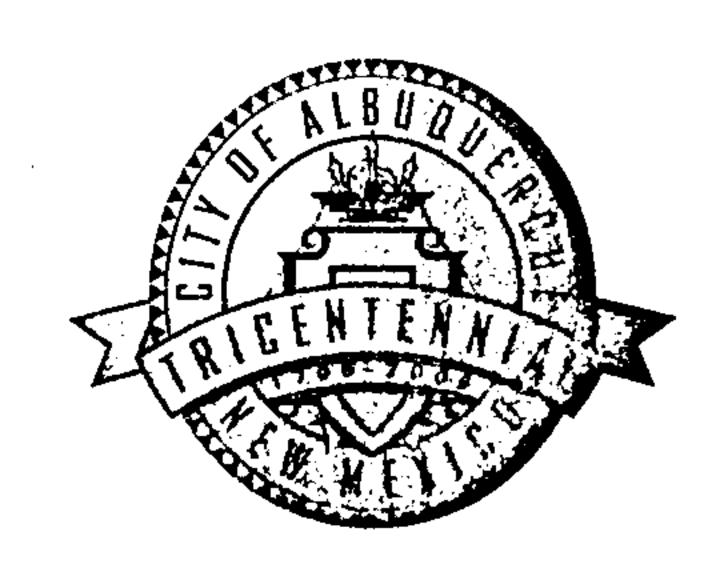
CITY OF ALBUQUERQUE



January 23, 2007

Shahab Biazar, P.E.
Advanced Engineering and Consulting, LLC
4416 Anaheim Ave. NE
Albuquerque, NM 87113

Re: AHEPA 501 Apartments, 8620 Bluewater Road NW,

Certificate of Occupancy

Engineer's Stamp dated 12-28-05 (K10-D48)

Certification dated 1-18-07

Dear Mr. Biazar,

P.O. Box 1293

Based upon the information provided in your submittal received 1-23-07, the above referenced certification is approved for release of permanent Certificate of Occupancy by Hydrology.

Albuquerque

If you have any questions, you can contact me at 924-3981.

New Mexico 87103

Kristal D. Metro, P.E.

Sincerely,

www.cabq.gov

Senior Engineer, Planning Dept.

Development and Building Services

C: CO Clerk File

DRAINAGE INFORMATION SHEET

AHEPA 501

(REV. 1/28/2003rd) Apartments K.10/D48

ENGINEERING FIRM: Abvanced Engineering and Constituting, LLC ADDRESS: Albuquerque, New Mexico ENGINEERING FIRM: Albuquerque, New Mexico ENGINEERING ENG	PROJECT TITLE: DRB #:	TRACT A-1A-2C-I, HUBBELL PLAZA EPC #:	WORK ORDER #:	3/DNG. FILL #. 1010-1040
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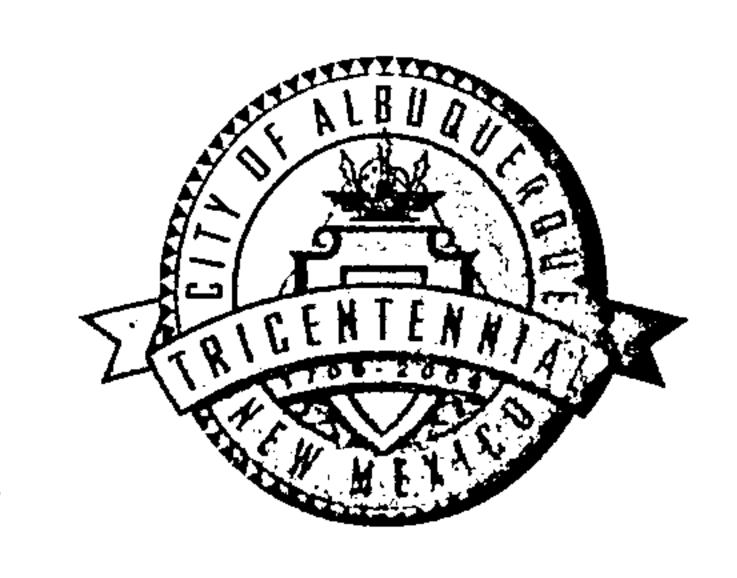
more of the following levels of submittals may be required based on the following:

1. Conceptual Grading and Drainage Plan: Required for approval of Site Development Plans greater than five (5)

2. Drainage Plans: Required for building permits, grading permits, paving permits and site plans less than five (5)

3. Drainage Report: Required for subdivisions containing more than ten (10) lots or containing five (5) acres or more

CITY OF ALBUQUERQUE



Planning Department Transportation Development Services Section

January 29, 2007

Shahab Biazar, P.E. 4416 Anaheim Ave. NE Albuquerque, NM 87113

Re:

Certification Submittal for Final Building Certificate of Occupancy for

AHEP 501 APARTMENTS, [K-10 / D48]

8620 Bluewater Road NW

Engineer's Stamp Dated 01/22/07

Dear Mr. Biazar:

P.O. Box 1293

The TCL / Letter of Certification submitted on January 23, 2007 is sufficient for acceptance by this office for final Certificate of Occupancy (C.O.). Notification has been made to the Building and Safety Section.

Albuquerque

Sincenely,

New Mexico 87103

www.cabq.gov

Nilo E. Salgádo-Fernandez, P.E.

Senior Traffic Engineer

Development and Building Services

Planning Department

C:

Engineer Hydrology file

CO Clerk

DRAINAGE INFORMATION SHEET

AHEPA 501 Apartments

K-10/048

PROJECT TITLE:	TRACT A-1A-2C-1, HUBBELL PLAZA		ZONE A	TLAS/DRG. FILE #: K10 - D48
DRB #:	EPC #:	WORK OR	DER#:	
LEGAL DESCRIPTIO	N: TRACT A-1A-2C-1, HUBBELL PLAZ	7 . A		
CITY ADDRESS:	8620 Bluewater Road NW	UPA .		<u></u>
•				
ENGINEERING FIRM		LLC		NTACT: Shahab Biazar PHONE: (505) 899-5570
ADDRESS: CITY, STATE:	4416 Anaheim Ave., NE Albuquerque, New Mexico			CODE: 87113
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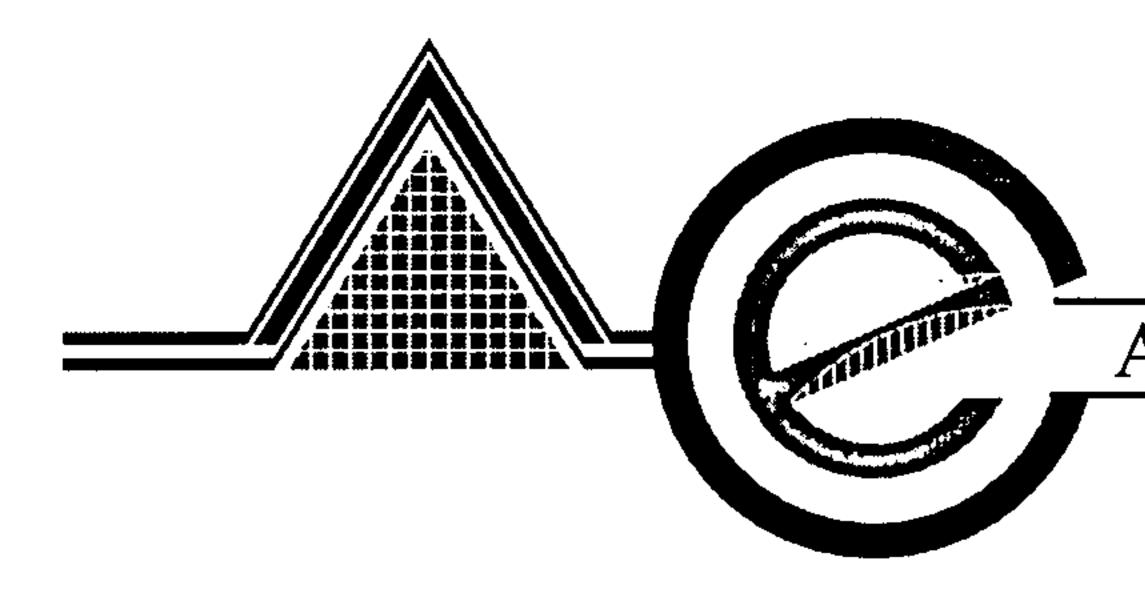
Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope of the proposed development defines the degree of drainage detail. One or more of the following levels of submittals may be required based on the following:

- 1. Conceptual Grading and Drainage Plan: Required for approval of Site Development Plans greater than five (5)
- 2. Drainage Plans: Required for building permits, grading permits, paving permits and site plans less than five (5)
- 3. Drainage Report: Required for subdivisions containing more than ten (10) lots or containing five (5) acres or more

· NEED) ENGK.
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NEED
APPROVED
SITE PLAN

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ADVANCED ENGINEERING and CONSULTING, LLC

Consulting
Design
Development
Management
Inspection
Surveying

January 22, 2007

Mr. Nilo Salgado, P.E.
City Transportation Department
600 Second Street NW
Albuquerque, New Mexico 87102

Re: SITE PLAN CERTIFICATION FOR FINAL CERTIFICATION OF OCCUPANCY FOR AHEPA 501 #3, 8620 BLUE WATER RD., NW (K10/D48)

Dear Mr. Salgado:

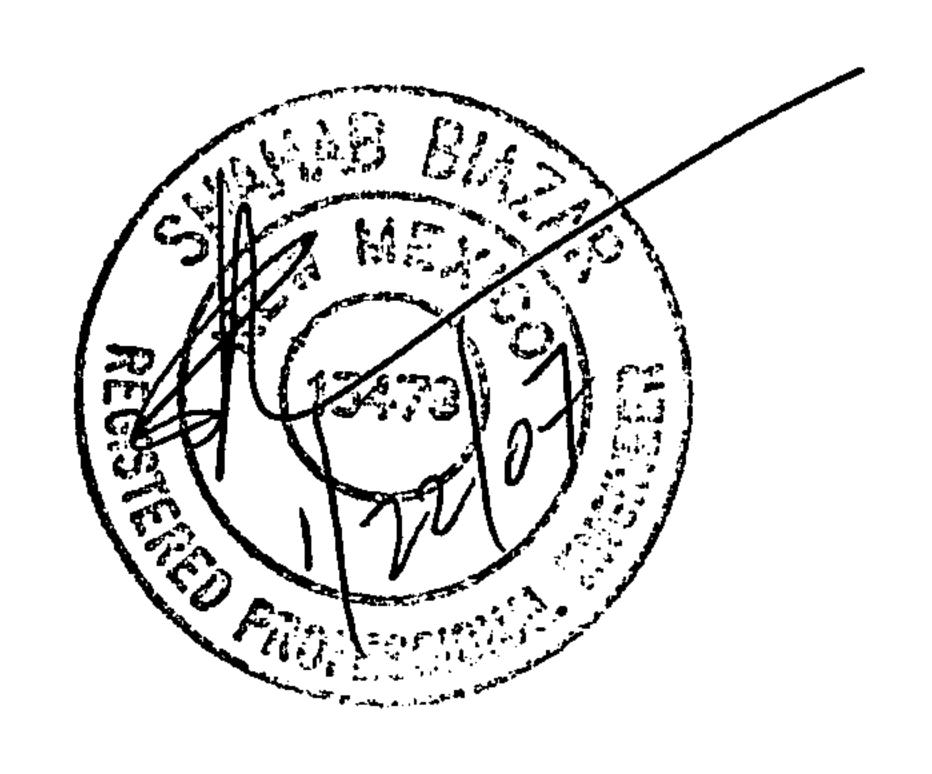
We are requesting Final Certification of Occupancy with this submittal. Enclosed please find copy of the as-built Site Plan for the above mentioned site. This project was approved with engineer's stamp date of 01/19/2006. The project was inspected by Advanced Engineering and Consulting, LLC. I certify that the project was built in substantial compliance to the approved site plan.

Should you have any questions, please do not hesitate to contact our office.

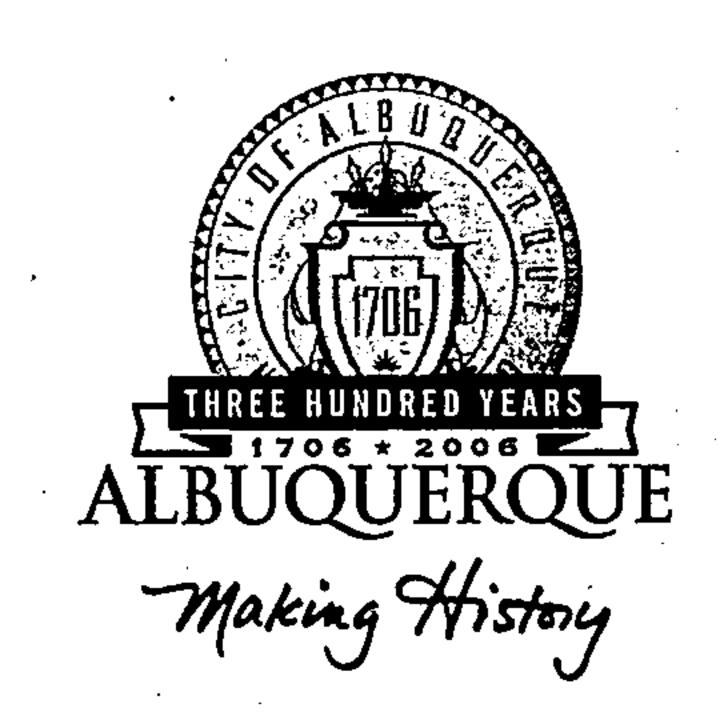
#/-

Sincerely,

Shahab Biazar, P.E.



CITY OF ALBUQUERQUE



January 24, 2006

Shahab Biazar, P.E.

Advanced Engineering and Consulting
44166 Anaheim Ave. NE
Albuquerque, NM 87113

Re: AHEPA 501 Apartments # 3, 8620 Blue Water Rd. NW, Traffic Circulation Layout Architect's / Engineer's Stamp dated 12-22-05 (K10-D48)

Dear Mx. Biazar,

The TCL submittal received 01-19-2006 is approved for Building Permit. The plan is stamped and signed as approved. A copy of this plan will be needed for each of the building permit plans. Please keep the original to be used for certification of the site for final C.O. for Transportation.

P.O. Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

If a temporary CO is needed, a copy of the original TCL that was stamped as approved by the City will be needed. This plan must include a statement that identifies the outstanding items that need to be constructed or the items that have not been built in "substantial compliance," as well as the signed and dated stamp of a NM registered architect or engineer. Submit this TCL with a completed <u>Drainage and Transportation Information Sheet</u> to Hydrology at the Development Services Center of Plaza Del Sol Building.

When the site is completed and a final C.O. is requested, use the original City stamped approved TCL for certification. A NM registered architect or engineer must stamp, sign, and date the certification TCL along with indicating that the development was built in "substantial compliance" with the TCL. Submit this certification TCL with a completed <u>Drainage and Transportation Information Sheet</u> to Hydrology at the Development Services Center of Plaza Del Sol Building.

Once verification of certification is completed and approved, notification will be made to Building Safety to issue Final C.O. To confirm that a final C.O. has been issued, call Building Safety at 924-3306.

Sincerely,

Wilfred A. Gallegos, P.E.

Traffic Engineer, Planning Dept.

Development and Building Services

WAG: tes

CC:

file

DRAINAGE INFORMATION SHEET

AHERA 501 Apts.

