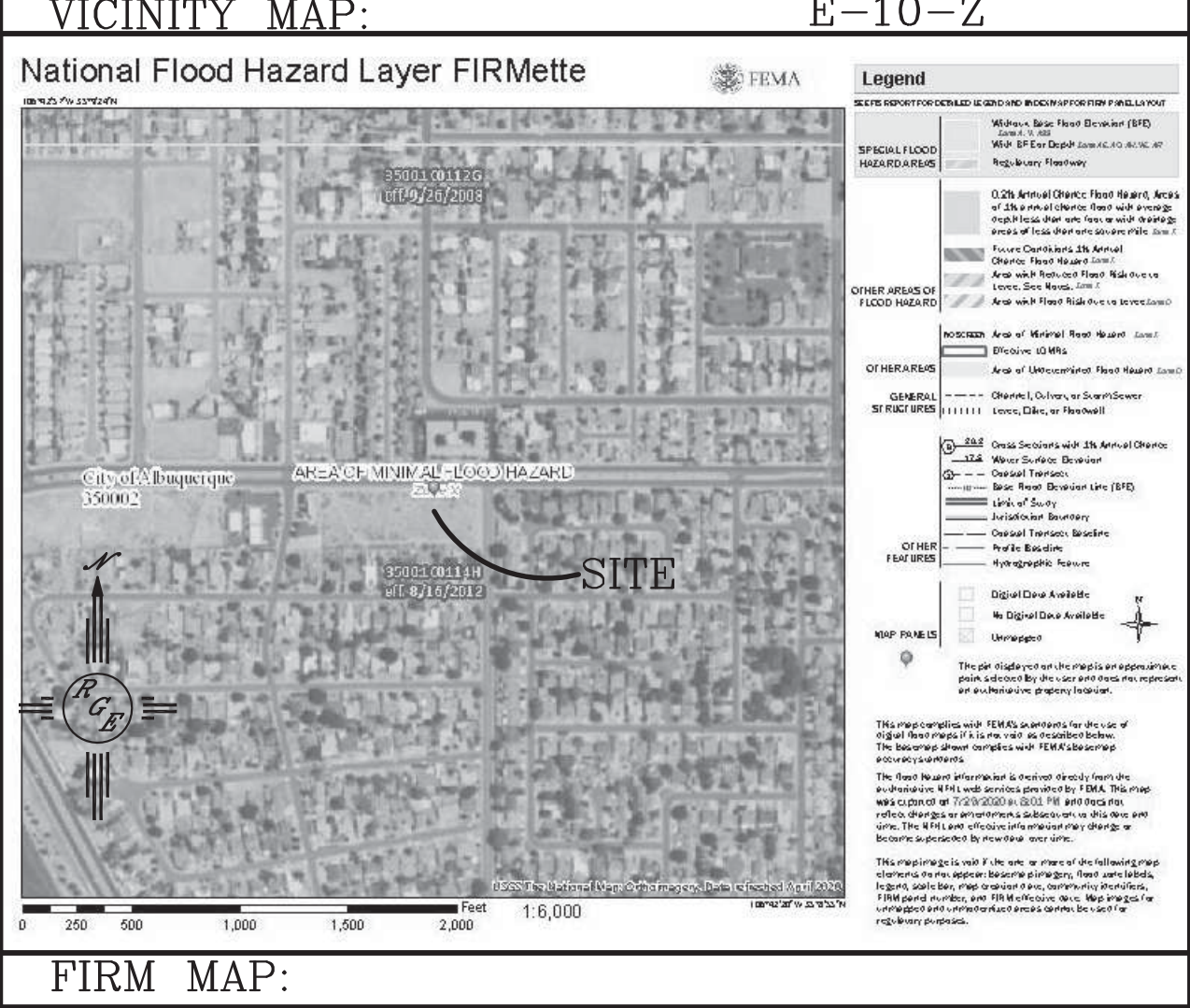
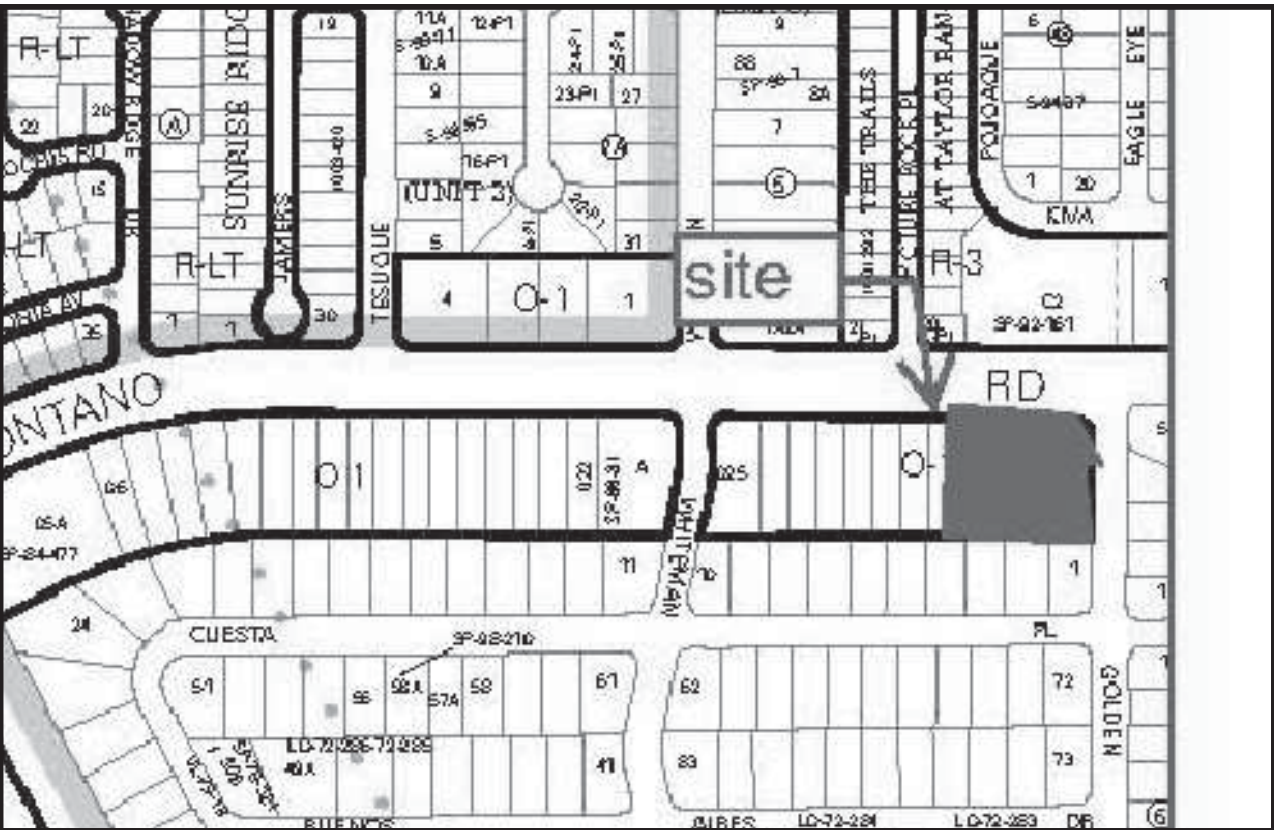


