Cond. C.O.
see file.

F16D017

Harmon Rita T.

From: Joel Hernandez <JDHernandez@tierrawestllc.com>
Sent: Tuesday, June 14, 2016 9:56 AM
To: Harmon Rita T.
Subject: RE: Skilled Nursing Facility - F16D017

Will do.

Thank you,

Joel Hernandez, PE
Tierra West, LLC
(505) 858-3100 ext 216

From: Harmon Rita T. [mailto:rharmon@cabq.gov]
Sent: Tuesday, June 14, 2016 9:51 AM
To: Joel Hernandez
Subject: RE: Skilled Nursing Facility - F16D017

Hi Joel,
I don't understand why this is a public pipe. Our GIS may be in error. It just needs to be chased down, and determined what is the correct data. Maybe a private drainage easement is in order. Please investigate, and let me know what you think is the best course of action.

Rita

From: Joel Hernandez [mailto:JDHernandez@tierrawestllc.com]
Sent: Tuesday, June 14, 2016 9:47 AM
To: Harmon Rita T.
Subject: RE: Skilled Nursing Facility - F16D017

Good Morning Rita,

Thanks for the head's up. I believe the GIS data is in error (as far as pipe locations and sizes), and I don't believe the original pipe was installed under a City W.O., but if the City would like this facility in a public easement we can get this prepared prior to C.O.

Thank you,

Joel Hernandez, PE
Tierra West, LLC
(505) 858-3100 ext 216

From: Harmon Rita T. [mailto:rharmon@cabq.gov]
Sent: Tuesday, June 14, 2016 9:27 AM
To: Joel Hernandez
Subject: Skilled Nursing Facility - F16D017

Joel,

The City's GIS records show that the SD pipe that extends from the Hotel property to the south is a public storm drain. As such, a public drainage easement will need to be placed over that Strom Drain prior to C.O.

The GIS will need to be updated to show how the new alignment as well. So the Engineer's Certified plan will need to show the new alignment and also the size. We will then forward this info appropriate staff to update the data.

Rita Harmon, P.E.
Senior Engineer, Hydrology Section
City of Albuquerque Planning Department
Development & Review Services Division
600 2nd St. NW, Suite 201
Albuquerque, NM 87102
t 505-924-3695

If this email is spam, report it to www.OnlyMyEmail.com

If this email is spam, report it to www.OnlyMyEmail.com

Current DRC
Project Number:_____

ORIGINAL

FIGURE 12

Date Submitted: 7-22-15
Date Site Plan Approved: 7-22-15
Date Preliminary Plat Approved:_____
Date Preliminary Plat Expires:_____
DRB Project No.: 1010488
DRB Application No.: 15-70235

INFRASTRUCTURE LIST

(Rev 9 20 05)

EXHIBIT "A"

TO SUBDIVISION IMPROVEMENTS AGREEMENT

DEVELOPMENT REVIEW BOARD (D.R.B.) REQUIRED INFRASTRUCTURE LIST

Skilled Nursing Facility Renaissance Center
SITE DEVELOPMENT PLAN

Tract 8-A Renaissance Center
EXISTING LEGAL DESCRIPTION PRIOR TO PLATTING ACTION

Following is a summary of PUBLIC/PRIVATE Infrastructure required to be constructed or financially guaranteed for the above development. This Listing is not necessarily a complete listing. During the SIA process and/or in the review of the construction drawings, if the DRC Chair determines that appurtenant items and/or unforeseen items have not been included in the infrastructure listing, the DRC Chair may include those items in the listing and related financial guarantee. Likewise, if the DRC Chair determines that appurtenant or non-essential items can be deleted from the listing, those items may be deleted as well as the related portions of the financial guarantees All such revisions require approval by the DRC Chair, the User Department and agent/owner. If such approvals are obtained, these revisions to the listing will be incorporated administratively. In addition, any unforeseen items which arise during construction which are necessary to complete the project and which normally are the Subdivider's responsibility will be required as a condition of project acceptance and close out by the City.

Financially Guaranteed DRC #	Constructed Under DRC #	Size	Type of Improvement	Location	From	To	Construction Certification: Private Inspector	Private P.E.	City Cnst Engineer
		100 ft	Left-turn pocket and transition	N. Renaissance Blvd	Driveway Entrance	End of transition	/	/	/
		6'	Sidewalk	N. Renaissance Blvd	Commerce Drive	Chappell Drive	/	/	/
		6'	Sidewalk	Commerce Drive	S'ly property bndry	N. Renaissance Blvd	/	/	/
		-	Fire Hydrant	N.Renaissance/Commerce intersection	-	-	/	/	/
		40 ft	Driveway Entrance	N. Renaissance Blvd	-	-	/	/	/
		28 ft	Driveway Entrance	Commerce Drive	-	-	/	/	/
							/	/	/
							/	/	/
							/	/	/

The items listed below are on the CCIP and approved for Impact Fee credits. Signatures from the Impact Fee Administrator and the City User Department is required prior to DRB approval of this listing. The Items listed below are subject to the standard SIA requirements.

Financially Guaranteed DRC #	Constructed Under DRC #	Size	Type of Improvement	Location	From	To	Construction Certification: Private Inspector	Private P.E.	City Cnst Engineer
							/	/	/
							/	/	/

Approval of Creditable Items:

Impact Fee Admistrator Signature Date

Approval of Creditable Items:

City User Dept. Signature Date

NOTES

If the site is located in a floodplain, then the financial guarantee will not be released until the LOMR is approved by FEMA.

Street lights per City rquirements.

1

2

3

AGENT / OWNER

JOEL HERNANDEZ
NAME (print)

Tierra West, llc
FIRM

SIGNATURE - date

DEVELOPMENT REVIEW BOARD MEMBER APPROVALS

7-22-15
DRB CHAIR - date

7/22/15
TRANSPORTATION DEVELOPMENT - date

07/22/15
UTILITY DEVELOPMENT - date

7-22-15
CITY ENGINEER - date

Carol S. Dumont 7-22-15
PARKS & RECREATION - date

AMAFCA - date

- date

- date

DESIGN REVIEW COMMITTEE REVISIONS

REVISION	DATE	DRC CHAIR	USER DEPARTMENT	AGENT /OWNER

CITY OF ALBUQUERQUE

PLANNING DEPARTMENT – Development Review Services

Richard J. Berry, Mayor

May 5, 2016

Ron Bohannan, PE
Tierra West, LLC
5571 Midway Park Pl NE
Albuquerque, NM 87109

RE: Skilled Nursing Facility, Renaissance Center (File: F16D017)
Drainage Report, Engineer's Stamp Date 4-25-2016
Grading Plan, Engineer's Stamp Date 5-5-2016

Dear Mr. Bohannan:

Based upon the information provided in your submittal received 4-26-16, the above referenced plan is approved for ESC Permit (Building Permit). Please attach a copy of this approved plan in the construction sets when submitting for a building permit.

Prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.

PO Box 1293

If you have any questions, you can contact me at 924-3695.

Albuquerque

Sincerely,

New Mexico 87103

Rita Harmon, P.E.
Senior Engineer, Planning Dept.
Development Review Services

www.cabq.gov

Orig: Drainage file
c.pdf recipient , Joel Hernandez

% D = 3.4 Ac.
Detention = 0.1 cfs/Acre
Site = ~~5 Ac~~ 4.93

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: Skilled Nursing Facility Building Permit #: _____ City Drainage #: F16/D017

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

Legal Description: TR 8-A Plat of Tracts 8-A and 8-B Renaissance Center

City Address: 1610 Renaissance Blvd NE Albuquerque NM 87107

Engineering Firm: Tierra West, LLC Contact: Joel Hernandez

Address: 5571 Midway Park Place NE Albuquerque NM 87109

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

Owner: AS Realty Investors Contact: Adam Schlesinger

Address: 3701 S. Robertson Blvd., Suite 201 Culver City, California 90232

Phone#: 310-202-6204 Fax#: 310-202-0831 E-mail: adam@asrealtyinvestors.com

Architect: Bixler Management Contact: Mark Bixler

Address:

Phone#: 870-653-3382 Fax#: E-mail: mbixler@bixlermanagment.com

Other Contact: Surveyor- Precision Surveys, Inc. Contact: Larry Medrano

Address: P.O. Box 90636 Albuquerque NM 87199

Phone#: 505-858-5700 Fax#: E-mail: larry@presurv.com

Check all that Apply:

DEPARTMENT:

X HYDROLOGY/ DRAINAGE
____ TRAFFIC/ TRANSPORTATION
____ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

____ ENGINEER/ ARCHITECT CERTIFICATION

____ CONCEPTUAL G & D PLAN
X GRADING PLAN
____ DRAINAGE MASTER PLAN
X DRAINAGE REPORT
____ CLOMR/LOMR

____ TRAFFIC CIRCULATION LAYOUT (TCL)
____ TRAFFIC IMPACT STUDY (TIS)
____ EROSION & SEDIMENT CONTROL PLAN (ESC)

____ OTHER (SPECIFY) _____

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

X BUILDING PERMIT APPROVAL
____ CERTIFICATE OF OCCUPANCY

____ PRELIMINARY PLAT APPROVAL
____ SITE PLAN FOR SUB'D APPROVAL
X SITE PLAN FOR BLDG. PERMIT APPROVAL
____ FINAL PLAT APPROVAL
____ SIA/ RELEASE OF FINANCIAL GUARANTEE
X FOUNDATION PERMIT APPROVAL
____ GRADING PERMIT APPROVAL
____ SO-19 APPROVAL
____ PAVING PERMIT APPROVAL
____ GRADING/ PAD CERTIFICATION
____ WORK ORDER APPROVAL
____ CLOMR/LOMR

____ PRE-DESIGN MEETING
____ OTHER (SPECIFY) _____

RECEIVED
APR 26 2016
LAND DEVELOPMENT SECTION

IS THIS A RESUBMITTAL?: ____ Yes ____ No

DATE SUBMITTED: 4/25/16 By: Joel Hernandez

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: ___

Hydro

DRAINAGE REPORT
for

Skilled Nursing Facility
1610 Renaissance Boulevard

Prepared by:

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

April, 2016

I certify that this report was prepared under my supervision, and I am a registered professional engineer in the State of New Mexico in good standing.

RONALD R. BOHANNAN
NEW MEXICO
17868
PROFESSIONAL ENGINEER
4/25/16

Ronald R. Bohannan, PE

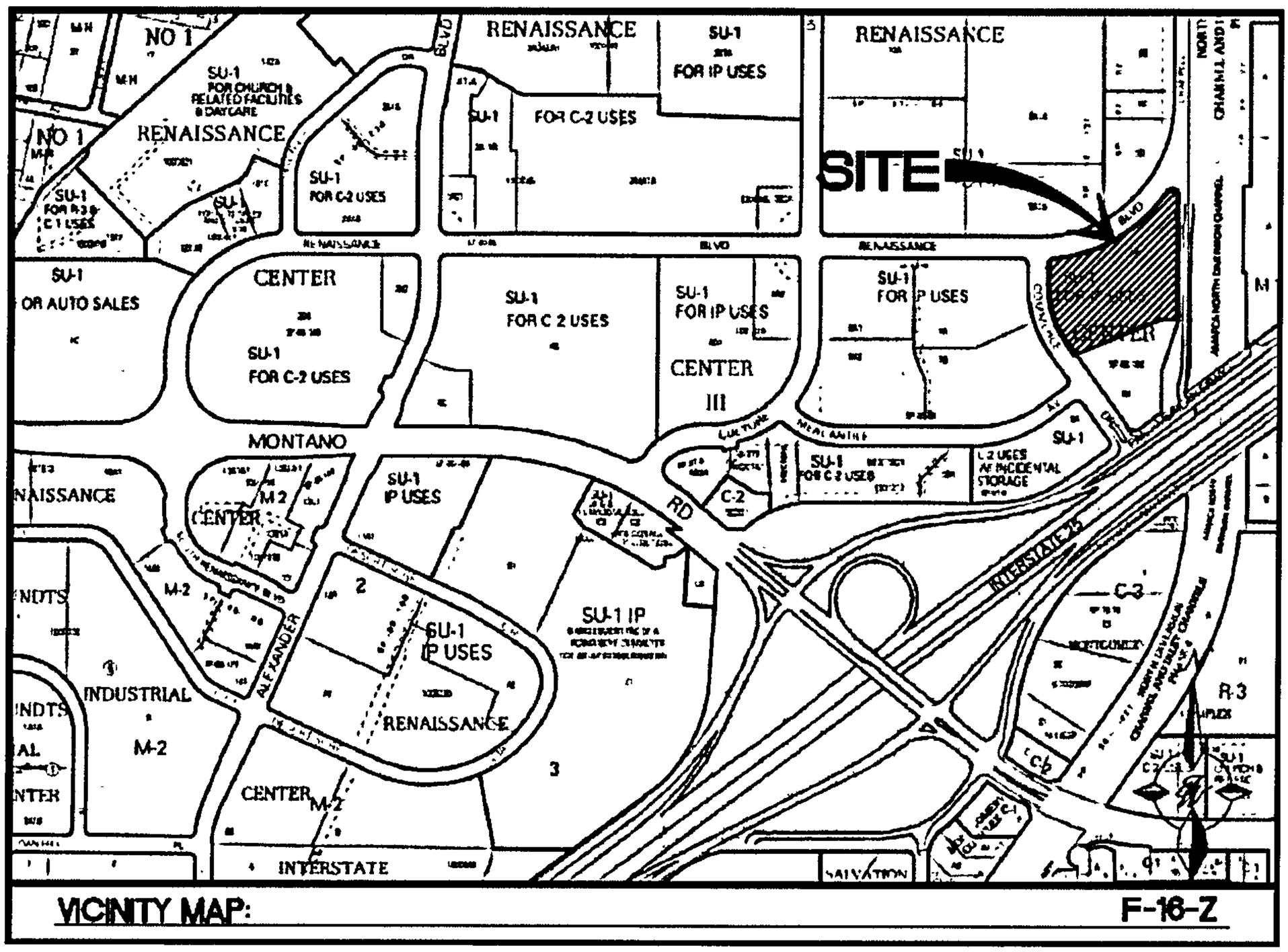
DRAINAGE MANAGEMENT PLAN

Introduction

The purpose of this drainage report is to present a drainage solution for the proposed development consisting of a single-story building for a skilled nursing facility and associated parking facility, and to document the waiver from the on-site retention of the first-flush flows. This report is a request for approval of the Grading and Drainage plan for ~~Site Development Plan~~ BP for Building Permit approval.

Project Location

The project site address is 1610 Renaissance Boulevard, NE which corresponds to Tract 8-A of the renaissance Center located on the southeast corner of Commerce Drive and Renaissance Boulevard, NE. The site is bounded by Renaissance Boulevard on the north, Commerce Drive on the west, Chappell Road on the east, and Tract 8-B to the south which is an existing hotel.

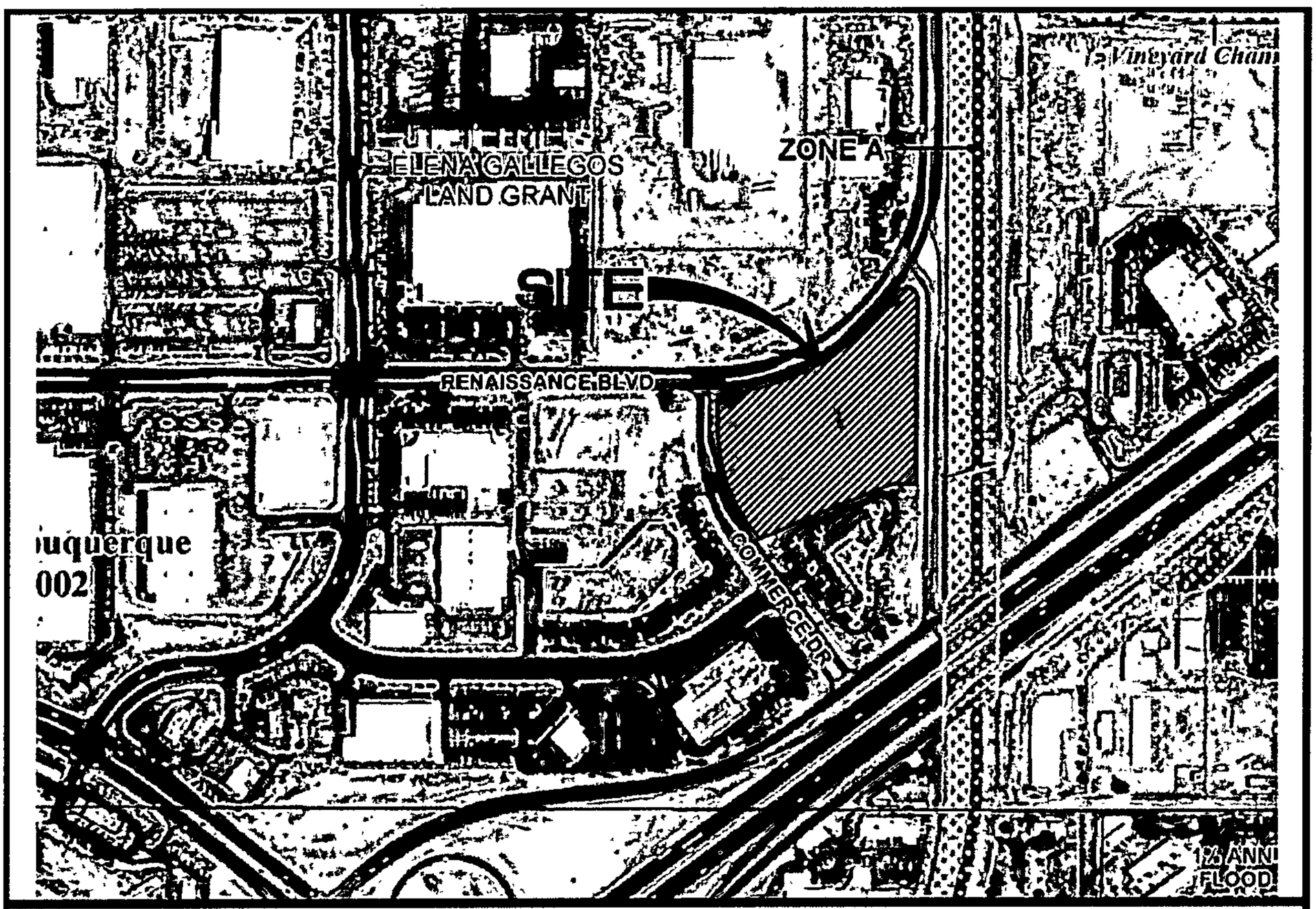


Existing Drainage Conditions

The site falls within the approved Renaissance Drainage Master Plan, and is currently undeveloped, although previously rough graded with two pads. The Renaissance Drainage Master Plan allows a controlled release runoff of 0.10 cfs per acre from each tract. The existing conditions were analyzed using the criteria set by the City of Albuquerque DPM.

Existing conditions, analyzed as a single basin with a runoff rate of 15.3 cfs., generally sheet flows from the southeast to the northwest portion of the site discharging onto Commerce Drive through a sidewalk culvert near the Renaissance Boulevard intersection. No offsite runoff enters the site.

The site is located outside any mapped 100 year floodplain, as indicated on FEMA FIRM Map 35001C0138H.



FIRM MAP: FM35001C0138H

Proposed Drainage Management/Post-Developed Condition

The grading and drainage design is configured to accommodate the proposed building and associated improvements, convey flows from the "developed" condition, while attenuating the outflow to not exceed the maximum rate of 0.5 cfs allowed by the Renaissance Drainage Master Plan for this site.

based on 0.1 cfs/Ac x 5 Ac.

Drainage from the majority of the developed site will be collected through a network of storm drain pipes and routed through above-ground detention ponds and an underground detention storage system, such as a CMP pipe and manifold system, before releasing flows onto Commerce Drive at the existing sidewalk culvert location where the site currently flows. An area at the northeast portion of the site (Basin C1) will flow into a pond (Pond #1) which will be drained into Pond #2 through a 6-inch diameter pipe. The remaining sub-basins, with the exception of "Basin D2", are routed to Pond #2 which is interconnected with the 15,080 cubic-foot underground storage system which provides 0.6507 acre-feet of total storage available. Flow from the Pond #2 combined system is slowly released through a 2.4-inch orifice plate to the sidewalk culvert outfall. Flow from Pond #3, which accommodates flow from "Basin D2", is drained through a 4-inch pipe with a 1.4-inch orifice plate and connected to the outflow pipe from Pond #2 near the sidewalk culvert outfall.

A hydrologic analysis was performed using AHYMO to determine the flows generated by the 100-year storm in the developed condition, as well as to determine the maximum system outflow rate after routing through the onsite detention system. A drainage basin map, schematic of the system, pond volume storage tabulations, stage-discharge calculations, and the AHYMO input and output data are included in Appendix A.

The storm drain system is sized to accommodate the developed flows from the site, including the roof drains and patio areas internal to the building. Water quality manholes to minimize sediment and debris from entering the underground detention system will be constructed using a Bio Snout, EnviroHood, or equal. Hydraulic calculations for inlets, storm drain pipes, and concrete flume capacities are included in Appendix B along with a storm drain schematic exhibit.

Water Quality Management

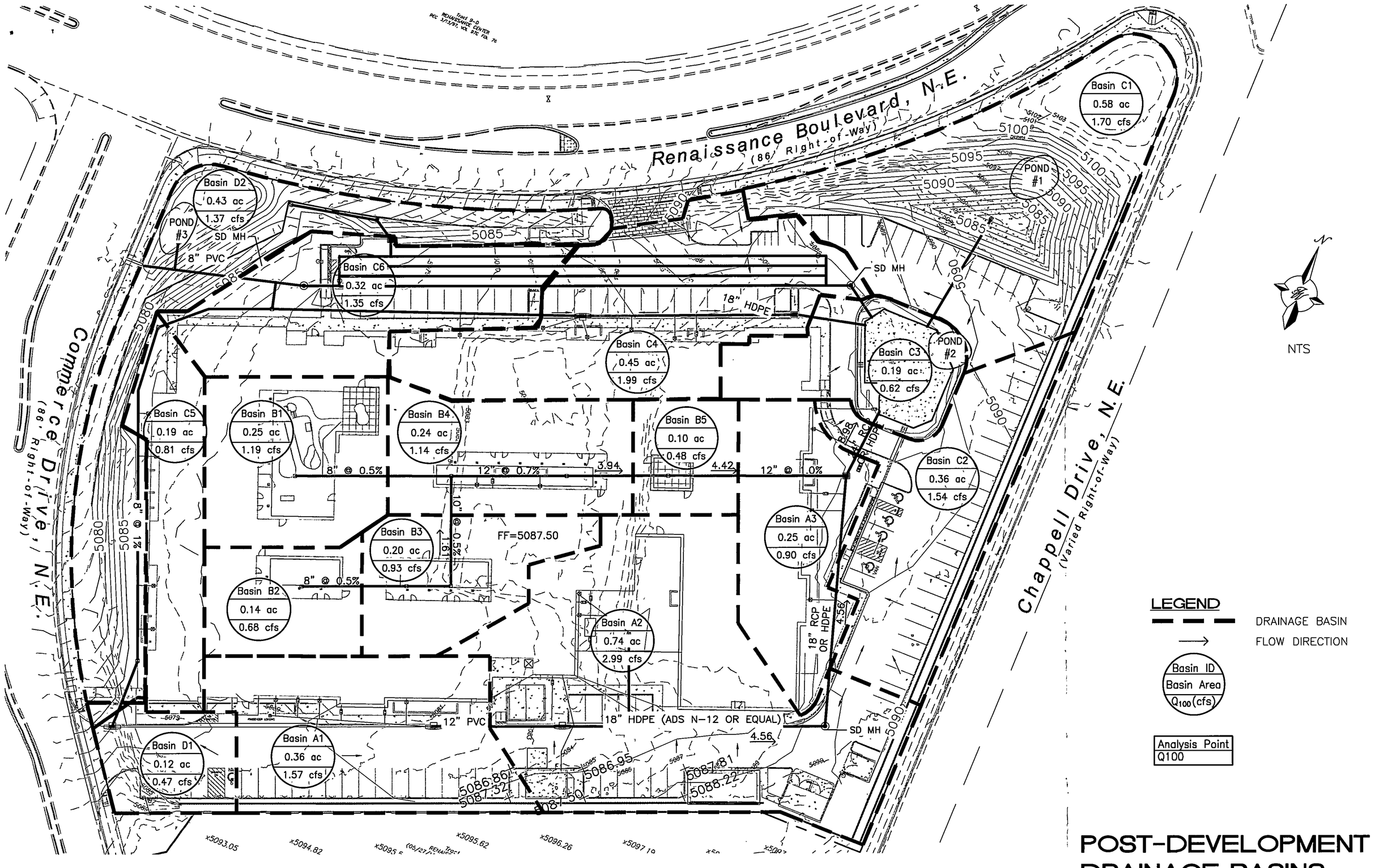
Given the potential for collapsible soils onsite, a waiver for onsite retention of the first-flush has been requested with this project. BMP's consisting of water quality manholes, as described above, will be implemented on-site to reduce the pollutants entering the underground detention system and the site, however, on-site retention of the first-flush volume is not feasible due to the geotechnical conditions and recommendations from the Geotechnical Investigation Report. It should also be noted that drainage from this area is conveyed to a regional pond which provides a disconnect from the Rio Grande.