(REV. 1/28/2003rd)

PROJECT TITLE:	TRACT A-1A-2C-1, HUBBELL PLAZA	ZOI	NE ATLAS/DRG. FILE #:	K10 - D48
DRB #:	EPC #:	WORK ORDER	#:	
LEGAL DESCRIP	PTION: TRACT A-1A-2C-1, HUBBELL PLAZ	Z A		-
CITY ADDRESS:	8620 Bluewater Road NW			
ENGINEERING F	IRM: Advanced Engineering and Consulting,	LLC	CONTACT: Shahab Bi	azar
ADDRESS - CITY, STATE			PHONE: (505) 899-	·5570
-	E: Albuquerque, New Mexico		ZIP CODE: 87113	
OWNER: ADDRESS	S:	·	CONTACT: PHONE:	
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DATE SUBMITTED	D: 1 / 19 / 2006	BY:	Shahab Biazar, P.E	
		——————————————————————————————————————	Jiminab Diazai, F.L	

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

- 1. Conceptual Grading and Drainage Plan: Required for approval of Site Development Plans greater than five (5)
- 2. Drainage Plans: Required for building permits, grading permits, paving permits and site plans less than five (5)
- 3. Drainage Report: Required for subdivisions containing more than ten (10) lots or containing five (5) acres or more

DRAINAGE INFORMATION SHEET

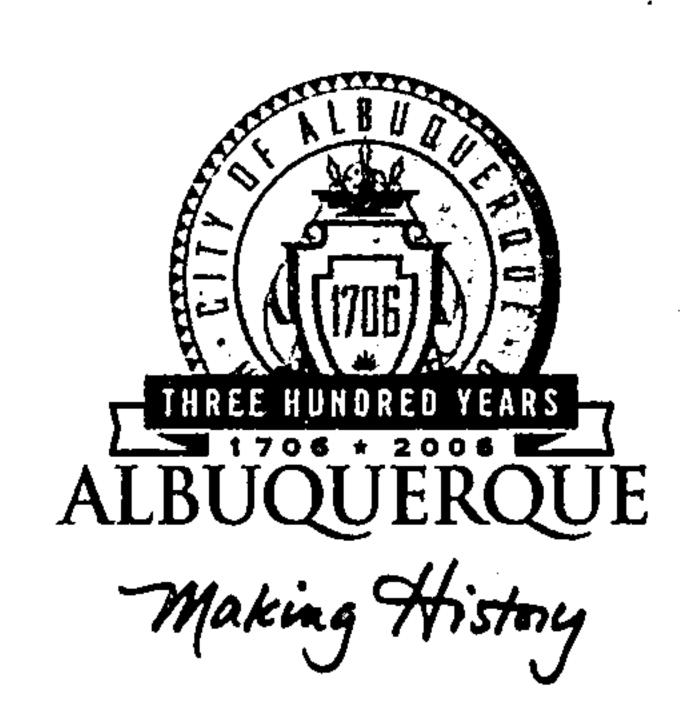
(REV. 1/28/2003rd)

PROJECT TITLE:	TRACT A-1A-2C-1, HUBBELL PLAZA	ZONE ATLAS/DRG. FILE #: K10 - D48
DRB #:	EPC #:	WORK ORDER #:
LEGAL DESCRIPTIO	N: TRACT A-1A-2C-1, HUBBELL PLA	ZA
CITY ADDRESS:	8620 Bluewater Road NW	
ENGINEERING FIRM	: Advanced Engineering and Consulting,	
ADDRESS: CITY, STATE:	4416 Anaheim Ave., NE Albuquerque, New Mexico	PHONE: (505) 899-5570 ZIP CODE: 87113
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WAS A PRE-DESIGN	CONFERENCE ATTENDED:	
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DATE SUBMITTED:	1 / 22 / 2007	BY: Shahab Biazar, P.E.
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CITY OF ALBUQUERQUE



January 6, 2006

Shahab Biazar, P.E. Advanced Engineering & Consulting, LLC 4416 Anaheim Ave. NE Albuquerque, NM 87113

Re: AHEPA 501 #3, 6620 Bluewater Rd. NW, Grading & Drainage Plan

Engineer's Stamp dated 12-28-05 (K10-D48)

Dear Mr. Biazar,

Based upon the information provided in your submittal dated 1-3-06, the above referenced plan is approved for Building Permit. Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology. Additionally, prior to release of the Certificate of Occupancy an Engineer's Certification of the grading plan per the DPM checklist will be required.

P.O. Box 1293

This project requires a National Pollutant Discharge Elimination System (NPDES) permit. Refer to the attachment that is provided with this letter for details. If you have any questions please feel free to call the Municipal Development Department Hydrology section at 768-3654 (Charles Caruso).

Albuquerque

New Mexico 87103

If you have any questions, you can contact me at 924-3990.

Sincerely,

www.cabq.gov

Phillip J. Lovato, E.I., C.F.M.
Engineering Associate, Hydrology,
Development and Building Services,

Planning Department

cc: Charles Caruso, DMD

file

DRAINAGE INFORMATION SHEET

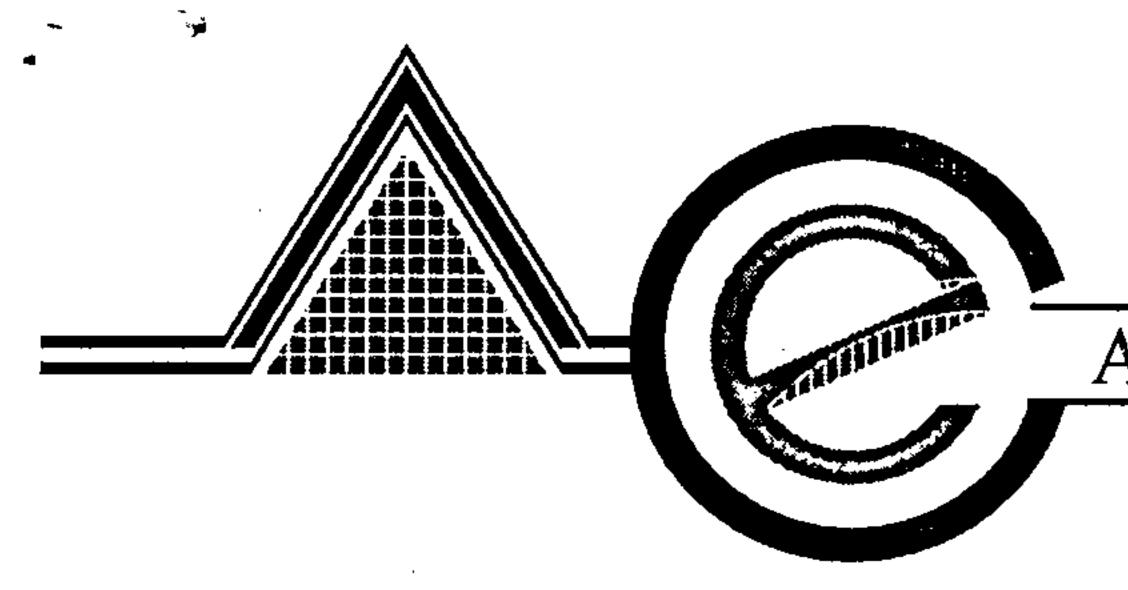
(REV. 1/28/2003rd)

AHEPA 501 APTS

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EROSION CONTROL PLAN ENGINEER'S CERTIFICATION (HYDROLOGY) CLOMR / LOMR TRAFFIC CIRCULATION LAYOUT (TCL) ENGINEER'S CERTIFICATION (TCL) ENGINEER'S CERTIFICATION (DRB APPR. SITE PLAN) OTHER WAS A PRE-DESIGN CONFERENCE ATTENDED: YES X NO COPY PROVIDED SECTOR PLAN APPROVAL FINAL PLAT APPROVAL FOUNDATION PERMIT APPROVAL CERTIFICATE OF OCCUPANCY (PERM.) CERTIFICATE OF OCCUPANCY (TEMP.) X GRADING PERMIT APPROVAL WORK ORDER APPROVAL OTHER (SPECIFY) JAN 0 3 2006 HYDROLOGY SECTION			S. DEV. PLAN FOR SUB'D. APPROVAL
ENGINEER'S CERTIFICATION (HYDROLOGY) CLOMR / LOMR TRAFFIC CIRCULATION LAYOUT (TCL) ENGINEER'S CERTIFICATION (TCL) ENGINEER'S CERTIFICATION (DRB APPR. SITE PLAN) OTHER X BUILDING PERMIT APPROVAL CERTIFICATE OF OCCUPANCY (PERM.) CERTIFICATE OF OCCUPANCY (TEMP.) X GRADING PERMIT APPROVAL PAVING PERMIT APPROVAL WORK ORDER APPROVAL OTHER (SPECIFY) WAS A PRE-DESIGN CONFERENCE ATTENDED: YES X NO COPY PROVIDED FINAL PLAT APPROVAL FOUNDATION PERMIT APPROVAL CERTIFICATE OF OCCUPANCY (TEMP.) WAS A PRE-DESIGN CONFERENCE ATTENDED: YES X NO COPY PROVIDED	X GRADIN	NG(PLAN RESUMBATTA	S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
CLOMR / LOMR TRAFFIC CIRCULATION LAYOUT (TCL) ENGINEER'S CERTIFICATION (TCL) ENGINEER'S CERTIFICATION (DRB APPR. SITE PLAN) OTHER X GRADING PERMIT APPROVAL PAVING PERMIT APPROVAL WORK ORDER APPROVAL OTHER (SPECIFY) WAS A PRE-DESIGN CONFERENCE ATTENDED: YES X NO COPY PROVIDED FOUNDATION PERMIT APPROVAL WERNIT APPROVAL OTHER (SPECIFY) AND HYDROLOGY SECTION	EROSIC	ON CONTROL PLAN	SECTOR PLAN APPROVAL
TRAFFIC CIRCULATION LAYOUT (TCL) ENGINEER'S CERTIFICATION (TCL) ENGINEER'S CERTIFICATION (DRB APPR. SITE PLAN) OTHER X BUILDING PERMIT APPROVAL CERTIFICATE OF OCCUPANCY (PERM.) CERTIFICATE OF OCCUPANCY (TEMP.) X GRADING PERMIT APPROVAL WORK ORDER APPROVAL OTHER (SPECIFY) WAS A PRE-DESIGN CONFERENCE ATTENDED: YES X NO COPY PROVIDED TO DE CE OVE DIVISION HYDROLOGY SECTION	ENGINE	ER'S CERTIFICATION (HYDROLOGY)	FINAL PLAT APPROVAL
ENGINEER'S CERTIFICATION (TCL) ENGINEER'S CERTIFICATION (DRB APPR. SITE PLAN) OTHER X GRADING PERMIT APPROVAL PAVING PERMIT APPROVAL WORK ORDER APPROVAL OTHER (SPECIFY) WAS A PRE-DESIGN CONFERENCE ATTENDED: YES X NO COPY PROVIDED CERTIFICATE OF OCCUPANCY (PERM.) A STATE OF OCCUPANCY (PERM.) TO SET OF OCCUPANCY (PERM.) A STATE OF OCCUPANCY (PERM.) TO SET OF OCCUPANCY (PERM.) A STATE OF OCCUPANCY (TEMP.)	CLOMR	/ LOMR	FOUNDATION PERMIT APPROVAL
ENGINEER'S CERTIFICATION (DRB APPR. SITE PLAN) OTHER X GRADING PERMIT APPROVAL PAVING PERMIT APPROVAL WORK ORDER APPROVAL OTHER (SPECIFY) WAS A PRE-DESIGN CONFERENCE ATTENDED: YES X NO COPY PROVIDED CERTIFICATE OF OCCUPANCY (TEMP.) X GRADING PERMIT APPROVAL DOTHER (SPECIFY) AND HYDROLOGY SECTION	TRAFFI	C CIRCULATION LAYOUT (TCL)	X BUILDING PERMIT APPROVAL
OTHER	ENGINE	ER'S CERTIFICATION (TCL)	CERTIFICATE OF OCCUPANCY (PERM.)
PAVING PERMIT APPROVAL WORK ORDER APPROVAL OTHER (SPECIFY) WAS A PRE-DESIGN CONFERENCE ATTENDED: YES X NO COPY PROVIDED PAVING PERMIT APPROVAL WORK ORDER APPROVAL JAN 0 3 2006 HYDROLOGY SECTION	ENGINE	ER'S CERTIFICATION (DRB APPR. SITE PLAN)	CERTIFICATE OF OCCUPANCY (TEMP.)
WORK ORDER APPROVAL OTHER (SPECIFY) WAS A PRE-DESIGN CONFERENCE ATTENDED: YES X NO COPY PROVIDED WORK ORDER APPROVAL OTHER (SPECIFY) JAN 0 3, 2006 HYDROLOGY SECTION	OTHER	•	GRADING PERMIT APPROVAL
The provided of the provided			PAVING PERMIT APPROVAL
WAS A PRE-DESIGN CONFERENCE ATTENDED: YES X NO COPY PROVIDED TO BE BUY		•	WORK ORDER APPROVAL
X NO COPY PROVIDED YES A NO HYDROLOGY SECTION			OTHER (SPECIFY)
X NO COPY PROVIDED YES A NO HYDROLOGY SECTION	WAS A DDE DESIGN		
X NO COPY PROVIDED HYDROLOGY SECTION		N CONFERENCE ATTENDED:	
COPY PROVIDED HYDROLOGY SECTION			[] JAN 0 3 2006
	NO NO	•	
DATE SHRMITTED: 12 / 28 / 2005 DV: Shahah Biarar D E	COPY P	ROVIDED	HYDROLOGY SECTION
DATE SUBMITTED. SIMILAR DIAZAI, P.E.	DATE SUBMITTED:	12 / 28 / 2005	BY: Shahab Biazar, P.E.

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

- 1. Conceptual Grading and Drainage Plan: Required for approval of Site Development Plans greater than five (5)
- 2. Drainage Plans: Required for building permits, grading permits, paving permits and site plans less than five (5)
- 3. Drainage Report: Required for subdivisions containing more than ten (10) lots or containing five (5) acres or more



ADVANCED ENGINEERING and CONSULTING, LLC

Consulting
Design
Development
Management
Inspection
Surveying

December 28, 2005

Mr. Bradley L. Bingham, P.E. Sr. Engineer, Planing Dept. Development and Building Services 600 Second Street NW Albuquerque, New Mexico 87102

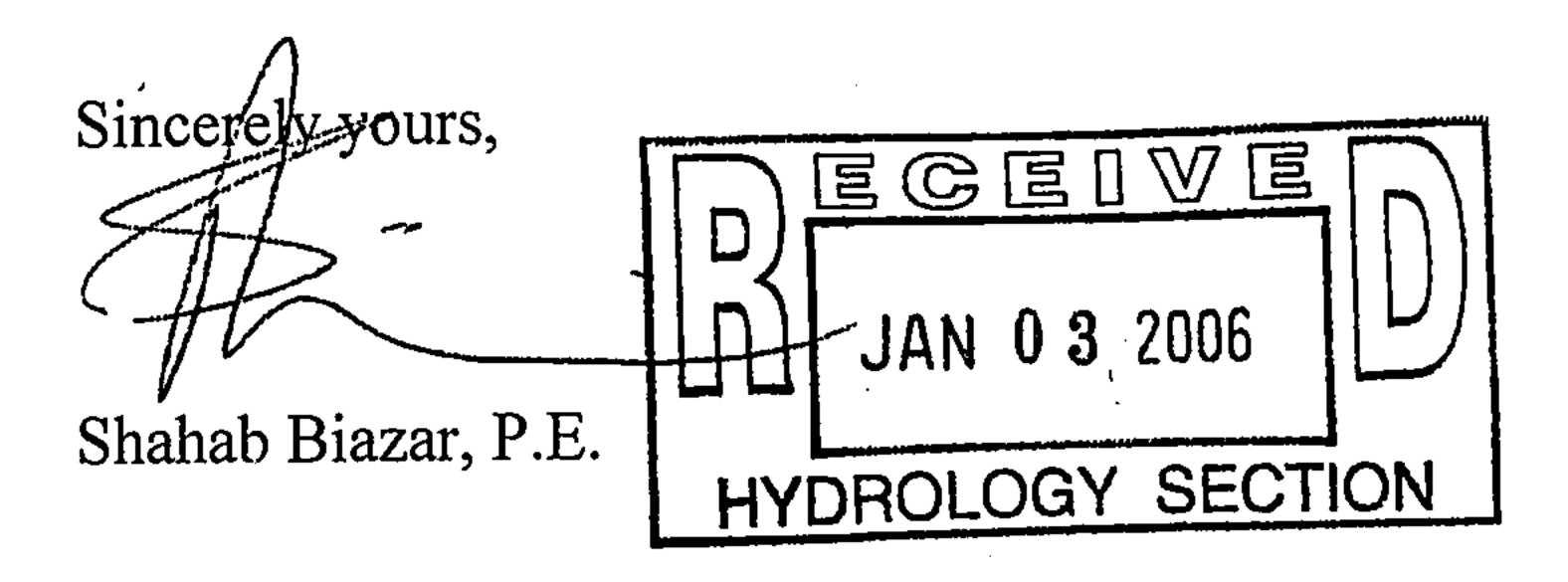
RE: REVISED GRADING AND DRAINAGE PLAN FOR AHEPA 501 #3, 8620 BLUE WATER RD., NW (K10/D48)

