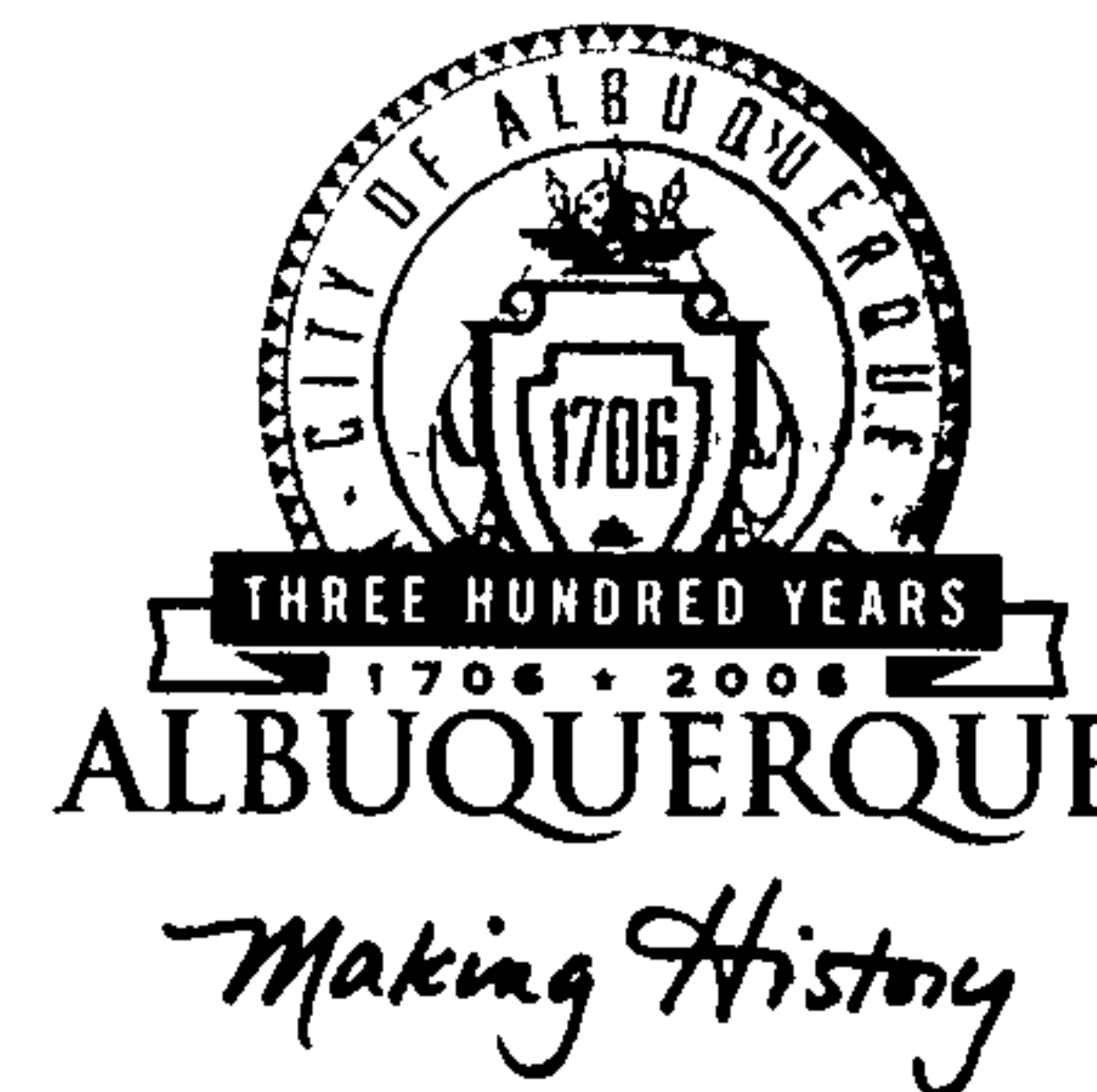


CITY OF ALBUQUERQUE



December 29, 2005

Mr. Martin Garcia, PE
ABQ ENGINEERING
6739 Academy Rd. NE, Suite 130
Albuquerque, NM 87109

RE: MIRA MESA SUBDIVISION, (J-10/D40)
Engineers Certification for Release of Financial Guaranty
Engineers Stamp dated 09/30/2004
Engineers Certification dated 12/27/2005

Dear Martin:

Based upon the information provided in your Engineer's Certification Submittal dated 12/27/2005, the above referenced plan is adequate to satisfy the Grading and Drainage Certification for Release of Financial Guaranty.

P.O. Box 1293

If you have any questions, you can contact me at 924-3982.

Albuquerque

Sincerely,

Arlene V. Portillo
Plan Reviewer, Planning Dept.- Hydrology
Development and Building Services

New Mexico 87103

www.cabq.gov

C: Marilyn Maldonado, COA# 749981
File

December 27, 2005

Mr. Brad Bingham
City of Albuquerque
600 2nd Street NW
Albuquerque, NM 87102

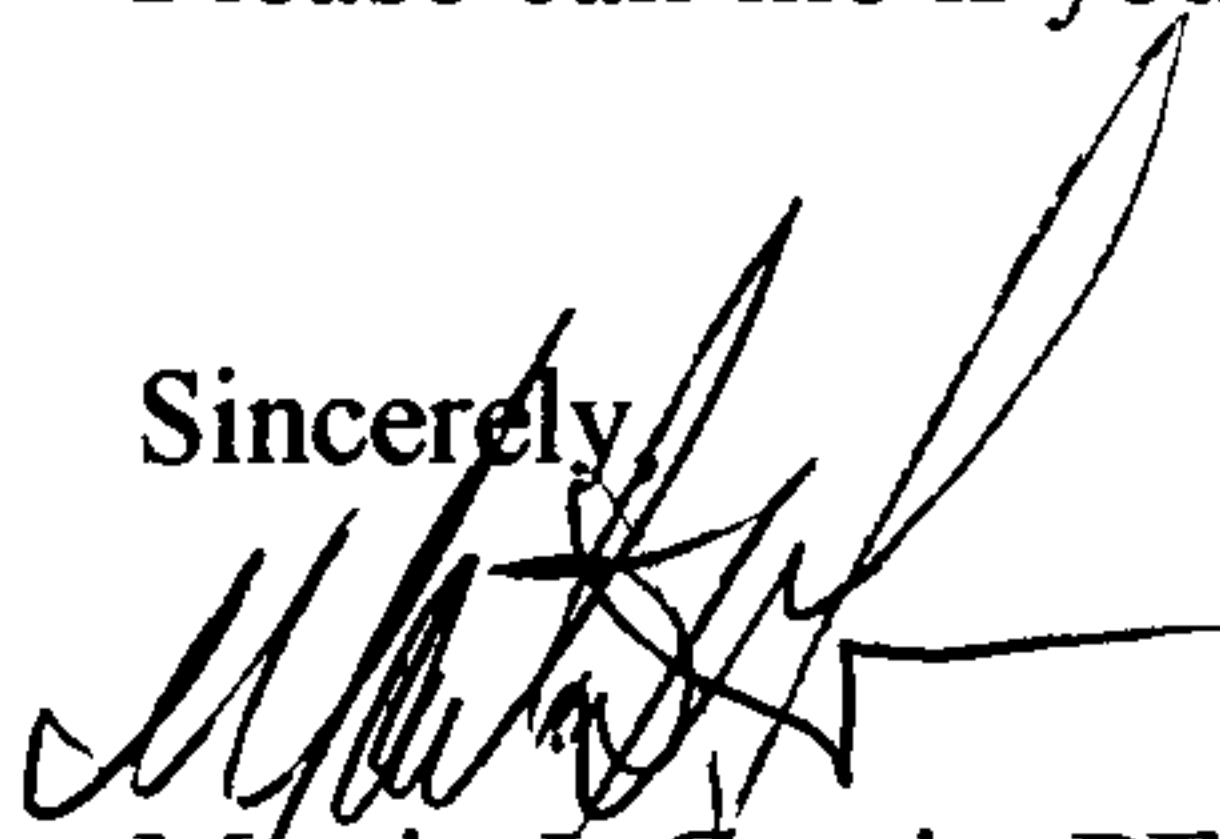
RE: As-Built Grading and Drainage Plan Submittal for Mira Mesa Estates Subdivision