Conclusion

This Drainage Management Plan provides for grading and drainage elements which are capable of safely conveying the 100-year, 6-hour storm and which meet the City requirements, as well as meeting the requirements of the Renaissance Center Master Drainage Plan. With this submittal we request Drainage Report and Grading Plan approvals for the Site Plan for Building Permit Application.

APPENDIX A

HYDROLOGY



POST-DEVELOPMENT DRAINAGE BASINS

TIERRA WEST, LLC

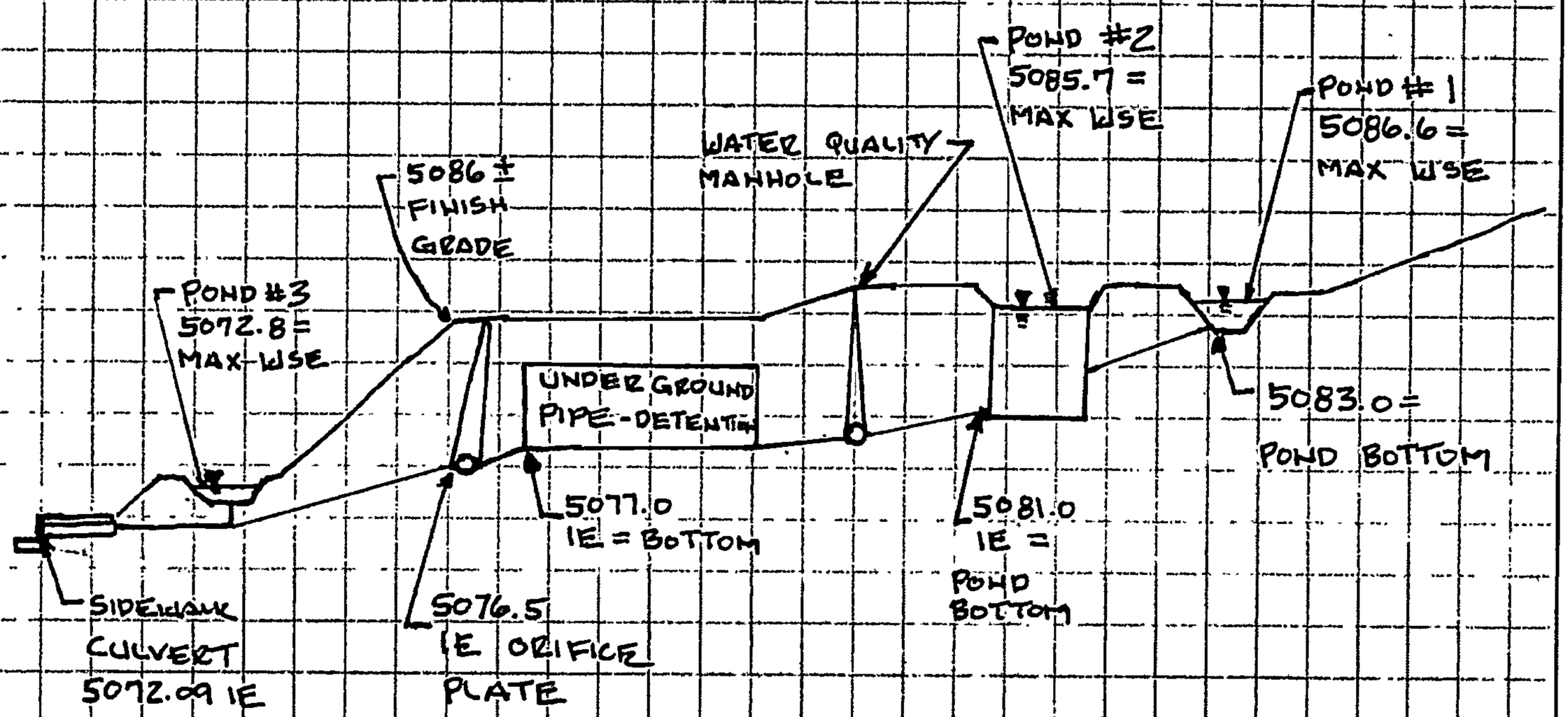
Project SKILLED NURSING Date

Project No. 2014088

Meeting Purpose Sheet No ___ of ___

Attendees

DETENTION POND SYSTEM SCHEMATIC



5571 Midway Park Place NE • Albuquerque, NM 87109 • (505) 858-3100 • (505) 858-1118 Fax • 1-800-245-3102 • twllc@tierrawestllc.com

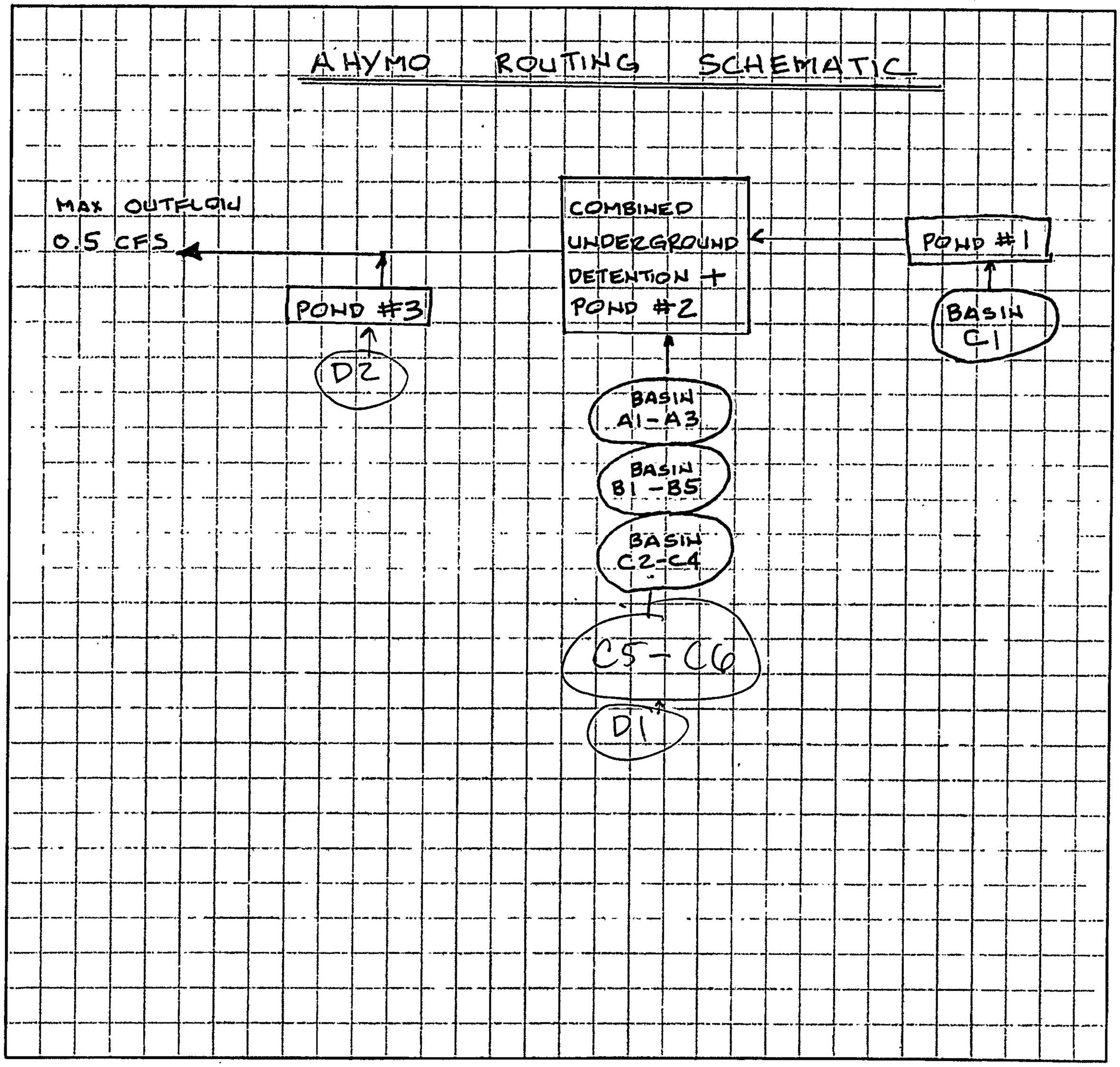
TIERRA WEST, LLC

Project SKILLED NURSING Date

Project No. 2014088

Meeting Purpose Sheet No ___ of ___

Attendees



5571 Midway Park Place NE • Albuquerque, NM 87109 • (505) 858-3100 • (505) 858-1118 Fax • 1-800-245-3102 • twllc@tierrawestllc.com

Tract 8A, RENAISSANCE CENTER

Existing and Proposed Conditions Basin Data Table

This table is based on the DPM Section 22.2, Zone: 2

BASIN	Area (SQ. FT)	Area (AC.)	Land Treatment Percentages A	B	C	D	Q(100) (cfs/ac.)	Q(100) (CFS)	V(100) (inches)	V(100) (CF)
EXISTING CONDITIONS										
A	212000	4.87	0.0%	0.0%	99.0%	1.0%	3.16	*15.36*	*1.14*	*20138*
TOTAL		**4.87**						***15.36***	***1.14***	***20138***

Per the Renaissance Center Master Drainage Plan,
the Maximum Release from the Site is 0.10 cfs/acre.

This table is based on the DPM Section 22.2, Zone: 2

BASIN	Area (SQ. FT)	Area (AC.)	Land Treatment Percentages A	B	C	D	Q(100) (cfs/ac.)	Q(100) (CFS)	V(100) (inches)	V(100) (CF)	1ST FLUSH	Area (SQ. MI)
PROPOSED CONDITIONS												
A1	15,835	0.36	0.0%	16.0%	0.0%	84.0%	4.31	*1.57*	*1.91*	*2515*	*377*	0.00057
A2	32,146	0.74	0.0%	27.0%	0.0%	73.0%	4.05	*2.99*	*1.76*	*4710*	*665*	0.00115
A3	10,825	0.25	0.0%	45.0%	0.0%	55.0%	3.61	*0.90*	*1.52*	*1368*	*169*	0.00039
B1	11,054	0.25	0.0%	0.0%	0.0%	100.0%	4.70	*1.19*	*2.12*	*1953*	*313*	0.00040
B2	6,271	0.14	0.0%	0.0%	0.0%	100.0%	4.70	*0.68*	*2.12*	*1108*	*178*	0.00022
B3	8,635	0.20	0.0%	0.0%	0.0%	100.0%	4.70	*0.93*	*2.12*	*1526*	*245*	0.00031
B4	10,545	0.24	0.0%	0.0%	0.0%	100.0%	4.70	*1.14*	*2.12*	*1863*	*299*	0.00038
B5	4,438	0.10	0.0%	0.0%	0.0%	100.0%	4.70	*0.48*	*2.12*	*784*	*126*	0.00016
C1	25,404	0.58	15.0%	54.0%	0.0%	31.0%	2.92	*1.70*	*1.16*	*2451*	*223*	0.00091
C2	15,594	0.36	0.0%	17.0%	0.0%	83.0%	4.29	*1.54*	*1.89*	*2459*	*367*	0.00056
C3	8,250	0.19	0.0%	20.0%	0.0%	80.0%	4.22	*0.80*	*1.85*	*1273*	*187*	0.00030
C4	19,802	0.45	0.0%	13.0%	0.0%	87.0%	4.39	*1.99*	*1.95*	*3211*	*488*	0.00071
C5	8,223	0.19	0.0%	17.0%	0.0%	83.0%	4.29	*0.81*	*1.89*	*1297*	*193*	0.00029
C6	14,016	0.32	0.0%	21.0%	0.0%	79.0%	4.19	*1.35*	*1.84*	*2147*	*314*	0.00050
D1	5,118	0.12	0.0%	30.0%	0.0%	70.0%	3.97	*0.47*	*1.72*	*733*	*102*	0.00018
D2	18,666	0.43	0.0%	0.0%	97.0%	3.0%	3.19	*1.37*	*1.16*	*1804*	*16*	0.00067
						3.4 Ac						
TOTAL		**4.93**						***19.89***	***1.91***	***31201***	***4260***	

DETENTION VOLUME CALCS

POND NO.1 (BASIN C1 ONLY) VOLUME CALCULATIONS

ELEVATION (ft)	AREA (sf)	VOLUME (cf)	CUMULATIVE VOLUME (cf)	CUMULATIVE VOLUME (ac-ft)
5083	216	0	0	0.0000
5084	500	358	358	0.0082
5085	902	701	1059	0.0243
5086	1423	1162.5	2222	0.0510
5087	2088	1755.5	3977	0.0913
5088	2936	2512	6489	0.1490

POND 2 + UNDERGROUND STORAGE VOLUME CALCULATION

PIPE DIA= 48 PIPE L= 1,040

ELEVATION (ft)	AREA (sf)	VOLUME (cf)	CUMULATIVE VOLUME (cf)	CUMULATIVE VOLUME (ac-ft)
5077.0	0		0	
5077.5	0.91		946.4	0.0217
5078.0	2.46		2558.4	0.0587
5078.5	4.3		4472	0.1027
5079.0	6.28		6531.2	0.1499
5079.5	8.26		8590.4	0.1972
5080.0	10.11		10514.4	0.2414
5080.5	11.66		12126.4	0.2784
5081.0	12.57		13069	0.3000
5082.0	2653	2653	15722	0.3609
5083.0	2653	2653	18375	0.4218
5084.0	2653	2653	21028	0.4827
5085.0	2653	2653	23681	0.5436
5086.0	2653	2653	26334	0.6045

POND 3 (BASIN D2 ONLY) VOLUME CALCULATIONS

ELEVATION (ft)	AREA (sf)	VOLUME (cf)	CUMULATIVE VOLUME (cf)	CUMULATIVE VOLUME (ac-ft)
5072	1426	0	0	0.0000
5073	1998	1712	1712	0.0393

STAGE-DISCHARGE CALCULATIONS

DETENTION POND #1

STAGE, VOLUME, DISCHARGE

Orifice Elevation: 5083.0

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
5083	0	0	0.0000
5084	1.00	0.0082	0.1554
5085	2.00	0.0243	0.2260
5086	3.00	0.0510	0.2793
5087	4.00	0.0913	0.3240
5088	5.00	0.1490	0.3632

<u>Orifice Equation</u>

Q = CA SQRT(2gH)

C = 0.6

Diameter (i 2.5

Area (ft^2)= 0.034

g = 32.2

H (Ft) = Depth of water above center of orifice

Q (CFS)= Flow

STAGE-DISCHARGE CALCULATIONS

DETENTION POND NO. 2 COMBINED WITH UNDERGROUND STORAGE

STAGE, VOLUME, DISCHARGE

Orifice Elevation: 5076.5

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
5077.0	0.50	0	0.0957
5077.5	1.00	0.0217	0.1435
5078.0	1.50	0.0587	0.1790
5078.5	2.00	0.1027	0.2085
5079.0	2.50	0.1499	0.2343
5079.5	3.00	0.1972	0.2576
5080.0	3.50	0.2414	0.2789
5080.5	4.00	0.2784	0.2987
5081.0	4.50	0.3000	0.3173
5082.0	5.50	0.3609	0.3515
5083.0	6.50	0.4218	0.3827
5084.0	7.50	0.4827	0.4115
5085.0	8.50	0.5436	0.4384
5086.0	9.50	0.6045	0.4638

<u>Orifice Equation</u>

Q = CA SQRT(2gH)

C = 0.6
Diameter (i 2.4
Area (ft^2)= 0.031
g = 32.2
H (Ft) = Depth of water above center of orifice
Q (CFS)= Flow

STAGE-DISCHARGE CALCULATIONS

DETENTION POND #3

STAGE, VOLUME, DISCHARGE

Orifice Elevation: 5072.0

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
5072	0	0	0.0000
5073	1.00	0.0393	0.0499

<u>Orifice Equation</u>

Q = CA SQRT(2gH)

C =	0.6
Diameter (in)	1.4
Area (ft^2)=	0.011
g =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

```
*****************************************************************
*                Skilled Nursing Renaissance, ABQ,NM            *
*****************************************************************
* 100-YEAR, 24-HR STORM  (UNDER PROPOSED CONDITIONS) W/ routing *
*****************************************************************
*
START                TIME=0.0
*
*
RAINFALL             TYPE=2 RAIN QUARTER=0.0 IN
                     RAIN ONE=2.01 IN RAIN SIX=2.35 IN
                     RAIN DAY=2.75 IN DT=0.05 HR
*DEVELOPED CONDITIONS
*
*BASIN A1
*
COMPUTE NM HYD       ID=1 HYD NO=100.1 AREA=0.00057 SQ MI
                     PER A=0.00 PER B=16.0 PER C=0.00 PER D=84.00
                     TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1
*
*
*BASIN A2
*
COMPUTE NM HYD       ID=2 HYD NO=100.2 AREA=0.00115 SQ MI
                     PER A=0.00 PER B=27.0 PER C=00.0 PER D=73.00
                     TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
*
*
*BASIN A3
*
COMPUTE NM HYD       ID=3 HYD NO=100.3 AREA=0.00039 SQ MI
                     PER A=0.00 PER B=45.0 PER C=00.0 PER D=55.00
                     TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=3 CODE=1
*
*
*BASIN B1-B5
*
COMPUTE NM HYD       ID=4 HYD NO=100.4 AREA=0.00147 SQ MI
                     PER A=0.00 PER B=0.00 PER C=00.0 PER D=100.0
                     TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=4 CODE=1
*
*
*BASIN C2
*
```

```
COMPUTE NM HYD      ID=5 HYD NO=100.5 AREA=0.00056 SQ MI
                    PER A=0.00 PER B=17.0 PER C=0.0 PER D=83.00
                    TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=5 CODE=1
*
*
*BASIN C3
COMPUTE NM HYD      ID=6 HYD NO=100.6 AREA=0.00030 SQ MI
                    PER A=0.00 PER B=20.0 PER C=0.0 PER D=80.00
                    TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=6 CODE=1
*
*
*BASIN C4
*
COMPUTE NM HYD      ID=7 HYD NO=100.7 AREA=0.00071 SQ MI
                    PER A=0.00 PER B=13.0 PER C=0.0 PER D=87.00
                    TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=7 CODE=1
*
*
*BASIN C1
*
COMPUTE NM HYD      ID=8 HYD NO=100.8 AREA=0.00091 SQ MI
                    PER A=15.0 PER B=54.0 PER C=0.0 PER D=31.00
                    TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=8 CODE=1
**
*ROUTE BASIN C1 THROUGH DETENTION POND NO.1
ROUTE RESERVOIR     ID=55 HYD NO=200.1 INFLOW ID=8 CODE=24
                    OUTFLOW (CFS) STORAGE(AC-FT) ELEVATION(FT)
                    0.1000         0.0                 83.00
                    0.1554         0.0082              84.00
                    0.2260         0.0243              85.00
                    0.2793         0.0510              86.00
                    0.3240         0.0913              87.00
                    0.3632         0.1490              88.00
*
PRINT HYD           ID=55  CODE=1
*
*
*BASIN C6
*
COMPUTE NM HYD      ID=9 HYD NO=100.9 AREA=0.00050 SQ MI
                    PER A=0.00 PER B=21.0 PER C=0.0 PER D=79.0
                    TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=9 CODE=1
*
```

```
*
*BASIN C5
*
COMPUTE NM HYD      ID=10 HYD NO=100.10 AREA=0.00029 SQ MI
                    PER A=0.00 PER B=17.0 PER C=0.0 PER D=83.0
                    TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=10 CODE=1
*
*
*BASIN D1
*
COMPUTE NM HYD      ID=11 HYD NO=100.11 AREA=0.00018 SQ MI
                    PER A=0.00 PER B=30.0 PER C=0.0 PER D=70.00
                    TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=11 CODE=1
*
*
*COMBINE POND1 DISCHARGE WITH BASINS ROUTED TO POND NO.2
*
ADD HYD             ID=50 HYD NO=100.21 ID=1 ID=2
ADD HYD             ID=50 HYD NO=100.21 ID=50 ID=3
ADD HYD             ID=50 HYD NO=100.21 ID=50 ID=4
ADD HYD             ID=50 HYD NO=100.21 ID=50 ID=5
ADD HYD             ID=50 HYD NO=100.21 ID=50 ID=6
ADD HYD             ID=50 HYD NO=100.21 ID=50 ID=7
ADD HYD             ID=50 HYD NO=100.21 ID=50 ID=9
ADD HYD             ID=50 HYD NO=100.21 ID=50 ID=10
ADD HYD             ID=50 HYD NO=100.21 ID=50 ID=11
ADD HYD             ID=50 HYD NO=100.21 ID=50 ID=55
*
PRINT HYD           ID=50 CODE=1
*
*ROUTE POND1 DISCHARGE & BASINS A1-3,B1-5,C2-6,D1 THRU COMBINED UG/POND 2 DETENTION
SYSTEM
ROUTE RESERVOIR     ID=56 HYD NO=200.3 INFLOW ID=50 CODE=24
                    OUTFLOW (CFS) STORAGE(AC-FT) ELEVATION(FT)
                    0.0957        0.0000         77.00
                    0.1435        0.0217         77.50
                    0.1790        0.0587         78.00
                    0.2085        0.1027         78.50
                    0.2343        0.1499         79.00
                    0.2576        0.1972         79.50
                    0.2789        0.2414         80.00
                    0.2987        0.2784         80.50
                    0.3173        0.3000         81.00
                    0.3515        0.3609         82.00
                    0.3827        0.4218         83.00
                    0.4115        0.4827         84.00
```

```
                        Skilled Nursing COMBINED final
                    0.4384          0.5436                85.00
                    0.4638          0.6045                86.00
*
PRINT HYD           ID=56  CODE=1
*
*BASIN D2
*
COMPUTE NM HYD      ID=12 HYD NO=100.12 AREA=0.00067 SQ MI
                    PER A=0.00 PER B=97.0 PER C=0.0 PER D=3.00
                    TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=12 CODE=1
*
*
*ROUTE BASIN D2 THROUGH POND NO 3
ROUTE RESERVOIR     ID=57 HYD NO=200.3 INFLOW ID=12 CODE=24
                    OUTFLOW (CFS) STORAGE(AC-FT) ELEVATION(FT)
                    0.0100          0.0000                72.00
                    0.0500          0.0393                73.00
*
PRINT HYD           ID=57  CODE=1
*
ADD HYD             ID=58 HYD NO=100.22 ID=56 ID=57
*
PRINT HYD           ID=58 CODE=1
*
*
FINISH
```

```
        AHYMO PROGRAM (AHYMO-S4)                    - Version: S4.01a - Rel: 01a
             RUN DATE (MON/DAY/YR) = 05/05/2016
             START TIME (HR:MIN:SEC) = 14:01:45     USER NO.=
TierraWest-SiteA99368577
             INPUT FILE = C:\Users\Joel\Desktop\AHYMO IN\Skilled Nursing COMBINED
final.txt

*****************************************************************
*                 Skilled Nursing Renaissance, ABQ,NM           *
*****************************************************************
* 100-YEAR, 24-HR STORM  (UNDER PROPOSED CONDITIONS) W/ routing *
*****************************************************************
*
START                TIME=0.0
*
*
RAINFALL             TYPE=2 RAIN QUARTER=0.0 IN
                     RAIN ONE=2.01 IN RAIN SIX=2.35 IN
                     RAIN DAY=2.75 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  0.0023  0.0046  0.0071  0.0099  0.0127  0.0159
                  0.0203  0.0272  0.0347  0.0424  0.0509  0.0595  0.0684
                  0.0776  0.0870  0.0974  0.1084  0.1204  0.1437  0.1728
                  0.2117  0.2559  0.3104  0.3831  0.4649  0.6062  0.8258
                  1.2021  1.4666  1.6752  1.7800  1.8719  1.9379  1.9905
                  2.0362  2.0697  2.1005  2.1259  2.1418  2.1530  2.1629
                  2.1722  2.1803  2.1879  2.1953  2.2025  2.2084  2.2118
                  2.2152  2.2186  2.2217  2.2247  2.2278  2.2307  2.2336
                  2.2363  2.2391  2.2417  2.2443  2.2469  2.2494  2.2518
                  2.2542  2.2565  2.2588  2.2611  2.2633  2.2654  2.2676
                  2.2697  2.2717  2.2738  2.2758  2.2778  2.2798  2.2817
                  2.2837  2.2856  2.2874  2.2893  2.2911  2.2930  2.2948
                  2.2965  2.2983  2.3000  2.3017  2.3034  2.3051  2.3068
                  2.3084  2.3100  2.3117  2.3133  2.3148  2.3164  2.3180
                  2.3195  2.3210  2.3225  2.3240  2.3255  2.3269  2.3284
                  2.3298  2.3313  2.3327  2.3341  2.3355  2.3368  2.3382
                  2.3396  2.3409  2.3422  2.3436  2.3449  2.3462  2.3474
                  2.3487  2.3500  2.3513  2.3525  2.3538  2.3551  2.3563
                  2.3576  2.3589  2.3601  2.3614  2.3627  2.3639  2.3652
                  2.3665  2.3677  2.3690  2.3702  2.3715  2.3728  2.3740
                  2.3753  2.3765  2.3778  2.3790  2.3803  2.3815  2.3828
                  2.3840  2.3853  2.3865  2.3878  2.3890  2.3903  2.3915
                  2.3927  2.3940  2.3952  2.3965  2.3977  2.3989  2.4002
                  2.4014  2.4027  2.4039  2.4051  2.4064  2.4076  2.4088
```