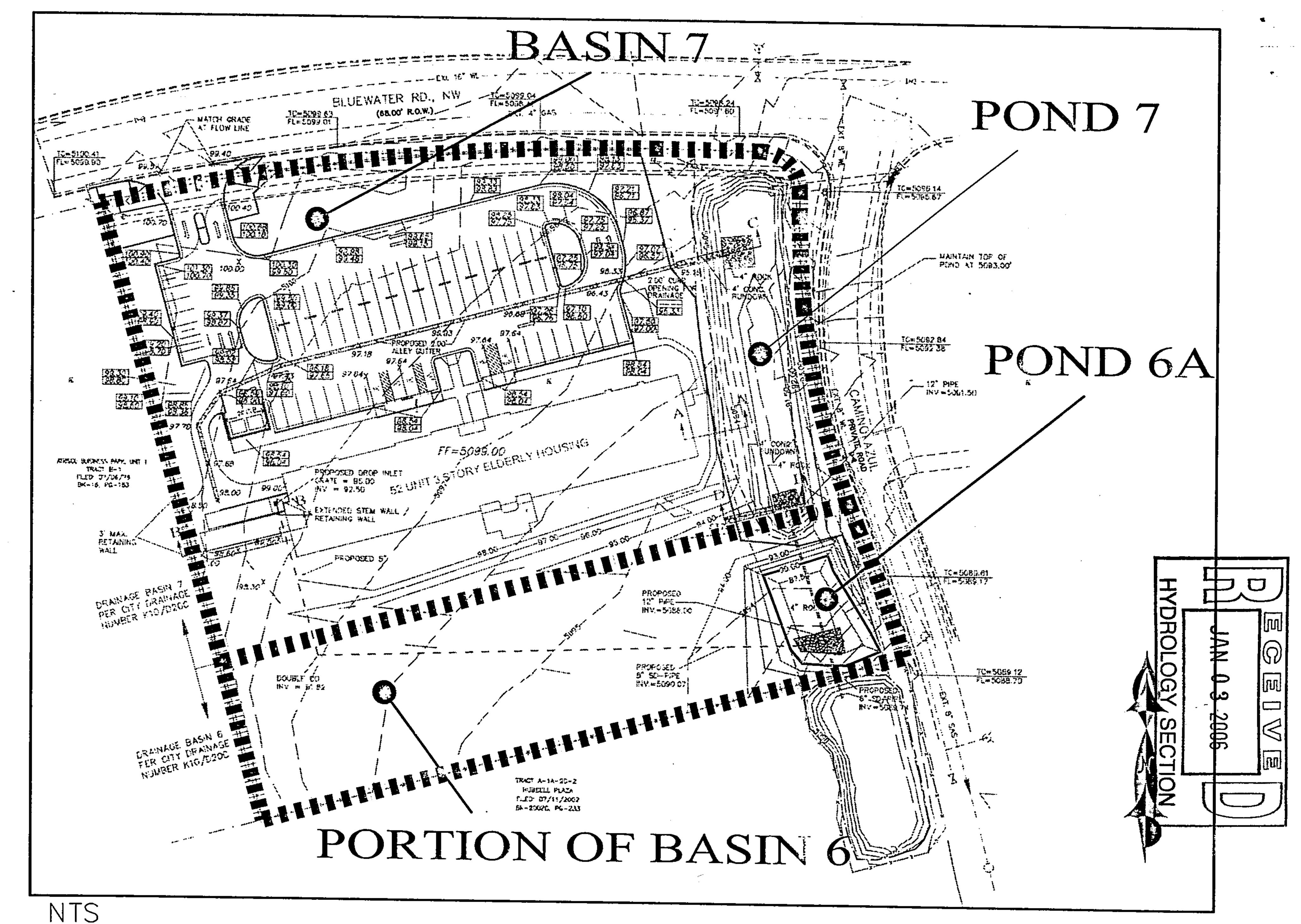
Dear Mr. Bingham:

This letter is in response to the letter received from the City dated July 28, 2005. The following are the responses to the comments received:

- 1) The owners wanted to maintain two separate ponds for this project.
- The discharge out of pond 7 is 1.25 cfs. The discharge from pond 6A is 1.06 cfs. The total discharge from pond 7 and 6A is only 2.31 cfs which is less than the allowable discharge of 4.17 cfs. This allowable discharge is only allowable discharge for pond 7.
- Pond 6A is re-analyzed for a basin with treatment of B=15%, C=15%, and D=70%. Pond 7 was re-analyzed for a more conservative treatment (B=20%, C=20%, D=60%) as well to assure that adequate ponding volume is provided for this project.
- 4) The line on the north and east side of the project a garden wall. The note is corrected under the legends. Additional notes were added to the plan for the proposed locations of the garden wall on the north and east side of the project.

See attached new calculations and ponding analysis. Please contact me if there are any questions or concerns regarding this submittal.





POND AND BASIN EXHIBIT

RUNOFF CALCULATION RESULTS

BASIN	AREA (SF)	AREA (AC)	AREA (MI²)
PORTION OF BASIN 6	40180.56	0.9224	0.001441
BASIN 7	107181.33	2.4605	0.003845

HISTORICAL

BASIN	Q-100	Q-10
	CFS	CFS
PORTION OF BASIN 6	1.20	0.23
BASIN 7	3.20	0.61

PROPOSED

BASIN	Q-100	Q-10
	CFS	CFS
PORTION OF BASIN 6	3.51	2.18
BASIN 7	8.87	5.34

ALLOWABLE

BASIN	Q-100 CFS
PORTION OF BASIN 6	1.88

AHYMO INPUT FILE

```
* ZONE 1
                 6-HR STORM (UNDER HISTORICAL CONDITIONS)
 START
                    TIME=0.0
 RAINFALL
                    TYPE=1 RAIN QUARTER=0.0 IN
                    RAIN ONE=1.87 IN RAIN SIX=2.20 IN
                    RAIN DAY=2.66 IN DT=0.03333 HR
 * PORTION OF BASIN 6
COMPUTE NM HYD
                    ID=1 HYD NO=101.0 AREA=0.001441 SQ MI
                    PER A=100.00 PER B=0.00 PER C=0.00 PER D=0.00
                    TP=0.1333 HR MASS RAINFALL=-1
*
* BASIN 7
                    ID=1 HYD NO=102.0 AREA=0.003845 SQ MI
COMPUTE NM HYD
                    PER A=100.00 PER B=0.00 PER C=0.00 PER D=0.00
                    TP=0.1333 HR MASS RAINFALL=-1
**************
        10-YEAR, 6-HR STORM (UNDER HISTORICAL CONDITIONS)
                    TIME=0.0
START
RAINFALL
                    TYPE=1 RAIN QUARTER=0.0 IN
                    RAIN ONE=1.25 IN RAIN SIX=1.47 IN
                    RAIN DAY=1.77 IN DT=0.03333 HR
* PORTION OF BASIN 6
COMPUTE NM HYD
                   ID=1 HYD NO=111.0 AREA=0.001441 SQ MI
                   PER A=100.00 PER B=0.00 PER C=0.00 PER D=0.00
                   TP=0.1333 HR MASS RAINFALL=-1
*
* BASIN 7
COMPUTE NM HYD
                   ID=1 HYD NO=112.0 AREA=0.003845 SQ MI
                   PER A=100.00 PER B=0.00 PER C=0.00 PER D=0.00
                   TP=0.1333 HR MASS RAINFALL=-1
      100-YEAR, 6-HR STORM (UNDER PROPOSED/FUTURE CONDITIONS)
START
                   TIME=0.0
RAINFALL
                   TYPE=1 RAIN QUARTER=0.0 IN
                   RAIN ONE=1.87 IN RAIN SIX=2.20 IN
                   RAIN DAY=2.66 IN DT=0.03333 HR
* PORTION OF BASIN 6
COMPUTE NM HYD
                   ID=1 HYD NO=103.0 AREA=0.001441 SQ MI
                   PER A=0.00 PER B=15.00 PER C=15.00 PER D=70.00
```

TP=0.1333 HR MASS RAINFALL=-1

* BASIN 7 * ID=1 HYD NO=104.0 AREA=0.003845 SQ MI COMPUTE NM HYD PER A=0.00 PER B=20.00 PER C=20.00 PER D=60.00 TP=0.1333 HR MASS RAINFALL=-1 ************* 10-YEAR, 6-HR STORM (UNDER PROPOSED/FUTURE CONDITIONS) *********************** * TIME=0.0START TYPE=1 RAIN QUARTER=0.0 IN RAINFALL RAIN ONE=1.25 IN RAIN SIX=1.47 IN RAIN DAY=1.77 IN DT=0.03333 HR * * PORTION OF BASIN 6 * ID=1 HYD NO=113.0 AREA=0.001441 SQ MI COMPUTE NM HYD PER A=0.00 PER B=15.00 PER C=15.00 PER D=70.00 TP=0.1333 HR MASS RAINFALL=-1 * * BASIN 7 * ID=1 HYD NO=114.0 AREA=0.003845 SQ MI COMPUTE NM HYD PER A=0.00 PER B=20.00 PER C=20.00 PER D=60.00 TP=0.1333 HR MASS RAINFALL=-1 *********************** 100-YEAR, 6-HR STORM (UNDER ALLOWABLE CONDITIONS) TIME=0.0START TYPE=1 RAIN QUARTER=0.0 IN RAINFALL PAIN ONE=1.87 IN RAIN SIX=2.20 IN PAIN DAY=2.66 IN DT=0.03333 HR * * PORTION OF BASIN 6 * ID=1 HYD NO=105.0 AREA=0.001441 SQ MI COMPUTE NM HYD PER A=0.00 PER B=100.00 PER C=0.00 PER D=0.00 TP=0.1333 HR MASS RAINFALL=-1 **************

FINISH

SUMMARY OUTPUT FILE

AHYMO PROGRAM SUMMARY TABLE INPUT FILE = 200407	(AHYMO	_97) -	•		VERSION: 1				/YR) =01/0 9702c01000	•
HYDROGRAE COMMAND IDENTIFICATIO		TO ID	AREA	PEAK DISCHARGE	RUNOFF	RUNOFF	TIME TO PEAK	CFS PER	PAGE =	
COMMAND IDENTIFICATIO	N NO.	NO.	(SQ MI)	(CFS)	(AC-FT)	(INCHES)	(HOURS)	· ACRE	NOTATI	ON
START									TIME=	.00
PAINFALL TYPE= 1				· -	•				RAIN6=	2.200
COMPUTE NM HYD 101.0	0 –	1	.00144	1.20	.034	.43925	1.533	1.303	ñ	.00
COMPUTE NM HYD 102.0	0 -	1	.00385	3.20	.090	.43925	1.533	1.299		.00
START									TIME=	.00
RAINFALL TYPE= 1									RAIN6=	1.470
COMPUTE NM HYD 111.0	0 –	1	.00144	.23	.006	.08264	1.533	.247	PER IMP=	.00
COMPUTE NM HYD 112.0	0 –	1	.00385	.61	.017	:08264	1.533	.247	PER IMP=	.00
START									TIME=	.00
RAINFALL TYPE= 1	_					•			RAIN6=	2.200
COMPUTE NM HYD 103.0		1	.00144	3.51	.125	1.62054	1.500	3.807	PER IMP=	70.00
COMPUTE NM HYD 104.0	0 -	1	.00385	8.87	.309	1.50556	1.500	3.603	PER IMP=	60.00
START								•	TIME=	.00
RAINFALL TYPE= 1	•	4	0011						RAIN6=	1.470
COMPUTE NM HYD 113.0			.00144	2.18	.074	.96184	1.500	2.359	PER IMP=	70.00
COMPUTE NM HYD 114.0 START	0 –	Ţ	.00385	5.34	.178	.86984	1.500	2.172	PER IMP= TIME=	60.00 .00
RAINFALL TYFE= 1									RAIN6=	2.200
COMPUTE NM HYD 105.0 FINISH	0 –	1	.00144	1.88	.051	.66738	1.533	2.035	PER IMP=	.00

VOLUME CALCULATIONS

DETENTION POND - 7

Ab - Bottom Of The Pond Surface Area

At - Top Of The Pond Surface Area

D - Water Depth

Dt - Total Pond Depth

C - Change In Surface Area / Water Depth

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

$$C = (At - Ab)^{\frac{1}{2}} / Dt$$

3,000.00 8,055.47 1.50 -3370.31

ACTUAL	DEPTH	VOLUME	Q
ELEV.	(FT)	(AC-FT)	(CFS)
5091.50	0.00	0	0.00
5092.10	0.60	0.0552	1.20
5092.30	0.80	0.0799	2.07
5092.50	1.00	0.0890	2.67
5092.70	1.20	0.1105	3.16
5092.90	1.40	0.1351	3.59
5093.60	1.50	0.1486	3.78
5093.20	1.70	0.1778	4.14
5093.40	1.90	0.2102	4.47

Orifice Equation Q = CA SQRT(2gH)

0.6 Diameter (in) Area (ft^2) = 0.785432.2

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

Q(CFS)=Flow

VOLUME CALCULATIONS

DETENTION POND - 6A

Ab - Bottom Of The Pond Surface Area

At - Top Of The Pond Surface Area

D - Water Depth-

Dt - Total Pond Depth

C - Change In Surface Area / Water Depth

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

C = (At - Ab) / Dt

Ab = 1,514.22 At = 2,926.49 Dt = 2.50 C = 564.91

ACTUAL	DEPTH	VOLUME	Q
ELEV.	(FT)	(AC-FT)	(CFS)
5087.50	0.00	0.0000	0.00
5088.20	0.70	0.0275	0.63
5088.40	0.90	0.0365	0.76
5088.60	1.10	0.0425	0.87
5088.80	1.30	0.0507	0.97
5089.00	1.50	0.0595	1.06
5089.20	1.70	0.0688	1.14
5089.40	1.90	0.0786	1.21
5089.60	2.10	0.0889	1.29
5089.80	2.30	0.0997	1.35
5090.00	2.50	0.1111	1.42

Orifice Equation Q = CA SQRT(2gH)

C = 0.6 Diameter (in) 6

Area (ft^2)= 0.1963

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

Q(CFS)=Flow

AHYMO INPUT FILE (PONDING CONDITIONS)

```
* ZONE 1
                 6-HR STORM (UNDER PROPOSED CONDITIONS)
                  TIME=0.0
START
                  TYPE=1 RAIN QUARTER=0.0 IN
RAINFALL
                  RAIN ONE=1.87 IN RAIN SIX=2.20 IN
                   RAIN DAY=2.66 IN DT=0.03333 HR
  PORTION OF BASIN 6
                  ID=1 HYD NO=103.0 AREA=0.001441 SQ MI
COMPUTE NM HYD
                  PER A=0.00 PER B=15.00 PER C=15.00 PER D=70.00
                  TP=0.1333 HR MASS RAINFALL=-1
*************
*
                 PONDING CONDITION (POND 6A)
*****************
                  ID=20 HYD NO=503.0 INFLOW ID=1 CODE=24
ROUTE RESERVOIR
                  OUTFLOW (CFS)
                                   STORAGE (AC-FT)
                                                  ELEVATION (FT)
                      0.00
                                       0.0000
                                                   5087.50
                      0.63
                                                   5088.20
                                       0.0275
                      0.76
                                                   5088.40
                                       0.0365
                      0.87
                                                   5088.60
                                       0.0425
                      0.97
                                                   5088.80
                                       0.0507
                      1.06
                                                   5089.00
                                       0.0595
                                       0.0688
                                                   5089.20
                      1.14
                      1.21
                                       0.0786
                                                   5089.40
                                                   5089.60
                                       0.0889
                      1.35
                                       0.0997
                                                   5089.80
                                                   5090.00
                                       0.1111
*
* BASIN 7
                  ID=2 HYD NO=104.0 AREA=0.003845 SQ MI
COMPUTE NM HYD
                  PER A=0.00 PER B=20.00 PER C=20.00 PER D-60.00
                  TP=0.1333 HR MASS RAINFALL=-1
                PONDING CONDITION (POND 7)
***********************
                  ID=30 HYD NO=504.0 INFLOW ID=1 CODE=2.
ROUTE RESERVOIR
                  OUTFLOW (CFS)
                                  STORAGE (AC-FT) ELEVATION (FT)
                      0.00
                                       0.0000
                                                   5091.50
                                                   5092.10
                      1.20
                                       0.0552
                      2.07
                                                   5092.30
                                       0.0779
                      2.67
                                       0.0890
                                                   5092.50
                                                   5092.70
                      3.16
                                       0.1105
                                                   5092.90
                      3.59
                                       0.1351
                  ID=40 HYD NO=105.0 ID=20 ID=30
ADD HYD
FINISH
```

