

CITY OF ALBUQUERQUE

Planning Department
Brennon Williams, Director



Mayor Timothy M. Keller

March 9, 2020

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

**RE: Sunport Apartments
Revised Grading and Drainage Plan
Engineer's Stamp Date: 03/28/19
Hydrology File: M15D036**

Dear Mr. Soule:

PO Box 1293

Based upon the information provided in your resubmittal received 03/06/2020, the Revised Grading & Drainage Plan is approved for Building Permit and Grading 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

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

Sincerely,

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



City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 6/2018)

Project Title: SUNPORT APARTMENTS Building Permit #: _____ Hydrology File #: M150036

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

Legal Description: LOTS 1-5, A-F BLOCK 10 KIRTLAND ADDITION 1

City Address: SOUTH SIDE OF MULBERRY WEST OF SAN JOSE SE

Applicant: _____ 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 X ADMIN SITE

Check all that Apply:

DEPARTMENT:

X HYDROLOGY/ DRAINAGE
 TRAFFIC/ TRANSPORTATION

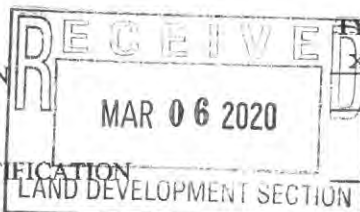
TYPE OF SUBMITTAL:

 ENGINEER/ARCHITECT CERTIFICATION
 PAD CERTIFICATION
 CONCEPTUAL G & D PLAN
X 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? X Yes No

TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

X 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
X 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: _____

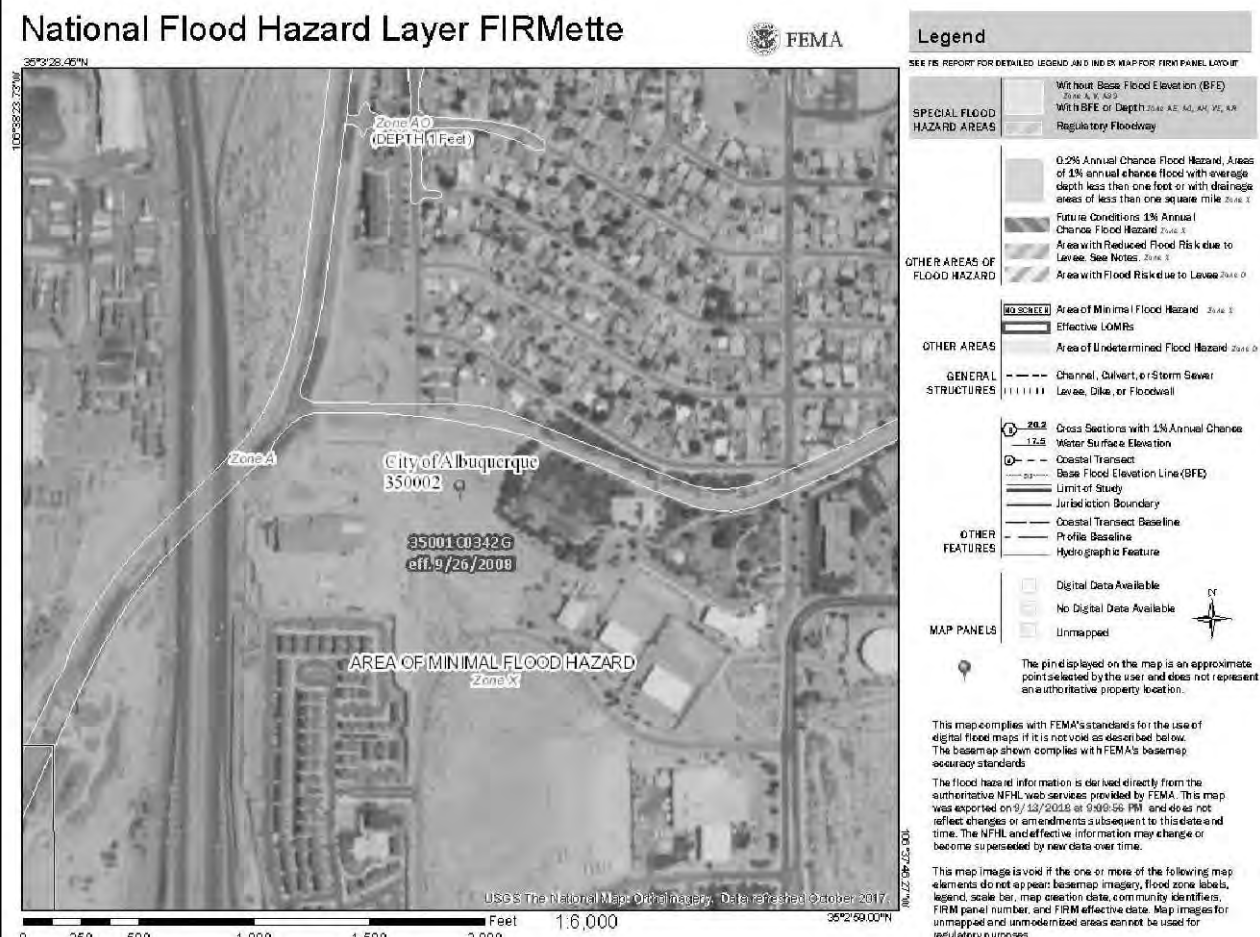
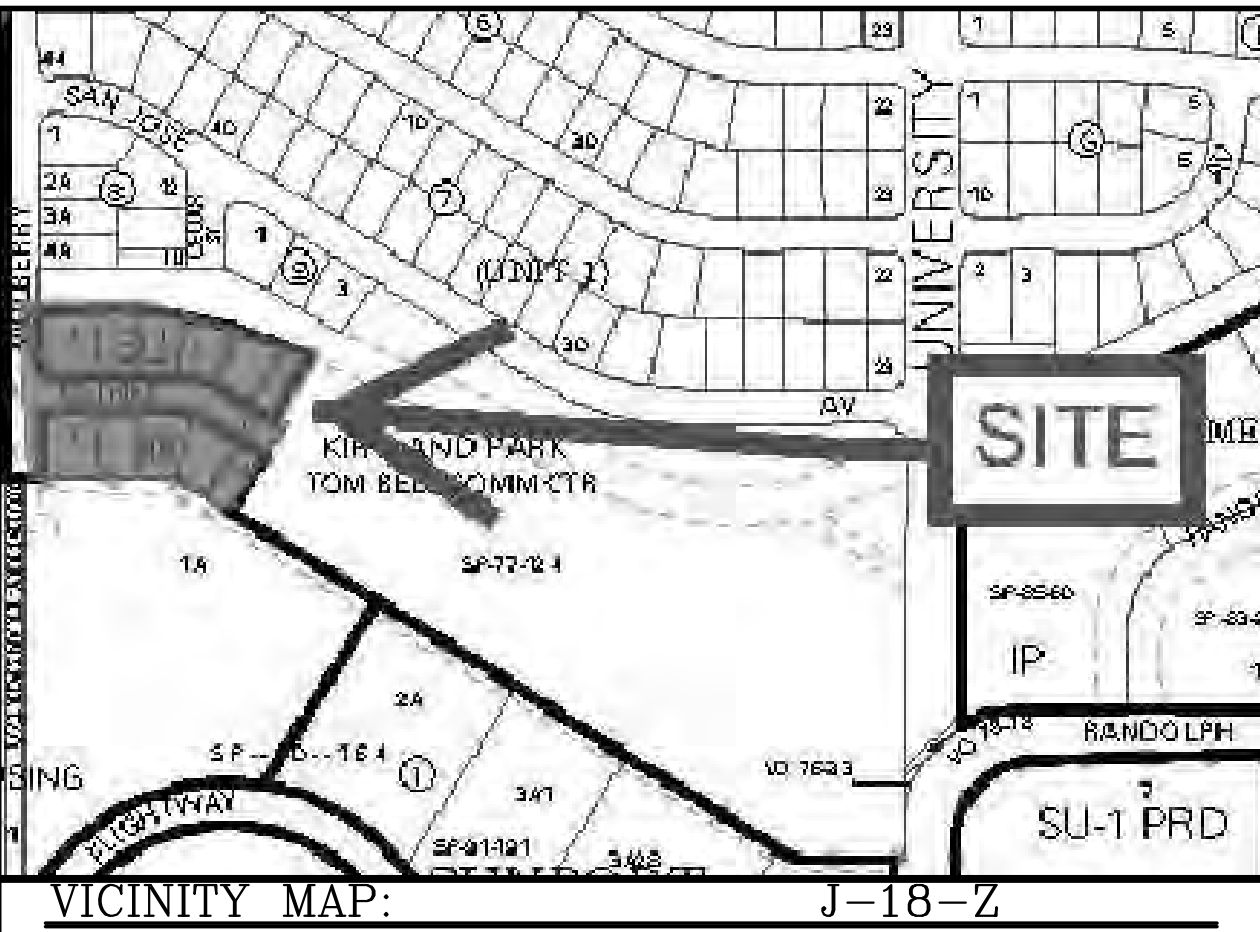
FEE PAID: _____