AHYMO

2.4101	2.4113	2.4125	2.4137	2.4150	2.4162	2.4174
2.4186	2.4199	2.4211	2.4223	2.4235	2.4247	2.4260
2.4272	2.4284	2.4296	2.4308	2.4320	2.4333	2.4345
2.4357	2.4369	2.4381	2.4393	2.4405	2.4417	2.4429
2.4441	2.4453	2.4465	2.4478	2.4490	2.4502	2.4514
2.4526	2.4538	2.4550	2.4561	2.4573	2.4585	2.4597
2.4609	2.4621	2.4633	2.4645	2.4657	2.4669	2.4681
2.4692	2.4704	2.4716	2.4728	2.4740	2.4752	2.4764
2.4775	2.4787	2.4799	2.4811	2.4822	2.4834	2.4846
2.4858	2.4869	2.4881	2.4893	2.4905	2.4916	2.4928
2.4940	2.4951	2.4963	2.4975	2.4986	2.4998	2.5010
2.5021	2.5033	2.5044	2.5056	2.5068	2.5079	2.5091
2.5102	2.5114	2.5125	2.5137	2.5148	2.5160	2.5171
2.5183	2.5194	2.5206	2.5217	2.5229	2.5240	2.5252
2.5263	2.5274	2.5286	2.5297	2.5309	2.5320	2.5331
2.5343	2.5354	2.5365	2.5377	2.5388	2.5399	2.5411
2.5422	2.5433	2.5445	2.5456	2.5467	2.5478	2.5490
2.5501	2.5512	2.5523	2.5535	2.5546	2.5557	2.5568
2.5579	2.5590	2.5602	2.5613	2.5624	2.5635	2.5646
2.5657	2.5668	2.5679	2.5691	2.5702	2.5713	2.5724
2.5735	2.5746	2.5757	2.5768	2.5779	2.5790	2.5801
2.5812	2.5823	2.5834	2.5845	2.5856	2.5867	2.5878
2.5889	2.5899	2.5910	2.5921	2.5932	2.5943	2.5954
2.5965	2.5976	2.5986	2.5997	2.6008	2.6019	2.6030
2.6040	2.6051	2.6062	2.6073	2.6084	2.6094	2.6105
2.6116	2.6126	2.6137	2.6148	2.6159	2.6169	2.6180
2.6191	2.6201	2.6212	2.6223	2.6233	2.6244	2.6254
2.6265	2.6276	2.6286	2.6297	2.6307	2.6318	2.6328
2.6339	2.6350	2.6360	2.6371	2.6381	2.6392	2.6402
2.6413	2.6423	2.6433	2.6444	2.6454	2.6465	2.6475
2.6486	2.6496	2.6506	2.6517	2.6527	2.6538	2.6548
2.6558	2.6569	2.6579	2.6589	2.6600	2.6610	2.6620
2.6630	2.6641	2.6651	2.6661	2.6672	2.6682	2.6692
2.6702	2.6712	2.6723	2.6733	2.6743	2.6753	2.6763
2.6774	2.6784	2.6794	2.6804	2.6814	2.6824	2.6834
2.6844	2.6854	2.6865	2.6875	2.6885	2.6895	2.6905
2.6915	2.6925	2.6935	2.6945	2.6955	2.6965	2.6975
2.6985	2.6995	2.7005	2.7015	2.7025	2.7034	2.7044
2.7054	2.7064	2.7074	2.7084	2.7094	2.7104	2.7114
2.7123	2.7133	2.7143	2.7153	2.7163	2.7172	2.7182
2.7192	2.7202	2.7211	2.7221	2.7231	2.7241	2.7250
2.7260	2.7270	2.7280	2.7289	2.7299	2.7309	2.7318
2.7328	2.7338	2.7347	2.7357	2.7366	2.7376	2.7386
2.7395	2.7405	2.7414	2.7424	2.7433	2.7443	2.7452
2.7462	2.7472	2.7481	2.7491	2.7500		

*DEVELOPED CONDITIONS
*

```
*BASIN A1
*
COMPUTE NM HYD      ID=1 HYD NO=100.1 AREA=0.00057 SQ MI
                    PER A=0.00 PER B=16.0 PER C=0.00 PER D=84.00
                    TP=-0.1333 HR MASS RAINFALL=-1

        K =  0.072649HR    TP =  0.133300HR    K/TP RATIO =  0.545000     SHAPE
CONSTANT, N =  7.106428
        UNIT PEAK =   1.8903    CFS   UNIT VOLUME =   0.9941       B =   526.28
 P60 = 2.0100
        AREA =     0.000479 SQ MI    IA =   0.10000 INCHES    INF =   0.04000
INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
0.050000


        K =  0.132088HR    TP =  0.133300HR    K/TP RATIO =  0.990905     SHAPE
CONSTANT, N =  3.562974
        UNIT PEAK =  0.22229    CFS   UNIT VOLUME =   0.9417       B =   324.90
 P60 = 2.0100
        AREA =     0.000091 SQ MI    IA =   0.50000 INCHES    INF =   1.25000
INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
0.050000

PRINT HYD           ID=1 CODE=1

                                    PARTIAL HYDROGRAPH   100.10


        RUNOFF VOLUME =     2.25684 INCHES     =       0.0686 ACRE-FEET
        PEAK DISCHARGE RATE =       1.65 CFS  AT   1.500 HOURS   BASIN AREA =
0.0006 SQ. MI.


*
*
*BASIN A2
*
COMPUTE NM HYD      ID=2 HYD NO=100.2 AREA=0.00115 SQ MI
                    PER A=0.00 PER B=27.0 PER C=00.0 PER D=73.00
                    TP=-0.1333 HR MASS RAINFALL=-1

        K =  0.072649HR    TP =  0.133300HR    K/TP RATIO =  0.545000     SHAPE
CONSTANT, N =  7.106428
        UNIT PEAK =   3.3144    CFS   UNIT VOLUME =   0.9959       B =   526.28
 P60 = 2.0100
```

```
        AREA =     0.000840 SQ MI    IA =   0.10000 INCHES    INF =   0.04000
INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
0.050000

        K =  0.132088HR    TP =  0.133300HR    K/TP RATIO =  0.990905     SHAPE
CONSTANT, N =  3.562974
        UNIT PEAK =  0.75681    CFS   UNIT VOLUME =   0.9843       B =   324.90
 P60 = 2.0100
        AREA =     0.000311 SQ MI    IA =   0.50000 INCHES    INF =   1.25000
INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
0.050000

    PRINT HYD           ID=2 CODE=1

                                        PARTIAL HYDROGRAPH   100.20

        RUNOFF VOLUME =     2.08616 INCHES     =       0.1280 ACRE-FEET
        PEAK DISCHARGE RATE =       3.14 CFS  AT   1.500 HOURS   BASIN AREA =
0.0012 SQ. MI.

    *
    *
    *BASIN A3
    *
    COMPUTE NM HYD      ID=3 HYD NO=100.3 AREA=0.00039 SQ MI
                        PER A=0.00 PER B=45.0 PER C=00.0 PER D=55.00
                        TP=-0.1333 HR MASS RAINFALL=-1

        K =  0.072649HR    TP =  0.133300HR    K/TP RATIO =  0.545000     SHAPE
CONSTANT, N =  7.106428
        UNIT PEAK =  0.84686    CFS   UNIT VOLUME =   0.9865       B =   526.28
 P60 = 2.0100
        AREA =     0.000215 SQ MI    IA =   0.10000 INCHES    INF =   0.04000
INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
0.050000

        K =  0.132088HR    TP =  0.133300HR    K/TP RATIO =  0.990905     SHAPE
CONSTANT, N =  3.562974
        UNIT PEAK =  0.42776    CFS   UNIT VOLUME =   0.9695       B =   324.90
 P60 = 2.0100
```

```
                                        AHYMO
        AREA =     0.000176 SQ MI    IA =   0.50000 INCHES    INF =   1.25000
INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
0.050000

    PRINT HYD           ID=3 CODE=1

                                        PARTIAL HYDROGRAPH   100.30


        RUNOFF VOLUME =     1.80685 INCHES     =       0.0376 ACRE-FEET
        PEAK DISCHARGE RATE =       0.98 CFS  AT   1.500 HOURS   BASIN AREA =
0.0004 SQ. MI.


    *
    *
    *BASIN B1-B5
    *
    COMPUTE NM HYD      ID=4 HYD NO=100.4 AREA=0.00147 SQ MI
                        PER A=0.00 PER B=0.00 PER C=00.0 PER D=100.0
                        TP=-0.1333 HR MASS RAINFALL=-1

        K =  0.072649HR    TP =  0.133300HR    K/TP RATIO =  0.545000     SHAPE
CONSTANT, N =  7.106428
        UNIT PEAK =   5.8036    CFS   UNIT VOLUME =   0.9971       B =   526.28
 P60 = 2.0100
        AREA =     0.001470 SQ MI    IA =   0.10000 INCHES    INF =   0.04000
INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
0.050000

    PRINT HYD           ID=4 CODE=1

                                        PARTIAL HYDROGRAPH   100.40


        RUNOFF VOLUME =     2.50511 INCHES     =       0.1964 ACRE-FEET
        PEAK DISCHARGE RATE =       4.53 CFS  AT   1.500 HOURS   BASIN AREA =
0.0015 SQ. MI.


    *
    *
    *BASIN C2
    *
```

```
    COMPUTE NM HYD       ID=5 HYD NO=100.5 AREA=0.00056 SQ MI
                         PER A=0.00 PER B=17.0 PER C=0.0 PER D=83.00
                         TP=-0.1333 HR MASS RAINFALL=-1

         K =  0.072649HR    TP =  0.133300HR    K/TP RATIO =  0.545000     SHAPE
CONSTANT, N =  7.106428
         UNIT PEAK =   1.8351    CFS   UNIT VOLUME =   0.9928       B =   526.28
 P60 = 2.0100
         AREA =     0.000465 SQ MI    IA =   0.10000 INCHES    INF =   0.04000
INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
0.050000


         K =  0.132088HR    TP =  0.133300HR    K/TP RATIO =  0.990905     SHAPE
CONSTANT, N =  3.562974
         UNIT PEAK =  0.23204    CFS   UNIT VOLUME =   0.9417       B =   324.90
 P60 = 2.0100
         AREA =     0.000095 SQ MI    IA =   0.50000 INCHES    INF =   1.25000
INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
0.050000

    PRINT HYD            ID=5 CODE=1

                                        PARTIAL HYDROGRAPH   100.50


        RUNOFF VOLUME =     2.24132 INCHES     =       0.0669 ACRE-FEET
        PEAK DISCHARGE RATE =       1.61 CFS  AT   1.500 HOURS   BASIN AREA =
0.0006 SQ. MI.


    *
    *
    *BASIN C3
    COMPUTE NM HYD       ID=6 HYD NO=100.6 AREA=0.00030 SQ MI
                         PER A=0.00 PER B=20.0 PER C=0.0 PER D=80.00
                         TP=-0.1333 HR MASS RAINFALL=-1

         K =  0.072649HR    TP =  0.133300HR    K/TP RATIO =  0.545000     SHAPE
CONSTANT, N =  7.106428
         UNIT PEAK =  0.94753    CFS   UNIT VOLUME =   0.9891       B =   526.28
 P60 = 2.0100
         AREA =     0.000240 SQ MI    IA =   0.10000 INCHES    INF =   0.04000
INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
```

```
0.050000

        K =  0.132088HR    TP =  0.133300HR    K/TP RATIO =  0.990905     SHAPE
CONSTANT, N =  3.562974
        UNIT PEAK =  0.14624    CFS   UNIT VOLUME =   0.9143       B =   324.90
 P60 = 2.0100
        AREA =     0.000060 SQ MI    IA =   0.50000 INCHES    INF =   1.25000
INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
0.050000

    PRINT HYD           ID=6 CODE=1

                                        PARTIAL HYDROGRAPH   100.60


        RUNOFF VOLUME =     2.19477 INCHES     =       0.0351 ACRE-FEET
        PEAK DISCHARGE RATE =       0.86 CFS  AT   1.500 HOURS   BASIN AREA =
0.0003 SQ. MI.


    *
    *
    *BASIN C4
    *
    COMPUTE NM HYD      ID=7 HYD NO=100.7 AREA=0.00071 SQ MI
                        PER A=0.00 PER B=13.0 PER C=0.0 PER D=87.00
                        TP=-0.1333 HR MASS RAINFALL=-1

        K =  0.072649HR    TP =  0.133300HR    K/TP RATIO =  0.545000     SHAPE
CONSTANT, N =  7.106428
        UNIT PEAK =   2.4387    CFS   UNIT VOLUME =   0.9951       B =   526.28
 P60 = 2.0100
        AREA =     0.000618 SQ MI    IA =   0.10000 INCHES    INF =   0.04000
INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
0.050000

        K =  0.132088HR    TP =  0.133300HR    K/TP RATIO =  0.990905     SHAPE
CONSTANT, N =  3.562974
        UNIT PEAK =  0.22497    CFS   UNIT VOLUME =   0.9417       B =   324.90
 P60 = 2.0100
        AREA =     0.000092 SQ MI    IA =   0.50000 INCHES    INF =   1.25000
INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
```

AHYMO

0.050000

PRINT HYD ID=7 CODE=1

PARTIAL HYDROGRAPH 100.70

RUNOFF VOLUME = 2.30339 INCHES = 0.0872 ACRE-FEET
PEAK DISCHARGE RATE = 2.08 CFS AT 1.500 HOURS BASIN AREA =
0.0007 SQ. MI.

*
*
*BASIN C1
*
COMPUTE NM HYD ID=8 HYD NO=100.8 AREA=0.00091 SQ MI
PER A=15.0 PER B=54.0 PER C=0.0 PER D=31.00
TP=-0.1333 HR MASS RAINFALL=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE
CONSTANT, N = 7.106428
UNIT PEAK = 1.1137 CFS UNIT VOLUME = 0.9891 B = 526.28
P60 = 2.0100
AREA = 0.000282 SQ MI IA = 0.10000 INCHES INF = 0.04000
INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
0.050000

K = 0.138189HR TP = 0.133300HR K/TP RATIO = 1.036677 SHAPE
CONSTANT, N = 3.405054
UNIT PEAK = 1.4760 CFS UNIT VOLUME = 0.9909 B = 313.34
P60 = 2.0100
AREA = 0.000628 SQ MI IA = 0.53261 INCHES INF = 1.34130
INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
0.050000

PRINT HYD ID=8 CODE=1

PARTIAL HYDROGRAPH 100.80

RUNOFF VOLUME = 1.39894 INCHES = 0.0679 ACRE-FEET
PEAK DISCHARGE RATE = 1.90 CFS AT 1.500 HOURS BASIN AREA =
0.0009 SQ. MI.

```
**
*ROUTE BASIN C1 THROUGH DETENTION POND NO.1
ROUTE RESERVOIR     ID=55 HYD NO=200.1 INFLOW ID=8 CODE=24
                        OUTFLOW (CFS) STORAGE(AC-FT) ELEVATION(FT)
                                0.1000        0.0                83.00

                                0.1554        0.0082             84.00

                                0.2260        0.0243             85.00

                                0.2793        0.0510             86.00

                                0.3240        0.0913             87.00

                                0.3632        0.1490             88.00
```

* * * * * * * * * * * * * * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
0.00	0.00	81.19	-0.015	0.00
1.20	0.14	83.00	0.000	0.10
2.40	0.06	85.45	0.036	0.25
3.60	0.00	84.46	0.016	0.19
4.80	0.00	83.14	0.001	0.11
6.00	0.00	83.00	0.000	0.10
7.20	0.00	83.00	0.000	0.10
8.40	0.00	83.00	0.000	0.10
9.60	0.00	83.00	0.000	0.10
10.80	0.00	83.00	0.000	0.10
12.00	0.00	83.00	0.000	0.10
13.20	0.00	83.00	0.000	0.10
14.40	0.00	83.00	0.000	0.10
15.60	0.00	83.00	0.000	0.10
16.80	0.00	83.00	0.000	0.10
18.00	0.00	83.00	0.000	0.10
19.20	0.00	83.00	0.000	0.10
20.40	0.00	83.00	0.000	0.10
21.60	0.00	83.00	0.000	0.10
22.80	0.00	83.00	0.000	0.10
24.00	0.00	83.00	0.000	0.10
25.20	0.00	83.00	0.000	0.10
26.40	0.00	83.00	0.000	0.10

27.60	0.00	83.00	0.000	0.10
28.80	0.00	83.00	0.000	0.10
30.00	0.00	83.00	0.000	0.10
31.20	0.00	83.00	0.000	0.10
32.40	0.00	83.00	0.000	0.10
33.60	0.00	83.00	0.000	0.10
34.80	0.00	83.00	0.000	0.10
36.00	0.00	83.00	0.000	0.10
37.20	0.00	83.00	0.000	0.10
38.40	0.00	83.00	0.000	0.10
39.60	0.00	83.00	0.000	0.10
40.80	0.00	83.00	0.000	0.10
42.00	0.00	83.00	0.000	0.10
43.20	0.00	83.00	0.000	0.10
44.40	0.00	83.00	0.000	0.10
45.60	0.00	83.00	0.000	0.10
46.80	0.00	83.00	0.000	0.10
48.00	0.00	83.00	0.000	0.10
49.20	0.00	83.00	0.000	0.10
50.40	0.00	83.00	0.000	0.10
51.60	0.00	83.00	0.000	0.10
52.80	0.00	83.00	0.000	0.10
54.00	0.00	83.00	0.000	0.10
55.20	0.00	83.00	0.000	0.10
56.40	0.00	83.00	0.000	0.10
57.60	0.00	83.00	0.000	0.10
58.80	0.00	83.00	0.000	0.10
60.00	0.00	83.00	0.000	0.10
61.20	0.00	83.00	0.000	0.10
62.40	0.00	83.00	0.000	0.10
63.60	0.00	83.00	0.000	0.10
64.80	0.00	83.00	0.000	0.10
66.00	0.00	83.00	0.000	0.10

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
67.20	0.00	83.00	0.000	0.10
68.40	0.00	83.00	0.000	0.10
69.60	0.00	83.00	0.000	0.10
70.80	0.00	83.00	0.000	0.10
72.00	0.00	83.00	0.000	0.10
73.20	0.00	83.00	0.000	0.10
74.40	0.00	83.00	0.000	0.10
75.60	0.00	83.00	0.000	0.10
76.80	0.00	83.00	0.000	0.10
78.00	0.00	83.00	0.000	0.10
79.20	0.00	83.00	0.000	0.10

80.40	0.00	83.00	0.000	0.10
81.60	0.00	83.00	0.000	0.10
82.80	0.00	83.00	0.000	0.10
84.00	0.00	83.00	0.000	0.10
85.20	0.00	83.00	0.000	0.10
86.40	0.00	83.00	0.000	0.10
87.60	0.00	83.00	0.000	0.10
88.80	0.00	83.00	0.000	0.10
90.00	0.00	83.00	0.000	0.10
91.20	0.00	83.00	0.000	0.10
92.40	0.00	83.00	0.000	0.10
93.60	0.00	83.00	0.000	0.10
94.80	0.00	83.00	0.000	0.10
96.00	0.00	83.00	0.000	0.10
97.20	0.00	83.00	0.000	0.10
98.40	0.00	83.00	0.000	0.10
99.60	0.00	83.00	0.000	0.10
100.80	0.00	83.00	0.000	0.10
102.00	0.00	83.00	0.000	0.10
103.20	0.00	83.00	0.000	0.10
104.40	0.00	83.00	0.000	0.10
105.60	0.00	83.00	0.000	0.10
106.80	0.00	83.00	0.000	0.10
108.00	0.00	83.00	0.000	0.10
109.20	0.00	83.00	0.000	0.10
110.40	0.00	83.00	0.000	0.10
111.60	0.00	83.00	0.000	0.10
112.80	0.00	83.00	0.000	0.10
114.00	0.00	83.00	0.000	0.10
115.20	0.00	83.00	0.000	0.10
116.40	0.00	83.00	0.000	0.10
117.60	0.00	83.00	0.000	0.10
118.80	0.00	83.00	0.000	0.10
120.00	0.00	83.00	0.000	0.10
121.20	0.00	83.00	0.000	0.10
122.40	0.00	83.00	0.000	0.10
123.60	0.00	83.00	0.000	0.10
124.80	0.00	83.00	0.000	0.10
126.00	0.00	83.00	0.000	0.10
127.20	0.00	83.00	0.000	0.10
128.40	0.00	83.00	0.000	0.10
129.60	0.00	83.00	0.000	0.10
130.80	0.00	83.00	0.000	0.10
132.00	0.00	83.00	0.000	0.10
133.20	0.00	83.00	0.000	0.10

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

134.40	0.00	83.00	0.000	0.10
135.60	0.00	83.00	0.000	0.10
136.80	0.00	83.00	0.000	0.10
138.00	0.00	83.00	0.000	0.10
139.20	0.00	83.00	0.000	0.10
140.40	0.00	83.00	0.000	0.10
141.60	0.00	83.00	0.000	0.10
142.80	0.00	83.00	0.000	0.10
144.00	0.00	83.00	0.000	0.10
145.20	0.00	83.00	0.000	0.10
146.40	0.00	83.00	0.000	0.10
147.60	0.00	83.00	0.000	0.10
148.80	0.00	83.00	0.000	0.10
150.00	0.00	83.00	0.000	0.10
151.20	0.00	83.00	0.000	0.10
152.40	0.00	83.00	0.000	0.10
153.60	0.00	83.00	0.000	0.10
154.80	0.00	83.00	0.000	0.10
156.00	0.00	83.00	0.000	0.10
157.20	0.00	83.00	0.000	0.10
158.40	0.00	83.00	0.000	0.10
159.60	0.00	83.00	0.000	0.10
160.80	0.00	83.00	0.000	0.10
162.00	0.00	83.00	0.000	0.10
163.20	0.00	83.00	0.000	0.10
164.40	0.00	83.00	0.000	0.10
165.60	0.00	83.00	0.000	0.10
166.80	0.00	83.00	0.000	0.10
168.00	0.00	83.00	0.000	0.10
169.20	0.00	83.00	0.000	0.10
170.40	0.00	83.00	0.000	0.10
171.60	0.00	83.00	0.000	0.10
172.80	0.00	83.00	0.000	0.10
174.00	0.00	83.00	0.000	0.10
175.20	0.00	83.00	0.000	0.10
176.40	0.00	83.00	0.000	0.10
177.60	0.00	83.00	0.000	0.10
178.80	0.00	83.00	0.000	0.10
180.00	0.00	83.00	0.000	0.10
181.20	0.00	83.00	0.000	0.10
182.40	0.00	83.00	0.000	0.10
183.60	0.00	83.00	0.000	0.10
184.80	0.00	83.00	0.000	0.10
186.00	0.00	83.00	0.000	0.10
187.20	0.00	83.00	0.000	0.10
188.40	0.00	83.00	0.000	0.10
189.60	0.00	83.00	0.000	0.10

190.80	0.00	83.00	0.000	0.10
192.00	0.00	83.00	0.000	0.10
193.20	0.00	83.00	0.000	0.10
194.40	0.00	83.00	0.000	0.10
195.60	0.00	83.00	0.000	0.10
196.80	0.00	83.00	0.000	0.10
198.00	0.00	83.00	0.000	0.10
199.20	0.00	83.00	0.000	0.10

PEAK DISCHARGE = 0.259 CFS - PEAK OCCURS AT HOUR 1.95
MAXIMUM WATER SURFACE ELEVATION = 85.626 <87.0 OK
MAXIMUM STORAGE = 0.0410 AC-FT INCREMENTAL TIME= 0.050000HRS

*
PRINT HYD ID=55 CODE=1

PARTIAL HYDROGRAPH 200.10

RUNOFF VOLUME = 34.64382 INCHES = 1.6814 ACRE-FEET
PEAK DISCHARGE RATE = 0.26 CFS AT 1.950 HOURS BASIN AREA = 0.0009 SQ. MI.

*
*
*BASIN C6
*
COMPUTE NM HYD ID=9 HYD NO=100.9 AREA=0.00050 SQ MI
PER A=0.00 PER B=21.0 PER C=0.0 PER D=79.0
TP=-0.1333 HR MASS RAINFALL=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 1.5595 CFS UNIT VOLUME = 0.9928 B = 526.28 P60 = 2.0100
AREA = 0.000395 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

K = 0.132088HR TP = 0.133300HR K/TP RATIO = 0.990905 SHAPE CONSTANT, N = 3.562974
UNIT PEAK = 0.25592 CFS UNIT VOLUME = 0.9487 B = 324.90 P60 = 2.0100
AREA = 0.000105 SQ MI IA = 0.50000 INCHES INF = 1.25000 INCHES PER HOUR

AHYMO
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
0.050000

PRINT HYD ID=9 CODE=1

PARTIAL HYDROGRAPH 100.90

RUNOFF VOLUME = 2.17926 INCHES = 0.0581 ACRE-FEET
PEAK DISCHARGE RATE = 1.41 CFS AT 1.500 HOURS BASIN AREA =
0.0005 SQ. MI.