SUMMARY OUTPUT FILE (PONDING CONDITIONS)

AHYMO PROGRAM SUMMAR INPUT FILE = 20407pd	· · · · · · · · · · · · · · · · · · ·	_97) -	•		VERSION: 199	97.02d U		(MON/DAY/YR) AHYMO-I-9702d	=01/03/2006 :01000R31-AH
· ******	FROM			PEAK	RUNOFF		TIME TO		PAGE = 1
	DROGRAPH ID	ID	AREA	DISCHARGE	VOLUME	RUNOFF	PEAK	PER	
COMMAND IDENTI	FICATION NO.	NO.	(SQ MI)	(CFS)	(AC-FT)	(INCHES)	(HOURS)	ACRE 1	NOTATION
START -	*				-	5		TIME	Ξ=00
RAINFALL TYPE= 1					£			RAI	16= , 2.200
COMPUTE NM HYD	103.00 -	1	.00144	3.51	.125	1.62054	1.500	3.807 PER	<u> •</u>
ROUTE RESERVOIR	503.00 1	20	.00144	1.06 .	.125	1.62036	1.833	1.153 AC-I	
COMPUTE NM HYD	104.00 -	2	.00385	8.87	.309	1.50556	1.500	3.603 PER	
ROUTE RESERVOIR	504.00 1	30	.00144	1.25	.125	1.62036	1.766	1.359 AC-I	
ADD HYD	105.00 20&30	40	.00288	2.31	.249	1.61977	1.800	1.254	

AHYMO OUTPUT FILE (PONDING CONDITIONS)

(MON/DAY/YR) = 01/03/2006

= 09:13:39

1997.02d

- Version:

USER NO. = AHYMO-I-9702c01000R31-AH

```
START TIME (HR:MIN:SEC)
         INPUT FILE = 20407pd
                   6-HR STORM (UNDER PROPOSED CONDITIONS)
                    TIME=0.0
START
                    TYPE=1 RAIN QUARTER=0.0 IN
RAINFALL
                    RAIN ONE=1.87 IN RAIN SIX=2.20 IN
                    RAIN DAY=2.66 IN DT=0.03333 HR
               COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
                                                            5.999400 HOURS
                                            END TIME =
                        .033330 HOURS
               DT =
                                                                    .0103
                                                            .0085
                                            .0050
                                                    .0067
                           .0016
                                   .0033
                   .0000
                                                                    .0243
                                                            .0222
                                                    .0201
                                            .0180
                                   .0160
                           .0141
                   .0122
                                                                    .0415
                                                            .0388
                                                    .0362
                                   .0312
                                            .0337
                           .0289
                  .0266
                                                                    .0637
                                                            .0601
                                                    .0567
                                            .0534
                                   .0502
                           .0472
                   .0443
                                                            .0924
                                                                    .1050
                                                    .0865
                                            .0809
                                   .0758
                           .0715
                   .0675
                                                                    .7600
                                                            .5814
                                                    .4379
                                   .2398
                                            .3254
                           .1771
                  .1334
                                                                   1.5106
                                                           1.4575
                                                   1.3997
                                          1.3363
                                  1.2649
                          1.1804
                  .9780
                                                                   1.7989
                                                           1.7646
                                                   1.7284
                                          1.6900
                                  1.6493
                          1.6061
                 1.5600
                                                                   1.9576
                                                           1.9518
                                          1.9193
                                                   1.9456
                                  1.8915
                         1.8623
                 1.8314
                                                                   1.9912
                                                           1.9869
                                                   1.9825
                                          1.9780
                                  1.9732
                         1.9682
                 1.9630
                                                                   2.0174
                                                           2.0140
                                          2.0068
                                                   2.0104
                                  2.0031
                         1.9993
                 1.9953
                                                                   2.0392
                                                   2.0333
                                                           2.0363
                                          2.0303
                                  2.0272
                         2.0240
                 2.0207
                                                           2.0554
                                2.0475
                                                 2.0528
                                         2.0502
                          2.0448
                 2.0420
                                                                   2.0746
                                                           2.0723
                                                   2.0700
                                          2.0677
                                  2.0653
                         2.0629
                 2.0605
                                                                   2.0896
                                                           2.0875
                                                   2.0855
                                          2.0833
                                  2.0812
                         2.0790
                 2.0768
                                                                   2.1033
                                                           2.1014
                                          2.0976
                                                   2.0995
                                  2.0956
                 2.0916
                          2.0936
                                                                   2.1159
                                                           2.1141
                                                   2.1124
                                          2.1106
                                  2.1088
                         2.1070
                 2.1051
                                                                   2.1276
                                                           2.1260
                                                   2.1244
                                  2.1210
                                          2.1227
                          2.1193
                 2.1176
                                                                   2.1386
                                                   2.1355
                                                           2.1371
                                  2.1324_...2.1340
                         2.1308
                 2.1292
                                                           2.1475
                                                                   2.1489
                                                   2.1460
                                          2.1446
                                  2.1431
                          2.1416
                 2.1401
                                                           2.1573
                                                                   2.1587
                                          2.1546
                                                   2.1560
                                  2.1532
                         2.1518
                 2.1504
                                                                   2.1680
                                                           2.1667
                                                   2.1654
                                  2.1627
                                          2.1640
                         2.1614
                 2.1600
                                                                   2.1768
                                                  2.1743
                                                           2.1756
                                          2.1731
                                  2.1718
                         2.1705
                 2.1692
                                                                   2.1852
                                                           2.1840
                                          2.1817
                                                   2.1829
                                  2.1804
                         2.1792
                 2.1780
                                                           2.1922
                                                                   2.1933
                                                   2.1910
                                          2.1899
                                  2.1887
                         2.1876
                 2.1864
                                                           2.2000
                                          2.1978
                                                   2.1989
                                  2.1967
                         2.1956
                 2.1944
*
* PORTION OF BASIN 6
                    ID=1 HYD NO=103.0 AREA=0.001441 SQ MI
COMPUTE NM HYD
                    PER A=0.00 PER B=15.00 PER C=15.00 PER D=70.00
                    TP=0.1333 HR MASS RAINFALL=-1
                                                                         SHAPE CONSTANT, N = 7.106420
                                                            .545000
                                             F/TP RATIO =
                                .133300HR
           .072649HR
     K =
                                                                                     P60 = 1.8700
                                                                         526.28
                                                                  B =
                                                      .9965
                                    UNIT VOLUME =
                              CFS
                   3.9824
          PEAK =
                 .001009 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .0333330
     K = .118429 \text{HR} TP = .133300 \text{HR} K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
```

UNIT PEAK = 1.1502 CFS UNIT VOLUME = .9885 B = 354.67 P60 = 1.8700

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .0333330

.000432 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR

```
PONDING CONDITION (POND 6A)
                   ID=20 HYD NO=503.0 INFLOW ID=1 CODE=24
ROUTE RESERVOIR
                                   STORAGE (AC-FT)
                                                  ELEVATION (FT)
                  OUTFLOW (CFS)
                                                    5087.50
                                        0.0000
                      0.00
                      0.63
                                        0.0275
                                                    5088.20
                                        0.0365
                                                    5088.40
                      0.76
                      0.87
                                        0.0425
                                                    5088.60
                                                    5088.80
                      0.97
                                        0.0507
                      1.06
                                        0.0595
                                                    5089.00
                                                    5089.20
                                        0.0688
                      1.14
                                        0.0786
                                                    5089.40
                      1.21
                                        0.0889
                                                    5089.60
                                                    5089.80
                                        0.0997
                                       0.1111
                                                    5090.00
                      1.42
                                         OUTFLOW
                                VOLUME
             INFLOW
                      ELEV
    TIME
                                (AC#FT)
                                         (CFS)
             (CFS)
                      (FEET)
    (HRS)
                                   .000
                                             .00
                     5087.50
      .00
                .00
                                   .000
                                             .00
      .80
                     5087.50
                .00
                                  .049
                                             .95
    1.60
                     5088.76
               2.46
                                             .80
                                   .039
    2.40
                     5088.48
                .14
    3.20
                                             .23
                                   .010
                     5087.76
                .02
    4.00
                                             .07
                                  :003
                .02
                    . 5087.57
                                   .001
                                             .03
    4.80
                     5087.53
                .02
                                             .02
    · 5.60
                                   .001
                     5087.52
                .02
                                   .001
                                             .01
    6.40
                     5087.51
                .00
     7.20
                     5087.50
                                   .000
                                             .00
                .00
                       1.063 CFS
                                                        1.83
                                  PEAK OCCURS AT HOUR
 PEAK DISCHARGE =
                                    5089.008
 MAXIMUM WATER SURFACE
                     ELEVATION =
                                                              .033330HRS
                         .0599 AC-FT
                                         INCREMENTAL TIME=
 MAXIMUM STORAGE =
* BASIN 7
COMPUTE NM HYD ID=2 HYD NO=104.0 AREA=0.003845 SQ MI
                  PER A=0.00 PER B=20.00 PER C=20.00 PER D=60.00
                  TP=0.1333 HR MASS RAINFALL=-1
    K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
    UNIT PEAK = 9.1082 CFS UNIT VOLUME = .9981 B = 526.28 P60 = 1.8700
           .002307 \text{ SQ MI} IA = .100000 \text{ INCHES} INF = .04000 \text{ INCHES PER HOUR}
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330
    K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
    UNIT PEAK = 4.0921 CFS UNIT VOLUME = .9972 B = 354.67 P60 = 1.8700
          .001538 \text{ SQ MI} IA = .42500 \text{ INCHES} INF = 1.04000 \text{ INCHES PER HOUR}
    AREA =
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .0333330
*************
                PONDING CONDITION (POND 7)
*****************
              ID=30 HYD NO=504.0 HNFLOW ID=1 CODE=24
ROUTE RESERVOIR
                  OUTFLOW (CFS) STORAGE (AC-FT) ELEVATION (FT)
                                       0.0000 5091.50
                      0.00
                                       0.0552 5092.10
                      1.20
                                        0.0779
                                                    5092.30
                      2.07
                                        0.0890
                                                    5092.50
                      2.67
                                                    5092.70
                                        0.1105
                      3.16
                                                    5092.90
                                        0.1351
                      3.59
```

5093.00

0.1486

3.78

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)	•		
.00	.00	5091.50	.000	.00		·	
.80	.00	5091.50	.000	.00			
1.60	2.46	5092.03	.049	1.06			•
2.40	.14	5091.86	.033	.73			
3.20	.02	5091.60	.010	.21			
4.00	.02	5091.53	.003	.06			
4.80	.02	5091.51	.001	.03			
5.60	.02	5091.51	.001	.02			
6.40	.00	5091.51	.001	.01			
7.20	.00	5091.50	:000	.00			
PEAK DISCI	HARGE =	1.254	CFS - PEAK C	CCURS AT	HOUR	1.77	
MAXIMUM W	ATER SURFACE			.112			
MAXIMUM S	TORAGE =	.0566	AC-FT	INCREMEN	TAL TI	ME=	.033330HRS
* * * * * * * * * * *	*****	*****	*****	*****	****	*****	₹

ADD HYD

ID=40 HYD NO=105.0 ID=20 ID=30

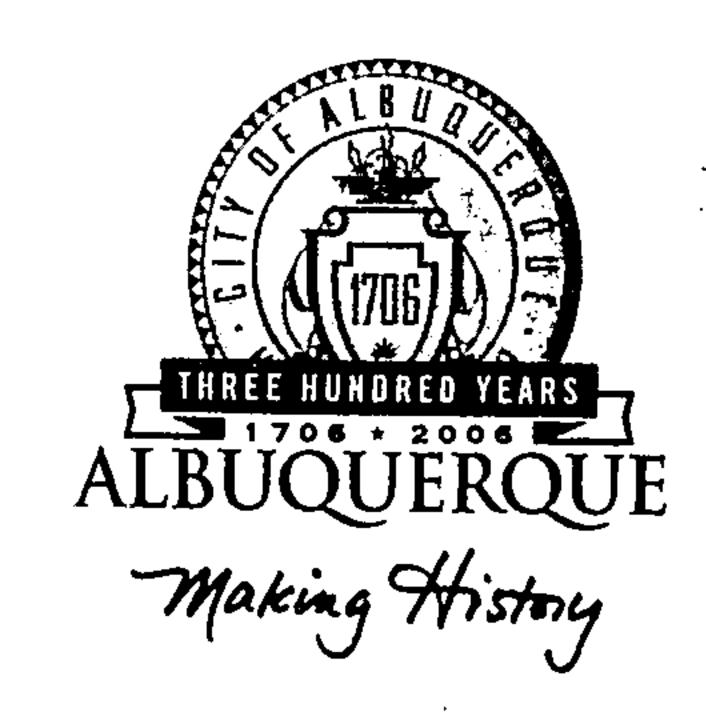
FINISH

PROGRAM FINISH

END TIME (HR:MIN:SEC) = 09:13:39

· ¼

CITY OF ALBUQUERQUE



July 28, 2005

Shahab Biazar, P.E.
Advanced Engineering and Consulting, LLC
4416 Anaheim Ave. NE
Albuquerque, NM 87113

Re: AHEPA 501 #3, 8620 Bluewater Rd. NW, Grading & Drainage Plan Engineer's Stamp dated 7-11-05 (K10-D48)

Dear Mr. Biazar,

Based upon the information provided in your submittal dated 7-11-05, the above referenced plan cannot be approved for Building Permit until the following comments are addressed:

P.O. Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

- The existing 12" culvert connecting Pond 7 to Pond 6 appears to daylight in proposed pond. Consider re-grading Pond 7 to obtain the additional volume required.
- The Pond 7 is restricted to a maximum outflow of 4.17 cfs per the Bluewater Development Hydrology Report.
- If the undeveloped portion of the site will be developed in the future, provide additional pond storage for the proposed developed condition.
- Clarify the line work along the northern and eastern edges of the property. According to the legend they are proposed retaining walls. If they are proposed retaining walls, call out top of wall and finish grade elevations.

If you have any questions, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham, P.E.

Principal Engineer, Planning Dept.
Development and Building Services

cc: fil

DRAINAGE INFORMATION SHEET

(REV. 1/28/2003rd)

PROJECT TITLE:	TRACT A-1A-2C-1, HUBBELL PLAZA	<u> </u>	ZONE ATLAS/DRG. FILE #	: K10/D48
DRB #:	EPC #:	WORK ORE	DER #:	<u>. </u>
	SAL TO A CONTRACT A SALE OF A STRIPPET I DI	. A 7. A		
LEGAL DESCRIPTION	ON: TRACT A-1A-2C-1, HUBBELL PI 5040-JEEEERSON-BLVD-NE-	Blue Blue	water Rd. NW	
CITY ADDRESS:	•	:		Diagon
ENGINEERING FIRE		ing, LLC		Biazar 99-5570
ADDRESS: CITY, STATE:	4416 Anaheim Ave., NE Albuquerque, New Mexico		ZIP CODE: 87113	
•			CONTACT:	
OWNER: ADDRESS:			PHONE:	
CITY, STATE:		<u> </u>	ZIP CODE:	•
ARCHITECT:		<u> </u>	CONTACT:PHONE:	<u> </u>
ADDRESS: CITY, STATE:			ZIP CODE:	
CITT, STATE.			CONTACT:	
SURVEYOR: ADDRESS:	<u> </u>	<u></u>	PHONE:	
CITY, STATE:			ZIP CODE:	
CONTRACTOR:		1	CONTACT:	
ADDRESS:			PHONE: ZIP CODE:	
CITY, STATE:				
CHECK TYPE OF S	HIRMITTAI ·		CHECK TYPE OF APPROV	AL SOUGHT:
•	• .		SIA / FINANCIAL	GUARANTEE RELEASE
	AGE REPORT			LAT APPROVAL
	AGE PLAN 1ST SUBMITTAL, REQUIRES TC	L OR EQUAL		
CONC	EPTUAL GRADING & DRAINAGE PLAN		S. DEV. PLAN FO	R SUB'D. APPROVAL
X GRADI	NG PLAN		S. DEV. PLAN FO	R BLDG. PERMIT APPROVAL
FROSI	ON CONTROL PLAN		SECTOR PLAN A	PPROVAL
	EER'S CERTIFICATION (HYDROLOGY)		FINAL PLAT APP	ROVAL
	•		FOUNDATION PI	ERMIT APPROVAL
	R / LOMR		X BUILDING PERM	
·	IC CIRCULATION LAYOUT (TCL)			F OCCUPANCY (PERM.)
	EER'S CERTIFICATION (TCL)			
ENGIN	EER'S CERTIFICATION (DRB APPR. SITE P	LAN)	CERTIFICATE O	F OCCUPANCY (TEMP.)
OTHE	3		X GRADING PERM	IT APPROVAL
			PAVING PERMIT	APPROVAL
Ų			WORK ORDER	APPROVAL
	tel paid		OTHER (SPECIF	Y)
				C E I V E I
WAS A PRE-DESIG	IN CONFERENCE ATTENDED:			
YES				JL 1 2 2005
				
XNO			HYDRO	DLOGY SECTION
COPY	PROVIDED			
DATE OUDSITEE	· ·		BY: Shahab Biaza	ır, P.E.
DATE SUBMITTED				d by a drainage submittal.