ACS MONUMENT "I-25-30" 
X=1,477,335.008
Y=1,524,161.952
Ground-to-grid: 0.999678244
Mapping Angle: -00°13'23.37"
NMSF CENTRAL ZONE NAD 83

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.



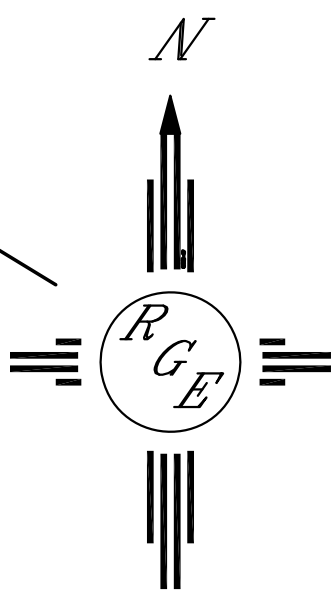
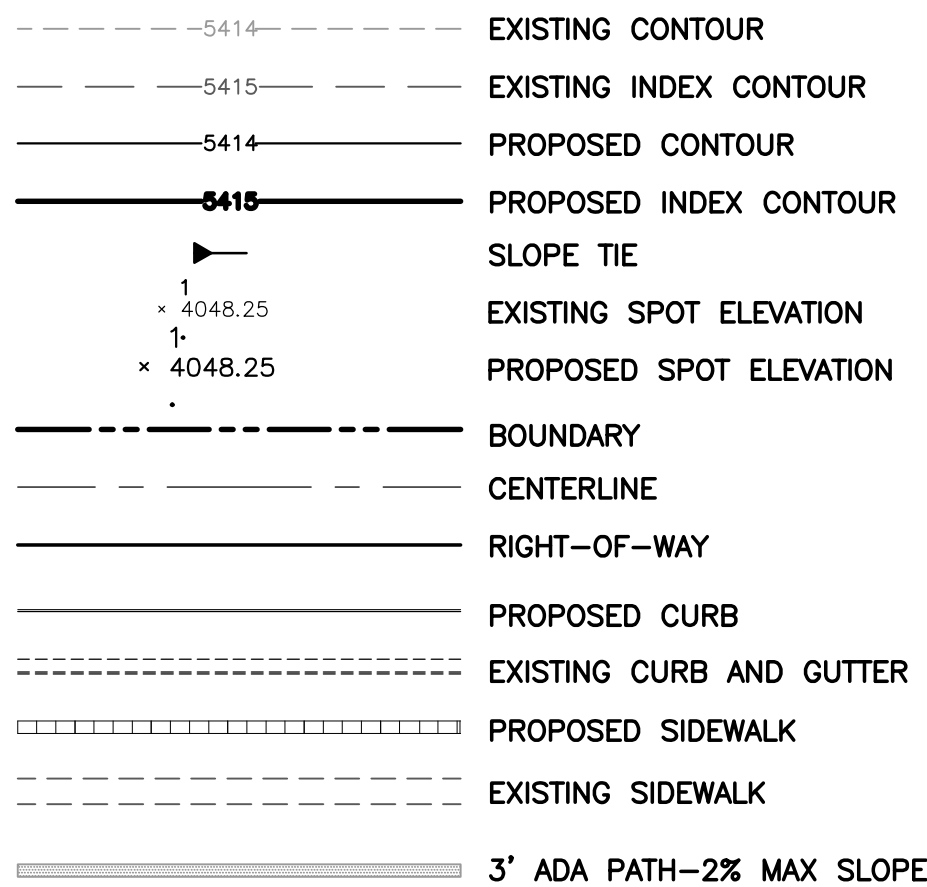
FIRM MAP:

LEGAL DESCRIPTION:

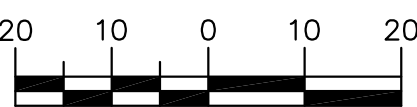
NOTES:

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. ALL NEW PAVING SHALL BE 6" PCC OVER 8" SUBGRADE PREPARATION IN CONFORMANCE TO ACI 330R-08. UNLESS OTHERWISE NOTED.
5. ANY CURBS OR PAVEMENT NEGATIVELY IMPACTED BY CONSTRUCTION ACTIVITY SHALL BE REPLACED TO MATCH EXISTING CONDITIONS.
6. ALL SITE WORK SHALL CONFORM TO CITY OF ALBUQUERQUE STANDARDS FOR PUBLIC WORKS CONSTRUCTION EDITION 9



LEGEND



GRAPHIC SCALE



SCALE: 1"=20'

ENGINEER'S SEAL	MULBERRY TOWNHOMES	DRAWN BY WCWJ
	GRADING AND DRAINAGE PLAN	DATE 1-04-19
3/28/19	 <div data-bbox="2713 1884 2856 1911"> <i>Rio Grande Engineering</i> </div> <div data-bbox="2713 1913 2856 1947"> 1606 CENTRAL AVENUE SE SUITE 201 ALBUQUERQUE, NM 87106 (505) 872-0989 </div>	218142-LAYOUT-9-22-18 SHEET # —
DAVID SOULE P.E. #14522		JOB # 218142

DRAINAGE REPORT

For

SUNPORT APARTMENTS
Albuquerque, New Mexico

Prepared by

Rio Grande Engineering
PO Box 93924
Albuquerque, New Mexico 87199

January 2019



1/14/19

David Soule P.E. No. 14522

TABLE OF CONTENTS

Purpose	3
Introduction.....	3
Existing Conditions.....	3
Exhibit A-Vicinity Map	4
Proposed Conditions	5
Summary	5

Appendix

Excerpts from Master Drainage Plan	A
Site Hydrology	B
Hydraulic calculations.....	C

Map

Site Grading and Drainage Plan

PURPOSE

The purpose of this report is to provide the Drainage Management Plan for the development of a 2.4 acre multi family project located on Mulberry Street SE between San Jose and Flightway SE. 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 2.4acre parcel of land located on the east side of Mulberry between San Jose and Flight way. The current legal description of this site is lots 1-5 and A-F Kirtland addition unit 1. The development will consolidate the lots. As shown on FIRM map35001C0342G, the entire site is located within Flood Zone X. The site has not been developed but has been studied and planned in the past for development (M15D036). The site appears to be in native condition. Due to the upstream construction of the Kirtland park (M15D030A), the site is not affected by any upland flow to the east. The site is located adjacent to the Kirtland Channel to the north that discharges to the AMAFCA south diversion Channel downstream of mulberry. The site is adjacent to a fully developed storm drain to the west. The parcel to the south is a vacant parcel that discharges to the storm drain within Mulberry with an ultimate discharge rate of 16.2 cfs via an inlet located its northwest corner. The storm drain within mulberry was designed to convey 34.4 cfs which accounted for the development of this site and a watershed that has been partially diverted with recent development. The development of the site will require the site to discharge at a rate that can be conveyed via the existing infrastructure.