Dear Mr. Bingham:

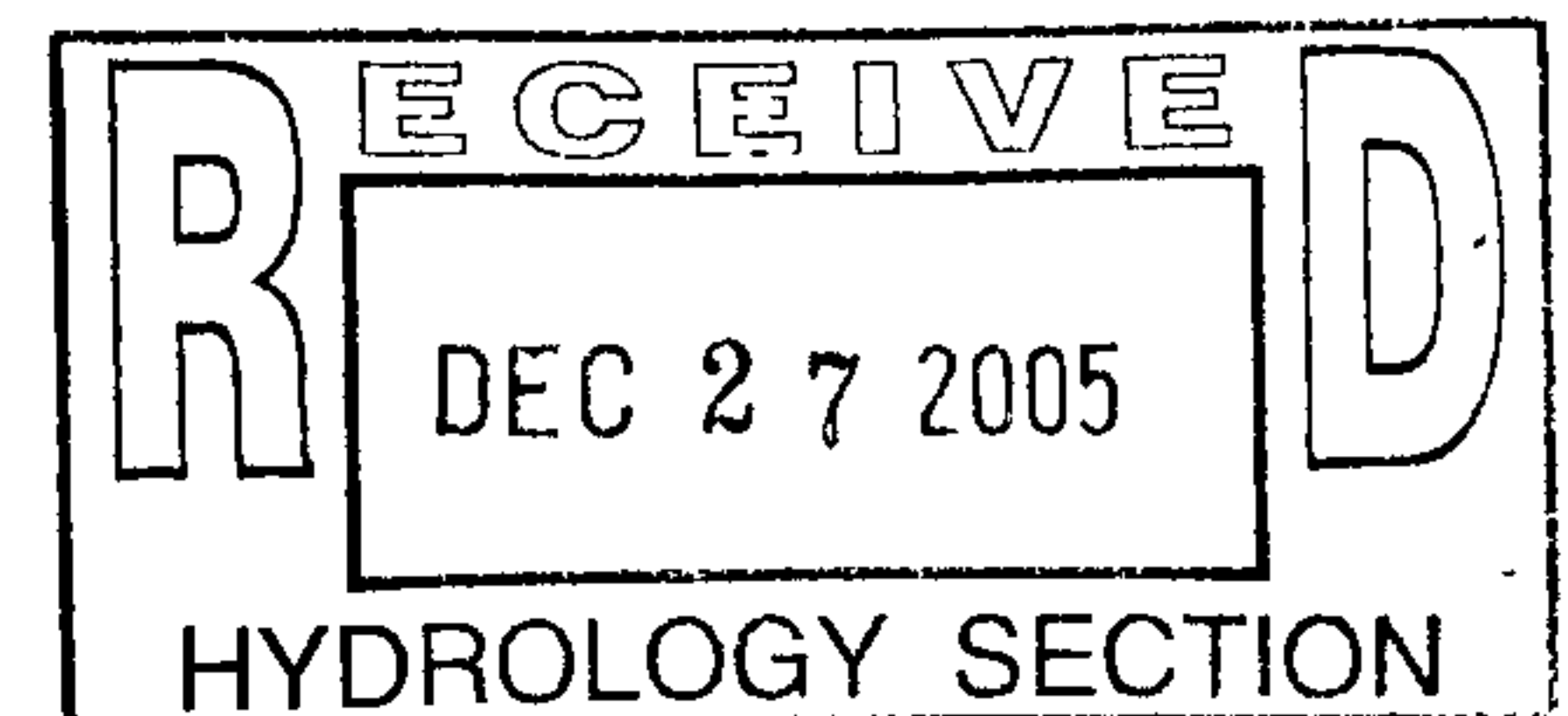
Transmitted herewith for your review and approval is the As Built Grading and Drainage Plan for the Mira Mesa Estates Subdivision located at 68th Street and Hanover for your approval and release of financial guarantee.

Please call me if you need any clarification or require additional information.

Sincerely,



Martin J. Garcia, PE
ABQ Engineering, Inc.
24110



DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/28/2003rd)

PROJECT TITLE: Mira Mesa Subdivision
DRB #: EPC#:

ZONE MAP/DRG. FILE #: H-40
WORK ORDER#: 749981

LEGAL DESCRIPTION: I
CITY ADDRESS:

ENGINEERING FIRM: ABQ Engineering
ADDRESS: 6739 Academy NE Suite 130
CITY, STATE: Albuquerque

CONTACT: Martin J. Garcia
PHONE: 255-7802
ZIP CODE: 87109

OWNER: Hanover Group
ADDRESS: 8601 Alameda Boulevard NE
CITY, STATE: Albuquerque, NM

CONTACT: Terry Corlis
PHONE: 821-5600
ZIP CODE: 87113

ARCHITECT:
ADDRESS:
CITY, STATE:

CONTACT:
PHONE:
ZIP CODE:

SURVEYOR:
ADDRESS:
CITY, STATE:

CONTACT:
PHONE:
ZIP CODE:

CONTRACTOR:
ADDRESS:
CITY, STATE:

CONTACT:
PHONE:
ZIP CODE:

CHECK TYPE OF SUBMITTAL:

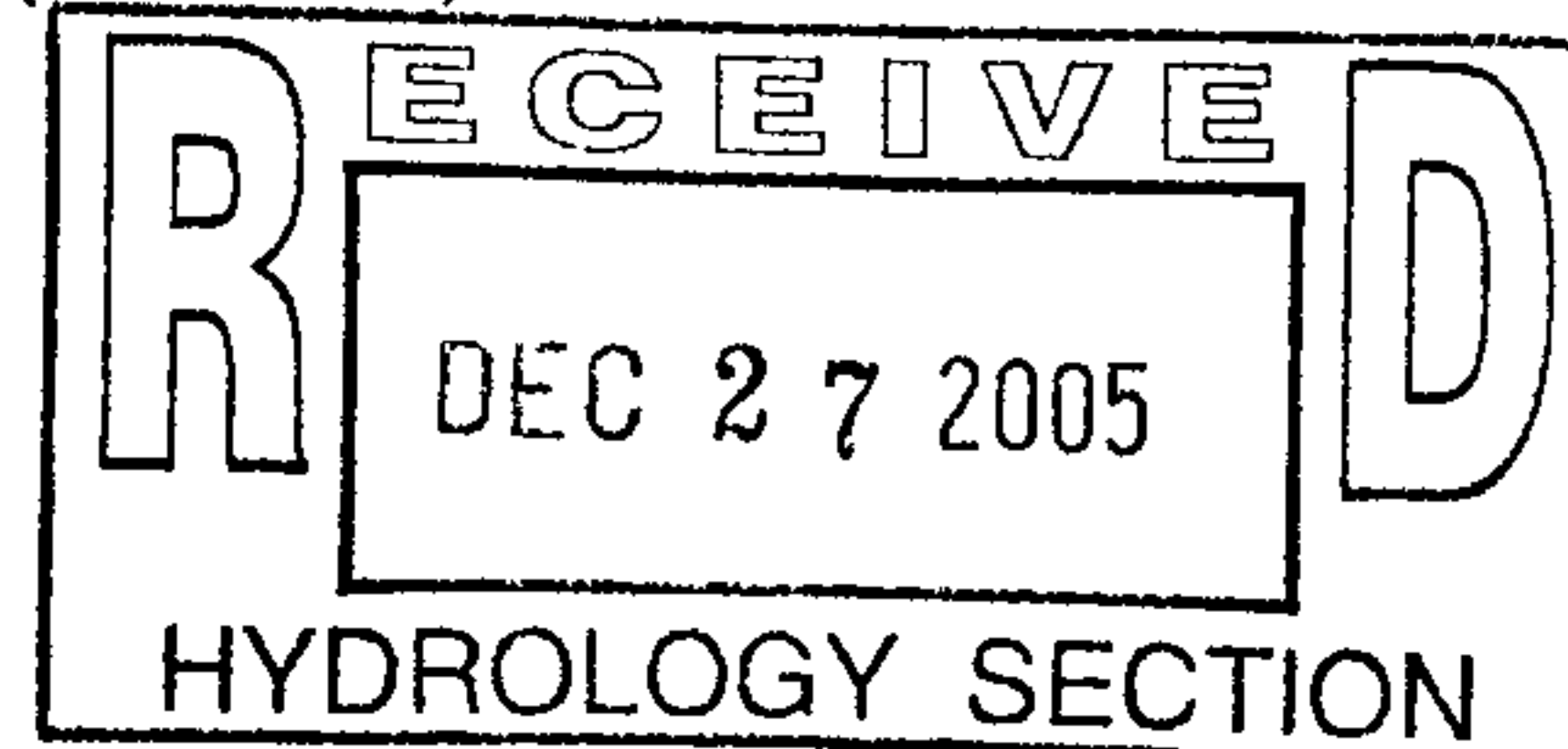
- ☐ DRAINAGE REPORT
- ☐ DRAINAGE PLAN 1st SUBMITTAL, *REQUIRES TCL or equal*
- ☐ DRAINAGE PLAN RESUBMITTAL
- ☐ CONCEPTUAL GRADING & DRAINAGE PLAN
- ☐ GRADING PLAN
- ☐ EROSION CONTROL PLAN
- ☒ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ☐ CLOMR/LOMR
- ☐ TRAFFIC CIRCULATION LAYOUT (TCL)
- ☐ ENGINEERS CERTIFICATION (TCL)
- ☐ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- ☐ OTHER

CHECK TYPE OF APPROVAL SOUGHT:

- ☒ SIA / FINANCIAL GUARANTEE RELEASE
- ☐ PRELIMINARY PLAT APPROVAL
- ☐ S. DEV. PLAN FOR SUB'D. APPROVAL
- ☐ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ☐ SECTOR PLAN APPROVAL
- ☐ FINAL PLAT APPROVAL
- ☐ FOUNDATION PERMIT APPROVAL
- ☐ BUILDING PERMIT APPROVAL
- ☒ CERTIFICATE OF OCCUPANCY (PERM.)
- ☐ CERTIFICATE OF OCCUPANCY (TEMP.)
- ☐ GRADING PERMIT APPROVAL
- ☐ PAVING PERMIT APPROVAL
- ☐ WORK ORDER APPROVAL
- ☐ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ☐ YES
- ☒ NO
- ☐ COPY PROVIDED



DATE SUBMITTED: December 27, 2005

BY: Martin J. Garcia

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 submittal may be required based on the following:

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.

ABQ Engineering, Inc.

engineers/ planners/ construction services

6739 Academy Road NE, Suite 130
Albuquerque, NM 87109

www.ABQENG.com

file

J-10/1040

FAX

DATE:

1/30/2006

TO:

BRAD BINGHAM

COMPANY:

PHONE:

FAX #:

924-3440

FROM:

MARTIN FRANCA

PHONE: (505) 255-7802

FAX: (505) 255-7902

of Pages:

(including cover page)

3

COMMENTS:

Please see attached, Approve, sign! return. Thanks
MFC



January 30, 2006

Mr. Brad Bingham
City of Albuquerque Development Services
600 Second Street SW
Albuquerque, NM 87102

RE: Storm inlet detail for Mira Mesa Subdivision- to be installed in Glenrio Street