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

- 1. Conceptual Grading and Drainage Plan: Required for approval of Site Development Plans greater than five (5)
- 2. Drainage Plans: Required for building permits, grading permits, paving permits and site plans less than five (5)
- 3. Drainage Report: Required for subdivisions containing more than ten (10) lots or containing five (5) acres or more.

PETAINING WORK WALL, CLAPIFT,

•

- WHAT IS THE FUTURE MEMORIAR PLAN FOR VACANT LAND A SOUTHERAN EDONE OF PROPERTY.

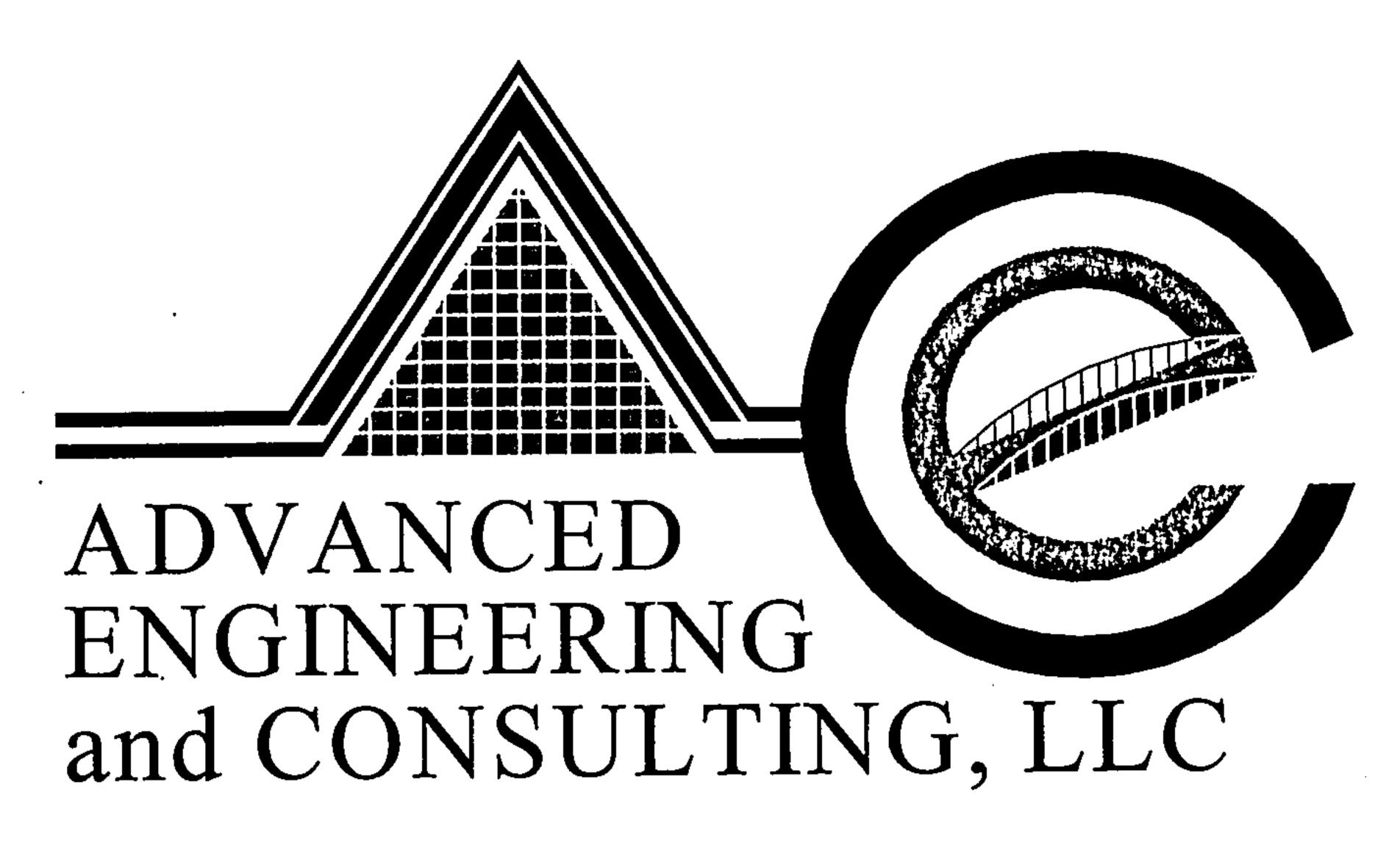
OT WONTHOOP TOWN TOWN -

- EXISTING 12" CULVERT DAYLION POND,

DRAINAGE REPORT FOR

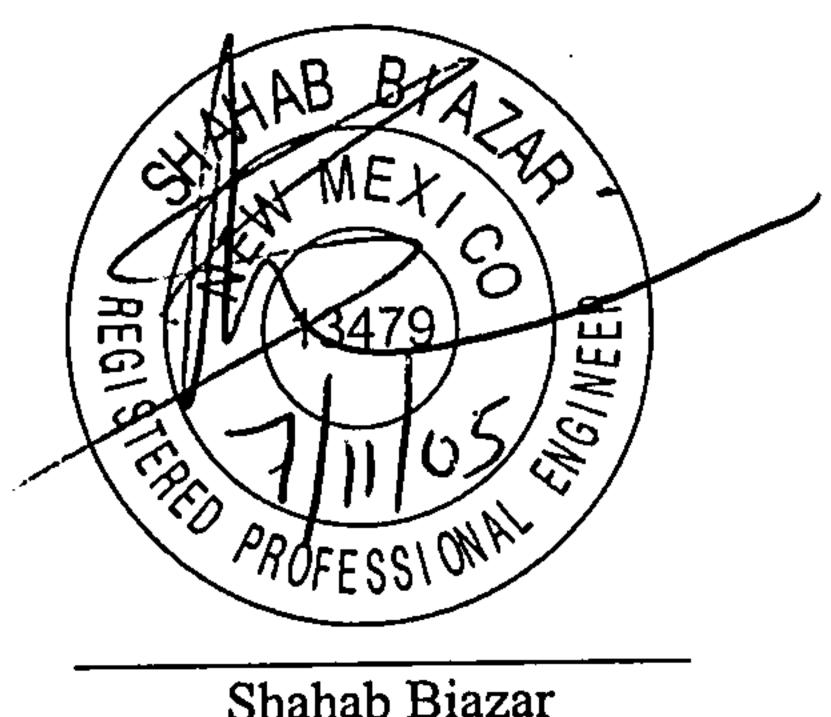
TRACT A-1A-2C-1 HUBBELL PLAZA

Prepared by:



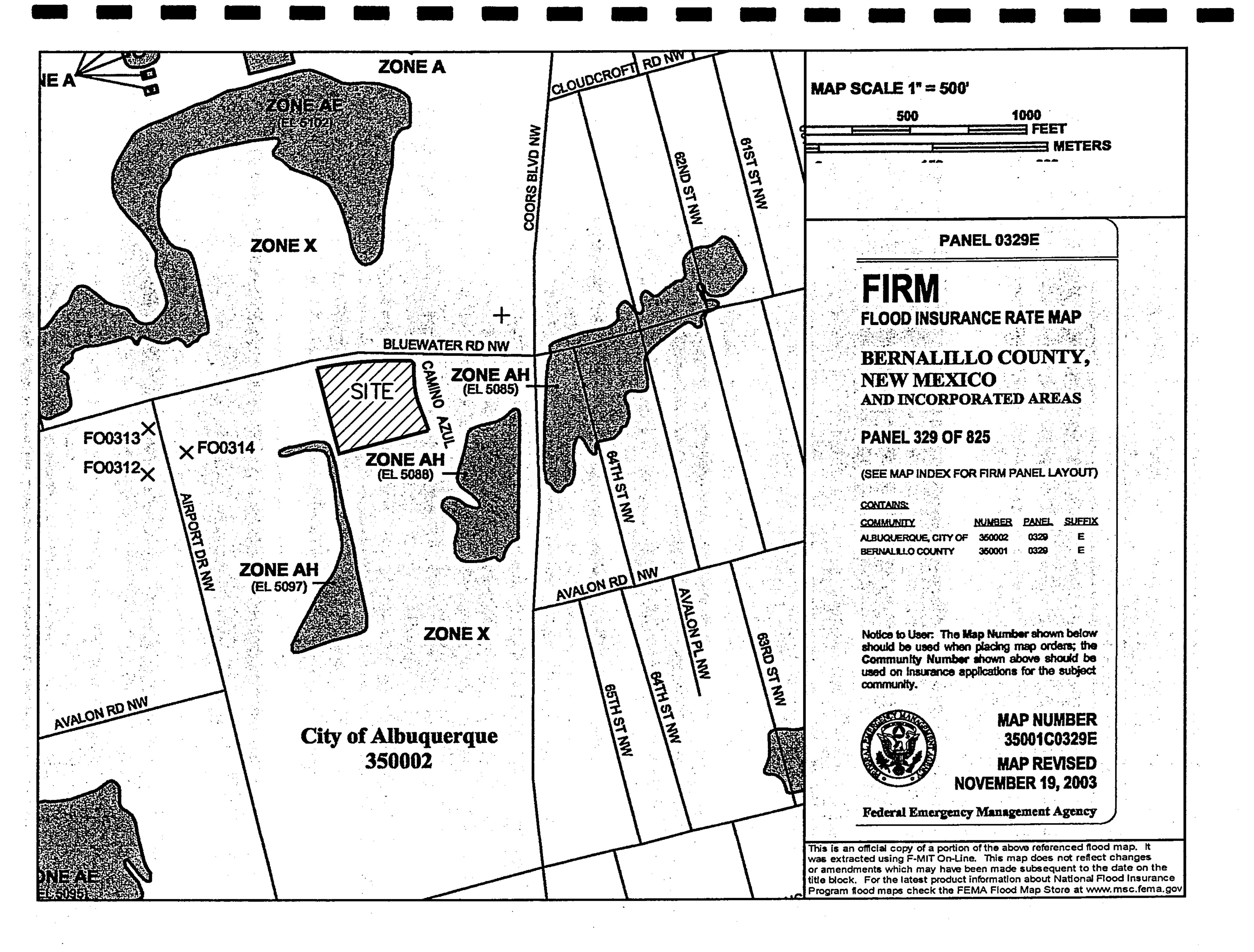
4416 Anaheim Ave., NE Albuquerque, New Mexico 87113

July, 2005



Shahab Biazar PE NO. 13479

MAP:



Location

Tract A-1A-2C-1, Hubble Plaza is located at southwest corner of Bluewater Road and Camino Azul. The site contains ±3.38 acres. See attached Zone Atlas page number K-10 for exact location.

Purpose

The purpose of this drainage report is to present a grading and drainage solution for the proposed sites. We are requesting rough grading approval and building permit approval. The owners are proposing to place a new building on this vacant site.

Existing Drainage Conditions

The site falls within Basin 7 and portion of Basin 6 of Bluewater Development Hydrology Plan under the City Drainage number K10/D20. Portion the Bluewater Development Hydrology report is attached with this report. Mark Goodwin and Associates prepared a grading and drainage plan for the adjacent site to the west submitted under the City Drainage number K10/D20C. Copy of the Mark Goodwin and Associates report is attached with this report as well. The ponding requirement for Basins O-1, 6, and 7 is 35,839.00 CF. This ponding volume is provided within Ponds 6 and 7 (located within Basins 6 and 7). Copies of the drainage plans for Bluewater Development and Mark Goodwin and Associates is enclosed in the map pocket of this report. A summary table for the ponding volume

requirements is enclosed with this report. This site for the most part drains to Pond number 7 along the easterly boundary and partly to Pond number 6.

Proposed Conditions and On-Site Drainage Management Plan

Since the site falls within Bluewater Development Hydrology K10/D20, this report is used for ponding requirements. A table for the ponding volume requirements is enclosed as part of Mark Goodwin & Associates. We also have shown a summary table with the ponding requirements for the allowable (existing conditions) and under the proposed conditions. Under the Bluewater Development plan a ponding volume of 35,839 CF was required. Under the proposed conditions a ponding volume of 39,379.00 CF is required (an increase of 3,540 CF). A pond is being proposed at the south east corner of the property. This pond will have a ponding volume of 5,523.86 CF which is larger than the increased volume (3,540 CF) due to this development. A 12" pipe will be connected to the pipe which drains from pond 7 to pond 6 in order to drain the pond. Most of the site drains to Pond 7 and from there to our proposed pond (located at the southeast corner of the lot) and then to Pond 6.

Calculations

City of Albuquerque, Development Process Manuel, Section 22.2, Hydrology Section, was used for runoff calculations. See this report for Summary Table for runoff results. See also this report for AHYMO input and output files for runoff calculations.

RUNOFF CALCULATIONS

(INPUT DATA FOR AHYMO CALCULATIONS)

The site is @ Zone 1

OVERALL LAND TREATMENT (BASIN 7 AND PORTION OF BASIN 6)

Under The Developed Conditions:

B = 51.00%

C = 8.00%

D = 41.00 %

LAND TREATMENT (BASIN 7 ONLY)

Under The Developed Conditions:

B = 40.00%

C = 10.00%

D = 50.00 %

Under The Historical Conditions:

A = 100 %

Under The Allowable Conditions:

C = 100 %

DEPTH (INCHES) @ 100-YEAR STORM

 $P_{60} = 1.87$ inches

 $P_{360} = 2.20 \text{ inches}$

 $P_{1440} = 2.66 \text{ inches}$

DEPTH (INCHES) @ 10-YEAR STORM

 $P_{60} = 1.87 \times 0.667$ = 1.25 inches

 $P_{360} = 1.47$

 $P_{1440} = 1.77$

See the summary output from AHYMO calculations.

Also see the following summary tables.