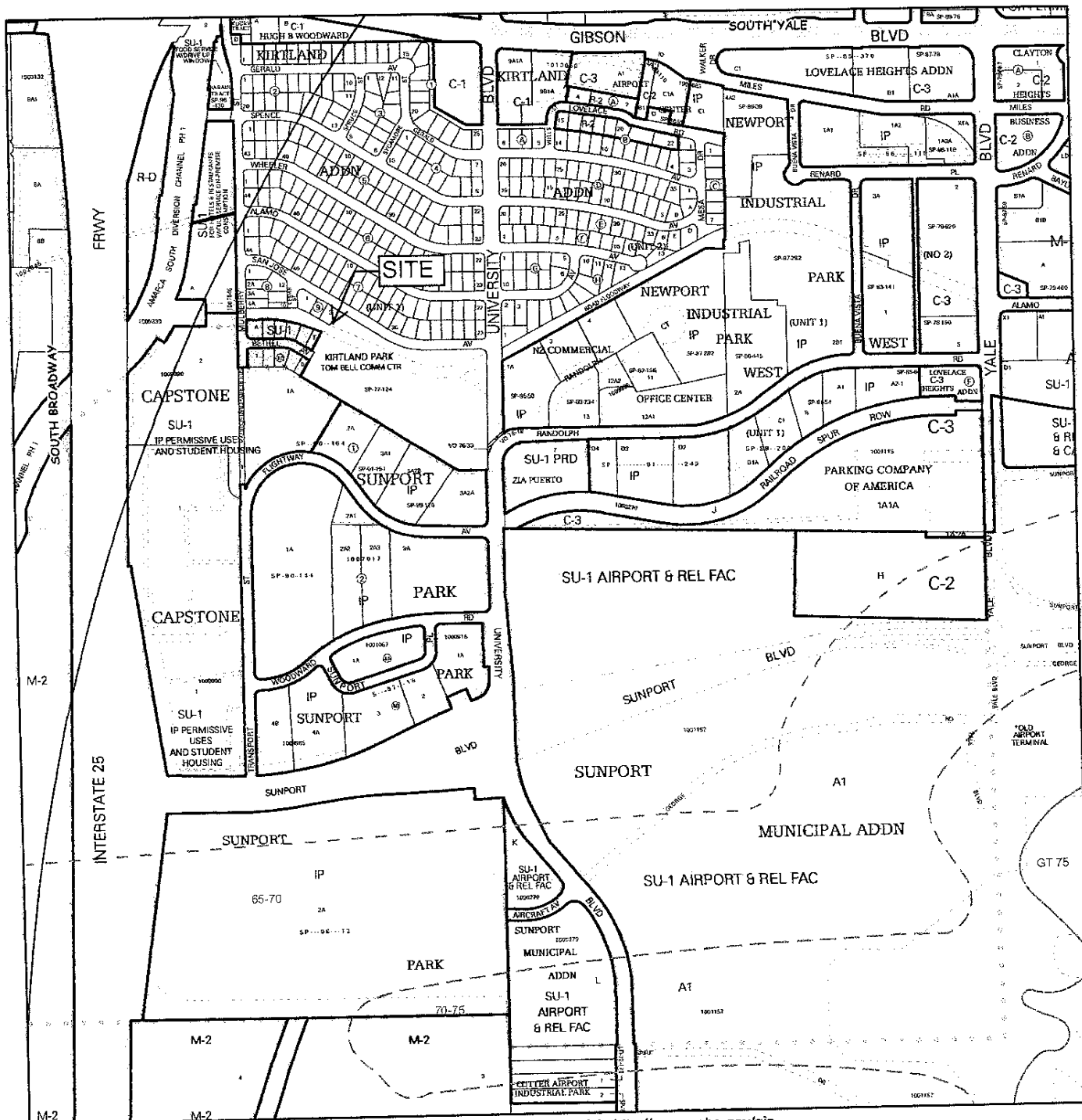
EXISTING CONDITIONS

The site currently does not have structures on it and does not appear to have been impacted by development other than minor human foot and off road vehicle traffic over the years. The site is not impacted by upland flows. The redevelopment of Kirkland Park constructed a curb adjacent to the property line diverting all flow to the Kirkland Channel. As shown in drainage file M15D026B this site discharges 2.83 cfs to mulberry where the flow is captured by a single C inlet. The remaining portion of the site drains to the Kirkland Channel.

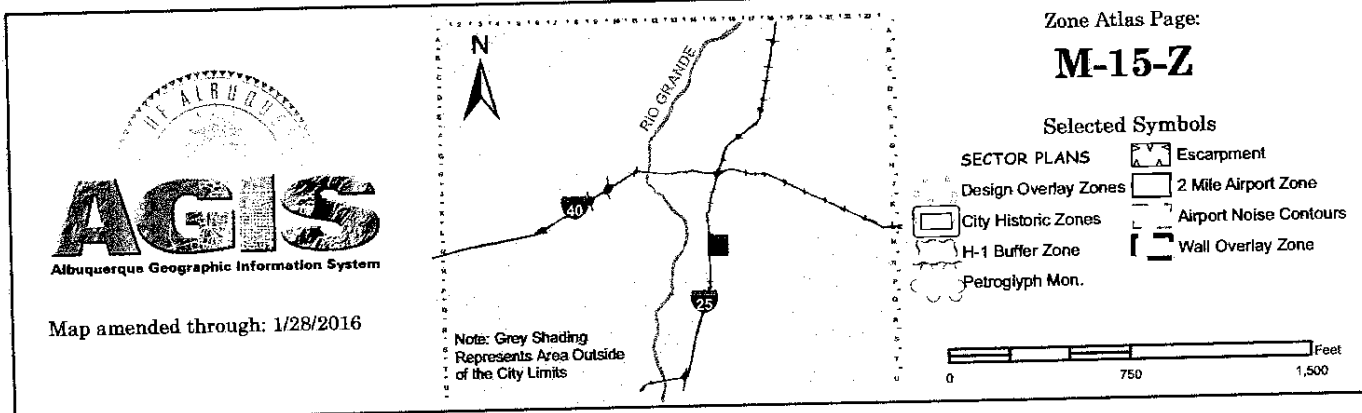
PROPOSED CONDITIONS

The proposed improvements consist of a new multi family apartment complex with associated open areas and paved parking areas, and a future single family development on the northern 0.63 acres. The lot will free discharge the developed flow to Mulberry and the future site development to the Kirkland channel. The calculated rates are less than the capacity of the roadway, inlet and storm drain discharging to the South Diversion Channel.