EROSION CONTROL NOTES:

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

Private Drainage Facilities within City Right-of-Way
Notice to Contractor
(Special Order 19 ~ "SO-19")

1. An excavation permit will be required before beginning any work within City Right-Of-Way.
2. All work on this project shall be performed in accordance with applicable federal, state and local laws, rules and regulations concerning construction safety and health.
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 locations of all obstructions. 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 the facility shall be the responsibility of the owner of the property being served.
7. Work on arterial streets may be required on a 24-hour basis.
8. Contractor must contact Augie Armijo at (505) 857-8607 and Construction Coordination at 924-3416 to schedule an inspection.



LEGAL DESCRIPTION:

LOT 0-37-A, Volcano Cliffs Subdivision

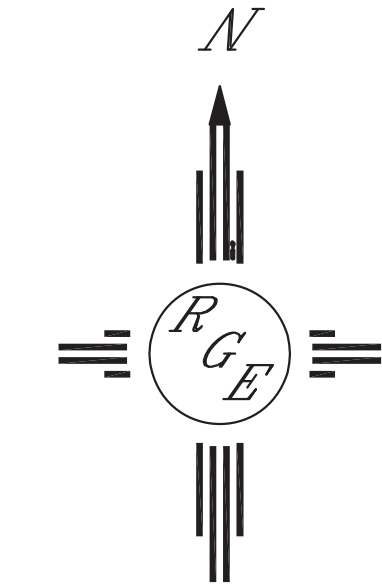
NOTES:

1. ALL SPOT ELEVATIONS REPRESENT FLOWLINE ELEVATION UNLESS OTHERWISE NOTED.
2. ALL CURB AND GUTTER TO 6" HEADER UNLESS OTHERWISE NOTED.
3. ALL RETAINING WALL DESIGN SHALL BE BY OTHERS.
4. ANY CURBS OR PAVEMENT NEGATIVELY IMPACTED BY CONSTRUCTION ACTIVITY SHALL BE REPLACED TO MATCH EXISTING CONDITIONS.
5. ALL SITE WORK SHALL CONFORM TO CITY OF ALBUQUERQUE STANDARDS FOR PUBLIC WORKS CONSTRUCTION EDITION 9

LEGEND

- EXISTING CONTOUR
- EXISTING INDEX CONTOUR
- PROPOSED CONTOUR
- PROPOSED INDEX CONTOUR
- SLOPE TIE
- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- BOUNDARY
- CENTERLINE
- RIGHT-OF-WAY
- PROPOSED CURB
- EXISTING CURB AND GUTTER
- EXISTING SIDEWALK
- RETAINING WALL (DESIGN BY OTHERS)
- ROCK PLATING-SEE DETAIL THIS SHEET

ENGINEER'S SEAL DAVID SOULE NEW MEXICO REGISTERED PROFESSIONAL ENGINEER 8/6/20 DAVID SOULE P.E. #14522	5915 GOLDEN	DRAWN BY WCWJ DATE 8-05-20 2102058-LAYOUT-8-05-20
	GRADING AND DRAINAGE PLAN	SHEET #
	 Rio Grande Engineering 1606 CENTRAL AVENUE SE SUITE 201 ALBUQUERQUE, NM 87106 (505) 872-0999	JOB # 2102058



GRAPHIC SCALE

SCALE: 1"=20'