*
*
*BASIN C5
*
COMPUTE NM HYD ID=10 HYD NO=100.10 AREA=0.00029 SQ MI
PER A=0.00 PER B=17.0 PER C=0.0 PER D=83.0
TP=-0.1333 HR MASS RAINFALL=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE
CONSTANT, N = 7.106428
UNIT PEAK = 0.95030 CFS UNIT VOLUME = 0.9891 B = 526.28
P60 = 2.0100
AREA = 0.000241 SQ MI IA = 0.10000 INCHES INF = 0.04000
INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
0.050000

K = 0.132088HR TP = 0.133300HR K/TP RATIO = 0.990905 SHAPE
CONSTANT, N = 3.562974
UNIT PEAK = 0.12016 CFS UNIT VOLUME = 0.8894 B = 324.90
P60 = 2.0100
AREA = 0.000049 SQ MI IA = 0.50000 INCHES INF = 1.25000
INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
0.050000

PRINT HYD ID=10 CODE=1

PARTIAL HYDROGRAPH 100.10

RUNOFF VOLUME = 2.24132 INCHES = 0.0347 ACRE-FEET
PEAK DISCHARGE RATE = 0.84 CFS AT 1.500 HOURS BASIN AREA =

0.0003 SQ. MI.

```
*
*
*BASIN D1
*
COMPUTE NM HYD      ID=11 HYD NO=100.11 AREA=0.00018 SQ MI
                    PER A=0.00 PER B=30.0 PER C=0.0 PER D=70.00
                    TP=-0.1333 HR MASS RAINFALL=-1
```

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 0.49745 CFS UNIT VOLUME = 0.9791 B = 526.28 P60 = 2.0100
AREA = 0.000126 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

K = 0.132088HR TP = 0.133300HR K/TP RATIO = 0.990905 SHAPE CONSTANT, N = 3.562974
UNIT PEAK = 0.13162 CFS UNIT VOLUME = 0.9027 B = 324.90 P60 = 2.0100
AREA = 0.000054 SQ MI IA = 0.50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

```
PRINT HYD           ID=11 CODE=1
```

PARTIAL HYDROGRAPH 100.11

RUNOFF VOLUME = 2.03961 INCHES = 0.0196 ACRE-FEET
PEAK DISCHARGE RATE = 0.50 CFS AT 1.500 HOURS BASIN AREA = 0.0002 SQ. MI.

```
*
*
*COMBINE POND1 DISCHARGE WITH BASINS ROUTED TO POND NO.2
*
ADD HYD                         ID=50 HYD NO=100.21 ID=1 ID=2
```

```
                                        AHYMO
ADD HYD                            ID=50 HYD NO=100.21 ID=50 ID=3

ADD HYD                            ID=50 HYD NO=100.21 ID=50 ID=4

ADD HYD                            ID=50 HYD NO=100.21 ID=50 ID=5

ADD HYD                            ID=50 HYD NO=100.21 ID=50 ID=6

ADD HYD                            ID=50 HYD NO=100.21 ID=50 ID=7

ADD HYD                            ID=50 HYD NO=100.21 ID=50 ID=9

ADD HYD                            ID=50 HYD NO=100.21 ID=50 ID=10

ADD HYD                            ID=50 HYD NO=100.21 ID=50 ID=11

ADD HYD                            ID=50 HYD NO=100.21 ID=50 ID=55

*
PRINT HYD            ID=50 CODE=1

                                        PARTIAL HYDROGRAPH   100.21


        RUNOFF VOLUME =     6.43692 INCHES     =       2.4134 ACRE-FEET
        PEAK DISCHARGE RATE =      17.79 CFS  AT   1.500 HOURS   BASIN AREA =
0.0070 SQ. MI.


*
*ROUTE POND1 DISCHARGE & BASINS A1-3,B1-5,C2-6,D1 THRU COMBINED UG/POND 2 DETENT
ROUTE RESERVOIR     ID=56 HYD NO=200.3 INFLOW ID=50 CODE=24
                          OUTFLOW (CFS) STORAGE(AC-FT) ELEVATION(FT)
                                  0.0957         0.0000              77.00

                                  0.1435         0.0217              77.50

                                  0.1790         0.0587              78.00

                                  0.2085         0.1027              78.50

                                  0.2343         0.1499              79.00

                                  0.2576         0.1972              79.50

                                  0.2789         0.2414              80.00
```

0.2987	0.2784	80.50
0.3173	0.3000	81.00
0.3515	0.3609	82.00
0.3827	0.4218	83.00
0.4115	0.4827	84.00
0.4384	0.5436	85.00
0.4638	0.6045	86.00

* * * * * * * * * * * * * * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
0.00	0.00	76.00	-0.043	0.00
1.20	2.59	77.60	0.029	0.15
2.40	0.77	85.72	0.588	0.46
3.60	0.22	85.52	0.575	0.45
4.80	0.16	85.09	0.549	0.44
6.00	0.18	84.65	0.522	0.43
7.20	0.18	84.26	0.499	0.42
8.40	0.18	83.88	0.476	0.41
9.60	0.18	83.52	0.453	0.40
10.80	0.18	83.17	0.432	0.39
12.00	0.18	82.84	0.412	0.38
13.20	0.18	82.52	0.392	0.37
14.40	0.17	82.21	0.374	0.36
15.60	0.17	81.92	0.356	0.35
16.80	0.17	81.64	0.339	0.34
18.00	0.17	81.37	0.322	0.33
19.20	0.17	81.11	0.307	0.32
20.40	0.17	80.82	0.292	0.31
21.60	0.17	80.50	0.278	0.30
22.80	0.16	80.33	0.265	0.29
24.00	0.16	80.16	0.253	0.29
25.20	0.10	79.94	0.236	0.28
26.40	0.10	79.74	0.219	0.27
27.60	0.10	79.56	0.203	0.26
28.80	0.10	79.39	0.187	0.25
30.00	0.10	79.24	0.172	0.25
31.20	0.10	79.09	0.158	0.24
32.40	0.10	78.95	0.145	0.23

33.60	0.10	78.81	0.132	0.22
34.80	0.10	78.68	0.120	0.22
36.00	0.10	78.56	0.109	0.21
37.20	0.10	78.45	0.098	0.21
38.40	0.10	78.33	0.088	0.20
39.60	0.10	78.22	0.078	0.19
40.80	0.10	78.12	0.070	0.19
42.00	0.10	78.03	0.061	0.18
43.20	0.10	77.93	0.054	0.17
44.40	0.10	77.84	0.047	0.17
45.60	0.10	77.75	0.040	0.16
46.80	0.10	77.67	0.034	0.16
48.00	0.10	77.60	0.029	0.15
49.20	0.10	77.54	0.024	0.15
50.40	0.10	77.46	0.020	0.14
51.60	0.10	77.38	0.016	0.13
52.80	0.10	77.31	0.014	0.13
54.00	0.10	77.26	0.011	0.12
55.20	0.10	77.22	0.009	0.12
56.40	0.10	77.18	0.008	0.11
57.60	0.10	77.16	0.007	0.11
58.80	0.10	77.14	0.006	0.11
60.00	0.10	77.12	0.005	0.11
61.20	0.10	77.10	0.004	0.11
62.40	0.10	77.09	0.004	0.10
63.60	0.10	77.08	0.004	0.10
64.80	0.10	77.08	0.003	0.10
66.00	0.10	77.07	0.003	0.10

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
67.20	0.10	77.06	0.003	0.10
68.40	0.10	77.06	0.003	0.10
69.60	0.10	77.06	0.003	0.10
70.80	0.10	77.06	0.002	0.10
72.00	0.10	77.05	0.002	0.10
73.20	0.10	77.05	0.002	0.10
74.40	0.10	77.05	0.002	0.10
75.60	0.10	77.05	0.002	0.10
76.80	0.10	77.05	0.002	0.10
78.00	0.10	77.05	0.002	0.10
79.20	0.10	77.05	0.002	0.10
80.40	0.10	77.05	0.002	0.10
81.60	0.10	77.05	0.002	0.10
82.80	0.10	77.05	0.002	0.10
84.00	0.10	77.05	0.002	0.10
85.20	0.10	77.05	0.002	0.10

86.40	0.10	77.05	0.002	0.10
87.60	0.10	77.05	0.002	0.10
88.80	0.10	77.05	0.002	0.10
90.00	0.10	77.05	0.002	0.10
91.20	0.10	77.05	0.002	0.10
92.40	0.10	77.05	0.002	0.10
93.60	0.10	77.05	0.002	0.10
94.80	0.10	77.05	0.002	0.10
96.00	0.10	77.05	0.002	0.10
97.20	0.10	77.05	0.002	0.10
98.40	0.10	77.05	0.002	0.10
99.60	0.10	77.05	0.002	0.10
100.80	0.10	77.05	0.002	0.10
102.00	0.10	77.05	0.002	0.10
103.20	0.10	77.05	0.002	0.10
104.40	0.10	77.04	0.002	0.10
105.60	0.10	77.04	0.002	0.10
106.80	0.10	77.04	0.002	0.10
108.00	0.10	77.04	0.002	0.10
109.20	0.10	77.04	0.002	0.10
110.40	0.10	77.04	0.002	0.10
111.60	0.10	77.04	0.002	0.10
112.80	0.10	77.04	0.002	0.10
114.00	0.10	77.04	0.002	0.10
115.20	0.10	77.04	0.002	0.10
116.40	0.10	77.04	0.002	0.10
117.60	0.10	77.04	0.002	0.10
118.80	0.10	77.04	0.002	0.10
120.00	0.10	77.04	0.002	0.10
121.20	0.10	77.04	0.002	0.10
122.40	0.10	77.04	0.002	0.10
123.60	0.10	77.04	0.002	0.10
124.80	0.10	77.04	0.002	0.10
126.00	0.10	77.04	0.002	0.10
127.20	0.10	77.04	0.002	0.10
128.40	0.10	77.04	0.002	0.10
129.60	0.10	77.04	0.002	0.10
130.80	0.10	77.04	0.002	0.10
132.00	0.10	77.04	0.002	0.10
133.20	0.10	77.04	0.002	0.10

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
134.40	0.10	77.04	0.002	0.10
135.60	0.10	77.04	0.002	0.10
136.80	0.10	77.04	0.002	0.10
138.00	0.10	77.04	0.002	0.10

139.20	0.10	77.04	0.002	0.10
140.40	0.10	77.04	0.002	0.10
141.60	0.10	77.04	0.002	0.10
142.80	0.10	77.04	0.002	0.10
144.00	0.10	77.04	0.002	0.10
145.20	0.10	77.04	0.002	0.10
146.40	0.10	77.04	0.002	0.10
147.60	0.10	77.04	0.002	0.10
148.80	0.10	77.04	0.002	0.10
150.00	0.10	77.04	0.002	0.10
151.20	0.10	77.04	0.002	0.10
152.40	0.10	77.04	0.002	0.10
153.60	0.10	77.04	0.002	0.10
154.80	0.10	77.04	0.002	0.10
156.00	0.10	77.04	0.002	0.10
157.20	0.10	77.04	0.002	0.10
158.40	0.10	77.04	0.002	0.10
159.60	0.10	77.04	0.002	0.10
160.80	0.10	77.04	0.002	0.10
162.00	0.10	77.04	0.002	0.10
163.20	0.10	77.04	0.002	0.10
164.40	0.10	77.04	0.002	0.10
165.60	0.10	77.04	0.002	0.10
166.80	0.10	77.04	0.002	0.10
168.00	0.10	77.04	0.002	0.10
169.20	0.10	77.04	0.002	0.10
170.40	0.10	77.04	0.002	0.10
171.60	0.10	77.04	0.002	0.10
172.80	0.10	77.04	0.002	0.10
174.00	0.10	77.04	0.002	0.10
175.20	0.10	77.04	0.002	0.10
176.40	0.10	77.04	0.002	0.10
177.60	0.10	77.04	0.002	0.10
178.80	0.10	77.04	0.002	0.10
180.00	0.10	77.04	0.002	0.10
181.20	0.10	77.04	0.002	0.10
182.40	0.10	77.04	0.002	0.10
183.60	0.10	77.04	0.002	0.10
184.80	0.10	77.04	0.002	0.10
186.00	0.10	77.04	0.002	0.10
187.20	0.10	77.04	0.002	0.10
188.40	0.10	77.04	0.002	0.10
189.60	0.10	77.04	0.002	0.10
190.80	0.10	77.04	0.002	0.10
192.00	0.10	77.04	0.002	0.10
193.20	0.10	77.04	0.002	0.10
194.40	0.10	77.04	0.002	0.10
195.60	0.10	77.04	0.002	0.10

allow. thru orifice plate

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                                        AHYMO
  196.80        0.10      77.04        0.002       0.10
  198.00        0.10      77.04        0.002       0.10
  199.20        0.10      77.04        0.002       0.10
PEAK DISCHARGE =          0.457 CFS - PEAK OCCURS AT HOUR    2.55
MAXIMUM WATER SURFACE ELEVATION =        85.751 <86, THEREFORE OK
MAXIMUM STORAGE =          0.5893 AC-FT       INCREMENTAL TIME=    0.050000HRS

*
PRINT HYD            ID=56  CODE=1

                                        PARTIAL HYDROGRAPH   200.30


     RUNOFF VOLUME =      6.43174 INCHES      =        2.4115 ACRE-FEET
     PEAK DISCHARGE RATE =        0.46 CFS  AT   2.550 HOURS   BASIN AREA =
0.0070 SQ. MI.


*
*BASIN D2
*
COMPUTE NM HYD       ID=12 HYD NO=100.12 AREA=0.00067 SQ MI
                     PER A=0.00 PER B=97.0 PER C=0.0 PER D=3.00
                     TP=-0.1333 HR MASS RAINFALL=-1

     K =  0.072649HR    TP =  0.133300HR    K/TP RATIO =  0.545000     SHAPE
CONSTANT, N =  7.106428
     UNIT PEAK =  0.79356E-01CFS   UNIT VOLUME =   0.8994       B =   526.28
 P60 = 2.0100
     AREA =     0.000020 SQ MI    IA =   0.10000 INCHES    INF =   0.04000
INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
0.050000


     K =  0.132088HR    TP =  0.133300HR    K/TP RATIO =  0.990905     SHAPE
CONSTANT, N =  3.562974
     UNIT PEAK =   1.5841    CFS   UNIT VOLUME =   0.9932       B =   324.90
 P60 = 2.0100
     AREA =     0.000650 SQ MI    IA =   0.50000 INCHES    INF =   1.25000
INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
0.050000

PRINT HYD            ID=12 CODE=1

                                        PARTIAL HYDROGRAPH   100.12
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**
*ROUTE BASIN C1 THROUGH DETENTION POND NO.1
ROUTE RESERVOIR     ID=55 HYD NO=200.1 INFLOW ID=8 CODE=24
                        OUTFLOW (CFS) STORAGE(AC-FT) ELEVATION(FT)
                                0.1000         0.0                 83.00

                                0.1554         0.0082              84.00

                                0.2260         0.0243              85.00

                                0.2793         0.0510              86.00

                                0.3240         0.0913              87.00

                                0.3632         0.1490              88.00

* * * * * * * * * * * * * * * * *
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TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
0.00	0.00	81.19	-0.015	0.00
1.20	0.14	83.00	0.000	0.10
2.40	0.06	85.45	0.036	0.25
3.60	0.00	84.46	0.016	0.19
4.80	0.00	83.14	0.001	0.11
6.00	0.00	83.00	0.000	0.10
7.20	0.00	83.00	0.000	0.10
8.40	0.00	83.00	0.000	0.10
9.60	0.00	83.00	0.000	0.10
10.80	0.00	83.00	0.000	0.10
12.00	0.00	83.00	0.000	0.10
13.20	0.00	83.00	0.000	0.10
14.40	0.00	83.00	0.000	0.10
15.60	0.00	83.00	0.000	0.10
16.80	0.00	83.00	0.000	0.10
18.00	0.00	83.00	0.000	0.10
19.20	0.00	83.00	0.000	0.10
20.40	0.00	83.00	0.000	0.10
21.60	0.00	83.00	0.000	0.10
22.80	0.00	83.00	0.000	0.10
24.00	0.00	83.00	0.000	0.10
25.20	0.00	83.00	0.000	0.10
26.40	0.00	83.00	0.000	0.10

27.60	0.00	83.00	0.000	0.10
28.80	0.00	83.00	0.000	0.10
30.00	0.00	83.00	0.000	0.10
31.20	0.00	83.00	0.000	0.10
32.40	0.00	83.00	0.000	0.10
33.60	0.00	83.00	0.000	0.10
34.80	0.00	83.00	0.000	0.10
36.00	0.00	83.00	0.000	0.10
37.20	0.00	83.00	0.000	0.10
38.40	0.00	83.00	0.000	0.10
39.60	0.00	83.00	0.000	0.10
40.80	0.00	83.00	0.000	0.10
42.00	0.00	83.00	0.000	0.10
43.20	0.00	83.00	0.000	0.10
44.40	0.00	83.00	0.000	0.10
45.60	0.00	83.00	0.000	0.10
46.80	0.00	83.00	0.000	0.10
48.00	0.00	83.00	0.000	0.10
49.20	0.00	83.00	0.000	0.10
50.40	0.00	83.00	0.000	0.10
51.60	0.00	83.00	0.000	0.10
52.80	0.00	83.00	0.000	0.10
54.00	0.00	83.00	0.000	0.10
55.20	0.00	83.00	0.000	0.10
56.40	0.00	83.00	0.000	0.10
57.60	0.00	83.00	0.000	0.10
58.80	0.00	83.00	0.000	0.10
60.00	0.00	83.00	0.000	0.10
61.20	0.00	83.00	0.000	0.10
62.40	0.00	83.00	0.000	0.10
63.60	0.00	83.00	0.000	0.10
64.80	0.00	83.00	0.000	0.10
66.00	0.00	83.00	0.000	0.10

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
67.20	0.00	83.00	0.000	0.10
68.40	0.00	83.00	0.000	0.10
69.60	0.00	83.00	0.000	0.10
70.80	0.00	83.00	0.000	0.10
72.00	0.00	83.00	0.000	0.10
73.20	0.00	83.00	0.000	0.10
74.40	0.00	83.00	0.000	0.10
75.60	0.00	83.00	0.000	0.10
76.80	0.00	83.00	0.000	0.10
78.00	0.00	83.00	0.000	0.10
79.20	0.00	83.00	0.000	0.10

82.80	0.00	72.00	0.000	0.01
84.00	0.00	72.00	0.000	0.01
85.20	0.00	72.00	0.000	0.01
86.40	0.00	72.00	0.000	0.01
87.60	0.00	72.00	0.000	0.01
88.80	0.00	72.00	0.000	0.01
90.00	0.00	72.00	0.000	0.01
91.20	0.00	72.00	0.000	0.01
92.40	0.00	72.00	0.000	0.01
93.60	0.00	72.00	0.000	0.01
94.80	0.00	72.00	0.000	0.01
96.00	0.00	72.00	0.000	0.01
97.20	0.00	72.00	0.000	0.01
98.40	0.00	72.00	0.000	0.01
99.60	0.00	72.00	0.000	0.01
100.80	0.00	72.00	0.000	0.01
102.00	0.00	72.00	0.000	0.01
103.20	0.00	72.00	0.000	0.01
104.40	0.00	72.00	0.000	0.01
105.60	0.00	72.00	0.000	0.01
106.80	0.00	72.00	0.000	0.01
108.00	0.00	72.00	0.000	0.01
109.20	0.00	72.00	0.000	0.01
110.40	0.00	72.00	0.000	0.01
111.60	0.00	72.00	0.000	0.01
112.80	0.00	72.00	0.000	0.01
114.00	0.00	72.00	0.000	0.01
115.20	0.00	72.00	0.000	0.01
116.40	0.00	72.00	0.000	0.01
117.60	0.00	72.00	0.000	0.01
118.80	0.00	72.00	0.000	0.01
120.00	0.00	72.00	0.000	0.01
121.20	0.00	72.00	0.000	0.01
122.40	0.00	72.00	0.000	0.01
123.60	0.00	72.00	0.000	0.01
124.80	0.00	72.00	0.000	0.01
126.00	0.00	72.00	0.000	0.01
127.20	0.00	72.00	0.000	0.01
128.40	0.00	72.00	0.000	0.01
129.60	0.00	72.00	0.000	0.01
130.80	0.00	72.00	0.000	0.01
132.00	0.00	72.00	0.000	0.01
133.20	0.00	72.00	0.000	0.01

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
134.40	0.00	72.00	0.000	0.01

135.60	0.00	72.00	0.000	0.01
136.80	0.00	72.00	0.000	0.01
138.00	0.00	72.00	0.000	0.01
139.20	0.00	72.00	0.000	0.01
140.40	0.00	72.00	0.000	0.01
141.60	0.00	72.00	0.000	0.01
142.80	0.00	72.00	0.000	0.01
144.00	0.00	72.00	0.000	0.01
145.20	0.00	72.00	0.000	0.01
146.40	0.00	72.00	0.000	0.01
147.60	0.00	72.00	0.000	0.01
148.80	0.00	72.00	0.000	0.01
150.00	0.00	72.00	0.000	0.01
151.20	0.00	72.00	0.000	0.01
152.40	0.00	72.00	0.000	0.01
153.60	0.00	72.00	0.000	0.01
154.80	0.00	72.00	0.000	0.01
156.00	0.00	72.00	0.000	0.01
157.20	0.00	72.00	0.000	0.01
158.40	0.00	72.00	0.000	0.01
159.60	0.00	72.00	0.000	0.01
160.80	0.00	72.00	0.000	0.01
162.00	0.00	72.00	0.000	0.01
163.20	0.00	72.00	0.000	0.01
164.40	0.00	72.00	0.000	0.01
165.60	0.00	72.00	0.000	0.01
166.80	0.00	72.00	0.000	0.01
168.00	0.00	72.00	0.000	0.01
169.20	0.00	72.00	0.000	0.01
170.40	0.00	72.00	0.000	0.01
171.60	0.00	72.00	0.000	0.01
172.80	0.00	72.00	0.000	0.01
174.00	0.00	72.00	0.000	0.01
175.20	0.00	72.00	0.000	0.01
176.40	0.00	72.00	0.000	0.01
177.60	0.00	72.00	0.000	0.01
178.80	0.00	72.00	0.000	0.01
180.00	0.00	72.00	0.000	0.01
181.20	0.00	72.00	0.000	0.01
182.40	0.00	72.00	0.000	0.01
183.60	0.00	72.00	0.000	0.01
184.80	0.00	72.00	0.000	0.01
186.00	0.00	72.00	0.000	0.01
187.20	0.00	72.00	0.000	0.01
188.40	0.00	72.00	0.000	0.01
189.60	0.00	72.00	0.000	0.01
190.80	0.00	72.00	0.000	0.01
192.00	0.00	72.00	0.000	0.01

output fr. Pond 3

```
                                        AHYMO
  193.20        0.00      72.00       0.000       0.01
  194.40        0.00      72.00       0.000       0.01
  195.60        0.00      72.00       0.000       0.01
  196.80        0.00      72.00       0.000       0.01
  198.00        0.00      72.00       0.000       0.01
  199.20        0.00      72.00       0.000       0.01
PEAK DISCHARGE =          0.042 CFS - PEAK OCCURS AT HOUR    2.35
MAXIMUM WATER SURFACE ELEVATION =        72.790 ≤73.0, THEREFORE OK
 MAXIMUM STORAGE =        0.0310 AC-FT      INCREMENTAL TIME=    0.050000HRS

*
PRINT HYD            ID=57  CODE=1

                                        PARTIAL HYDROGRAPH   200.30


    RUNOFF VOLUME =     5.18071 INCHES     =       0.1851 ACRE-FEET
    PEAK DISCHARGE RATE =       0.04 CFS  AT   2.350 HOURS   BASIN AREA =
0.0007 SQ. MI.


*
ADD HYD                          ID=58 HYD NO=100.22 ID=56 ID=57

*
PRINT HYD            ID=58 CODE=1

                                        PARTIAL HYDROGRAPH   100.22


    RUNOFF VOLUME =     6.32291 INCHES     =       2.5966 ACRE-FEET
    PEAK DISCHARGE RATE =       0.50 CFS  AT   2.550 HOURS   BASIN AREA =
0.0077 SQ. MI.
```