The site consists of 3 onsite basins. Basin A contains the northern portion of the site that will be a future residential development. This basin encompasses 0.63 acres and drains to a retention/desiltation pond that discharges 1.18 cfs to an existing side inlet to the Kirkland channel. This basin will not have any impervious; therefore no first flush volume is required. The peak discharge is less than the 1.64 cfs approved within the previously approved plan (M15D036). Basin B consists of the northern portion of the developed site containing 0.772 acres. This portion of this site contains a portion of the buildings and the northern parking lot. This basin will discharge 3.56 cfs to mulberry via the northern driveway. This basin has a required first flush volume of 896 cubic feet. The retained volume of 68 cubic feet leaves an elective fee in lieu of 828 cubic feet and a cash requirement of \$6,624. Basin C contains 0.998 acres consisting of the remaining portions of the buildings and the remaining parking area. This basin discharges 4.55 cfs to mulberry via the south driveway. This basin has a required first flush volume of 1121 cfs.



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



The retained volume of 694 cubic feet leaves an elective fee in lieu of 427 cubic feet and a cash requirement of \$3,417. The combined discharge from basins B and C combine with the 1.37 cfs generated by mulberry and are captured by the existing type C inlet and an additional type A inlet. The peak flow rate of 9.49 cfs is less than the capacity of the inlets (doubled due to sump condition.) The combined flow within the existing 30" storm drain will be 25.69 cfs, which is less than the capacity flowing full of 34.4 cfs.

The Basin map and hydraulic calculations is located in appendix A. The pipe and inlet and roadway capacities are locate with appendix B. Excerpts from previous and pertinent drainage reports are locate in appendix C. The total flow generated by this development will be 9.29 cfs, which is less than the capacity of the storm drain.

SUMMARY AND RECOMMENDATIONS

This project is a development of multi family units on the Southeast Mesa. The site is within the South Diversion Channel drainage basin. The site is adjacent to concrete lined channel and a street with inlets and 30" storm drain. The storm drain has the capacity to convey 34.4 cfs and with this development and the development of the remaining water shed will be 25.69 cfs from this site. This site will discharge 1.18 cfs to the Kirkland channel which is less than previously allowed. The site will manage a portion of its first flush requirement by shallow landscape ponds located around the site. The first flush volume that is not retained onsite shall be compensated for by a fee in lieu amount of \$10,041.00. This drainage plan and report conforms to the governing drainage regulations of the City. Since the effected area site encompasses more than 1 acre, a NPDES permit will be required prior to any construction activity.

APPENDIX A
SITE HYDROLOGY

EROSION CONTROL NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING A TOPSOIL CERTIFICATE OF ANALYSIS 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 AND EXISTING RUN-OFF-WAY.
4. REPAIR OF GROUND AND EXISTING RUN-OFF-WAY 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.

TO 1/2" SLOPE TO KIERLAND CHANNEL
PROPOSED VOLUME 491 CU. FT.

20' MONUMENT 1'-25'
X-1 177-335-008
X-2 177-335-009
X-3 177-335-010
X-4 177-335-011
X-5 177-335-012
X-6 177-335-013
X-7 177-335-014
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Weighted E Method

MULBERRY

Existing Developed Basins- not accounting for detention basin

Existing Developed Basins- not accounting for detention basin														
Basin	Area (sf)	Area (acres)	Treatment A		Treatment B		Treatment C		Treatment D		100-Year, 6-hr. Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	10-day Volume (ac-ft)
			%	(acres)	%	(acres)	%	(acres)	%	(acres)				
MULBERRY	13152	0.302	0%	0	0.0%	0.000	10.0%	0.03019	90%	0.272	2.021	0.051	1.37	0.087
	27390	0.629	80%	0.50303	0.0%	0.000	20.0%	0.12576	0%	0.000	0.650	0.034	1.18	0.034
	33629	0.772	0%	0	0.0%	0.000	6.0%	0.04632	94%	0.726	2.061	0.133	3.56	0.229
	43482	0.998	0%	0	0.0%	0.000	9.0%	0.08984	91%	0.908	2.031	0.169	4.55	0.290
BASIN C														
COMBINED C+B	77111	1.770	0%	0	0.0%	0	7.7%	0.13616	92%	1.634065	2.044	0.302	8.11	0.519

Equations:

Weighted E = $Ea \cdot Aa + Eb \cdot Ab + Ec \cdot Ac + Ed \cdot Ad$ / (Total Area)

Volume = Weighted D * Total Area

Flow = $Qa \cdot Aa + Qb \cdot Ab + Qc \cdot Ac + Qd \cdot Ad$

Where for 100-year, 6-hour storm (zone 3)

$Ea = 0.53$
 $Eb = 0.78$
 $Ec = 1.13$
 $Ed = 2.12$

$Qa = 1.57$
 $Qb = 2.28$
 $Qc = 3.14$
 $Qd = 4.7$

First flush requirement (Redevelopment=impx.26/12-- New development=impx.34/12)
 Area of site affected=7753 was/is impervious

first flush=
 volume retained=
 fee in lieu

BASIN A BASIN B BASIN C
 991 896 68
 6624

1121 CF
 694 CF
 \$3,417 DOLLARS
 \$10,041 fee in lieu

Total

APPENDIX B
HYDRAULIC CALCULATIONS

DROP INLET CALCULATIONS

POND	TYPE OF INLET	AREA (SF)	Q (CFS)	H (FT)	H ALLOW (FT)
	SINGLE C	3.84	17.15	0.8604	0.86
	SINGLE A	3.84	17.15	0.8604	0.86