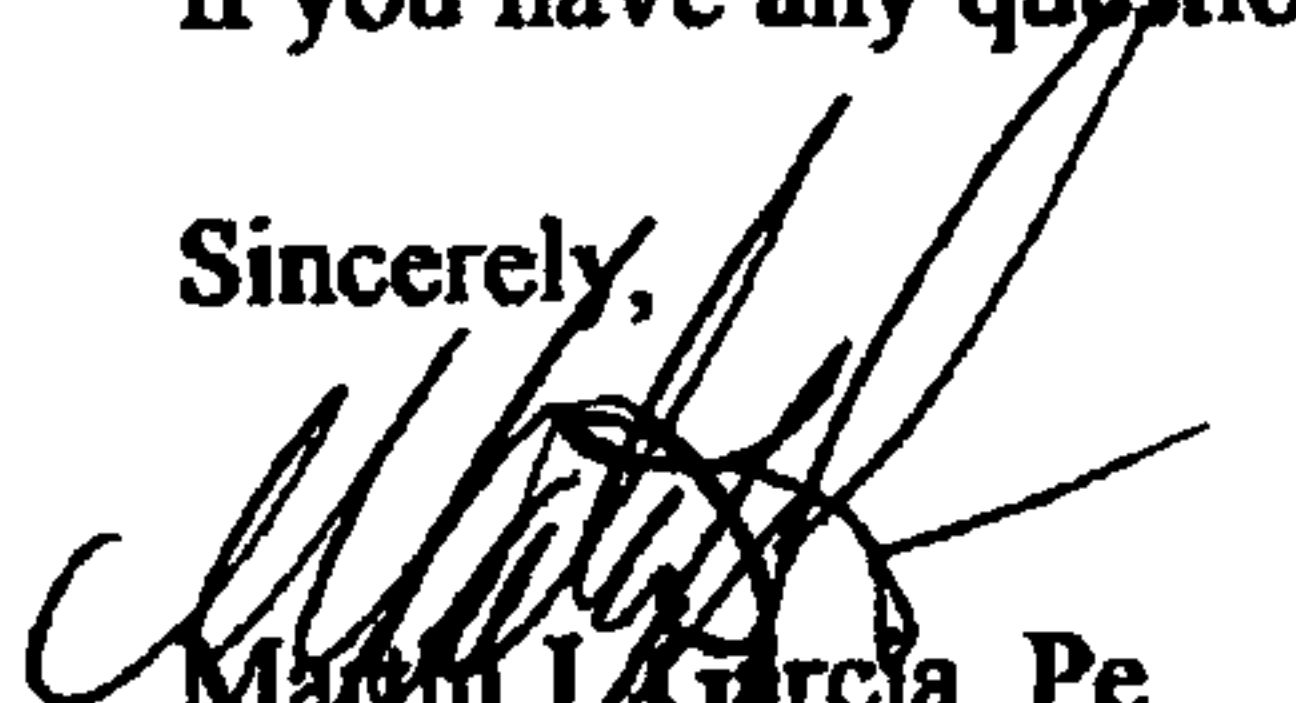
Dear Mr. Bingham:

The follow detail is proposed to be used to install the required curb inlet on Glenrio at 68th Street as part of the Mira Mesa Subdivision project. As you and I have discussed, a single "A" inlet with an 18" pipe connected directly into the existing storm drain will be acceptable.

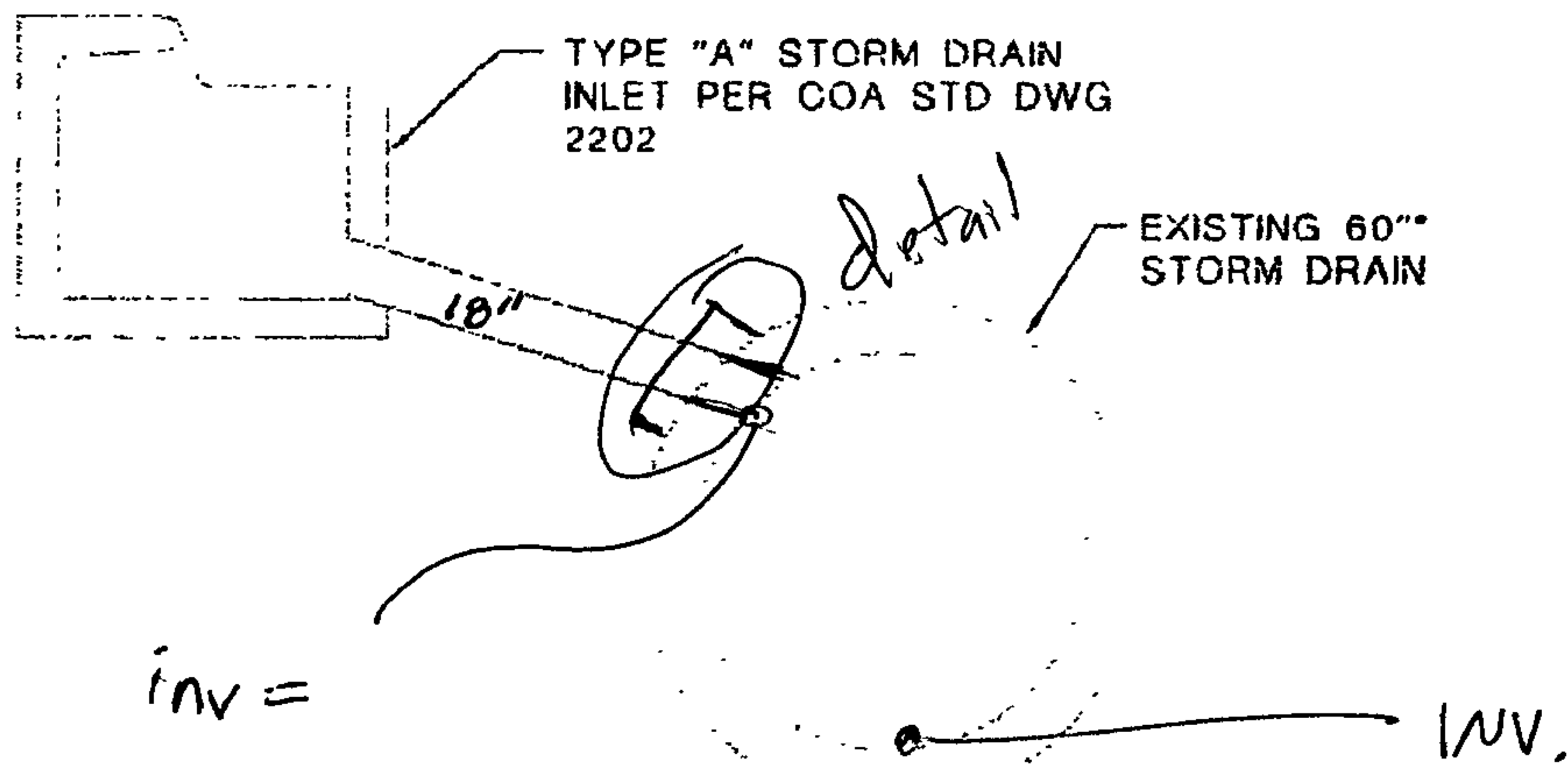
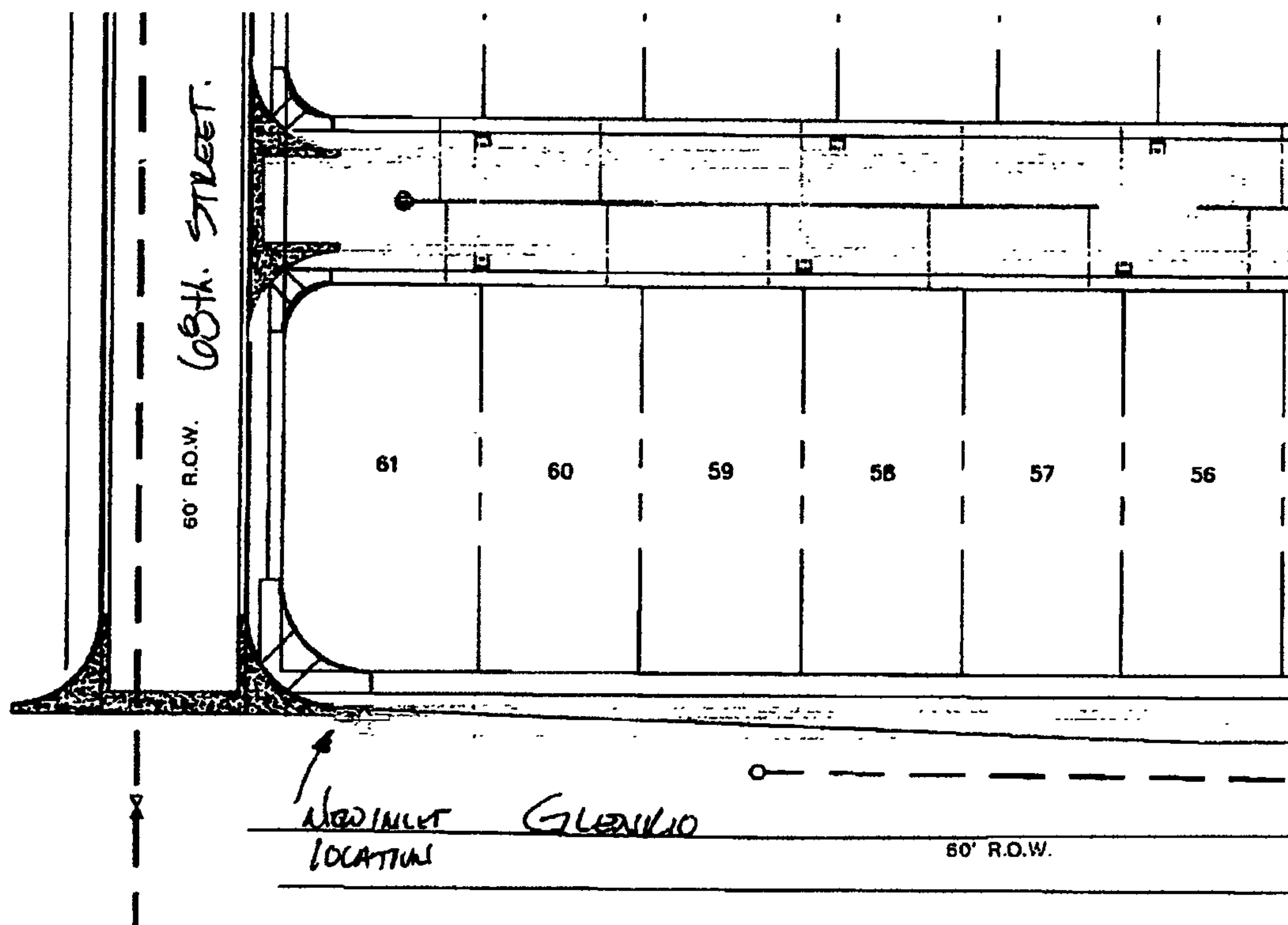
After further discussion with Mr. Jim Pung of the DRC staff, he has asked me to get your approval in writing prior to having him approve and the contractor install the inlet. I have enclosed a copy of the detail given to the contractors for pricing. Please review and approve this detail as soon as possible.