PEAK DISCHARGE RATE=MAX Q ALLOWED THEREFORE OK

allow = 0.1 cfs/Ac X 5 Ac. = 0.5 cfs

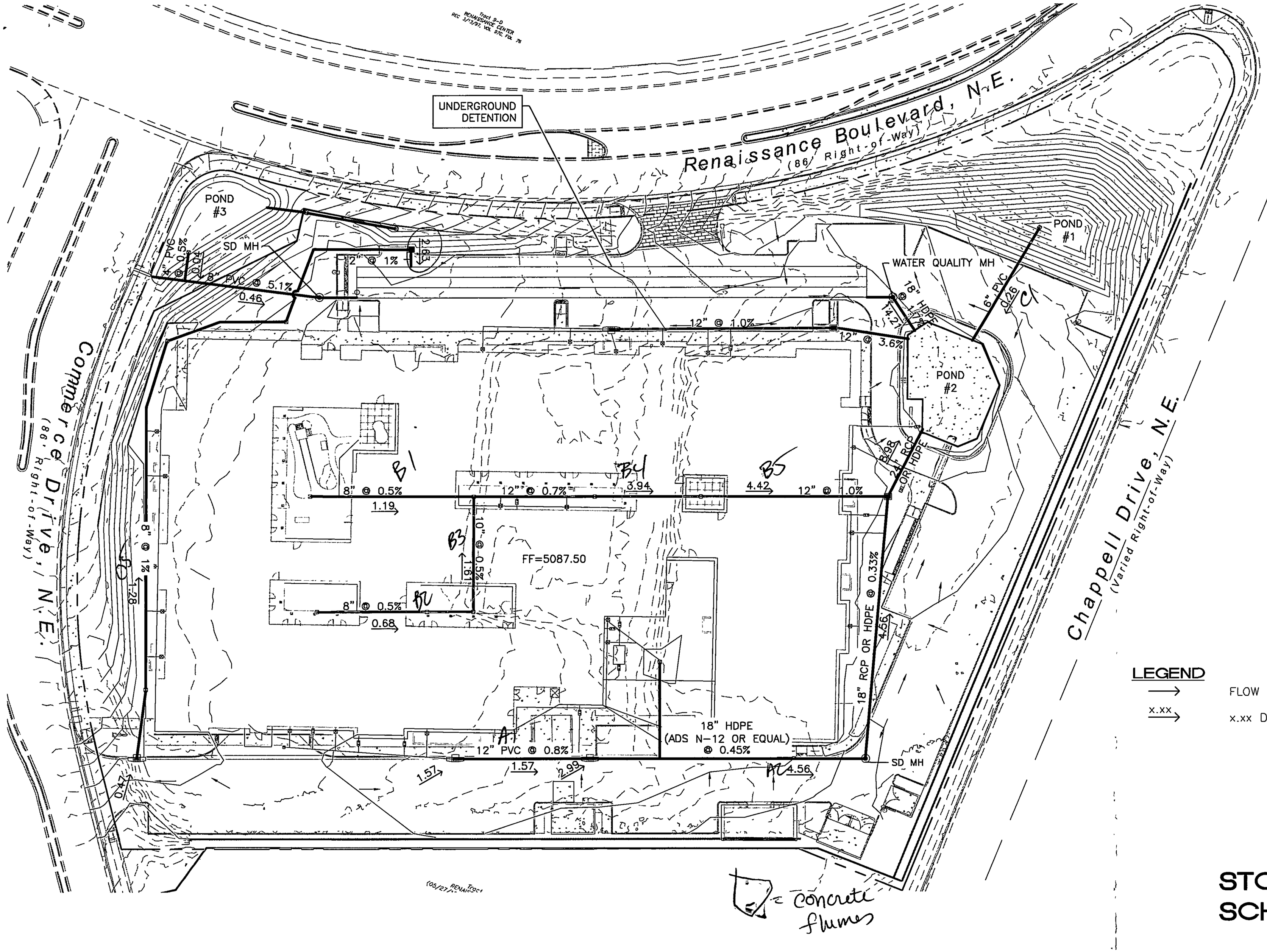
OK

```
*
*
FINISH

NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 14:01:45
```

APPENDIX B

HYDRAULIC ANALYSIS



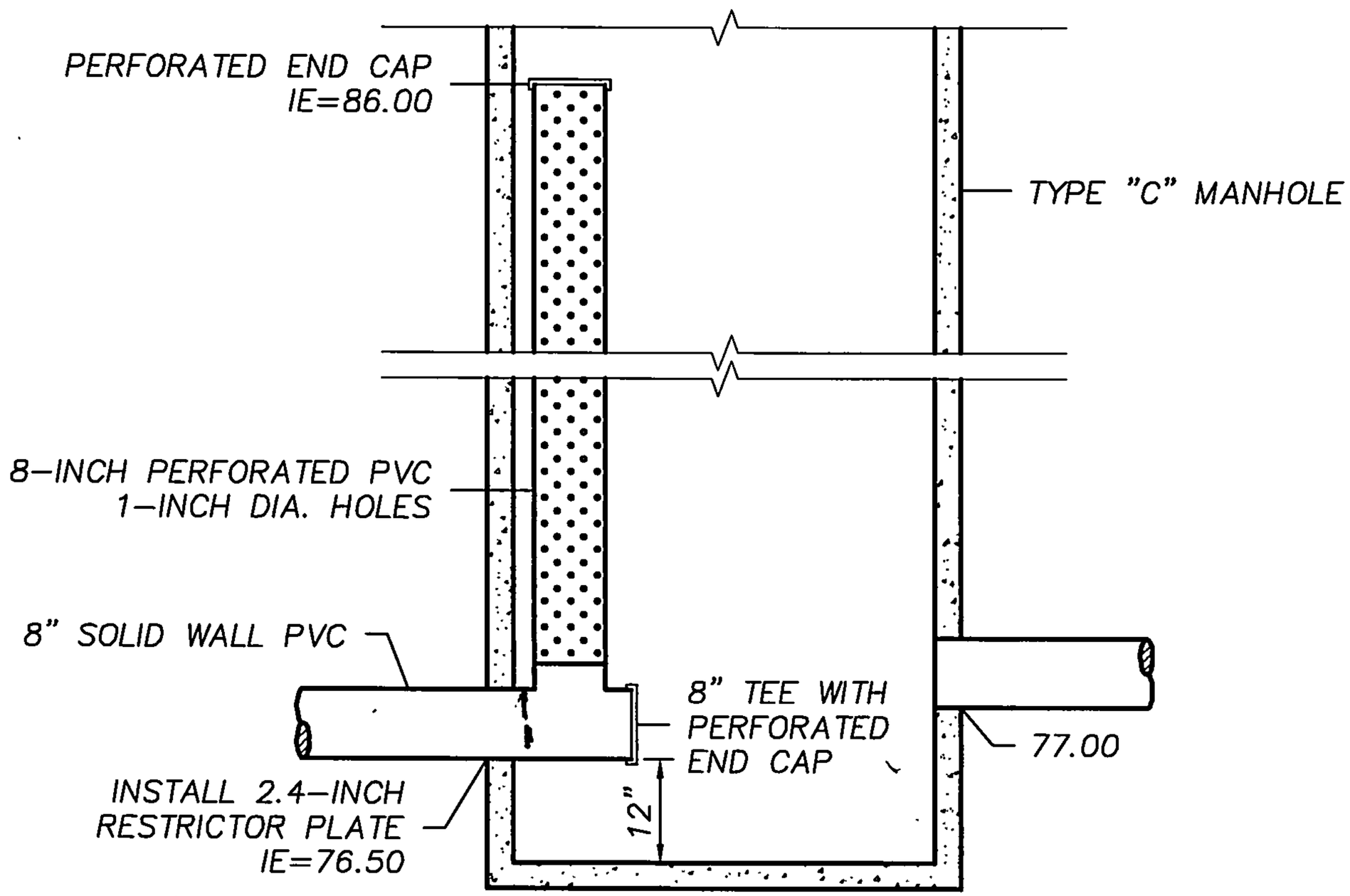
LEGEND

FLOW DIRECTION

x.xx DENOTES Q100 (CFS)

STORM DRAIN SCHEMATIC

UNDERGROUND STORAGE OUTLET MANHOLE DETAIL



Needs to be on plan set

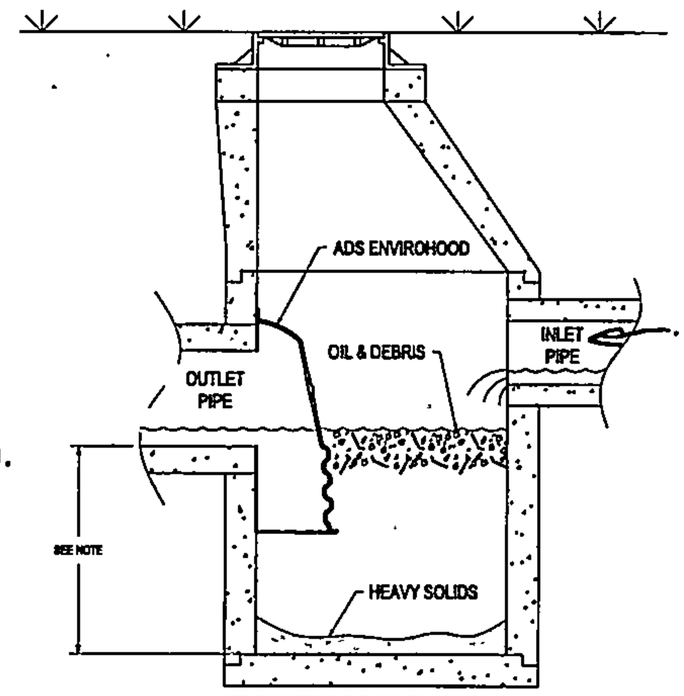
NYLOPLAST ENVIROHOOD SPECIFICATION

SCOPE

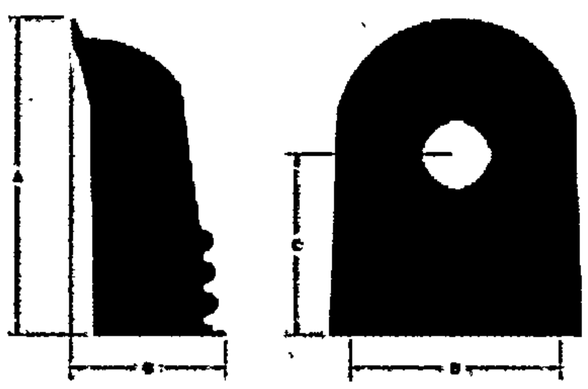
This specification describes the EnviroHood for use in stormwater conveyance systems.

REQUIREMENTS

- All hoods shall be constructed of polyethylene.
- The size and position of the hood shall be determined by the outlet pipe size as per manufacturer's recommendation.
- The bottom of the hood shall extend downward a minimum distance of 6" (15 cm) for pipes < 12" (30 cm).
- Installation hardware and instructions shall be provided by manufacturer.
- Installation shall be in accordance with Nyloplast installation procedures and those issues by local building/construction regulations.



TYPICAL INSTALLATION



STRUCTURE TYPE	OUTLET COVERED	PART NUMBER*	GENERAL DIMENSIONS In. (cm) A	B	C	D
48" (120 cm) Round Concrete	up to 18" (45 cm)	5818AGR	30.2 (75)	14.9 (35)	17.2 (45)	20.5 (50)
48"–54" (120–135 cm) Round Concrete	up to 24" (60 cm)	5824AGR	41.7 (105)	18.0 (45)	26.9 (70)	26.9 (70)
54"–60" (135–150 cm)Round Concrete	up to 30" (75 cm)	5830AGR	48.7 (120)	20.5 (50)	30.5 (75)	33.1 (85)
Flat Concrete	up to 18" (45 cm)	5818AGF	30.2 (75)	11.8 (30)	17.2 (45)	20.4 (50)
Flat Concrete	up to 24" (60 cm)	5824AGF	41.8 (105)	15.3 (40)	26.9 (70)	27.0 (70)
Flat Concrete	up to 30" (75 cm)	5830AGF	48.8 (120)	18.3 (45)	30.5 (75)	34.0 (85)
18" (45 cm) Nyloplast	up to 12" (30 cm)	5818AG0412	19.4 (50)	9.8 (25)	12.3 (30)	13.8 (35)
24" (60 cm)Nyloplast	up to 15" (40 cm)	5824AG0415	26.5 (65)	12.8 (30)	14.5 (35)	20.0 (50)
30"(75 cm) Nyloplast	up to 18" (45 cm)	5830AG0418	32.8 (85)	15.4 (40)	18.7 (45)	26.0 (65)

*Includes installation hardware

For more Information on EnviroHood and other ADS products, please contact our Customer Service Representatives at 1-800-821-6710

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4640 Trueman Blvd., Hilliard, OH 43026
1-800-821-6710 www.ads-pipe.com

EnviroHood™

ADS®

ENVIROHOOD STRUCTURE

The Nyloplast® EnviroHood™ is an innovative stormwater management device attached to the inside of a catch basin or manhole designed to prevent the outflow of floating debris and oil.

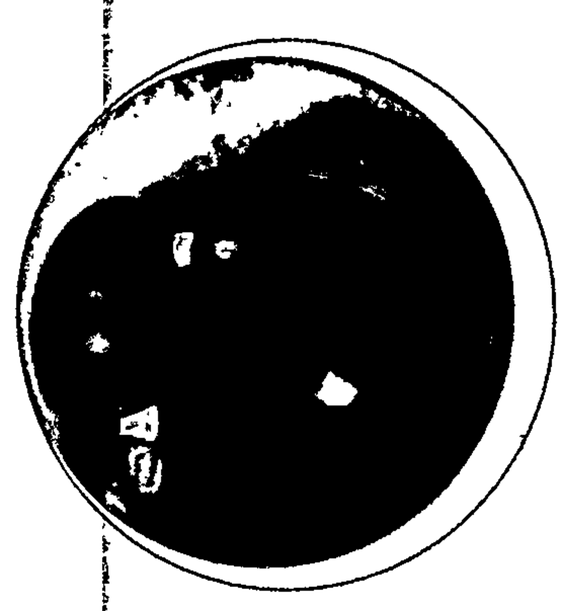
The need for cleaner stormwater has caused municipal leaders to demand forward-thinking solutions to improve their overall water quality. The EnviroHood offers lower installed costs and less intrusive installations than competitive devices.

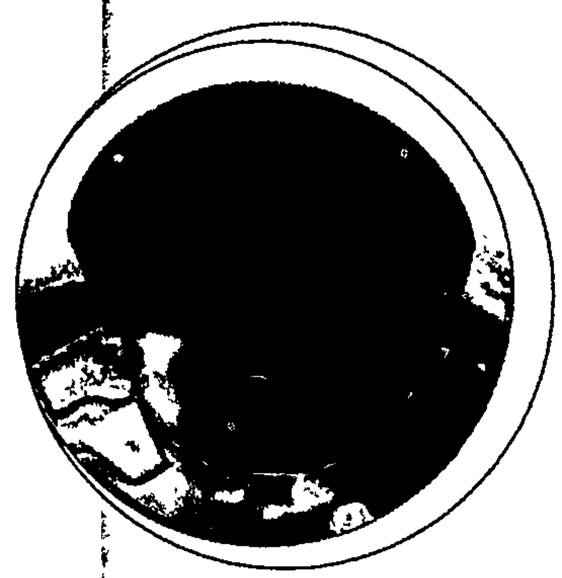
ENGINEERED FOR OPTIMAL PERFORMANCE

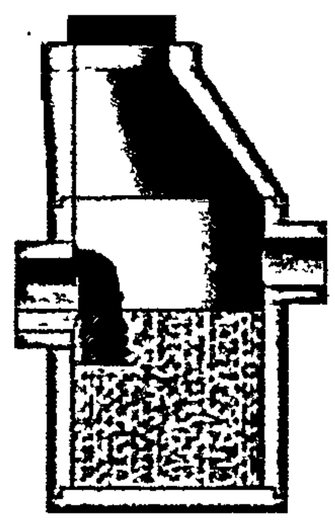
The innovative design incorporates the same proven corrugation technology used on ADS N-12® pipe products. This delivers maximum strength to weight ratio and ensures the structure is capable of supporting the hydraulic forces of a rainfall event.

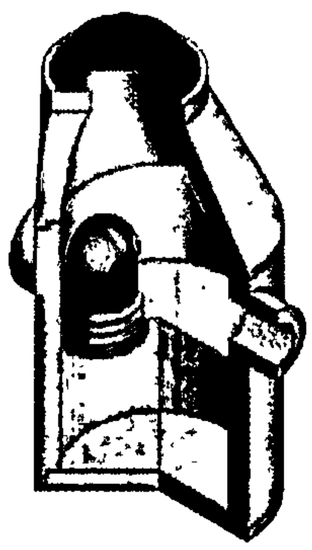
FEATURES & BENEFITS:

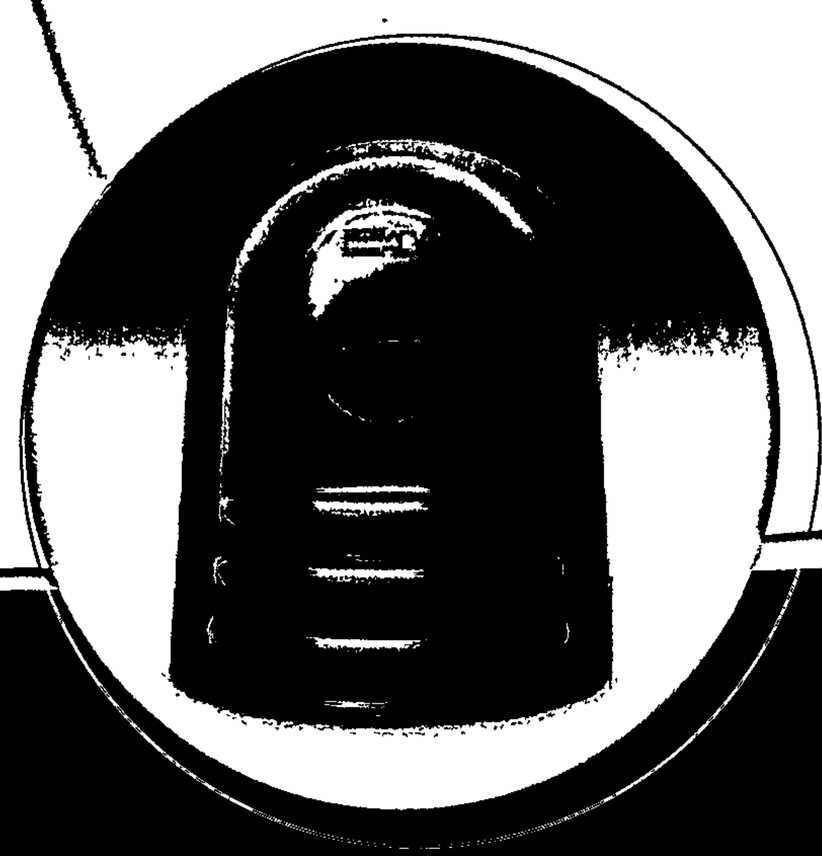
- Molded from High Density Polyethylene (HDPE) for lightweight and sturdy design
- Corrugated design eliminates flat surfaces and provides increased structural capacity
- Effective low-cost solution for storm water treatment
- Easy to clean
- Highly corrosion-resistant for long service life











ADS Service: ADS representatives are committed to providing you with the answers to all your questions, including specifications, installation and more.

*The Most **Advanced** Name in Drainage Systems*

Worksheet for Circular Pipe - Pond 2 outlet

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	1.01	ft
Critical Depth	1.39	ft
Channel Slope	0.01700	ft/ft
Critical Slope	0.00938	ft/ft

Worksheet for Circular Pipe - Pond 2 outlet

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.010	
Channel Slope	0.01700	ft/ft
Diameter	18.00	in
Discharge	14.21	ft^3/s

Results

Normal Depth	1.01	ft
Flow Area	1.27	ft^2
Wetted Perimeter	2.89	ft
Hydraulic Radius	0.44	ft
Top Width	1.40	ft
Critical Depth	1.39	ft
Percent Full	67.5	%
Critical Slope	0.00938	ft/ft
Velocity	11.19	ft/s
Velocity Head	1.95	ft
Specific Energy	2.96	ft
Froude Number	2.07	
Maximum Discharge	19.15	ft^3/s
Discharge Full	17.80	ft^3/s
Slope Full	0.01083	ft/ft
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
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	67.54	%
Downstream Velocity	Infinity	ft/s

Worksheet for Circular Pipe - C6+C5+D1

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.010	
Channel Slope	0.01000	ft/ft
Diameter	12.00	in
Discharge	2.63	ft^3/s

Results

Normal Depth	0.54	ft
Flow Area	0.43	ft^2
Wetted Perimeter	1.65	ft
Hydraulic Radius	0.26	ft
Top Width	1.00	ft
Critical Depth	0.70	ft
Percent Full	54.0	%
Critical Slope	0.00468	ft/ft
Velocity	6.08	ft/s
Velocity Head	0.58	ft
Specific Energy	1.11	ft
Froude Number	1.63	
Maximum Discharge	4.98	ft^3/s
Discharge Full	4.63	ft^3/s
Slope Full	0.00322	ft/ft
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
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	53.96	%
Downstream Velocity	Infinity	ft/s

Worksheet for Circular Pipe - C5

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.010	
Channel Slope	0.01000	ft/ft
Diameter	8.00	in
Discharge	1.28	ft^3/s

Results

Normal Depth	0.46	ft
Flow Area	0.26	ft^2
Wetted Perimeter	1.30	ft
Hydraulic Radius	0.20	ft
Top Width	0.62	ft
Critical Depth	0.53	ft
Percent Full	68.6	%
Critical Slope	0.00691	ft/ft
Velocity	5.01	ft/s
Velocity Head	0.39	ft
Specific Energy	0.85	ft
Froude Number	1.38	
Maximum Discharge	1.69	ft^3/s
Discharge Full	1.57	ft^3/s
Slope Full	0.00664	ft/ft
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
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	68.62	%
Downstream Velocity	Infinity	ft/s

Worksheet for Circular Pipe - C1

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.21	ft
Critical Depth	0.26	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.00463	ft/ft

Messages

Notes

Max Q from Pond #1 is 0.26 CFS per AHYMO.

Worksheet for Circular Pipe - C1

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.010	
Channel Slope	0.01000	ft/ft
Diameter	6.00	in
Discharge	0.26	ft^3/s

Results

Normal Depth	0.21	ft
Flow Area	0.08	ft^2
Wetted Perimeter	0.70	ft
Hydraulic Radius	0.11	ft
Top Width	0.49	ft
Critical Depth	0.26	ft
Percent Full	41.2	%
Critical Slope	0.00463	ft/ft
Velocity	3.41	ft/s
Velocity Head	0.18	ft
Specific Energy	0.39	ft
Froude Number	1.52	
Maximum Discharge	0.78	ft^3/s
Discharge Full	0.73	ft^3/s
Slope Full	0.00127	ft/ft
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
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	41.23	%
Downstream Velocity	Infinity	ft/s

Worksheet for Circular Pipe - BASINS As+Bs TO POND #2

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00500	ft/ft
Diameter	24.00	in
Discharge	8.98	ft^3/s

Results

Normal Depth	1.07	ft
Flow Area	1.71	ft^2
Wetted Perimeter	3.29	ft
Hydraulic Radius	0.52	ft
Top Width	1.99	ft
Critical Depth	1.07	ft
Percent Full	53.6	%
Critical Slope	0.00503	ft/ft
Velocity	5.24	ft/s
Velocity Head	0.43	ft
Specific Energy	1.50	ft
Froude Number	1.00	
Maximum Discharge	17.21	ft^3/s
Discharge Full	16.00	ft^3/s
Slope Full	0.00158	ft/ft
Flow Type	SubCritical	

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
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	53.58	%
Downstream Velocity	Infinity	ft/s

Worksheet for Circular Pipe - B5

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.010	
Channel Slope	0.01000	ft/ft
Diameter	12.00	in
Discharge	4.42	ft^3/s

Results

Normal Depth	0.78	ft
Flow Area	0.66	ft^2
Wetted Perimeter	2.17	ft
Hydraulic Radius	0.30	ft
Top Width	0.83	ft
Critical Depth	0.88	ft
Percent Full	78.1	%
Critical Slope	0.00819	ft/ft
Velocity	6.71	ft/s
Velocity Head	0.70	ft
Specific Energy	1.48	ft
Froude Number	1.33	
Maximum Discharge	4.98	ft^3/s
Discharge Full	4.63	ft^3/s
Slope Full	0.00911	ft/ft
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
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	78.14	%
Downstream Velocity	Infinity	ft/s

Worksheet for Circular Pipe - B4

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.010	
Channel Slope	0.00700	ft/ft
Diameter	12.00	in
Discharge	3.94	ft^3/s

Results

Normal Depth	0.84	ft
Flow Area	0.70	ft^2
Wetted Perimeter	2.31	ft
Hydraulic Radius	0.30	ft
Top Width	0.74	ft
Critical Depth	0.84	ft
Percent Full	83.6	%
Critical Slope	0.00691	ft/ft
Velocity	5.62	ft/s
Velocity Head	0.49	ft
Specific Energy	1.33	ft
Froude Number	1.02	
Maximum Discharge	4.17	ft^3/s
Discharge Full	3.87	ft^3/s
Slope Full	0.00724	ft/ft
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
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	83.57	%
Downstream Velocity	Infinity	ft/s

Worksheet for Circular Pipe - B3

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.010	
Channel Slope	0.00500	ft/ft
Diameter	10.00	in
Discharge	1.61	ft^3/s

Results

Normal Depth	0.56	ft
Flow Area	0.39	ft^2
Wetted Perimeter	1.61	ft
Hydraulic Radius	0.24	ft
Top Width	0.78	ft
Critical Depth	0.57	ft
Percent Full	67.6	%
Critical Slope	0.00487	ft/ft
Velocity	4.10	ft/s
Velocity Head	0.26	ft
Specific Energy	0.83	ft
Froude Number	1.02	
Maximum Discharge	2.17	ft^3/s
Discharge Full	2.01	ft^3/s
Slope Full	0.00320	ft/ft
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
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	67.60	%
Downstream Velocity	Infinity	ft/s

Worksheet for Circular Pipe - B1,B2

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.010	
Channel Slope	0.00500	ft/ft
Normal Depth	0.66	ft
Diameter	8.00	in

Results

Discharge	1.16	ft^3/s
Flow Area	0.35	ft^2
Wetted Perimeter	1.96	ft
Hydraulic Radius	0.18	ft
Top Width	0.13	ft
Critical Depth	0.51	ft
Percent Full	99.0	%
Critical Slope	0.00624	ft/ft
Velocity	3.32	ft/s
Velocity Head	0.17	ft
Specific Energy	0.83	ft
Froude Number	0.36	
Maximum Discharge	1.19	ft^3/s
Discharge Full	1.11	ft^3/s
Slope Full	0.00543	ft/ft
Flow Type	SubCritical	

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
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	99.00	%
Downstream Velocity	Infinity	ft/s

Worksheet for Circular Pipe - A2

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00500	ft/ft
Diameter	18.00	in
Discharge	4.56	ft^3/s

Results

Normal Depth	0.85	ft
Flow Area	1.03	ft^2
Wetted Perimeter	2.56	ft
Hydraulic Radius	0.40	ft
Top Width	1.49	ft
Critical Depth	0.82	ft
Percent Full	56.6	%
Critical Slope	0.00561	ft/ft
Velocity	4.42	ft/s
Velocity Head	0.30	ft
Specific Energy	1.15	ft
Froude Number	0.93	
Maximum Discharge	7.99	ft^3/s
Discharge Full	7.43	ft^3/s
Slope Full	0.00188	ft/ft
Flow Type	SubCritical	

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
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	56.64	%
Downstream Velocity	Infinity	ft/s

B.