ORIFICE EQUATION

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

$$C = 0.6$$

$$g = 32.2$$

CONTRIBUTING FLOW=9.49 CFS X 2 =18.98
FLOW DOUBLED DUE TO SUMP CONDITION

Street Capacity Calculations

28' F-F Street Section with 8" curb with Superelevated Cross-section

Slope= 0.008

For water depths less than 0.125 feet

Y= Water depth

Area = $8 \cdot Y^2$

P= $\text{SQRT}(257 \cdot Y^2) + Y$

n= 0.017

Depth (ft)	Area (ft ²)	P (ft)	R (A/P)	Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.01	0.0008	0.17	0.00	0.000	0.22	0.00	0.39	0.002407
0.025	0.005	0.43	0.01	0.002	0.40	0.01	0.45	0.007739
0.04	0.0128	0.68	0.02	0.007	0.55	0.02	0.49	0.014038
0.055	0.0242	0.94	0.03	0.017	0.68	0.04	0.51	0.020988
0.07	0.0392	1.19	0.03	0.031	0.80	0.06	0.53	0.02844
0.085	0.0578	1.45	0.04	0.053	0.91	0.08	0.55	0.036305
0.1	0.08	1.70	0.05	0.081	1.02	0.10	0.57	0.044524
0.125	0.125	2.13	0.06	0.148	1.18	0.15	0.59	0.058895

For water depths greater than 0.125 ft but less than 0.605 ft

Y1= Y-0.125

A2= $A1 + 2 \cdot Y1 + 25 \cdot Y1^2$

P2= $P1 + \text{SQRT}(2501 \cdot Y1^2) + Y1$

Depth (ft)	Area (ft ²)	P (ft)	R (A/P)	Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.126	0.127	2.18	0.06	0.15	1.18	0.15	0.58	0.058557
0.2	0.416	5.95	0.07	0.55	1.33	0.27	0.52	0.078387
0.27	0.941	9.53	0.10	1.57	1.67	0.45	0.57	0.119979
0.34	1.711	13.10	0.13	3.44	2.01	0.68	0.61	0.168309
0.41	2.726	16.67	0.16	6.37	2.34	0.96	0.64	0.220719
0.4605	3.610	19.24	0.19	9.25	2.56	1.18	0.67	0.260446
0.5198	4.811	22.27	0.22	13.54	2.82	1.46	0.69	0.3088
0.605	6.845	26.61	0.26	21.64	3.16	1.91	0.72	0.381031

For water depths greater than 0.605 ft but less than 0.667 ft

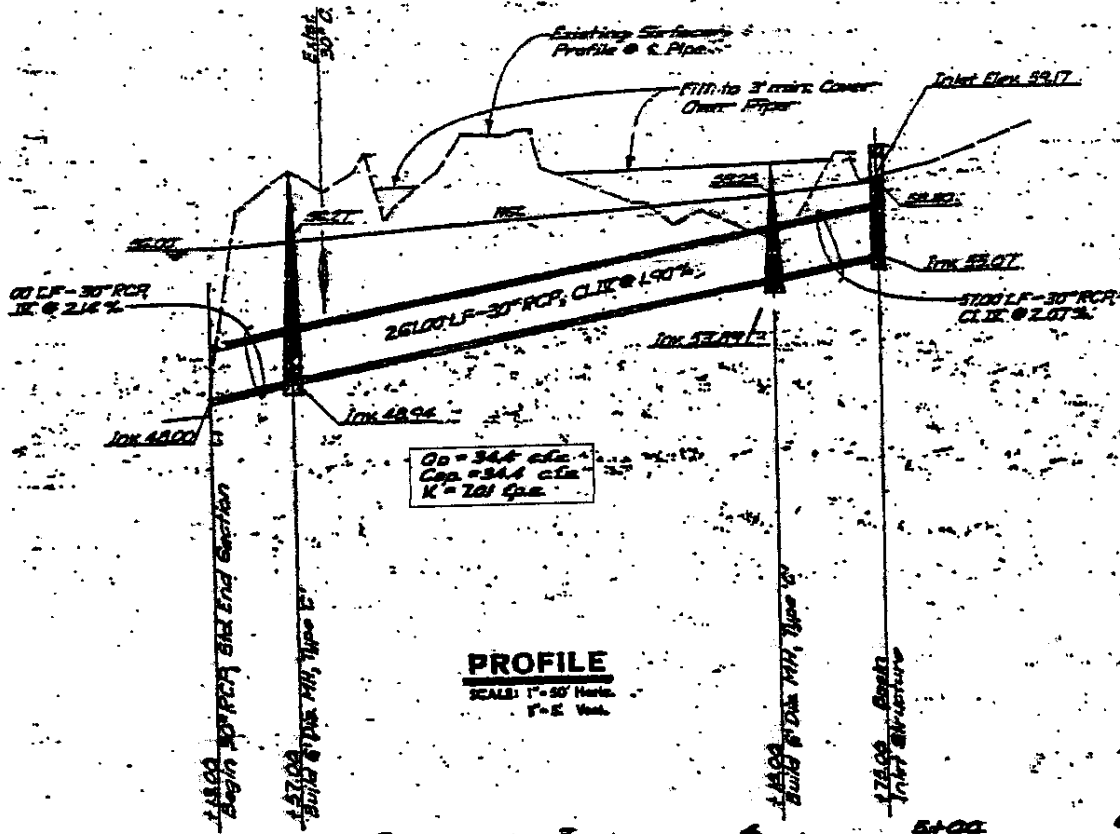
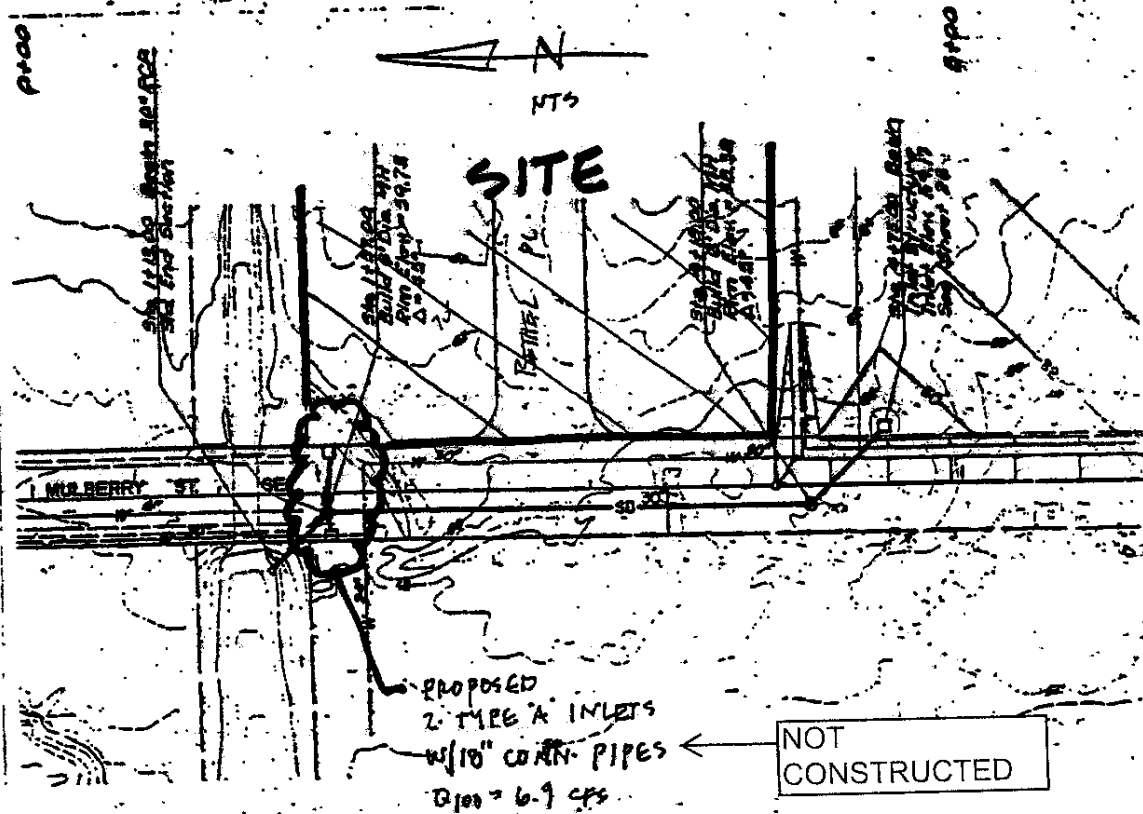
Y3= Y - 0.605