RUNOFF CALCULATION RESULTS

BASIN	AREA (SF)	AREA (AC)	AREA (MI²)
ON-SITE / OVERALL*	147361.89	3.3830	0.005286
BASIN 7	120225.00	2.7600	0.004312

HISTORICAL

BASIN	Q-100	Q-10
	CFS	CFS
ON-SITE / OVERALL*	4.39	0.83
BASIN 7	3.58	0.68

PROPOSED

BASIN	Q-100	Q-10	V-100	V-100
	CFS	CFS	AC-FT	CF
ON-SITE / OVERALL*	10.32	5.66		
BASIN 7	9.06	5.19	0.309	13460.04

ALLOWABLE

BASIN	Q-100	V-100	V-100
	CFS	AC-FT	CF
BASIN 7	7.94	0.229	9975.24

^{*} BASIN 7 & PORTION OF BASIN 6

PONDING REQUIREMENTS

EXISTING PONDING VOLUME REQUIREMENT

BASIN	AREA (AC)	TREATMENT	V-360 (CF)	V-1440 (CF)
O-1	1.80	10% B, 90% D	12,023.00	14,700.00
7	2.76	100% C	9,920.00	
6	3.37	100% C	13,896.00	

TOTAL 35,839.00

PROPOSED PONDING VOLUME REQUIREMENT

BASIN	AREA (AC)	TREATMENT	V-360 (CF)	V-1440 (CF)
· O-1	1.80	10% B, 90% D	12,023.00	14,700.00
7	2.76	40% B, 10% C, 50 % D	13,460.00	
6	3.37	100% C	13,896.00	

TOTAL 39,379.00

INCREASE IN THE REQUIRED VOLUME = 3,540.00

POND CALCULATIONS PROPOSED DETENTION POND

TOP SURFACE ARE OF THE POND = 2,902.41 SF @ ELEVATION 5,090.00 FT

BOTTOM SURFACE ARE OF THE POND = 1,516.68 SF @ ELEVATION 5,087.50 FT

DEPTH OF THE POND = 2.50 FT

SLOPE OF THE POND = 3:1

VOLUME = (2,902.41 + 1,516.68) / 2.00 * 2.50 = 5,523.86 CF

AHYMO INPUT FILE

```
6-HR STORM (UNDER HISTORICAL CONDITIONS)
                  TIME=0.0
                  TYPE=1 RAIN QUARTER=0.0 IN
RAINFALL
                  RAIN ONE=1.87 IN RAIN SIX=2.20 IN
                  RAIN DAY=2.66 IN DT=0.03333 HR
*
* ON-SITE / OVERALL (BASIN 7 & PORTION OF BASIN 6)
*
                  ID=1 HYD NO=100.0 AREA=0.005286 SQ MI
COMPUTE NM HYD
                  PER A=100.00 PER B=0.00 PER C=0.00 PER D=0.00
                  TP=0.1333 HR MASS RAINFALL=-1
* BASIN 7
*
                  ID=1 HYD NO=101.0 AREA=0.004312 SQ MI
COMPUTE NM HYD
                  PER A=100.00 PER B=0.00 PER C=0.00 PER D=0.00
                  TP=0.1333 HR MASS RAINFALL=-1
       10-YEAR, 6-HR STORM (UNDER HISTORICAL CONDITIONS)
*
START
                  TIME=0.0
                  TYPE=1 RAIN QUARTER=0.0 IN
RAINFALL
                  RAIN ONE=1.25 IN RAIN SIX=1.47 IN
                  RAIN DAY=1.77 IN DT=0.03333 HR
* ON-SITE / OVERALL (BASIN 7 & PORTION OF BASIN 6)
*
                  ID=1 HYD NO=110.0 AREA=0.005286 SQ MI
COMPUTE NM HYD
                  PER A=100.00 PER B=0.00 PER C=0.00 PER D=0.00
                  TP=0.1333 HR MASS RAINFALL=-1
* BASIN 7
                  ID=1 HYD NO=111.0 AREA=0.004312 SQ MI
COMPUTE NM HYD
                  PER A=100.00 PER B=0.00 PER C=0.00 PER D=0.00
                  TP=0.1333 HR MASS RAINFALL=-1
*************
        100-YEAR, 6-HR STORM (UNDER PROPOSED CONDITIONS)
************
                  TIME=0.0
START
                  TYPE=1 RAIN QUARTER=0.0 IN
RAINFALL
```

```
RAIN ONE=1.87 IN RAIN SIX=2.20 IN
                 RAIN DAY=2.66 IN DT=0.03333 HR
*
* ON-SITE / OVERALL (BASIN 7 & PORTION OF BASIN 6)
                  ID=1 HYD NO=102.0 AREA=0.005286 SQ MI
COMPUTE NM HYD
                  PER A=0.00 PER B=51.00 PER C=8.00 PER D=41.00
                  TP=0.1333 HR MASS RAINFALL=-1
* ;
* BASIN 7
                  ID=1 HYD NO=103.0 AREA=0.004312 SQ MI
COMPUTE NM HYD
                  PER A=0.00 PER B=40.00 PER C=10.00 PER D=50.00
                  TP=0.1333 HR MASS RAINFALL=-1
*
*************
        10-YEAR, 6-HR STORM (UNDER PROPOSED CONDITIONS)
                  TIME=0.0
START
                  TYPE=1 RAIN QUARTER=0.0 IN
RAINFALL
                  RAIN ONE=1.25 IN RAIN SIX=1.47 IN
                  RAIN DAY=1.77 IN DT=0.03333 HR
* ON-SITE / OVERALL (BASIN 7 & PORTION OF BASIN 6)
                  ID=1 HYD NO=112.0 AREA=0.005286 SQ MI
COMPUTE NM HYD
                  PER A=0.00 PER B=51.00 PER C=8.00 PER D=41.00
                  TP=0.1333 HR MASS RAINFALL=-1
* BASIN 7
                  ID=1 HYD NO=113.0 AREA=0.004312 SQ MI
COMPUTE NM HYD
                  PER A=0.00 PER B=40.00 PER C=10.00 PER D=50.00
                  TP=0.1333 HR MASS RAINFALL=-1
*************
       100-YEAR, 6-HR STORM (UNDER ALLOWABLE CONDITIONS)
                  TIME=0.0
START
                  TYPE=1 RAIN QUARTER=0.0 IN
RAINFALL
                  RAIN ONE=1.87 IN RAIN SIX=2.20 IN
                  RAIN DAY=2.66 IN DT=0.03333 HR
* BASIN 7
                  ID=1 HYD NO=104.0 AREA=0.004312 SQ MI
COMPUTE NM HYD
                  PER A=0.00 PER B=0.00 PER C=100.00 PER D=0.00
                  TP=0.1333 HR MASS RAINFALL=-1
*
********************
```

FINISH

SUMMARY OUTPUT FILE

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) - INPUT FILE = 200407

FINISH

- VERSION: 1997.02d

RUN DATE (MON/DAY/YR) =07/10/2005

USER NO. = AHYMO-I-9702c01000R31-AH

											•	
COMMAND I	HYDROGRAPH	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	· VOLUME (AC-FT)	RUNOFF	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE =		
COMMAND	DENITTICATION	110.	2,0.	(.	,	•			`			
START										TIME=	.00	
RAINFALL TYPE=	= 1									RAIN6=	2.200	
COMPUTE NM HYD		_	1	.00529	4.39	.124	.43925	1.533	1.299	PER IMP=	.00	
COMPUTE NM HYD	101.00	_	1	.00431	3.58	.101	.43925	1.533	1.299	PER IMP=	.00	
START										TIME=	.00	
RAINFALL TYPE=	= 1									RAIN6=	1.470	
COMPUTE NM HYD		-	1	.00529	.83	.023	.08264	1.533	.246	PER IMP=	.00	
COMPUTE NM HYD		_	1	.00431	.68	.019	.08264	1.533	.247	PER IMP=	.00	
START										TIME =	.00	
RAINFALL TYPE=	= 1									RAIN6=	2.200	
COMPUTE NM HYD		_	1	.00529	10.32	.344	1.22178	1.500	3.052	PER IMP=	41.00	
COMPUTE NM HYD		_	1	.00431	9.06	.309	1.34448	1.500	3.281	PER IMP=	50.00	
START										TIME=	.00	
RAINFALL TYPE:	= 1									RAIN6=	1.470	
COMPUTE NM HYD	112.00	_	1	.00529	5.66	.184	.65357	1.500	1.674		41.00	
COMPUTE NM HYD	_	-	1	.00431	5.19	.172	.74832	1.500	1.882	PER IMP=	50.00	
START										TIME=	.00	
RAINFALL TYPE:	= 1									RAIN6=	2.200	
COMPUTE NM HYD	104.00	-	1	.00431	7.94	.229	.99441	1.500	2.878	PER IMP=	.00	

DRAINAGE REPORT for

AGUA AZUL IN ALBUQUERQUE, NM

Prepared By

Amy L. Driscoll Mark Goodwin & Associates, PA P.O. Box 90606 Albuquerque, NM 87199

May 2001

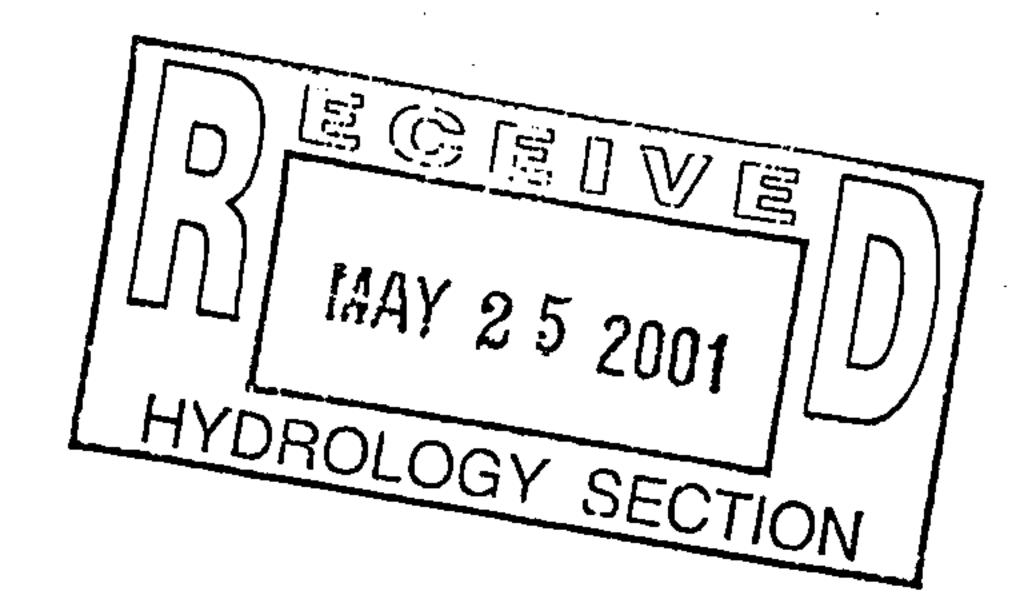


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- I. Introduction
- II. Existing Conditions
- III. Proposed Drainage Plan
- IV. Summary

LIST OF EXHIBITS

- > Agua Azul Grading and Drainage Plan
- > 100 Year Flood Plain
- > Bluewater Development Hydrology Report Excerpts
- Calculations for Agua Azul

<u>INTRODUCTION</u>

This report for Agua Azul is being submitted for grading and drainage approval.

EXISTING CONDITIONS

This site is located on Zone Atlas Map K-10. Please see the enclosed Grading and Drainage Plan which has the site location. The property is currently vacant.

This site is not in the 100 year flood plain. Please see the enclosed delineation.

This site is within Basin 6 of the Bluewater Development Hydrology Report (K10/D20). The pertinent sections of this report are enclosed.

The Bluewater Report has numerous drainage ponds. Basin O-1 and Basin 7 drain to pond 7. Pond 7 partially fills and drains to pond 6. Basin 6 also drains to pond 6. The release from pond 6 is restricted. Pond 6 drains to pond 3 which goes to pond 2 which goes to pond 1. Restricted flow drains from pond 1 to an inlet in Coors.

Ponds 6 and 7 work together. The volumes are as follows per the Bluewater Report:

Basin	Area (Acre)	Treatment	V- 360 (CF)	V-1440 (CF)
0-1	1.80	· 10%B, 90%D	12,023	14,700
7.	2.76	100% C	9,920	,
6	3.37	100%C	12,100	

In the report, the volume required was 14,700 + 9,920 + 12,100 = 36,720 cf for the total of ponds 6 and 7.

PROPOSED DRAINAGE PLAN

Basin 6 needs to be adjusted for the new impervious areas. Please see the enclosed calculations.

For Basin O-1, because the ponds are designed to hold water less than 6 hours per page 22-14 of the DPM, only V-360 is required (12,023 cf).

The new volumes are as follows:

Basin	Area (Acre)	Treatment	V- 360 (CF)	V-1440
0-1	1.80	10%B, 90%D	12,023	14,770
7	2.76	100% C	9,920	
6 ⁻	3.37	64% B, 36%D	13,896	

The volume required is 12,023 + 9,920 +13,896 = 35,839 cf for the total of ponds 6 and 7. Pond 7 currently

has 14,822 cf. As a result, the required size of pond 6 is 21,017 cf. The actual volume of pond 6 is 28,280 cf.

On this site, the water drains swales on the north and south side of the property which drain to the pond. The water also drains to curb openings near the east part of the site which go to the pond.

An 18 inch pipe keeps water flowing between the two parts of pond 6. This is sized for a total flow of 21.5 cfs. Please see the enclosed calculations.

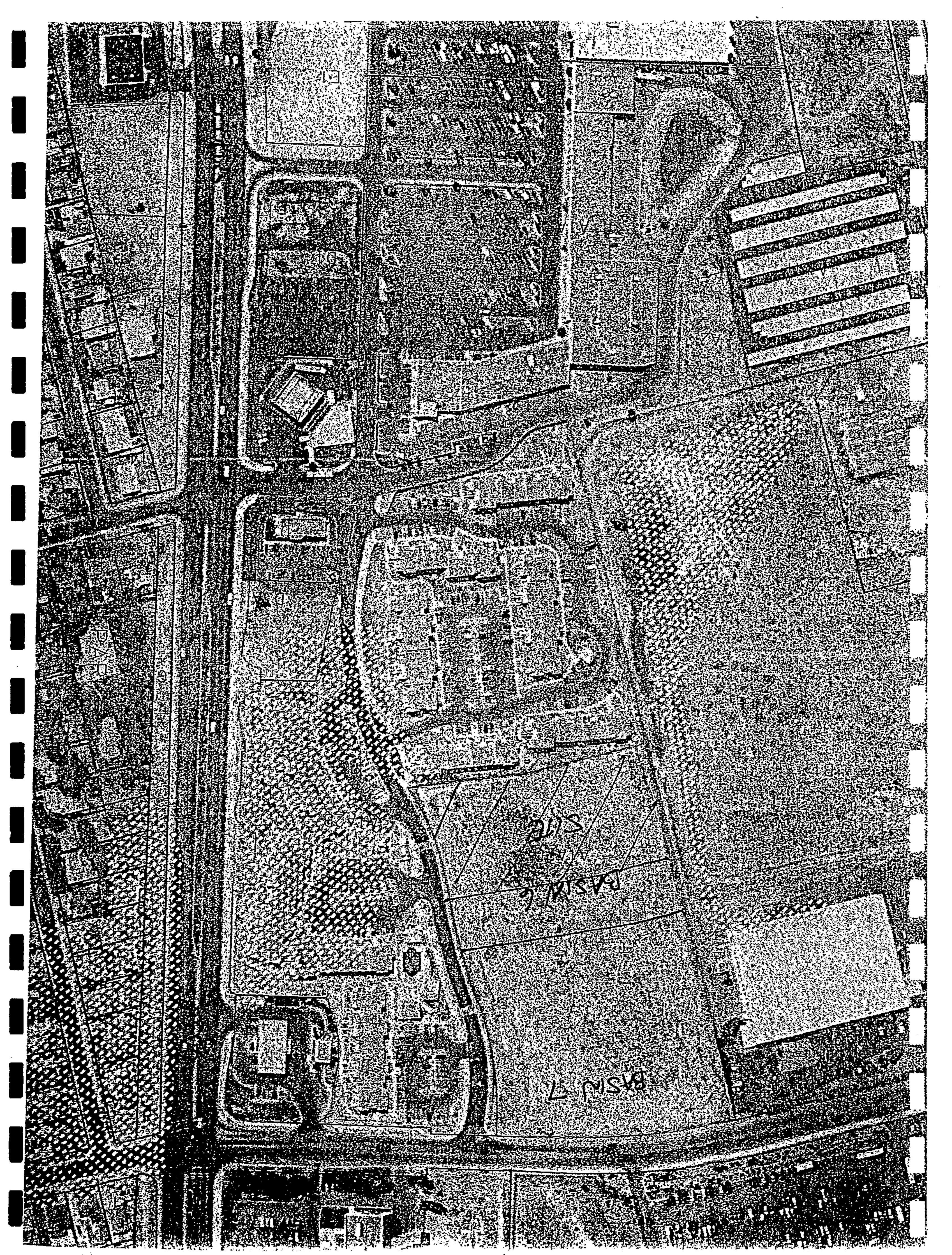
SUMMARY

Basins O-1, 7, and 6 drain to ponds 6 and 7 which work together. This site drains to pond 6. The volume of pond 6 has been adjusted for the new development.

AGUA AZUL

GRADING & DRAINAGE PLAN

100 YEAR FLOOD PLAIN





Federal Emergency Management Agency

Washington, D.C. 20472

DEC 3 0 1997

NO MAP

The Honorable Martin J. Chavez Mayor, City of Albuquerque P.O. Box 1293 Albuquerque, New Mexico 87103-1293 IN REPLY REFER TO CASE NO. 98-06-273A

Follows Case No. 97-06-891C

Community: City of Albuquerque, New Mexico

Community No.: 350002

Map Panel Affected: 35001C0329 D

Map Effective Date: September 20, 1996

218-65-RS

Dear Mayor Chavez:

We reviewed a request dated November 10, 1997, from Ms. Susan M. Calongne, P.E., City/County Floodplain Administrator, City of Albuquerque/Bernalillo County, for a Letter of Map Revision. All required information for this request, including the required review and processing fee, was received on December 8, 1997. Using the information submitted and the effective National Flood Insurance Program (NFIP) map, we determined portions of the property described below are in a Special Flood Hazard Area (SFHA), the area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood); however, the structures, Buildings 2 through 5 and 10 on the property are not in the SFHA. This property was elevated by the placement of fill after the date of the earliest NFIP map showing the area in the SFHA.