Worksheet for Circular Pipe - A1

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00500	ft/ft
Diameter	12.00	in
Discharge	1.57	ft^3/s

Results

Normal Depth	0.57	ft
Flow Area	0.46	ft^2
Wetted Perimeter	1.71	ft
Hydraulic Radius	0.27	ft
Top Width	0.99	ft
Critical Depth	0.53	ft
Percent Full	57.2	%
Critical Slope	0.00632	ft/ft
Velocity	3.38	ft/s
Velocity Head	0.18	ft
Specific Energy	0.75	ft
Froude Number	0.87	
Maximum Discharge	2.71	ft^3/s
Discharge Full	2.52	ft^3/s
Slope Full	0.00194	ft/ft
Flow Type	SubCritical	

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
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	57.18	%
Downstream Velocity	Infinity	ft/s

Worksheet for Concrete Flume

Messages

Notes

Concrete flume capacity (5.5 cfs) at max flow depth of 0.5' exceeds required flow from Basin C2 (1.54 cfs) and Basin C4 (1.99 cfs).
OK

Worksheet for Concrete Flume

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Normal Depth	0.50	ft
Bottom Width	2.00	ft

Results

Discharge	5.50	ft³/s
Flow Area	1.00	ft²
Wetted Perimeter	3.00	ft
Hydraulic Radius	0.33	ft
Top Width	2.00	ft
Critical Depth	0.62	ft
Critical Slope	0.00549	ft/ft
Velocity	5.50	ft/s
Velocity Head	0.47	ft
Specific Energy	0.97	ft
Froude Number	1.37	
Flow Type	Supercritical	

cap > 1.54 & 1.99 cfs

fr: C2 & C4 ✓

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	0.50	ft
Critical Depth	0.62	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.00549	ft/ft

CAPACITY OF SINGLE 'C' STORM DROP INLETS

Capacity of the grate:

L = 47.375" - 2(6" $_{ends}$) - 14(½" $_{middle\ bars}$)
= 28.375"
= 2.365'

W = 30" - 13(½" $_{middle\ bars}$)
= 23.5"
= 1.958'

Area = 2.365' x 1.958'
= 4.63 ft^2

Effective Area = 4.63 – 4.63 (0.5 $_{clogging\ factor}$)
= 2.3 ft^2 at the grate

CHECK CAPACITY FOR MIN. H=0.10'

Orifice Equation
Q = CA sqrt(2gH)
Q = 0.6*2.3*sqrt(2*32.2*0.10)
Q = 3.50 cfs

Capacity of the throat:

L = 47-⅜"
= 3.948'

Weir Equation
Q = CLH^(3/2)
Q = 2.95 * 3.948 * 0.10^(3/2)
Q = 0.37 cfs

Total Capacity (FOR MIN. H=0.10'):

Q = 3.50_{grate} + 0.37_{throat}
Q = 3.87 cfs = Q $_{available}$

Curb Inlet Area "A1" Q $_{required}$ =1.57 cfs < Q $_{available}$, therefore **OK**.
Curb Inlet Area "A2" Q $_{required}$ =2.99 cfs < Q $_{available}$, therefore **OK**.
Curb Inlet Area "C6" Q $_{required}$ =1.35 cfs < Q $_{available}$, therefore **OK**.
Curb Inlet Area "D1" Q $_{required}$ =0.47 cfs < Q $_{available}$, therefore **OK**.

CAPACITY OF SINGLE 'D' STORM GRATED INLETS

Capacity of the grate:

L = 47.375" - 2(6" $_{ends}$) - 14(½" $_{middle\ bars}$)
= 28.375"
= 2.365'

W = 30" - 13(½" $_{middle\ bars}$)
= 23.5"
= 1.958'

Area = 2.365' x 1.958'
= 4.63 ft^2

Effective Area = 4.63 – 4.63 (0.5 $_{clogging\ factor}$)
= 2.3 ft^2 at the grate

CHECK CAPACITY FOR MIN. H=0.5'

Orifice Equation
Q = CA sqrt(2gH)
Q = 0.6*2.3*sqrt(2*32.2*0.50)
Q = 7.83 cfs

Grated Inlet Area "C4" $Q_{required}$ =1.99 cfs < $Q_{available}$, therefore **OK**.
Curb Inlet Area "C6" $Q_{required}$ =1.35 cfs < $Q_{available}$, therefore **OK**.

CITY OF ALBUQUERQUE

July 21, 2015

Ronald Bohannan, PE
Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, NM 87109

RE: **Skilled Nursing Facility, 1610 Renaissance Blvd NE**
Grading and Drainage Plan
Engineer's Stamp Date 7-17-2015 (File: F16-D017)

Dear Mr. Bohannan:

Based upon the information provided in your submittal received 7-16-15, the above referenced is approved for DRB action on the Site Development Plan for Building Permit. It will not be approved for Building Permit until the following comments are addressed:

1) The request for the waiver for the first flush requirement needs further discussion. One option is to discuss with COA DMD about use of the regional pond for first flush management. Also, another option is to utilize retention ponding further away from the building, but there were no details provided about whether or not the geotechnical recommendations would not allow retention ponding within a certain distance from the building. Is there a possibility that the pond furthest away from the building could be used for retention ponding? → SHAHAB OK'd waiver of 1st Flush, However Water Quality MH's are used.

Decided not to utilize Regional Pond.

2) Label existing spot elevations, and label existing contours on Chappell Drive and on Commerce Drive. Especially show the existing curb elevations at the access points. Take ADA access across the accessways into account. will be on DRC set.

3) Pond 3 is called out on two opposing locations on the grading and drainage plan versus the basin map. This pond appears to be too close to the building on the actual grading plan. No information for it is shown. Was it meant to keep this pond or eliminate it? Revise contours accordingly. Reconfigured

4) Hatching appears to show concrete bottoms for Ponds 1 and 2. Provide details as applicable.

5) For **all** proposed storm drains, show the flow, slope, and capacity computations. Also, show capacity computations for the proposed inlets.

6) There is a spot elevation of 5086.90 that looks like it is at a low spot west of Pond 1. Provide curb cut at the low spot. Provide more spot elevations to show drainage around the curb within this area.

PO Box 1293
Albuquerque
copy
New Mexico 87103
www.cabq.gov

Water Quality MH's & insp. ports on Both ends

7) More detail is needed for the underground detention system. Also, given that these proposed 48" pipes are shown to be flat, how will they be maintained since sediment will easily build up within these pipes? Show details of how the manholes are connected into each end of the system. It appears that there is limited access to maintain the system. Also, what types of pipes are being used? To Be determined @ BIS

8) A detail is needed for the connection of the 8" pipe into the existing sidewalk culvert. At the connection to the existing culvert, label the proposed discharge flow.

9) The land treatment percentages for both Basins C3 and D1 look incorrect since they appear to have a much higher percentage of impervious area than what is shown in the computations.

10) Between the discharge to the culvert and the discharge from Basin D1, demonstrate that the site does not discharge more than the allowable discharge of 0.1cfs/acre.

11) Label top of grate elevation for the inlet south of Pond 1. List invert and grate elevations for the 8-inch to 12-inch sized pipe through the center of the building.

12) In the legend, distinguish between existing and new TW and BW elevations. Provide new wall details as applicable.

13) For volume computations, demonstrate that the site discharges 90% of the design storage volume within 6 hours. Use of the 100-year 24-hour storm volumes and distributions will be required for higher times of concentration per the storm drainage ordinance.

96 hrs

If you have any questions, you can contact me at 924-3924.

Sincerely,

Jeanne Wolfenbarger, P.E.
Senior Engineer, Planning Dept.
Development Review Services

Orig: Drainage file
c.pdf Addressee via Email

City of Albuquerque

Planning Department

Development & Building Services Division

RAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: Skilled Nursing Facility City Drainage #: F16-D017

DRB#: EPC#: Work Order#:

Legal Description: TR 8-A Plat of Tracts 8-A and 8-B Renaissance Center

City Address: 1610 Renaissance Blvd NE Albuquerque NM 87107

Engineering Firm: Tierra West, LLC Contact: Joel Hernandez

Address: 5571 Midway Park Place NE Albuquerque, NM 87109

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

Owner: AS Realty Investors Contact: Adam Sclesinger

Address: 3710 S. Robertson Blvd Suite 201 Culver City CA 90232

Phone#: 310-936-9395 Fax#: E-mail:

Architect: Bixler Managment Contact: Mark Bixler

Address:

Phone#: 870-653-3382 Fax#: E-mail: mbixler@bixlermanagement.com

Surveyor: Precision Surveys, Inc. Contact: Larry Medrano

Address: P.O. Box 90636 Albuquerque, NM 87199

Phone#: 505-856-5700 Fax#: E-mail: larry@presurv.com

Contractor: TBD Contact:

Address:

Phone#: Fax#: E-mail:

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT
___ DRAINAGE PLAN 1st SUBMITTAL
X DRAINAGE PLAN RESUBMITTAL
___ CONCEPTUAL G & D PLAN
X GRADING PLAN
___ EROSION & SEDIMENT CONTROL PLAN (ESC)
___ ENGINEER'S CERT (HYDROLOGY)
___ CLOMR/LOMR
___ TRAFFIC CIRCULATION LAYOUT (TCL)
___ ENGINEER'S CERT (TCL)
___ ENGINEER'S CERT (DRB SITE PLAN)
___ ENGINEER'S CERT (ESC)
___ SO-19
___ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

___ SIA/FINANCIAL GUARANTEE RELEASE
___ PRELIMINARY PLAT APPROVAL
___ S. DEV. PLAN FOR SUB'D APPROVAL
___ S. DEV. FOR BLDG. PERMIT APPROVAL
___ SECTOR PLAN APPROVAL
___ FINAL PLAT APPROVAL
___ CERTIFICATE OF OCCUPANCY (PERM)
___ CERTIFICATE OF OCCUPANCY (TCL TEMP)
___ FOUNDATION PERMIT APPROVAL
X BUILDING PERMIT APPROVAL
___ GRADING PERMIT APPROVAL
___ PAVING PERMIT APPROVAL
___ WORK ORDER APPROVAL
___ GRADING CERTIFICATION
___ SO-19 APPROVAL
___ ESC PERMIT APPROVAL
___ ESC CERT. ACCEPTANCE
___ OTHER (SPECIFY)

As verified email

RECEIVED JUL 17 2015 LAND DEVELOPMENT SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED: ___ Yes ___ No ___ Copy Provided

DATE SUBMITTED: 07/16/2015 By: Joel Hernandez

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location, anc scope to the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the followin

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres
3. **Drainage Report**: Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more
4. **Erosion and Sediment Control Plan:** Required for any new development and redevelopment site with 1-acre or more of land disturbing area, including project less than 1-acre than are part of a larger common plan of development

gow

TIERRA WEST, LLC

5571 Midway Park Place NE
(505) 858-3100 Fax (505) 858-1118 1-800-245-3102
tierrawestllc.com
Albuquerque, NM 87109

July 17, 2015

Ms. Jeanne Wolfenbarger, P.E.
Planning Department- Hydrology
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

RE: Skilled Nursing Facility 1610 Renaissance Blvd NE (File F16-D017)

Please find the following responses addressing staff comments from correspondence dated July 18, 2015 listed below:

1. Provide 100-year storm flow computations for existing and proposed conditions. Show basin boundaries. Also provide first flush computations.

Response: Computations for storm flow rates for existing and proposed conditions, as well as first flush computations are included in the attached report. Basin boundaries are identified in the drainage basin map, also included in the attached report.

2. Demonstrate that the site is discharging the allowable flow per the "Renaissance Drainage Master Plan". Label the existing sidewalk culvert on Commerce Drive, culvert size, and flow discharge onto Commerce Drive. Show existing flowline elevation at the outlet of the existing culvert.

Response: The grading and drainage plan is configured to provide detention ponds and an underground detention storage system with a combined volume capacity to accommodate the entire volume from developed flows; volume calculations are included in the attached report. By accommodating the entire developed flow volume it can be shown that the allowable discharge rate will not be exceeded.

We updated the grading and drainage plan to label the existing sidewalk culvert size and flowline elevation.

3. Label existing spot elevations around the perimeter of the site to show relationship of new grades to existing surrounding grades. Indicate that the grading of the site does not adversely impact the property to the south.

Response: We updated the grading and drainage plan to label the existing surrounding grades. The proposed grading will not adversely affect the property to the south as the historic drainage pattern will not be changed; cross-lot drainage will not be

introduced, the proposed elevations along the toe of the existing retaining wall will allow for the footing to be protected and not exposed.

4. Label pond sizes along with first flush volumes within each pond. Demonstrate that they meet requirements for proposed detention or retention of storm flow.

Response: We updated the grading and drainage plan to explicitly depict the detention volumes of detention ponds and underground storage system and included a tabulation of said volumes in the attached report. Onsite retention is not proposed due to geotechnical recommendations; a variance for this requirement is requested with this project.

5. Label all proposed storm drain sizes, top of grate elevations, and flow that the storm drain is conveying. Show which way the roof is draining.

Response: We updated the grading and drainage plan to include storm drain sizes, inverts, top of grate elevations, and direction of roofline flows. Flow rates within storm drains are labeled in the drainage basin map included in the report.

6. Call out curb cuts as applicable on the east side of the site if the parking lot is draining to Pond 1.

Response: We updated the grading and drainage plan to denote all proposed curb cut locations.

7. There is concern about the location of the inlet shown on the upstream side of a wall labeled for Pond 1 (IE=5086.00). Was it meant to place this inlet in the bottom of Pond 1 for detention purposes?

Response: We updated the grading and drainage plan to reconfigure the storm discharge pipe from the pond as a headwall with an invert matching the pond bottom. The previous configuration would have allowed for partial retention, however, geotechnical recommendations caused the redesign.

If you have any questions or need additional information regarding this matter, please do not hesitate to contact me.

Sincerely,

Joel Hernandez, PE

JN: 2014088
RRB/jh/jg/dc

DRAINAGE REPORT
for

Skilled Nursing Facility
1610 Renaissance Boulevard

Prepared by:

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

July 16, 2015

I certify that this report was prepared under my supervision, and I am a registered professional engineer in the State of New Mexico in good standing.

RONALD R. BOHANNAN
NEW MEXICO
7868
PROFESSIONAL ENGINEER

7/17/15

Ronald R. Bohannan, PE

Location

The project site is Tract 8-A of the renaissance Center located on the southeast corner of Commerce Drive and Renaissance Boulevard, NE. The site is bounded by Renaissance Boulevard on the north, Commerce Drive on the west, Chappell Road on the east, and Tract 8-B to the south which is an existing hotel.

Purpose

The purpose of this drainage report is to present a drainage solution for the proposed development consisting of a single-story building for a skilled nursing facility and associated parking facility. We are requesting conceptual grading approval and Site Development Plan for Building Permit approval.

Existing Drainage Conditions

The site falls within the approved Renaissance Drainage Master Plan, and is currently undeveloped, although previously rough graded with two pads. The plan allows a controlled release runoff of 0.10 cfs per acre from each tract. The existing conditions were analyzed using the criteria set by the City of Albuquerque DPM.

Existing conditions, analyzed as a single basin with a runoff rate of 15.3 cfs., generally sheet flows from the southeast to the northwest portion of the site discharging onto Commerce Drive through a sidewalk culvert near the Renaissance Boulevard intersection. No offsite runoff enters the site.

The site is located outside any mapped 100 year floodplain, as indicated on FEMA FIRM Map 35001C0138H.

Proposed Drainage Management

Drainage from the majority of the developed site will be collected through a network of storm drain pipes and routed through above-ground detention ponds and an underground detention storage system, such as an ADS pipe and manifold system, before releasing flows onto Commerce Drive at the existing sidewalk culvert location where the site currently flows. An area at the northeast portion of the site (Basin C1) will flow into a pond (Pond #2) which has adequate capacity for full retention for its tributary area, and will be drained to Pond #1 with a small diameter pipe. Given that the allowable discharge rate is limited to only 0.10 cfs by the DMP, the detention storage volume is designed with the capacity to accommodate the entire volume from developed flows.

First flush management will be achieved by the existing regional pond in the southwest corner of the Master Plan area where discharge is controlled by a manual valve. Given the potential for collapsible soils onsite, a waiver for onsite retention of the first flush is requested with this project. A future request to offset a portion of the required detention pond volume onsite by enlarging the regional pond downstream may be submitted as an alternate prior to construction.

Tract 8A, RENAISSANCE CENTER

Existing and Proposed Conditions Basin Data Table

This table is based on the DPM Section 22.2, Zone: 2

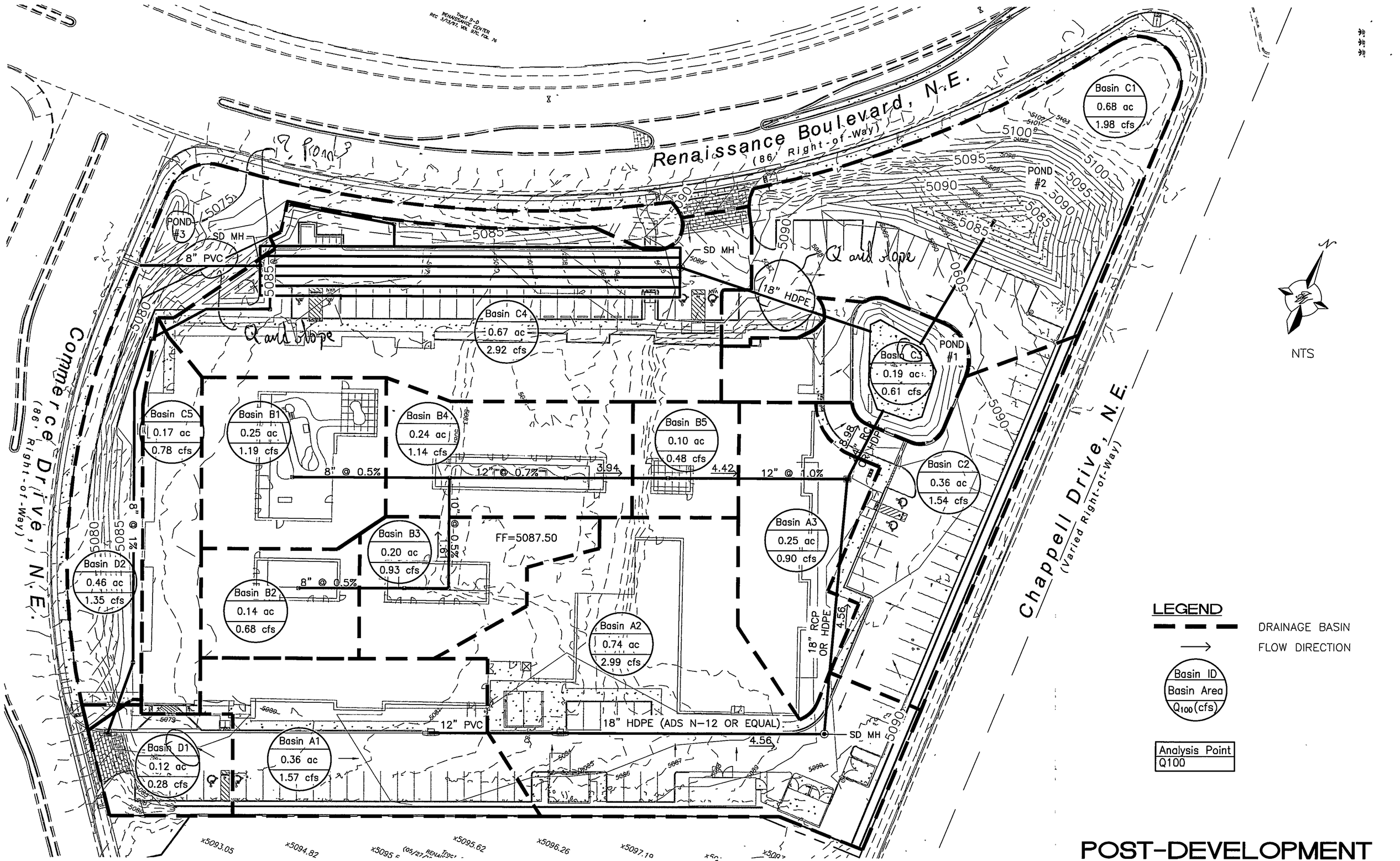
BASIN	Area (SQ. FT)	Area (AC.)	Land Treatment Percentages A	B	C	D	Q(100) (cfs/ac.)	Q(100) (CFS)	V(100) (inches)	V(100) (CF)
EXISTING CONDITIONS										
A	212000	4.87	0.0%	0.0%	99.0%	1.0%	3.16	*15.36*	*1.14*	*20138*
TOTAL		**4.87**						***15.36***	***1.14***	***20138***

Per the Renaissance Center Master Drainage Plan,
the Maximum Release from the Site is 0.10 cfs/acre.

This table is based on the DPM Section 22.2, Zone: 2

BASIN	Area (SQ. FT)	Area (AC.)	Land Treatment Percentages A	B	C	D	Q(100) (cfs/ac.)	Q(100) (CFS)	V(100) (inches)	V(100) (CF)	1ST FLUSH
PROPOSED CONDITIONS											
A1	15,835	0.36	0.0%	16.0%	0.0%	84.0%	4.31	*1.57*	*1.91*	*2515*	*377*
A2	32,146	0.74	0.0%	27.0%	0.0%	73.0%	4.05	*2.99*	*1.76*	*4710*	*665*
A3	10,825	0.25	0.0%	45.0%	0.0%	55.0%	3.61	*0.90*	*1.52*	*1368*	*169*
B1	11,054	0.25	0.0%	0.0%	0.0%	100.0%	4.70	*1.19*	*2.12*	*1953*	*313*
B2	6,271	0.14	0.0%	0.0%	0.0%	100.0%	4.70	*0.68*	*2.12*	*1108*	*178*
B3	8,635	0.20	0.0%	0.0%	0.0%	100.0%	4.70	*0.93*	*2.12*	*1526*	*245*
B4	10,545	0.24	0.0%	0.0%	0.0%	100.0%	4.70	*1.14*	*2.12*	*1863*	*299*
B5	4,438	0.10	0.0%	0.0%	0.0%	100.0%	4.70	*0.48*	*2.12*	*784*	*126*
C1	29,590	0.68	0.0%	74.0%	0.0%	26.0%	2.91	*1.98*	*1.13*	*2782*	*218*
C2	15,594	0.36	0.0%	17.0%	0.0%	83.0%	4.29	*1.54*	*1.89*	*2459*	*367*
C3	8,180	0.19	0.0%	60.0%	0.0%	40.0%	3.25	*0.61*	*1.32*	*897*	*93*
C4	28,970	0.67	0.0%	13.0%	0.0%	87.0%	4.39	*2.92*	*1.95*	*4697*	*714*
C5	7,574	0.17	0.0%	9.8%	0.0%	90.2%	4.46	*0.78*	*1.99*	*1255*	*194*
D1	5,118	0.12	0.0%	97.0%	0.0%	3.0%	2.35	*0.28*	*0.82*	*350*	*4*
D2	20,186	0.46	0.0%	74.0%	0.0%	26.0%	2.91	*1.35*	*1.13*	*1898*	*149*
TOTAL		**4.93**						***19.31***	***1.91***	***30165***	***4109***

Looks incorrect.



POST-DEVELOPMENT DRAINAGE BASINS

DETENTION VOLUME CALCS

POND 1 VOLUME CALCULATIONS

ELEVATION (ft)	AREA (sf)	VOLUME (cf)	CUMULATIVE VOLUME (cf)
5081	1725	0	0
5082	1725	1725	1725
5083	1725	1725	3450
5084	1725	1725	5175
5085	1725	1725	6900
5086	1725	1725	8625
			8625
			8625
			8625

POND 2 (BASIN C1 ONLY) VOLUME CALCULATIONS

ELEVATION (ft)	AREA (sf)	VOLUME (cf)	CUMULATIVE VOLUME (cf)
5083	216	0	0
5084	500	358	358
5085	902	701	1059
5086	1423	1162.5	2222
5087	2088	1755.5	3977
			2782

*MAX TRIB VOL = 2782 cf

TOTAL AVAILABLE ABOVE-GROUND STORAGE VOLUME=11,407 cf

UNDERGROUND PIPE STORAGE VOLUME CALCULATION

PIPE DIA= 48 PIPE L= 1,500

ELEVATION (ft)	AREA (sf)	VOLUME (cf)	CUMULATIVE VOLUME (cf)
5077	0		0
5078	2.46		3690
5079	6.28		9420
5080	10.11		15165
5081	12.57		18850
			18850

TOTLA DETENTION VOLUME= **30,257**

CITY OF ALBUQUERQUE

PLANNING DEPARTMENT – Development Review Services

Richard J. Berry, Mayor

March 2, 2016

Ron Bohannan, PE
Tierra West, LLC
5571 Midway Park Pl NE
Albuquerque, NM 87109

RE: Skilled Nursing Facility, Renaissance Center (File: F16D017)
Rough Grading Plan
Engineer's Stamp Date 3-2-2016

Dear Mr. Bohannan:

Based upon the information provided in your submittal received 3-2-16, the above referenced plan is approved for ESC Permit (Grading Permit). However, bear in mind that the Rough Grading Plan is based on a preliminary grading plan for a development that has not been approved by Hydrology. As such, any grading is at the owner's risk, and there may be differences in the final approved grading plan.