If you have any questions or require additional information, please call me at 255-7802.

Sincerely,



Martin J. Garcia, Pe
ABQ Engineering, Inc.
24110/



STORM INLET DETAIL

3/8" = 1'-0"

ABQ

Engineering,
Inc.

Engineers - Planners

Construction Services

8730 Academy Ed NE, Suite 130

Albuquerque, NM 87109

505-255-7902 FAX 505-255-7902

INLET DETAIL

MIRA MESA ESTATES

24110 1/18/05

M GARCIA

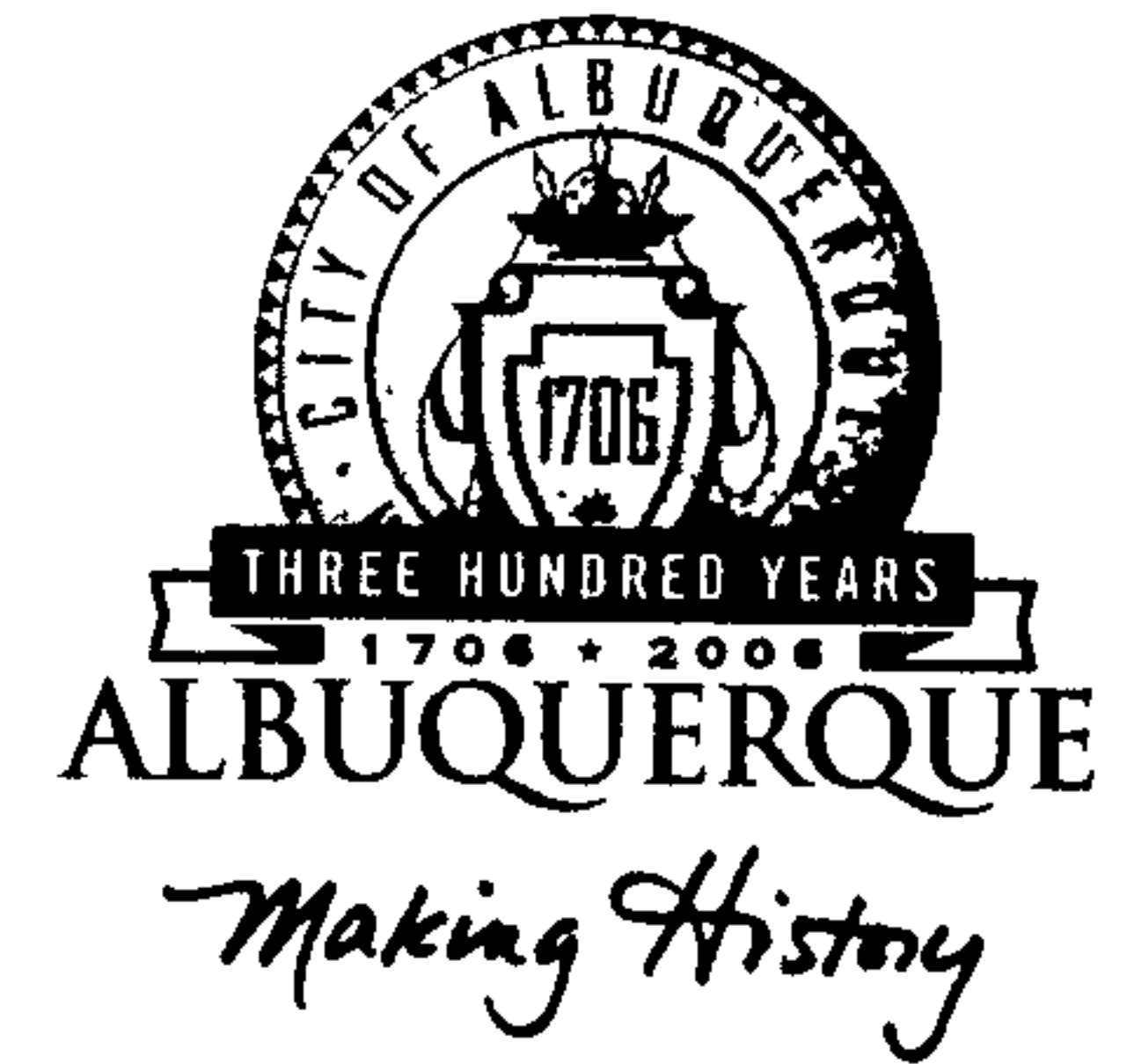
F PHILLIPS

M GARCIA

GLENRIO INLET.DWG

1 1

CITY OF ALBUQUERQUE



October 15, 2004

Martin Garcia, PE
ABQ Engineering
6739 Academy NE Ste 130
Albuquerque, NM 87109

Re: Mira Mesa Subdivision Drainage Report
Engineer's Stamp dated 9-30-04 (J10/D40)