Property Description: Bluewater Village Apartments, Tracts A-1A-2B and A-1A-2C, Hubbell Plaza,

as shown on the Plat recorded in Volume 96C, Folio 376, in the Office of the

Recorder, Bernalillo County, New Mexico

Street Address:

6600 Bluewater Road Northwest

Flooding Source:

Shallow Flooding

This letter revises the above-referenced NFIP map to remove the structures from the SFHA. The structures are now in Zone X (unshaded), an area of minimal flooding outside the SFHA. Flood insurance coverage for the structures may be available under a low-cost policy (see enclosed document). Because portions of the property remain in the SFHA, any future construction or substantial improvement on the property remains subject to Federal, State, and local regulations for floodplain management.

Although we based our determination on the flood data presently available, we are currently revising the NFIP map for Bernalillo County, New Mexico and Incorporated Areas. New flood data could be generated that may affect this property. When the new NFIP map is issued, it will supersede this letter. The Federal requirement for purchasing flood insurance then will be based on the newly issued NFIP map.

JAN - 8 1998

UBLIC WORKS DEPT.
ADMINISTRATION

The enclosed document provides additional information about Letters of Map Revision. If you have any questions about this letter, please contact Ms. Agnes De Coca of our staff in Washington, DC, either by telephone at (202) 646-2746 or by facsimile at (202) 646-4596.

Sincerely,

Frederick H. Sharrocks, Jr., Chief Hazard Identification Branch

Fraka Donald

Mitigation Directorate

Enclosure

cc: Community Map Repository

Ms. Susan M. Calongne, P.E. City/County Floodplain Administrator City of Albuquerque/Bernalillo County

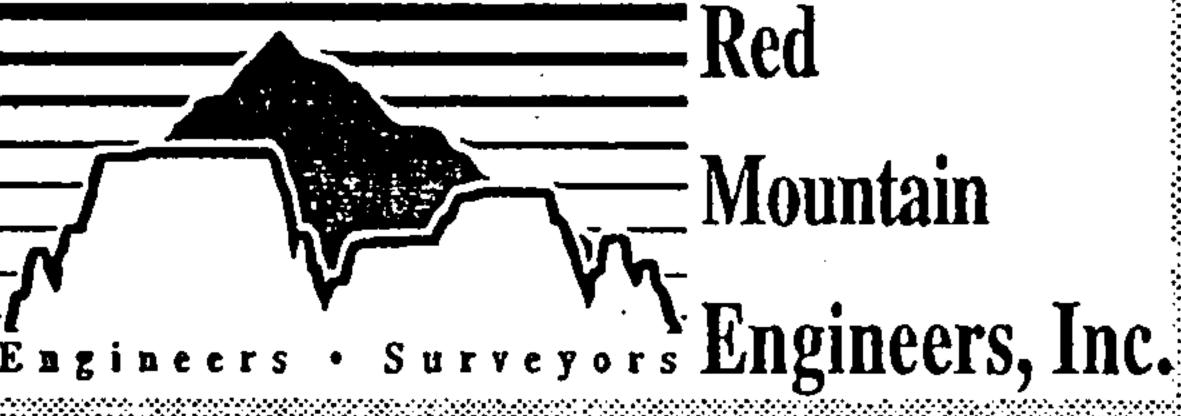
BLUEWATER DEVELOPMENT
HYDROLOGY REPORT EXCERPTS

CITY OF ALBUQUERQUE DEVELOPMENT SERVICES

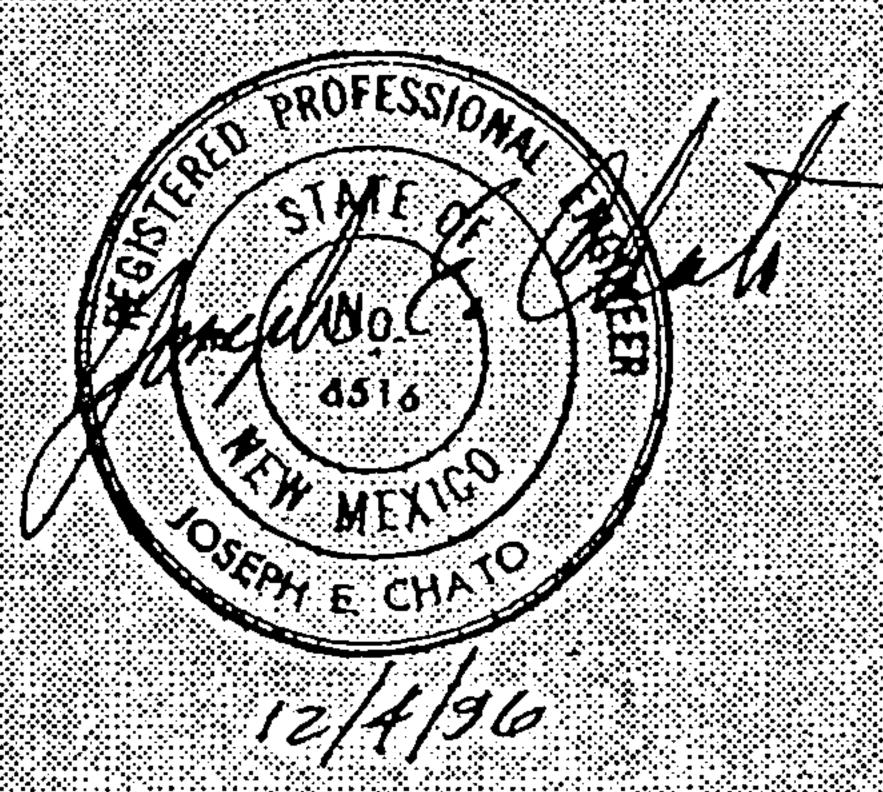
1210-1020

BLUEWATER DEVELOPMENT HYDROLOGY REPORT

Prepared By:



Revised
December 4, 1996



Revised Hydrology Report

BLUEWATER VILLAGE

This development is on two adjacent tracts near the southwest corner of Bluewater Road and Coors Boulevard, Zone Map K-10. The proposed development is a turnkey apartment project for Albuquerque Development Services.

Tract A-1A-2C consists of 6.1335 acres of undeveloped property, and will be graded for future building pads and two detention ponds. It will provide approximately eight thousand cubic yards of fill for the neighboring tract A-1A-2B.

Tract A-1A-2B consists of 11.4335 acres of undeveloped property, and is slated for construction of a community building, two laundry buildings, and 200 apartments in 10 two-story apartment buildings. Stormwater detention is designated for seven ponding areas on this tract. This tract receives off-site flows and is partially occupied by a FEMA AH floodplain, with base elevation 5085, as defined in Panel 350002 0027 C.

The off-site flows contributing to the flood plain have been reduced by recent development. A current evaluation of off-site flows entering the project is attached in Appendix 1. Ponding capacity on the site is calculated (Appendix 5A) on the basis of this reduced flow.

Proposed stormwater discharge to the Coors Boulevard storm sewer from the ponding areas is delayed by two hours as recommended in the West Bluff Drainage Plan, January 1987, Sheet No. 3, and is limited to 0.20 CFS/Ac (Appendix 2).

Off-site flow from Basin O-1 (Appendix 1, page 6) will be intercepted at the intersection of the proposed access road with Bluewater Road, with four 'A' curb inlets constructed on the southeast corner of the proposed intersection. This off-site flow is then routed through a 24" reinforced concrete pipe (RCP) to detention Pond 7 on tract A-1A-2C. A second pond (Pond 6) on this tract provides the remaining capacity required for Basin O-1 (Appendix 1) and tract A-1A-2C (Appendix 5). A weir and channel connects these two ponds, so that lower Pond 6 receives stormwater after upper Pond 7 fills. Upper Pond 7 drains to lower Pond 6 after a 4.5 hour delay via a 12" valve and 12" HDPE (corrugated high-density polyethylene) drain pipe. Lower Pond 6 drains after a 4 hour delay through a 12" valve and 12" HDPE drain pipe to the base elevation ponds. The extra delay is necessary to allow the lower ponds to drain sufficiently to prevent water backing up at the Building 4 parking lot inlets (this parking lot forms part of the 100-year detention basin).

Base elevation Ponds 1 through 5 are on tract A-1A-2B, at water surface elevation 5085 (the FEMA floodplain base elevation). Pond 5 drains to Pond 4 via 24" RCP, and is equalized in surface elevation through this connection. Pond 4 drains to Pond 3 over a weir (berm) and through a 12" HDPE drain pipe. Pond 3 drains to Pond 2 over a weir (berm) and through a 12"

HDPE drain pipe. Pond 2 drains to Pond 1 via two 24" HDPE drain pipes. After a two-hour delay, Pond 1 drains to a curb inlet on the Coors Boulevard storm sewer through a 12" valve and 18" PVC with a 7-3/8 x 7-3/8" restrictor plate. All the ponds ultimately drain through this connection.

All seven ponds have an overflow path to route stormwater in event of open or closed valve failure.

Pipe inlets have riprap erosion pads to prevent undermining by scour. Inlet screens are provided where the 12" HDPE's have valves to prevent clogging by debris.

Total area drained to outlet detention pond is 26.2 acres. Recommended discharge rate, from the West Bluff Drainage Plan, is 0.20 CFS/Ac, giving a maximum allowable discharge of 5.24 CFS to the Coors Boulevard stormdrain.

With an 18" unrestricted drain pipe, maximum inlet-limited discharge will be 22.5 CFS. The 18" drainpipe at Coors is therefore restricted with a 7-3/8" x 7-3/8" square opening restrictor plate on the outlet, giving a maximum discharge of 5.20 CFS (Appendix 4) to meet the West Bluff Drainage Plan recommendation. Ponds 6 and 7 are limited to lesser discharges to the base elevation ponds, and discharge is delayed longer to prevent overflow of the base elevation ponds. Average discharge rate required to drain the 160,000 cubic feet of ponding in 24 hours is 1.85 CFS, and average discharge rate expected is 4.63 CFS (Appendix 4).

DETENTION POND VOLUMES

Ponds 6 and 7 are sized for 0.6950 acre/feet (30,300 cubic feet) of 100-year off-site flow (Appendix 1, page 6) plus 22,000 cubic feet of flow generated on the 6.1335 acre tract (Appendix 5).

Pond 6 volume is 30,000 cubic feet and Pond 7 volume is 24,000 cubic feet. Total detention volume required for these two flows equals 52,300 cubic feet, and detention volume provided is 54,000 cubic feet.

Ponds 1 through 5 are sized for the remaining 0.9393 acre/feet (40,900 cubic feet) of 100-year off-site flow (Appendix 1, page 6) plus 66,200 cubic of flow generated on the 11.4335 acre tract (Appendix 5). Pond volumes are noted on the grading and drainage drawing. Total detention volume required for these ponds equals 107,100 cubic feet and total detention volume provided is 107,500 cubic feet.

DRAIN INLET CAPACITIES

The four 'A' inlets at the Bluewater/access road intersection have a capacity of 4 CFS each at 0.5 feet of ponding (DPM page 75) for a total capacity of 16 CFS. Expected flow is 15.3 CFS (Appendix 1, page 6). Bluewater Road is already sloped with a low point at this location to channel water off the road toward the flood plain. A waterstop (higher section of road) prevents

overshoot past the grates, and velocity head in the sheet flow to the drain is too low to jump the curb.

The 2 'Double C' inlets on the double 21" HDPE's entering Pond 1 from the parking lot west of Building 3 have a capacity of 9.6 CFS each at 0.5 feet of ponding (DPM page 75) for a total capacity of 19.2 CFS. Expected flow is 10.3 CFS on-site surface runoff, plus a potential flow of 4.17 CFS if the valve on Pond 7 is left in open position. Total expected 100-year flow is then 14.3 CFS (Appendix 6), and total capacity is 19.2 CFS.

The Neenah R-2569 inlets on the 12" HDPE west of Building 3 have a capacity of 1.5 CFS at 0.3 feet of ponding. Expected 100-year flow is 0.60 CFS to the grate at the west-center of Building 3 and 0.45 CFS to the grate at the northwest side of Building 3 (Appendix 7).

The three Neenah R6672-E inlets draining to Pond 3 through an 18" HDPE have a capacity of 5.6 CFS each at 0.3 feet of ponding. Expected 100-year flow is 1.61 CFS for the largest drainage area, which is on the northern-most drain (Appendix 8). Drained areas are smaller for the remaining two inlets. These inlets are provided to ensure drainage of the flat parking lot, and are not required to meet flow capacity. This parking lot is flat to provide 6" of ponding in a 100-year storm event, so no regional slope is possible. Spot elevations ensure that water will flow to these local drains.

The double 'C' curb inlets northeast of Building 10 have a capacity of 5.6 CFS each at 6" ponding (DPM page 75). Expected flow is 9.88 CFS (Appendix 9). The road is graded to create a low point at the inlet and a waterstop (higher section of road) beyond, creating this ponding when necessary to match the incoming flow.

WEIR CAPACITIES

The weir and rundown from Pond 7 to Pond 6 have a capacity of 24.8 CFS (Appendix 11). Expected flow is 15.3 CFS from off-site (intercepted at the Bluewater/access road intersection) plus 8.80 CFS surface drainage from the 6.1335 acre tract. Total 100-year flow is then 24.1 CFS.

The 12' wide weir (curbcut and rundown) on the east side of the access road near the south end of the plat drains 11.2 CFS of off-site flow (Appendix 1, page 6) plus 6.99 CFS generated onsite (Appendix 10). Weir capacity is 25.0 CFS (Appendix 12) and expected total 100-year flow is 18.3 CFS. The access road is sloped for a low spot at this weir, with a waterstop (higher section of road) to prevent overshoot.

The weir (curbcut and rundown) from the parking lot at Pond 3 drains 3.97 CFS and has a capacity of 8.33 CFS (Appendix 13).

The weir (curbcut) and channel draining the north parking lot to the access road drains 3.04 CFS and has a capacity of 3.78 CFS (Appendix 14).

The weir (curbcut and channel) northwest of Building 10 drains 3.59 CFS and has a capacity of 3.78 CFS (Appendix 15).

The berm between Ponds 4 and 3 (which provides groundcover for a proposed 8" sewer line) has a top elevation of 84.7, and acts as a weir channeling flow from Pond 4 to Pond 3. Expected 100-year flow is 31.7 CFS, and capacity is 31.6 CFS (Appendix 16). A 12" HDPE under this berm allows Pond 4 to drain.

The berm between Ponds 3 and 2 (providing groundcover for a proposed 6" sewer lateral) has a top elevation of 84.7, and acts as a weir channeling flow from Pond 3 to Pond 2 (Appendix 18). A 12" HDPE under this berm allows Pond 3 to drain.

PIPE CAPACITIES

A 24" RCP carries off-site flow from the Bluewater/access road intersection to Pond 7. It is submerged outlet limited to 17.0 CFS capacity, and 100-year flow is 15.3 CFS (Appendix 19).

A 12" HDPE carries flow from Pond 7 to Pond 6 in order to drain Pond 7 within 24 hours. Both Ponds 7 and 6 are required to meet detention volume needed, but they are at different elevations. The overflow to equalize volumes is from Pond 7 to Pond 6 via riprap weir. The 12" HDPE draining Pond 7 is outlet limited by a restrictor plate to 4.17 CFS (Appendix 4).

A 24" RCP carries flow from Pond 5 to Pond 4, and equalizes the surface elevation of the two ponds. Pond 5 intercepts 9.88 CFS from a north weir (Appendix 11) and drains 2.66 CFS of sheet flow. The 24" RCP is outlet limited to 12.9 CFS with least expected head (Appendix 20). Expected 100-year flow is 12.54 CFS.

Two 21" HDPE's carriy drainage from the parking lot west of Building 3 to Pond 1. Flow is submerged outlet limited to 16.6 CFS (Appendix 17). Expected 100-year flow is 14.5 CFS.

A 12" HDPE carries drainage from two inlets in the landscaped areas west of Building 3. Flow is outlet limited to 1.79 CFS (Appendix 21). Expected 100-year flow is 1.05 CFS (Appendix 7).

A 12" HDPE carries drainage from Pond 6 to a drop inlet in the parking lot west of Building 4. The drainage is continued to Pond 3 with an 18" RCP and added influx from the parking lot. Expected 100-year flow from the parking lot area is 2.89 CFS. The length of pipe from the pond to the first drop inlet is submerged outlet limited to 4.48 CFS (Appendix 20). Maximum capacity in the 60' length of pipe connecting each of the 3 drop inlets is outlet limited to 4.80 CFS at the calculated pond surface elevations (Appendix 22).