If you have any questions, you can contact me at 924-3695.

Sincerely,

Rita Harmon, P.E.
Senior Engineer, Planning Dept.
Development Review Services

Orig: Drainage file
c.pdf recipient , Joel Hernandez

PO Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: Skilled Nursing Facility Building Permit #: _____ City Drainage #: F16-D017

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

Legal Description: TR 8-A Plat of Tracts 8-A and 8-B Renaissance Center

City Address: 1610 Renaissance Blvd NE Albuquerque NM 87107

Engineering Firm: Tierra West, LLC Contact: Joel Hernandez

Address: 5571 Midway Park Place NE Albuquerque NM 87109

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

Owner: AS Realty Investors Contact: Adam Schlesinger

Address: 3701 S. Robertson Blvd., Suite 201 Culver City, California 90232

Phone#: 310-202-6204 Fax#: 310-202-0831 E-mail: adam@asrealtyinvestors.com

Architect: Bixler Management Contact: Mark Bixler

Address:

Phone#: 870-653-3382 Fax#: _____ E-mail: mbixler@bixlermanagment.com

Other Contact: Surveyor- Precision Surveys, Inc. Contact: Larry Medrano

Address: P.O. Box 90636 Albuquerque NM 87199

Phone#: 505-858-5700 Fax#: _____ E-mail: larry@presurv.com

Check all that Apply:

DEPARTMENT:

x HYDROLOGY/ DRAINAGE
____ TRAFFIC/ TRANSPORTATION
____ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

____ ENGINEER/ ARCHITECT CERTIFICATION

____ CONCEPTUAL G & D PLAN
X GRADING PLAN
____ DRAINAGE MASTER PLAN
____ DRAINAGE REPORT
____ CLOMR/LOMR

____ TRAFFIC CIRCULATION LAYOUT (TCL)
____ TRAFFIC IMPACT STUDY (TIS)
____ EROSION & SEDIMENT CONTROL PLAN (ESC)

____ OTHER (SPECIFY) _____

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

____ BUILDING PERMIT APPROVAL
____ CERTIFICATE OF OCCUPANCY

____ PRELIMINARY PLAT APPROVAL
____ SITE PLAN FOR SUB'D APPROVAL
____ SITE PLAN FOR BLDG. PERMIT APPROVAL
____ FINAL PLAT APPROVAL
____ SIA/ RELEASE OF FINANCIAL GUARANTEE
____ FOUNDATION PERMIT APPROVAL
X GRADING PERMIT APPROVAL
____ SO-19 APPROVAL
____ PAVING PERMIT APPROVAL
____ GRADING/ PAD CERTIFICATION
____ WORK ORDER APPROVAL
____ CLOMR/LOMR

____ PRE-DESIGN MEETING
x OTHER (SPECIFY) Rough Grading Permit

IS THIS A RESUBMITTAL?: X Yes ____ No

DATE SUBMITTED: 03/02/2016 By: Joel Hernandez

RECEIVED MAR - 2 LAND DEVELOPMENT COORDINATION

Recd. March 2, 2016

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: ___

CITY OF ALBUQUERQUE

June 18, 2015

Ronald Bohannan, PE
Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, NM 87109

RE: **Skilled Nursing Facility, 1610 Renaissance Blvd NE**
Grading and Drainage Plan
Engineer's Stamp Date 5-21-2015 (File: F16-D017)

Dear Mr. Bohannan:

Based upon the information provided in your submittal received 5-22-15, the above referenced Grading Plan cannot be approved for DRB action on the Site Development Plan for Building Permit until the following comments are addressed:

1) Provide 100-year storm flow computations for existing and proposed conditions. Show basin boundaries. Also provide first flush computations.

2) Demonstrate that the site is discharging the allowable flow per the "Renaissance Drainage Master Plan". Label the existing sidewalk culvert on Commerce Drive, culvert size, and flow discharge onto Commerce Drive. Show existing flowline elevation at the outlet of the existing culvert.

3) Label existing spot elevations around the perimeter of the site to show relationship of new grades to existing surrounding grades. Indicate that the grading of the site does not adversely impact the property to the south.

4) Label pond sizes along with first flush volumes within each pond. Demonstrate that they meet requirements for proposed detention or retention of storm flow.

5) Label all proposed storm drain sizes, top of grate elevations, and flow that the storm drain is conveying. Show which way the roof is draining.

6) Call out curb cuts as applicable on the east side of the site if the parking lot is draining to Pond 1.

PO Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

CITY OF ALBUQUERQUE

7) There is concern about the location of the inlet shown on the upstream side of a wall labeled for Pond 1 (IE=5086.00). Was it meant to place this inlet in the bottom of Pond 1 for detention purposes?

If you have any questions, you can contact me at 924-3924.

Sincerely,

Jeanne Wolfenbarger, P.E.
Senior Engineer, Planning Dept.
Development Review Services

Orig: Drainage file
c.pdf Addressee via Email

PO Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

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DRB#: EPC#: Work Order#:

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Owner: AS Realty Investors Contact: Adam Sclesinger

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Phone#: 310-936-9395 Fax#: E-mail:

Architect: Bixler Managment Contact: Mark Bixler

Address:

Phone#: 870-653-3382 Fax#: E-mail: mbixler@bixlermanagement.com

Surveyor: Precision Surveys, Inc. Contact: Larry Medrano

Address: P.O. Box 90636 Albuquerque, NM 87199

Phone#: 505-856-5700 Fax#: E-mail: larry@presurv.com

Contractor: TBD Contact:

Address:

Phone#: Fax#: E-mail:

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT
X DRAINAGE PLAN 1st SUBMITTAL
___ DRAINAGE PLAN RESUBMITTAL
X CONCEPTUAL G & D PLAN
___ GRADING PLAN
___ EROSION & SEDIMENT CONTROL PLAN (ESC)
___ ENGINEER'S CERT (HYDROLOGY)
___ CLOMR/LOMR
___ TRAFFIC CIRCULATION LAYOUT (TCL)
___ ENGINEER'S CERT (TCL)
___ ENGINEER'S CERT (DRB SITE PLAN)
___ ENGINEER'S CERT (ESC)
___ SO-19
___ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

___ SIA/FINANCIAL GUARANTEE RELEASE
___ PRELIMINARY PLAT APPROVAL
___ S. DEV. PLAN FOR SUB'D APPROVAL
X S. DEV. FOR BLDG. PERMIT APPROVAL
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___ FINAL PLAT APPROVAL
___ CERTIFICATE OF OCCUPANCY (PERM)
___ CERTIFICATE OF OCCUPANCY (TCL TEMP)
___ FOUNDATION PERMIT APPROVAL
___ BUILDING PERMIT APPROVAL
___ GRADING PERMIT APPROVAL
___ PAVING PERMIT APPROVAL
___ WORK ORDER APPROVAL
___ GRADING CERTIFICATION
___ SO-19 APPROVAL
___ ESC PERMIT APPROVAL
___ ESC CERT. ACCEPTANCE
___ OTHER (SPECIFY)

RECEIVED
MAY 22 2015
LAND DEVELOPMENT SECTION

VS verified

WAS A PRE-DESIGN CONFERENCE ATTENDED: ___ Yes ___ No ___ Copy Provided

DATE SUBMITTED: 05/22/2015 By: Joel Hernandez

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location, anc scope to the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the followin

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5) acres
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4. **Erosion and Sediment Control Plan:** Required for any new development and redevelopment site with 1-acre or more of land disturbing area, including project less than 1-acre than are part of a larger common plan of development

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

February 2, 1999

Ronald R. Bohanan, P.E.
Tierra West, LLC
4421 McLeod NE
Suite D
Albuquerque, NM 87109

RE: TRACT 8 OF RENAISSANCE CENTER (F16-D17). ENGINEER'S CERTIFICATION FOR CERTIFICATE OF OCCUPANCY APPROVAL. ENGINEER'S CERTIFICATION DATED DECEMBER 31, 1998.

Dear Mr. Bohanan:

Based upon your December 31,1998 submittal, City Hydrology has the following comment:

Final approval of the Certificate of Occupancy is withheld until the SO#19 documentation is completed. The remainder of the Certification appears in order. A Temporary Approval was issued on January 5, 1999.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,

John P. Murray, P.E.
Hydrology

c: Andrew Garcia
File

THE CITY OF ALBUQUERQUE IS AN EQUAL OPPORTUNITY/REASONABLE ACCOMMODATION EMPLOYER

CITY OF
Albuquerque

May 27, 1998

Shahab Biazar, P.E.
Tierra West, LLC
4421 McLeod NE
Suite D
Albuquerque, NM 87109

RE: TRACT 8 OF RENAISSANCE CENTER (F16-D~~16~~17). GRADING PLAN (REVISED) FOR BUILDING PERMIT, GRADING PERMIT, AND SO #19 PERMIT APPROVALS. ENGINEER'S STAMP DATED APRIL 17, 1998.

Dear Mr. Biazar:

Thank you for furnishing another copy of the G & D Plan (stamped 4/17/98) to complete our file. The 100-YR WSEL at the D-grate catch basins, which were added this month, have been duely noted.

Based on the information provided on your March 6, 1998 and April 17,1998 submittals, the above referenced project is approved for Building Permit, Grading Permit, and SO #19 Permit.

Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

A separate permit is required for construction within the City right-of-way. A copy of this approval letter must be on hand when applying for the excavation permit.

Prior to Certificate of Occupancy approval, an Engineer's Certification will be required. Please include spillway data for the ponding system in said Certification.

If I can be of further assistance, please contact me at 924-3984.

Sincerely,

John P. Murray, P.E.
Hydrology

c: Arlene Portillo
Andrew Garcia
File

CITY OF
Albuquerque

March 18, 1998

Shahab Biazar, P.E.
Tierra West, LLC
4421 McLeod NE
Suite D
Albuquerque, NM 87109

RE: TRACT 8 OF RENAISSANCE CENTER (F16-D17). DRAINAGE REPORT FOR PRELIMINARY PLAT, FINAL PLAT, SITE DEVELOPMENT PLAN FOR SUBDIVISION, SITE DEVELOPMENT PLAN FOR BUILDING PERMIT, BUILDING PERMIT, GRADING PERMIT, AND SO #19 PERMIT.

Dear Mr. Biazar:

Based on the information provided on your March 6, 1998 submittal, the above referenced project is approved for Site Development Plan for Building Permit. Prior to further approvals, please address the following comment:

Provide a copy of the proposed plat that clearly indicates cross lot drainage easements and lot lines

If I can be of further assistance, please contact me at 924-3984.

Sincerely,

Lisa Ann Manwill, P.E.
Hydrology

c: Andrew Garcia
File

DRAINAGE REPORT
FOR

TRACT 8
OF
RENAISSANCE CENTER

Prepared by:

Tierra West, LLC
4421 McLeod Rd., NE, Suite D
Albuquerque, New Mexico 87109

March, 1998

I certify that this report was prepared under my supervision, and I am a registered professional engineer in the state of New Mexico in good standing.

Ronald R. Bohannan
PE No. 7868

RONALD RAY BOHANNAN
NEW MEXICO
REGISTERED PROFESSIONAL ENGINEER

Job No 980013

Location

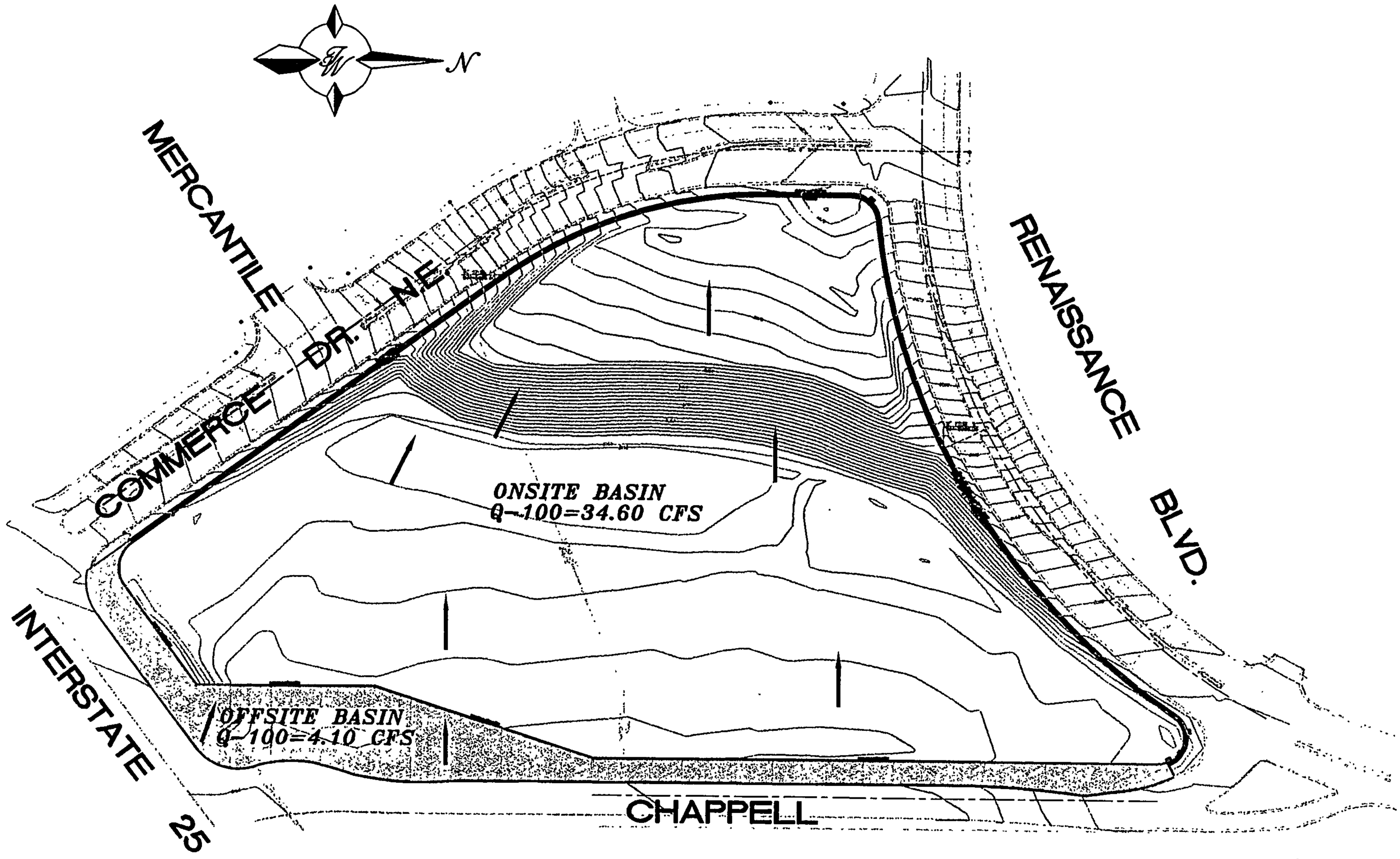
Tract 8 of the Renaissance Center is located at the southeast corner of Commerce Drive and Renaissance Boulevard, NE. See attached Zone Atlas page number F-16 for location. The site is bounded by Renaissance Boulevard on the north, Commerce Drive on the west, Chappell Road on the east, and Interstate 25 on the south side.

Purpose

The purpose of this drainage report is to present a grading and drainage solution for this proposed site. We are requesting rough grading approval, site development plan for subdivision purposes, site plan for building permit, building permit approval, and Preliminary and Final Plat approval with this submittal.

Existing Drainage Conditions

The site falls within the approved Renaissance Drainage Master Plan, and it is currently undeveloped. That plan allows a controlled release runoff of 0.10 cfs per acre from each tract. The existing conditions for Tract 8 were analyzed using the criteria set by the City of Albuquerque's Development Process Manuel Design Development Manual.



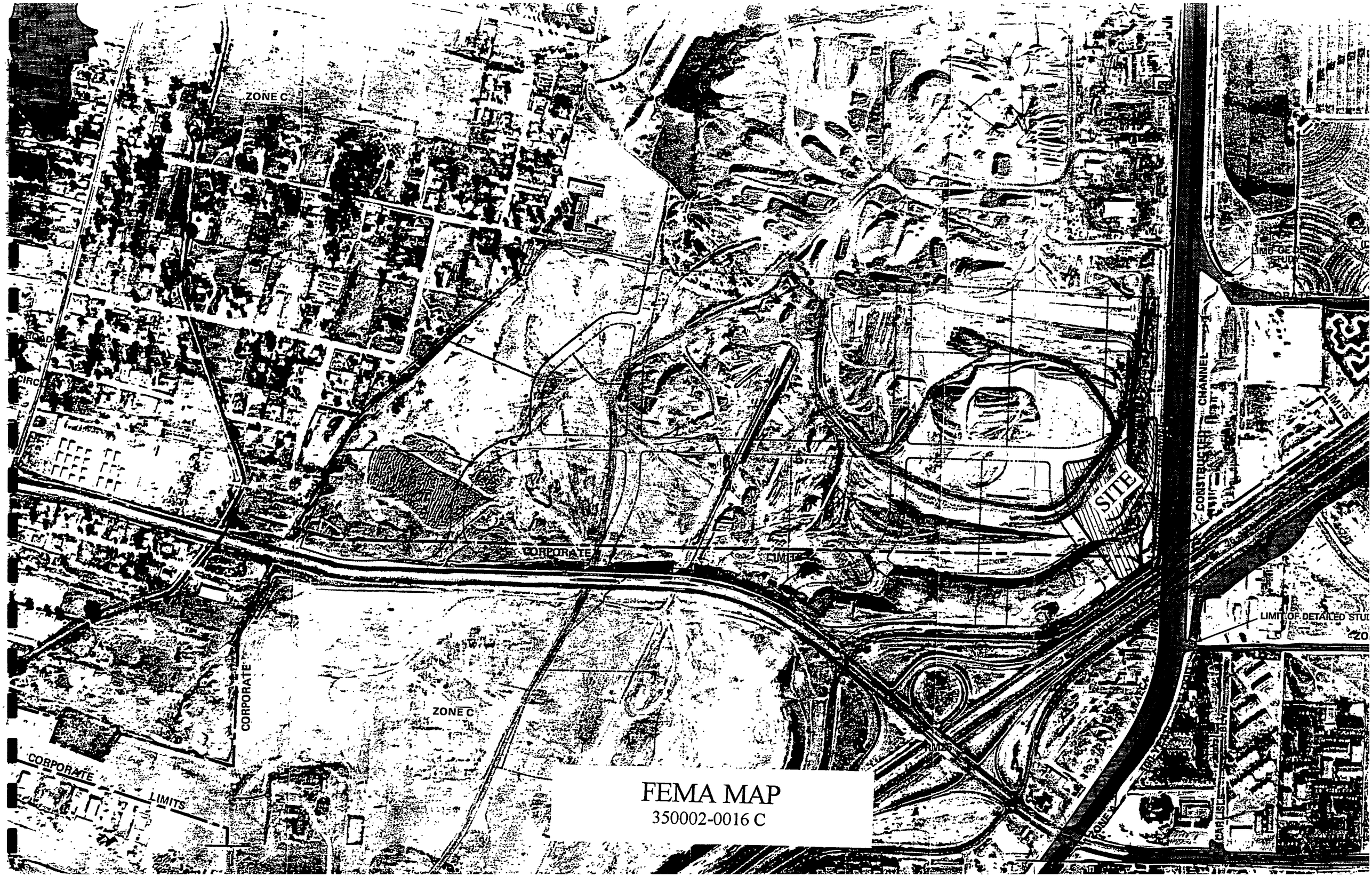
EXISTING BASIN LAYOUT

The existing basins were identified and have been shown on the attached Existing Basin Layout Exhibit. The entire site (Tract 8) has been analyzed under one single basin. This basin (with an existing runoff rate of 34.60 cfs) sheet flows west to Commerce Drive. There is an existing offsite basin (on the east and south) that enters the site at an existing flow rate of 4.10 cfs. There is no other offsite runoff which will impact this site. All other offsite runoff is intercepted by the existing road improvements in Renaissance Boulevard and Commerce Drive.

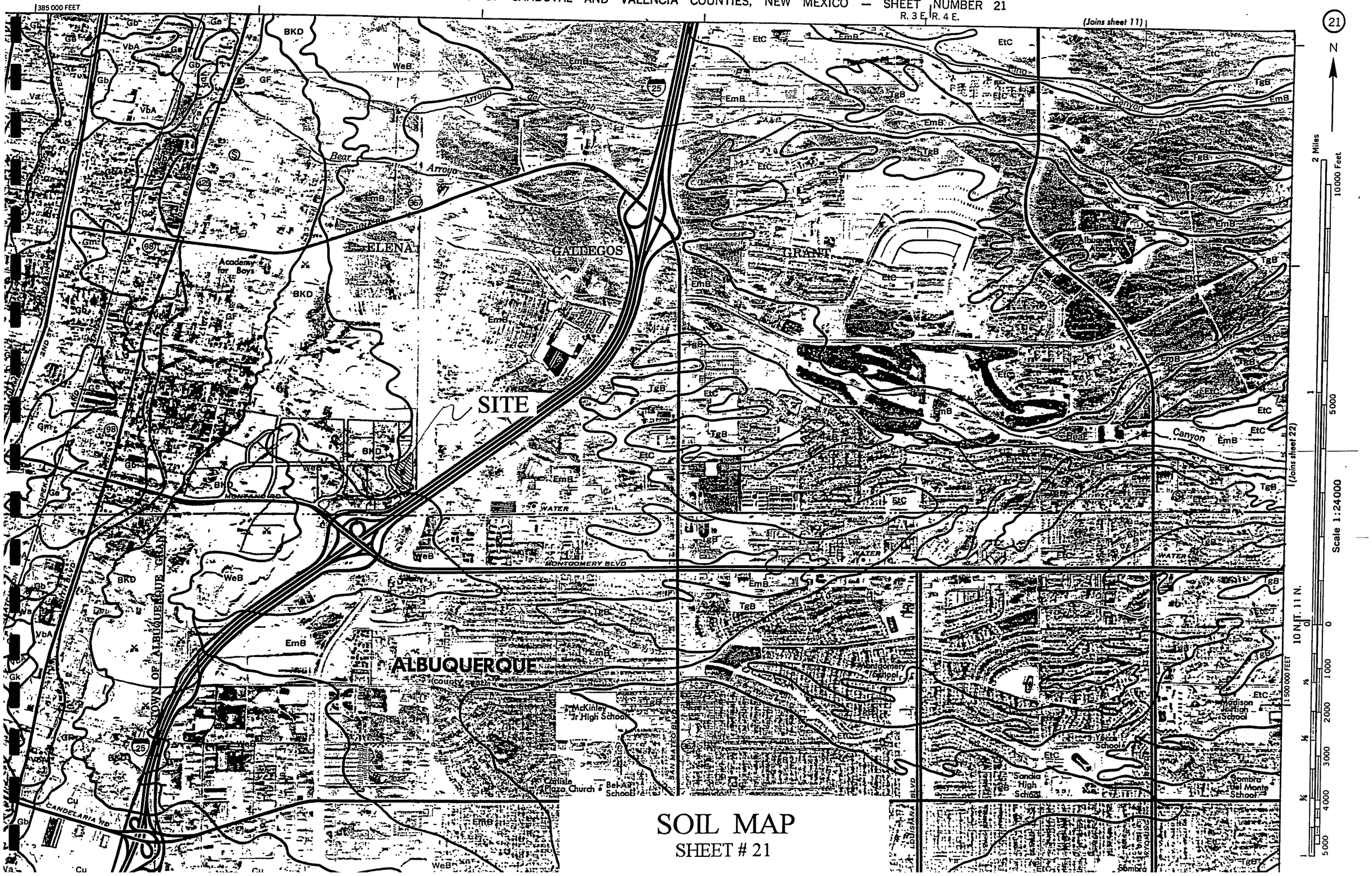
Flood Plain and Soil Condition

The site is located on FEMA Map No. 350002 panel 16 as shown on the attached excerpt. The map shows that the site does not lie within any 100 year flood plains.

The site contains two soil types. As indicated on the Soil Map (sheet # 21) from the Soil Conservation Service Survey of Bernalillo County, the soil types are Bluepoint-Kokan (BKD) and Embudo gravelly fine sandy loam (EmB). The Bluepoint-Kokan association is a Bluepoint loamy fine sand that has slow runoff, rapid permeability, and moderate to severe hazard of water erosion. The Embudo series consists of deep, well drained soils that formed in alluvium derived from decomposed, coarse grained, granitic rocks on old alluvial fans. This soil is used for watershed, wildlife habitat, community development, and range. It is subject to periodic flooding. Control of moisture is needed for proper compaction. Runoff is medium, and the hazard of water erosion is moderate.