Dear Mr. Garcia,

P.O. Box 1293

Based upon the information provided in your submittal dated 9-30-04, the above referenced plan is approved for Preliminary Plat action by the DRB. Once that board has approved the plan, please submit a mylar copy for my signature in order to obtain a Grading Permit.

Albuquerque

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).

New Mexico 87103

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

www.cabq.gov

Sincerely,

Bradley L. Bingham, PE
Principal Engineer, Planning Dept.
Development and Building Services

C: Chuck Caruso, DMD
file

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/28/2003rd)

PROJECT TITLE: Mira Mesa Estates Subdivision

ZONE MAP/DRG. FILE #: J-10 10040

DRB #: 1003604

EPC#: _____

WORK ORDER#: _____

LEGAL DESCRIPTION: Tracts 217-220 town of Atrisco Grant Airport Unit

CITY ADDRESS: _____

ENGINEERING FIRM: ABQ Engineering, Inc.

ADDRESS: 6739 Academy NE Suite 130

CITY, STATE: Albuquerque, NM

CONTACT: Martin J. Garcia

PHONE: 255-7802

ZIP CODE: 87109

OWNER: D-T Land Development

ADDRESS: 8601 Washington NE

CITY, STATE: Albuquerque, NM

CONTACT: Terry Corlis

PHONE: 821-5600

ZIP CODE: 87113

ARCHITECT: _____

ADDRESS: _____

CITY, STATE: _____

CONTACT: _____

PHONE: _____

ZIP CODE: _____

SURVEYOR: _____

ADDRESS: _____

CITY, STATE: _____

CONTACT: _____

PHONE: _____

ZIP CODE: _____

CONTRACTOR: _____

ADDRESS: _____

CITY, STATE: _____

CONTACT: _____

PHONE: _____

ZIP CODE: _____

CHECK TYPE OF SUBMITTAL:

- ☒ DRAINAGE REPORT
- ☐ DRAINAGE PLAN 1st SUBMITTAL, **REQUIRES TCL or equal**
- ☐ DRAINAGE PLAN RESUBMITTAL
- ☐ CONCEPTUAL GRADING & DRAINAGE PLAN
- ☐ GRADING PLAN
- ☐ EROSION CONTROL PLAN
- ☐ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ☐ CLOMR/LOMR
- ☐ TRAFFIC CIRCULATION LAYOUT (TCL)
- ☐ ENGINEERS CERTIFICATION (TCL)
- ☐ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- ☐ OTHER

CHECK TYPE OF APPROVAL SOUGHT:

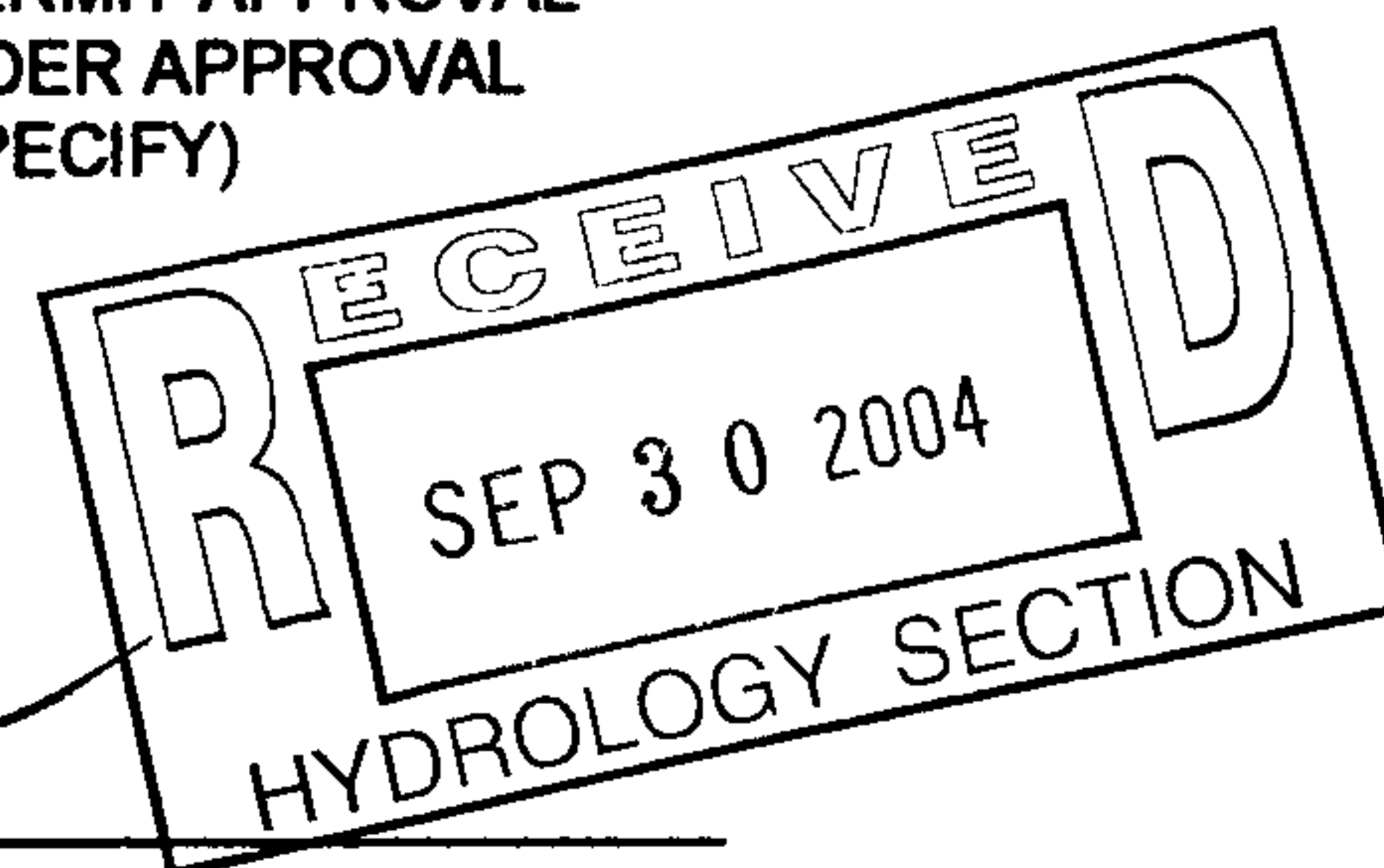
- ☒ SIA / FINANCIAL GUARANTEE RELEASE
- ☒ PRELIMINARY PLAT APPROVAL
- ☐ S. DEV. PLAN FOR SUB'D. APPROVAL
- ☐ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ☐ SECTOR PLAN APPROVAL
- ☐ FINAL PLAT APPROVAL
- ☐ FOUNDATION PERMIT APPROVAL
- ☐ BUILDING PERMIT APPROVAL
- ☐ CERTIFICATE OF OCCUPANCY (PERM.)
- ☐ CERTIFICATE OF OCCUPANCY (TEMP.)
- ☐ GRADING PERMIT APPROVAL
- ☐ PAVING PERMIT APPROVAL
- ☐ WORK ORDER APPROVAL
- ☐ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ☐ YES
- ☒ NO
- ☐ COPY PROVIDED