A4= $A3 + 26.0 \cdot Y3 + 8 \cdot Y3^2$

P4= $P3 + Y3 + \text{SQRT}(257 \cdot Y3^2)$

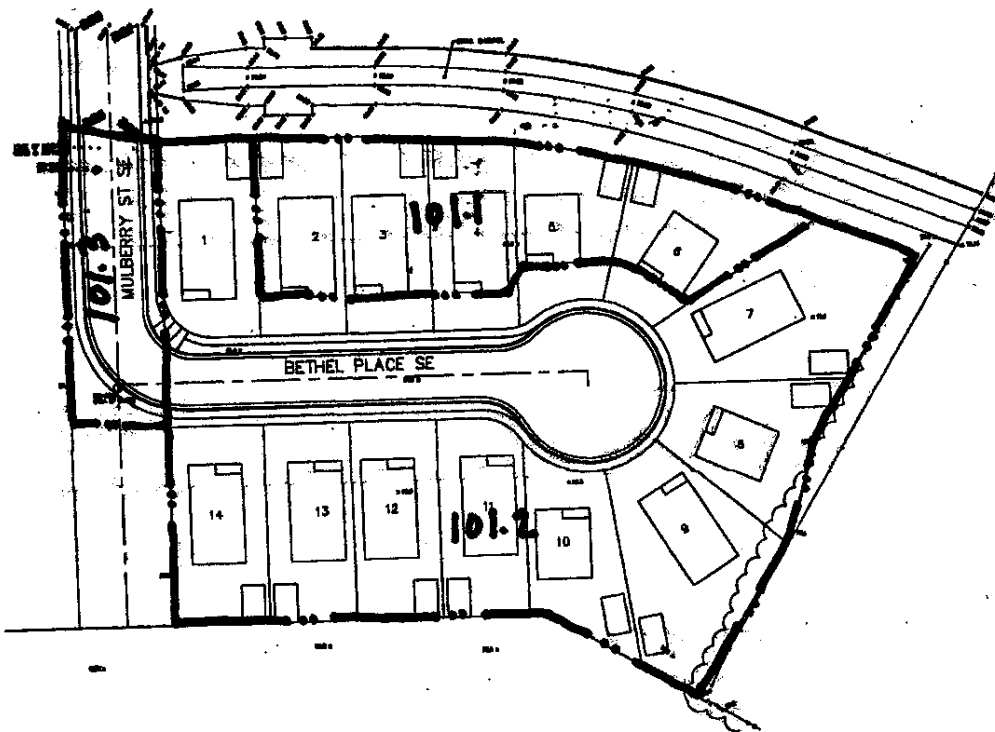
Depth (ft)	Area (ft ²)	P (ft)	R (A/P)	Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.606	6.871	26.63	0.26	21.77	3.17	1.92	0.72	0.382363
0.62	7.237	26.87	0.27	23.60	3.26	2.02	0.73	0.40101
0.635	7.632	27.12	0.28	25.62	3.36	2.13	0.74	0.420963
0.65	8.031	27.38	0.29	27.72	3.45	2.24	0.75	0.44089
0.667	8.488	27.67	0.31	30.18	3.56	2.37	0.77	0.463446

APPENDIX C
Excerpts from relevant plans



PROFILE
SCALE: 1" = 30' Horiz.
1" = 10' Vert.