FEMA MAP
350002-0016 C



SOIL MAP

SHEET # 21

Proposed Conditions and On-Site Drainage Management Plan

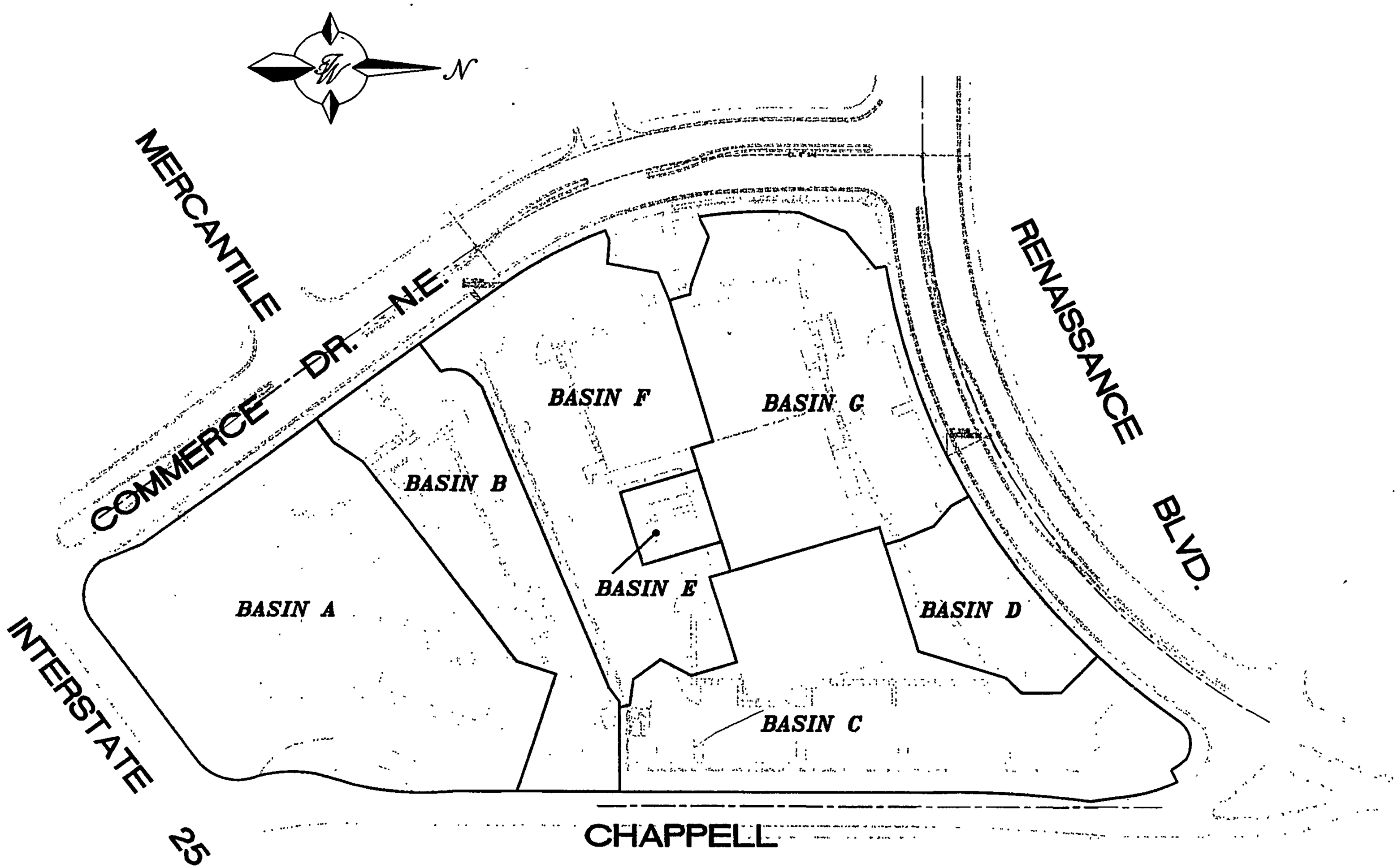
you'll need x-lot drainage easements shown on proposed plat

We are proposing to subdivide the site into two tracts-8A and 8B. The offsite runoff will continue draining to the site and will be ponded on site, along with the runoff from the site itself and then released at a flow rate of 0.87 cfs or less. The 0.87 cfs was calculated from the total 8.6751 (7.7601 acre on-site and 0.9150 offsite) at 0.1 cfs per acre, per the Renaissance Master Drainage Plan.

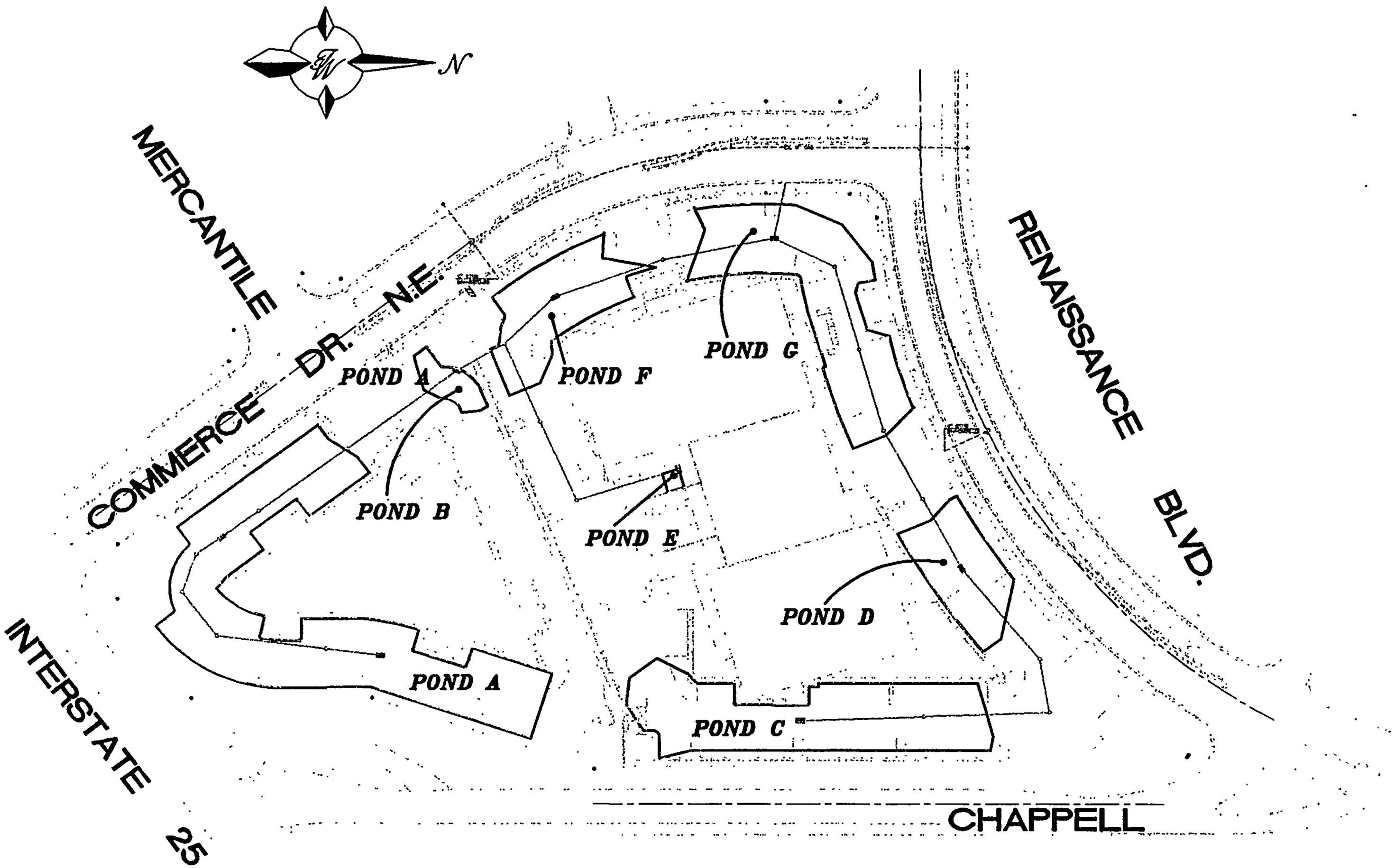
provide copy of proposed plat.

Drainage Management

The site was analyzed under several basins. Basin A, with a developed flow rate of 9.36 cfs, will be ponded within the parking area and then discharge a confined flow rate of 0.20 cfs (controlled by a 2" orifice plate) to Basin B via a 4" PVC. Basin B, with a developed flow rate of 4.16 cfs and along with the runoff from Basin A, will be ponded within the parking lot. The runoff is then discharged to Basin F at controlled discharge rate of 3.80 cfs via an 8" PVC. Basin C, a developed flow rate of 7.75 cfs, will be ponded within the parking area and then discharge a confined flow rate of 0.20 cfs (controlled by a 2" orifice plate) to Basin D via a 4" PVC. Basin D, with a developed flow rate of 2.12 cfs and along with the runoff from Basin C will be ponded within the parking lot. The runoff is then discharged to Basin G at controlled discharge rate of 0.25 cfs (controlled by a 2" orifice plate) via a 4" PVC. Basin E, with a developed flow rate of 0.56 cfs, will be drained to Basin F via an 8" pipe at flow rate 0.56 cfs. Basin F, at developed rate of 6.19 cfs and along with the runoff from Basins B and E, will be ponded within the parking lot. The runoff is then discharged to Basin G at controlled discharge rate of 2.08 cfs (controlled by a 5-3/4" orifice plate) via a 6" PVC.



PROPOSED BASIN LAYOUT



PONDING LOCATIONS

Basin G, with a developed rate of 3.19 cfs and along with the runoff from Basin F and D will be ponded on site and drained at flow rate of 0.76 cfs (controlled by a 3-3/8" orifice plate) via a 4" pipe to the back of a sidewalk culvert (to Commerce Drive). This discharge of 0.76 is less than the allowable discharge of 0.87 cfs.

Emergency Spillway Overflow

In the case of an event larger than 100-year flow or a clogged pipe the runoff will overflow the parking ponding to Commerce Drive.

Summary

The site will be built in a single phase. The offsite runoff from the east will continue to flow to the site. The offsite and on-site runoff will be ponded on-site in the parking lot and then discharged to Commerce Drive at a confined runoff rate of 0.76 cfs, which is less than the allowable discharge of 0.87 cfs.

Calculations

The City of Albuquerque's Development Process Manuel, Section 22.2, Hydrology Section, revised January, 1993, was used for runoff calculations. See section II of this report for the Summary Table of runoff results. See Sections IV, V, and VI of this report for AHYMO input and output files for runoff and ponding calculations.

Infrastructure List

All work will be performed under building permit and outside of any public right of way. A copy of the infrastructure list is attached in section VII of this report.

RUNOFF CALCULATIONS

The site is @ Zone 2

LAND TREATMENT

Proposed
D = 90.00 %
B = 10.00 %

Existing
B = 100 %

DEPTH (INCHES) @ 100-YEAR STORM

P_{60} = 2.01 inches

P_{360} = 2.35 inches

P_{1440} = 2.75 inches

DEPTH (INCHES) @ 10-YEAR STORM

P_{60} = 2.01 x 0.667
= 1.34 inches

P_{360} = 1.57

P_{1440} = 1.83

See the summary output from AHYMO calculations.

Also see the following summary tables.

RUNOFF SUMMARY TABLE

PROPOSED

DRAINAGE BASINS

SUB-BASIN	AREA (SF)	AREA (AC)	AREA (MI^2)
A	91293.70	2.0958	0.003275
B	40490.85	0.9295	0.001452
C	75618.35	1.7360	0.002712
D	18706.58	0.4294	0.000671
E	5325.00	0.1222	0.000191
F	60287.14	1.3840	0.002163
G	31042.25	0.7126	0.001113

BASINS RUNOFF CALCULATION RESULTS UNDER PROPOSED CONDITIONS

BASIN	Q-100 CFS	Q-10 CFS
A	9.36	6.06
B	4.16	2.69
C	7.75	5.02
D	1.93	1.25
E	0.56	0.36
F	6.19	4.01
G	3.19	2.07

EXISTING

DRAINAGE BASINS

BASIN	AREA (SF)	AREA (AC)	AREA (MI^2)
ON-SITE	338029.75	7.7601	0.012125
OFFSITE	39856.42	0.9150	0.001430

BASINS RUNOFF CALCULATION RESULTS UNDER PROPOSED CONDITIONS

BASIN	Q-100 CFS	Q-10 CFS
ON-SITE	3.00	1.23
OFFSITE	30.38	12.46

POND #A

Volume = 6.94 * D (from bottom of the inlet to the top of inlet)

Inlet Depth =2.50'

Ab - Bottom Of The Pond Surface Area (Top of the inlet)
At - Top Of The Pond Surface Area
D - Water Depth (From top of inlet)
Dt - Total Pond Depth (From top of inlet to maximum water detph)
C - Change In Surface Area / Water Depth

$$\text{Volume} = Ab * D + 0.5 * C * D^2$$

$$C = (At - Ab) / Dt$$

Ab =	6.94	SF	
At =	31,517.95	SF	
Dt =	1.50	FT	(Ponding depth from top of the inlet to maximum
Dia =	2	IN	
Radius =	1	IN	
C =	21007.34	FT / LF-DEPTH	

H (FT)	D (FT)	VOLUME (AC-FT)	Q (CFS)	FULL ELEV.
0.00	0.00	0.00000	0.00	5089.00
1.25	1.25	0.00020	0.11	5090.25
2.50	2.50	0.00040	0.16	5091.50
2.90	0.40	0.03904	0.18	5091.90
3.30	0.80	0.15485	0.19	5092.30
3.70	1.20	0.34782	0.20	5092.70
4.00	1.50	0.54318	0.21	5093.00

POND #B

Volume = 6.94 * D (from bottom of the inlet to the top of inlet)

Inlet Depth =5.28'

Ab - Bottom Of The Pond Surface Area (Top of the inlet)
At - Top Of The Pond Surface Area
D - Water Depth (From top of inlet)
Dt - Total Pond Depth (From top of inlet to maximum water detph)
C - Change In Surface Area / Water Depth

Volume = $Ab * D + 0.5 * C * D^2$

C = (At - Ab) / Dt

Ab =	6.94	SF	
At =	1,913.77	SF	
Dt =	0.50	FT	(Ponding depth from top of the inlet to maximum ponding depth)
Dia =	8	IN	
Radius =	4	IN	
C =	3813.66	FT / LF-DEPTH	

H (FT)	D (FT)	VOLUME (AC-FT)	Q (CFS)	FULL ELEV.
0.00	0.00	0.00000	0.00	5085.14
2.64	2.64	0.00042	2.55	5087.78
5.28	5.28	0.00084	3.74	5090.42
5.38	0.10	0.00129	3.78	5090.52
5.48	0.20	0.00262	3.81	5090.62
5.58	0.30	0.00483	3.85	5090.72
5.68	0.40	0.00791	3.89	5090.82
5.78	0.50	0.01186	3.92	5090.92

POND #C

Volume = 6.94 * D (from bottom of the inlet to the top of inlet)

Inlet Depth =2.50'

Ab - Bottom Of The Pond Surface Area (Top of the inlet)
At - Top Of The Pond Surface Area
D - Water Depth (From top of inlet)
Dt - Total Pond Depth (From top of inlet to maximum water detph)
C - Change In Surface Area / Water Depth

Volume = Ab * D + 0.5 * C * D^2

C = (At - Ab) / Dt

Ab =	6.94	SF	
At =	19,324.16	SF	
Dt =	1.50	FT	(Ponding depth from top of the inlet to maximum ponding depth)
Dia =	2	IN	
Radius =	1	IN	
C =	12878.15	FT / LF-DEPTH	

H (FT)	D (FT)	VOLUME (AC-FT)	Q (CFS)	FULL ELEV.
0.00	0.00	0.00000	0.00	5082.50
1.25	1.25	0.00020	0.11	5083.75
2.50	2.50	0.00040	0.16	5085.00
2.90	0.40	0.02411	0.18	5085.40
3.30	0.80	0.09513	0.19	5085.80
3.70	1.20	0.21345	0.20	5086.20
4.00	1.50	0.33323	0.21	5086.50

POND #D

Volume = 6.94 * D (from bottom of the inlet to the top of inlet)

Inlet Depth =4.00'

Ab - Bottom Of The Pond Surface Area (Top of the inlet)
At - Top Of The Pond Surface Area
D - Water Depth (From top of inlet)
Dt - Total Pond Depth (From top of inlet to maximum water detph)
C - Change In Surface Area / Water Depth

Volume = $Ab * D + 0.5 * C * D^2$

C = (At - Ab) / Dt

Ab =	6.94	SF	
At =	7,475.54	SF	
Dt =	1.50	FT	(Ponding depth from top of the inlet to maximum ponding depth)
Dia =	2	IN	
Radius =	1	IN	
C =	4979.07	FT / LF-DEPTH	

H (FT)	D (FT)	VOLUME (AC-FT)	Q (CFS)	FULL ELEV.
0.00	0.00	0.00000	0.00	5080.00
1.25	1.25	0.00020	0.11	5081.25
2.50	2.50	0.00040	0.16	5082.50
4.50	4.50	0.00072	0.22	5084.50
4.90	0.40	0.00992	0.23	5084.90
5.30	0.80	0.03742	0.24	5085.30
5.70	1.20	0.08321	0.25	5085.70
6.00	1.50	0.12955	0.26	5086.00

POND #E

Volume = 6.94 * D (from bottom of the inlet to the top of inlet)

Inlet Depth =1.98'

Ab - Bottom Of The Pond Surface Area (Top of the inlet)
At - Top Of The Pond Surface Area
D - Water Depth (From top of inlet)
Dt - Total Pond Depth (From top of inlet to maximum water detph)
C - Change In Surface Area / Water Depth

Volume = $Ab * D + 0.5 * C * D^2$

C = (At - Ab) / Dt

Ab =	6.94	SF	
At =	283.48	SF	
Dt =	1.50	FT	(Ponding depth from top of the inlet to maximum ponding depth)
Dia =	8	IN	
Radius =	4	IN	
C =	184.36	FT / LF-DEPTH	

H (FT)	D (FT)	VOLUME (AC-FT)	Q (CFS)	FULL ELEV.
0.00	0.00	0.00000	0.00	5072.02
1.00	1.00	0.00016	1.37	5073.02
1.98	1.98	0.00032	2.16	5074.00
2.38	0.40	0.00072	2.40	5074.40
2.78	0.80	0.00180	2.63	5074.80
3.18	1.20	0.00355	2.84	5075.20
3.48	1.50	0.00532	2.98	5075.50

POND #F

Volume = 6.94 * D (from bottom of the inlet to the top of inlet)

Inlet Depth =4.50'

Ab - Bottom Of The Pond Surface Area (Top of the inlet)
At - Top Of The Pond Surface Area
D - Water Depth (From top of inlet)
Dt - Total Pond Depth (From top of inlet to maximum water detph)
C - Change In Surface Area / Water Depth

Volume = $Ab * D + 0.5 * C * D^2$

C = (At - Ab) / Dt

Ab =	6.94	SF	
At =	9,377.02	SF	
Dt =	2.00	FT	(Ponding depth from top of the inlet to maximum ponding depth)
Dia =	5.75	IN	
Radius =	2.875	IN	
C =	4685.04	FT / LF-DEPTH	

H (FT)	D (FT)	VOLUME (AC-FT)	Q (CFS)	FULL ELEV.
0.00	0.00	0.00000	0.00	5071.00
2.00	2.00	0.00032	1.15	5073.00
4.00	4.00	0.00064	1.68	5075.00
4.40	0.40	0.00931	1.77	5075.40
4.80	0.80	0.03518	1.85	5075.80
5.20	1.20	0.07827	1.93	5076.20
5.60	1.60	0.13856	2.01	5076.60
6.00	2.00	0.21606	2.08	5077.00

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =03/05/1998

INPUT FILE = 9813EX USER NO.= R_BOHANN.I01

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										TIME= .00
RAINFALL TYPE= 2										RAIN24= 2.750
COMPUTE NM HYD	101.00	-	1	.01213	34.60	1.474	2.27927	1.500	4.459	PER IMP= 90.00
COMPUTE NM HYD	102.00	-	1	.00143	4.10	.174	2.27931	1.500	4.475	PER IMP= 90.00
START										TIME= .00
RAINFALL TYPE= 2										RAIN24= 1.830
COMPUTE NM HYD	111.00	-	1	.01213	22.41	.922	1.42509	1.500	2.887	PER IMP= 90.00
COMPUTE NM HYD	112.00	-	1	.00143	2.65	.109	1.42511	1.500	2.896	PER IMP= 90.00
FINISH										

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =03/06/1998

INPUT FILE = 9813PROP USER NO.= R_BOHANN.I01

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										TIME= .00
RAINFALL TYPE= 2										RAIN24= 2.750
COMPUTE NM HYD	101.00	-	1	.00328	9.36	.398	2.27929	1.500	4.465	PER IMP= 90.00
COMPUTE NM HYD	102.00	-	1	.00145	4.16	.177	2.27931	1.500	4.475	PER IMP= 90.00
COMPUTE NM HYD	103.00	-	1	.00271	7.75	.330	2.27929	1.500	4.467	PER IMP= 90.00
COMPUTE NM HYD	104.00	-	1	.00067	1.93	.082	2.27934	1.500	4.497	PER IMP= 90.00
COMPUTE NM HYD	105.00	-	2	.00019	.56	.023	2.27949	1.500	4.568	PER IMP= 90.00
COMPUTE NM HYD	106.00	-	1	.00216	6.19	.263	2.27930	1.500	4.470	PER IMP= 90.00
COMPUTE NM HYD	107.00	-	1	.00111	3.19	.135	2.27932	1.500	4.481	PER IMP= 90.00
START										TIME= .00
RAINFALL TYPE= 2										RAIN24= 1.830
COMPUTE NM HYD	111.00	-	1	.00328	6.06	.249	1.42510	1.500	2.891	PER IMP= 90.00
COMPUTE NM HYD	112.00	-	1	.00145	2.69	.110	1.42511	1.500	2.896	PER IMP= 90.00
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COMPUTE NM HYD	114.00	-	1	.00067	1.25	.051	1.42513	1.500	2.908	PER IMP= 90.00
COMPUTE NM HYD	115.00	-	2	.00019	.36	.015	1.42522	1.500	2.950	PER IMP= 90.00
COMPUTE NM HYD	116.00	-	1	.00216	4.01	.164	1.42510	1.500	2.893	PER IMP= 90.00
COMPUTE NM HYD	117.00	-	1	.00111	2.07	.085	1.42512	1.500	2.899	PER IMP= 90.00
FINISH										

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =03/05/1998

INPUT FILE = 9813AA USER NO.= R_BOHANN.I01

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										TIME= .00
RAINFALL TYPE= 2										RAIN24= 2.750
COMPUTE NM HYD	101.00	-	1	.00328	9.36	.398	2.27929	1.500	4.465	PER IMP= 90.00
ROUTE RESERVOIR	501.00	1	2	.00328	.20	.298	1.70836	2.666	.094	AC-FT= .304
COMPUTE NM HYD	102.00	-	1	.00145	4.16	.177	2.27931	1.500	4.475	PER IMP= 90.00
ADD HYD	102.10	1& 2	3	.00473	4.34	.475	1.88374	1.500	1.436	
ROUTE RESERVOIR	502.00	1	4	.00145	3.80	.177	2.27927	1.533	4.090	AC-FT= .002
COMPUTE NM HYD	103.00	-	1	.00271	7.75	.330	2.27929	1.500	4.467	PER IMP= 90.00
ROUTE RESERVOIR	503.00	1	2	.00271	.20	.300	2.07455	2.566	.117	AC-FT= .248
COMPUTE NM HYD	104.00	-	1	.00067	1.93	.082	2.27934	1.500	4.497	PER IMP= 90.00
ADD HYD	104.10	1& 2	3	.00338	2.12	.382	2.11517	1.500	.979	
ROUTE RESERVOIR	504.00	3	5	.00338	.25	.371	2.05628	2.566	.113	AC-FT= .062
COMPUTE NM HYD	105.00	-	1	.00019	.56	.023	2.27949	1.500	4.568	PER IMP= 90.00
ROUTE RESERVOIR	505.00	1	2	.00019	.56	.023	2.27946	1.500	4.563	AC-FT= .000
ADD HYD	105.10	2& 4	6	.00164	4.34	.200	2.27930	1.500	4.129	
COMPUTE NM HYD	106.00	-	1	.00216	6.19	.263	2.27930	1.500	4.470	PER IMP= 90.00
ADD HYD	106.10	1& 6	3	.00381	10.53	.463	2.27930	1.500	4.323	
ROUTE RESERVOIR	506.00	3	2	.00381	2.08	.463	2.27957	2.100	.853	AC-FT= .213
COMPUTE NM HYD	107.00	-	1	.00111	3.19	.135	2.27932	1.500	4.481	PER IMP= 90.00
ADD HYD	107.10	1& 2	3	.00492	5.12	.598	2.27951	1.500	1.626	
ADD HYD	107.20	3& 5	1	.00830	5.35	.969	2.18854	1.500	1.007	
ROUTE RESERVOIR	507.00	1	2	.00830	.76	.969	2.18801	3.666	.143	AC-FT= .404
FINISH										