Two 24" HDPE's carry flow from Pond 2 to Pond 1, and equalize the surface elevation of the 2 ponds. The 24" HDPE's are outlet limited to 18.2 CFS at 0.5' difference in head (Appendix 21). Expected 100-year flow is 13.4 CFS. The capacity appears to be excessive at first glance, but Ponds 2, 3, and 4 join the floodplain on the neighboring plat at the property boundary, and cannot surcharge above the design elevation.

An 18" PVC carries drainage from Pond 1 to the back of a curb inlet on the Coors Boulevard storm drain. Flow is outlet limited to 5.20 CFS by a restrictor plate (Appendix 4). There is no flow capacity minimum required, except the 1.84 CFS average needed to drain the detention ponding in 24 hours.

Several landscaped areas are drained under sidewalks and stairs with 4"PVC pipes, without grates. Inlet limited capacity is 0.84 CFS for these pipes (each installation is two pipes in parallel), and largest expected 100-year flow is 0.33 CFS (Appendix 26).

Ponds 4 and 3 are drained with 12" HDPE's. Flow from these ponds is primarily over a lowered section of berm, and the 12" HDPE's are present to drain the bottom within 24 hours. Submerged outlet capacity is 1.96 CFS, and flow required to drain in 24 hours is 0.17 CFS (Appendix 27).

NOTE: No development of Tract A-1A-2C will be allowed until an approved grading and drainage plan for this Tract has been submitted and approved by City Hydrology.



•	
PROJECT BUEWATER DEVELOPMENT	SHEET NOOF
SUBJECT OFF-SITE DOWNAGE	PROJECT NO. 19-66-26
BY DATE B 27/96 CHECKED BY REVISED 11-4-96 (DLA)	
REVISED 11-4-96 (DLA)	·
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BY	DATE DATE CHECKED BYD	ATE /
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	=- 48 -eFS-	
100/6	EAR	
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		APPENDIX 1
		TNO
	SUBJECT DESCRIPTION PROJECT	TNO. 19-66-76
	DATE DATE CHECKED BY REVISED 11-4-9 (2007)	
BASIN	0-1 (CONT.)	
	UMES - 24 HOUR STORM	
	YEAR	·
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- Vours	ES-Z4-HOUR STORM	
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V440 = _)-1380 + (.90)(.90)(.46)(1/12)=[2	1691. Ac.F.
		CONT.

Smith Engineering Company

POND 7 VOLUME

ALL OF POND 7 BRAINAGE BASIN ON-SITE IS LAND TREATMENT.

2.76 AC

$$E = E_c A_c / A_c = 0.99$$

POND 6 VOLUME

ALL OF POND 6 DRAINAGE BASIN ON-SITE IS LAND TREATMENT C
PRECIPITATION ZONE 1

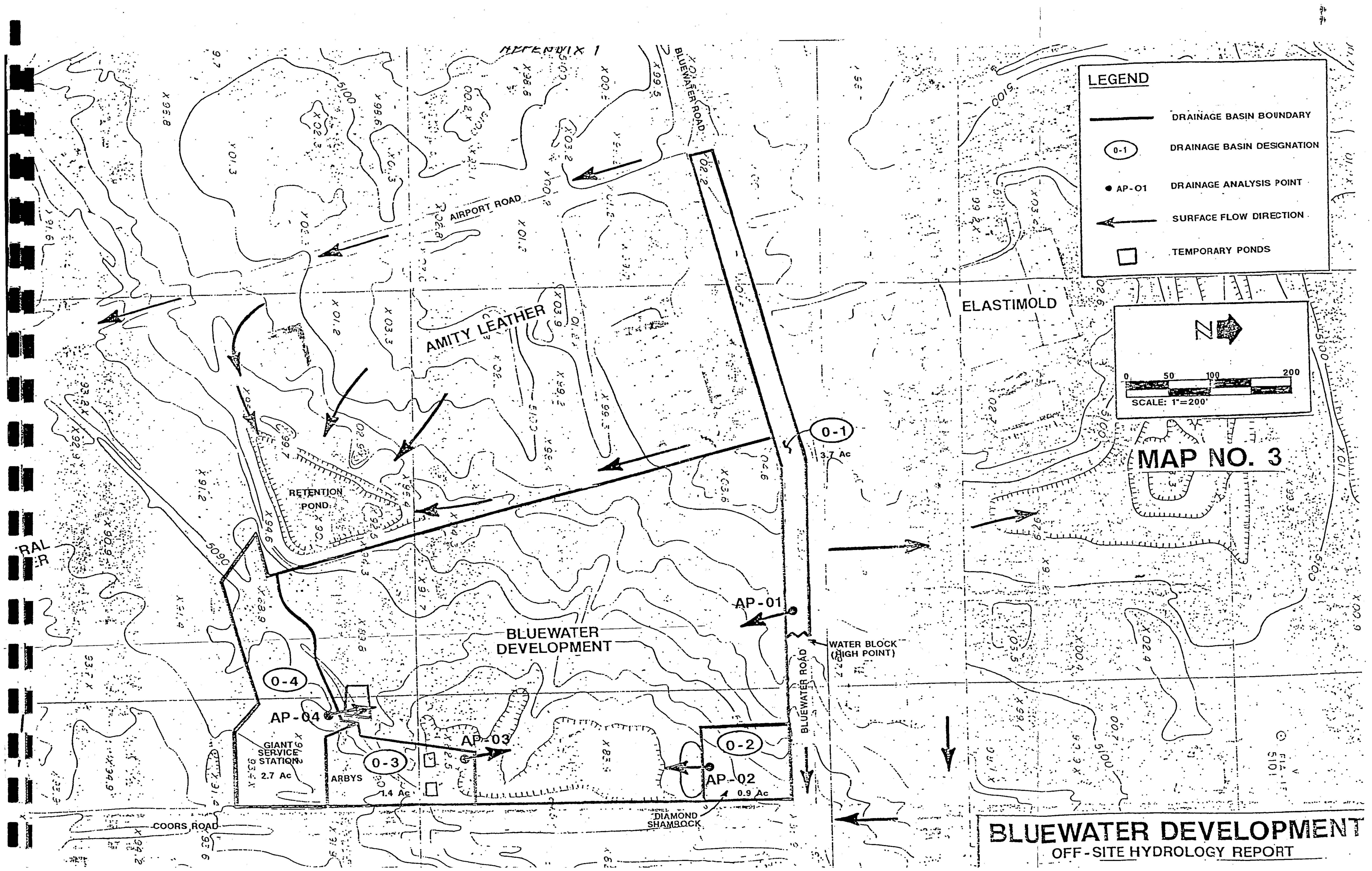
AREA	LAND TREATMENT
	A
•	8
3.37	
	7
7,37	*

$$E = E_c A_c / A_c = 0.99$$

OFF-SITE FLOW TO POND 7

VOLUME REQUIRED

POND 6 IS AN OVERFLOW FOR POND 7, THEY ARE DESIGNED TO ACT
TOGETHER - COMBINED CAPACITY = 54,000 FT3, REQUIRED VOLUME (SUM
OF ABOVE) = 36,700 ft3



CALCULATIONS FOR AGUA AZUL

<u>M</u>

D. Mark Goodwin & Associates, P.A. Consulting Engineers

P.O. BOX 90606, ALBUQUERQUE, NM 87199 (505) 828-2200 FAX 797-9539 e-mail: dmg@swcp.com

PROJECT_A	EUA AZUL
SUBJECT	
BY AMY	DATE_5/24/0/
CHECKED	DATE
	SHEETOF

FROM BLUEWATOR DEVELOPMENT HYDROLOGY REPORT (KIO-DOD)

BASIN O-1 DRINGS TO BASIN 7 (RIND.7) WHICH-GOTS TO BASIN 6 (PUND

OUR SITE IS IN BASIN 6

POND 6 GOTS TO ROND 3 -> PUND 2 -> ROND 1

POND 1 HAS RESTRICTED ROLDASE TO LOOKS

SEE APPENDIX 1 AND 5A - RUNDS 6+7 WORK TOGETHER

······································			<u>-146-3-1</u>
- RUDIV	MCCH (AC)	I/COT/MENA	
0-1	1.8	10% B, 902 D	14,700 (+1440) 12,003 (+300)
7	2-76	100 % C	9,920 (436)
6	3, 37.	1003 C	12,100 (+300) POR REPURT,
•	•	•	36, WOCF VOLUME REPURCED
•		•	OF PONDS 6+7 7074L.
	•	•	$V_{360} = 34,043 CF$

FOR ρ ∂a_1 -14 OF DPM, BECAUSE FONDS DESIGNED TO HOLD WHOR \sim 6HR ONLY $+_{300}$ REQUIRED.

BASIN 6 NOTOS TO BE ADTUSTED FOR THIS DOVELOPMENT

IMPORNALS AREA = $\frac{T \cdot 135^3}{4} + 100 \times 35 + 108 \times 75$ $+ \left[60 \times 70 + 15 \times 15 \times 276 + 50 \times 60 \right]$ = 14,314 + 3500 + 8100 + 23,700 + 3000 = 52,644 SFBASIN 6 = 3.37AC = 146,797 SF (OUR TRACT = 2.73 AC) $TVPE D = \frac{52,644}{146,797} = 35,82$

TYPE B = 64.22

p22-13 DPM FOR 20061 $E_0 = 1.97$ $E_8 = 0.67$ $A_8 = 144,797 - 52,614 = 94,183 SF = 2.16 Mc$ $A_0 = 52,614 SF = 1.21 Mc$ E = 1.97(52,614) + 0.67(94,183) - 1.14 144,797

NOW BASIN 6 4360 = 1.14 (146, 797) (12 11) = 13,896 CF

NEW 4360 REPURED FOR PONDS 6 AND 7 13,896 CF + 9,920 + 12,003 = [35,839 CF

()	

D. Mark Goodwin & Associates, P.A. Consulting Engineers

P.O. BOX 90606, ALBUQUERQUE, NM 87199 (505) 828-2200 FAX 797-9539 e-mail: dmg@swcp.com

PROJECT_//6/	IA AZUL
SUBJECT	· · · · · · · · · · · · · · · · · · ·
BY_AM/	DATE_5/25/6/
CHECKED	DATE
	CHEET OF

35,839 CF RAD CHRIENT POUD VOL FROM TOPO 21,017 CF POND 6

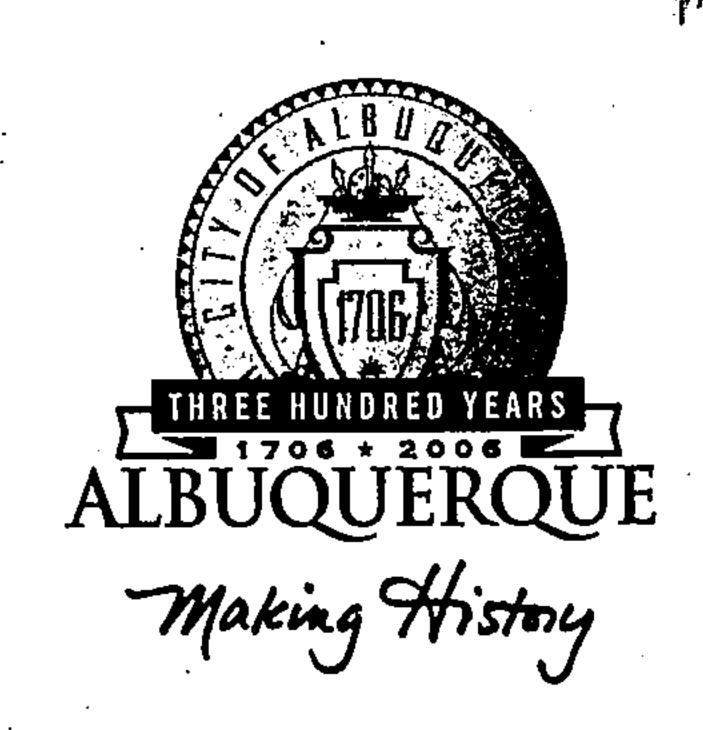
FROM $\rho \approx -15^{\circ} DPM$ FOR ZONE 1 $Q_B = 2.03$ $Q_0 = 4.37$ CFS/AC

BASIN 6 Q = 2.03 $Q_0 = (2.16)$ AC + 4.37 $Q_0 = (1.21)$ AQ = 5.29 CFS

TOTAL Q = BASIN 6 + BASIN 7 + BASIN 0-1 = 5.29 + 8.81 + 7.4 = 21.5 CFS

SIZE PIPE IN POND 6

CITY OF ALBUQUERQUE



January 3, 2006

Shahab Biazar, P.E.

Advanced Engineering and Consulting
44166 Anaheim Ave. NE
Albuquerque, NM 87113

Re: AHEPA 501 Apartments # 3, 8620 Blue Water Rd. NW, Traffic Circulation Layout Architect's / Engineer's Stamp dated 12-22-05 (K10-D48)

Dear Mx. Biazar,

Based upon the information provided in your submittal received 12-29-05, the above referenced plan cannot be approved for Building Permit until the following comments are addressed:

1. Please show a vicinity map.

- 2. Please include two copies of the traffic circulation layout at the next submittal.
- 3. Please note that the 2-foot overhang is not allowed to encroach on the 6 foot required width of sidewalk. Therefore, the sidewalk can be 8 feet wide with a 2-foot overhang, or the parking spaces must be 20 feet in length with bumpers.
- 4. Please place the proposed sidewalk at the property line, not the back of curb.
- 5. Please ensure all ramps are ADA compliant.
- 6. Show a detail of the wheelchair ramp located at the proposed driveway and include the wheelchair ramp east of Camino Azul, if existing.
- 7. Label the compact parking spaces by placing the words "compact" on the pavement of each space also the pavement marking material needs to be identified.
- 8. In lieu of 15'; the entrance will need to be at least 22' for fire truck access.
- 9. Provide Solid Waste approval before placing the dumpster behind the proposed gate.
- 10. Include sidewalk along Camino Azul.
- 11. Include all standard drawing numbers for sidewalks, curb & gutter, drive-pads (approaches), and wheelchair ramps.
- 12. Indicate the service road width and the purpose.
- 13. Identify the drive isle widths around the middle parking stalls.

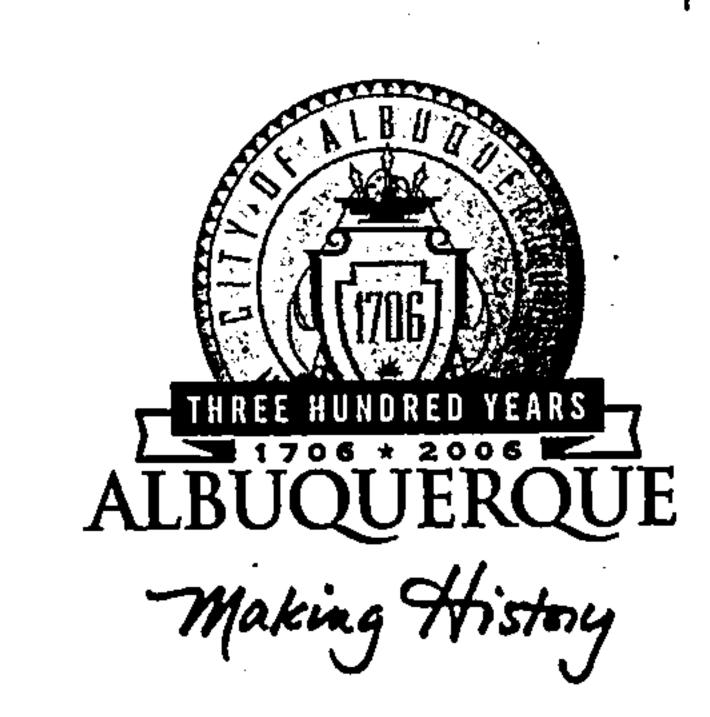
P.O. Box 1293

Albuquerque.

New Mexico 87103

www.caba.gov

CITY OF ALBUQUERQUE



- 14. Provide the distance from Bluewater Rd. to the gates.
- 15. All information will need to be submitted on one sheet.

If you have any questions, you can contact me at 924-3991.

Sincerely,

Wilfred A. Gallegos, P.E.

Traffic Engineer, Planning Dept.

Development and Building Services

C: file

P.O. Box 1293

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New Mexico 87103

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