AS BUILT'S



ON-SITE DRAINAGE BASINS

excerpt from M15 D036

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
 06/16/2000
 INPUT FILE = 00520.DAT

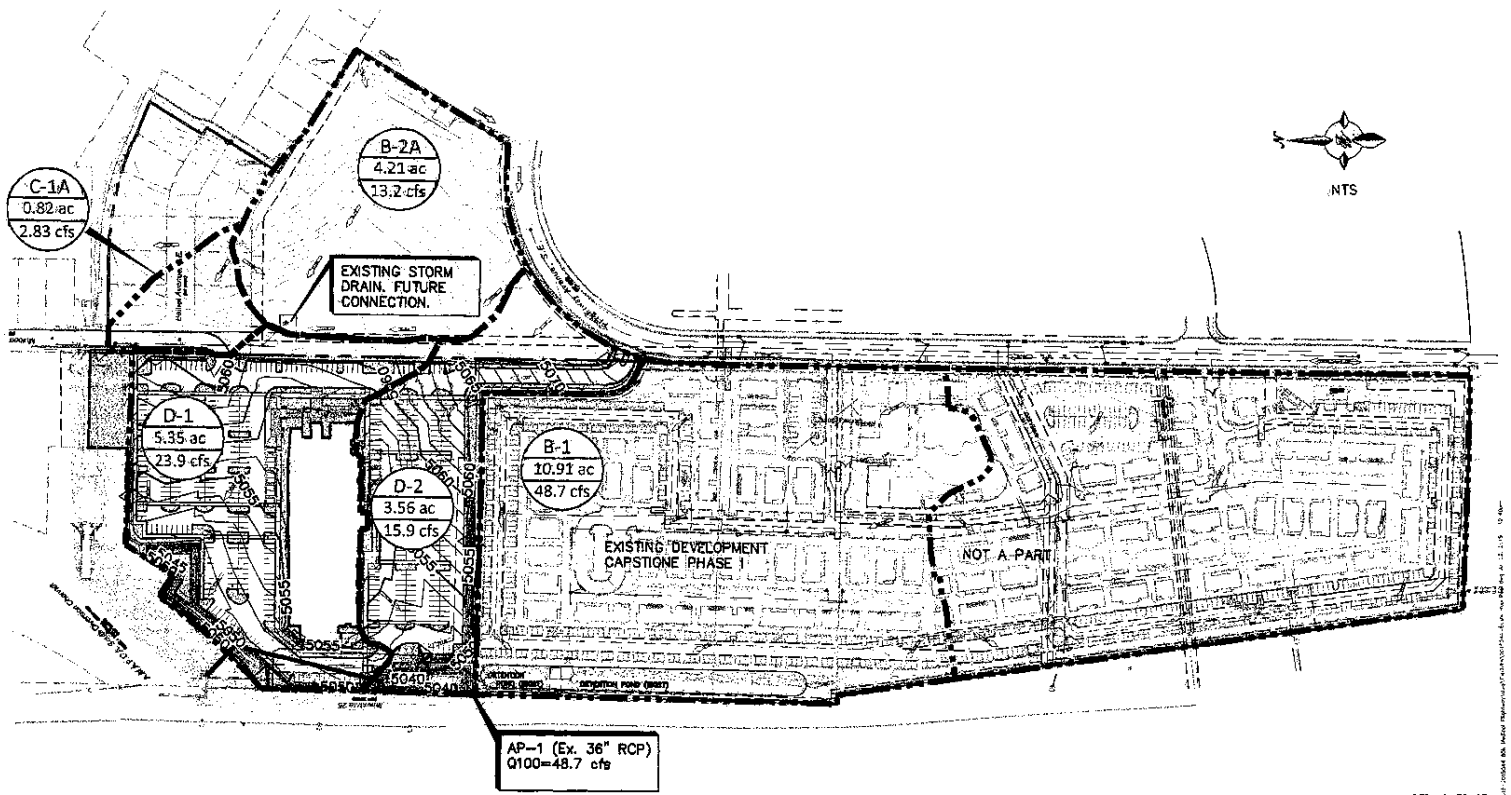
RUN DATE (MON/DAY/YR)

USER NO. = BRASHERE.101

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1	NOTATION
START											
RAINFALL TYPE= 1											TIME= .00 RAINF= 2.350
COMPUTE NM HYD	100.00	-	1	.00313	3.22	.089	.53121	1.533	1.560	PER IMP=	.00
COMPUTE NM HYD	102.00	-	2	.00573	5.72	.162	.53121	1.533	1.558	PER IMP=	.00
COMPUTE NM HYD	103.00	-	3	.00250	3.99	.117	.87499	1.500	2.491	PER IMP=	5.00
COMPUTE NM HYD	101.00	-	4	.00313	7.73	.270	1.62030	1.500	3.865	PER IMP=	58.00
COMPUTE NM HYD	101.10	-	5	.00066	1.64	.057	1.62030	1.500	3.897	PER IMP=	58.00
COMPUTE NM HYD	101.10	-	6	.00247	6.11	.213	1.62030	1.500	3.868	PER IMP=	58.00
COMPUTE NM HYD	101.30	-	7	.00027	.81	.030	2.06599	1.500	4.695	PER IMP=	95.00
COMPUTE NM HYD	102.10	-	8	.00573	16.24	.596	1.94748	1.500	4.425	PER IMP=	65.00
FINISH											

except from mis 0036

MULTI-SPECIALTY CLINIC POST-DEVELOPED BASIN MAP



Excerpt from M15 D026B