DATE SUBMITTED: September 30, 2004

BY: [Signature]



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 submittal may be required based on the following:

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 subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

September 30, 2004

Mr. Brad Bingham
City of Albuquerque
600 2nd Street NW
Albuquerque, NM 87102

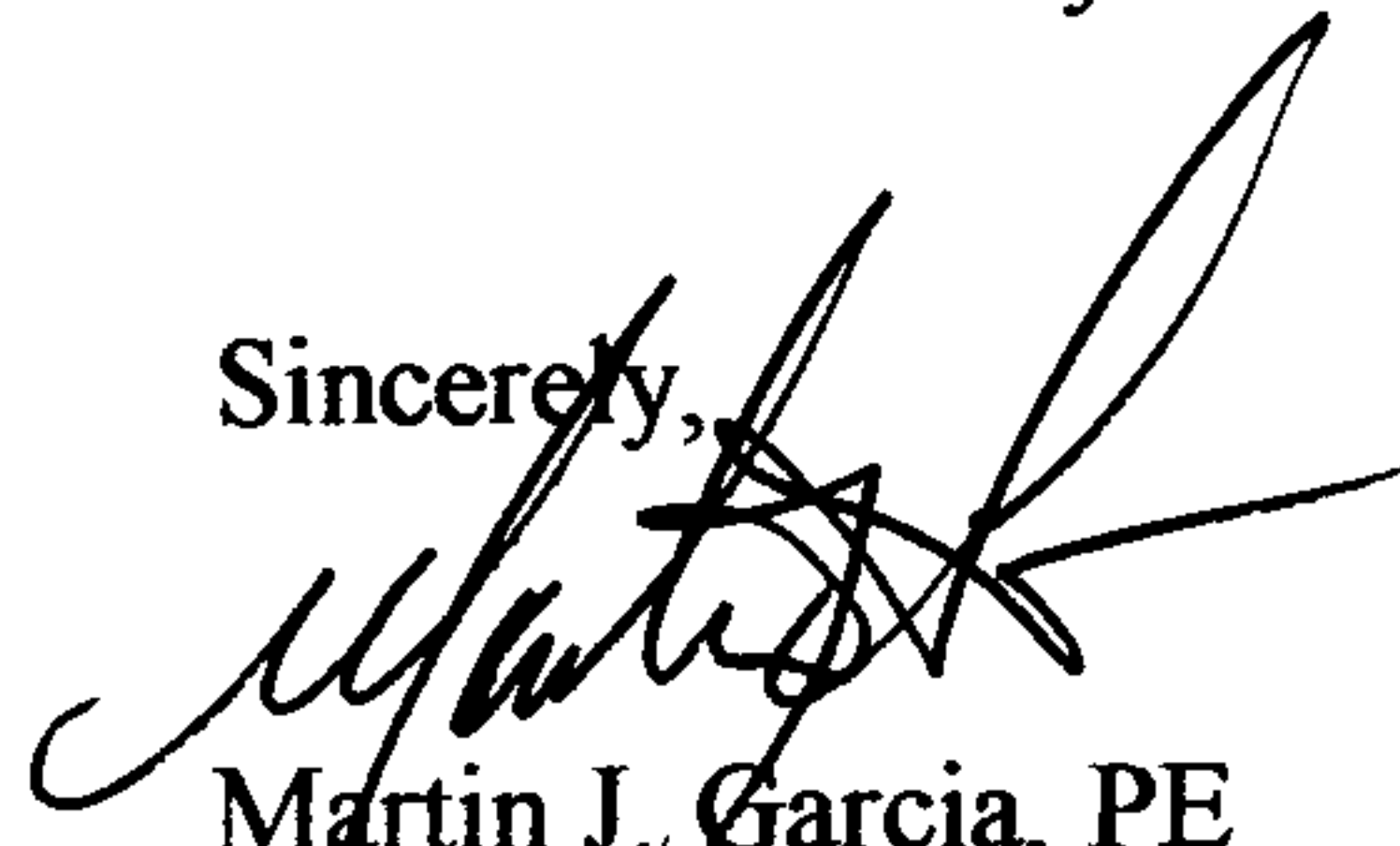
RE: Grading and Drainage Plan Submittal for Mira Mesa Estates Subdivision

Dear Mr. Bingham:

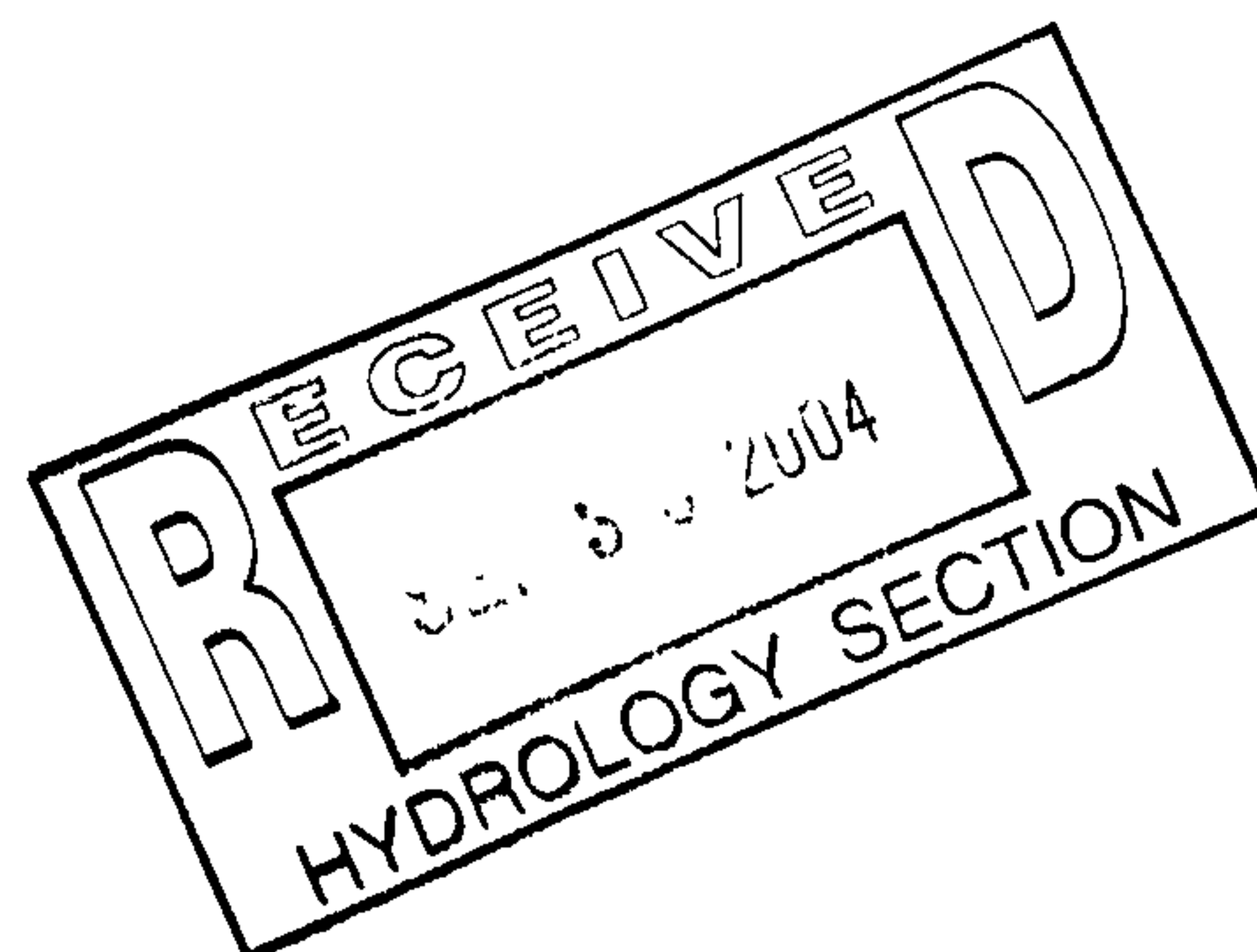
Transmitted herewith for your review and approval is the Grading and Drainage Plan for the Mira Mesa Estates Subdivision located at 68th Street and Hanover.

Please call me if you need any clarification or require additional information.

Sincerely,

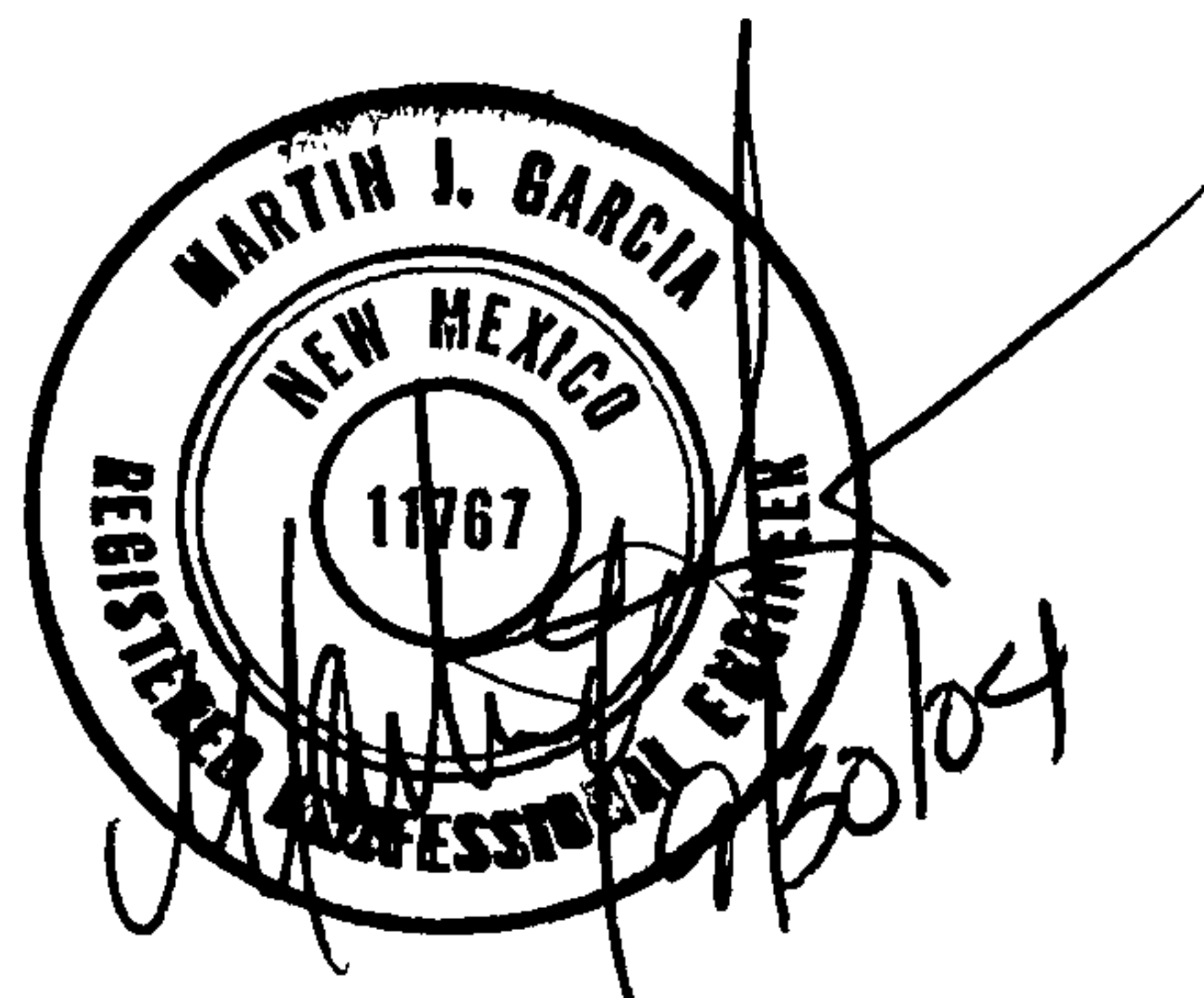


Martin J. Garcia, PE
ABQ Engineering, Inc.
24110



DRAINAGE REPORT
FOR
MIRA MESA ESTATES SUBDIVISION
ALBUQUERQUE, NM
September 2004

BY
ABQ ENGINEERING, INC.
6739 Academy Rd., NE – Suite 130
Albuquerque, NM 87109
255-7802



DRAINAGE REPORT

FOR

MIRA MESA ESTATES SUBDIVISION

ALBUQUERQUE, NM

September 2004

BY

**ABQ ENGINEERING, INC.
6739 Academy Rd., NE – Suite 130
Albuquerque, NM 87109
255-7802**

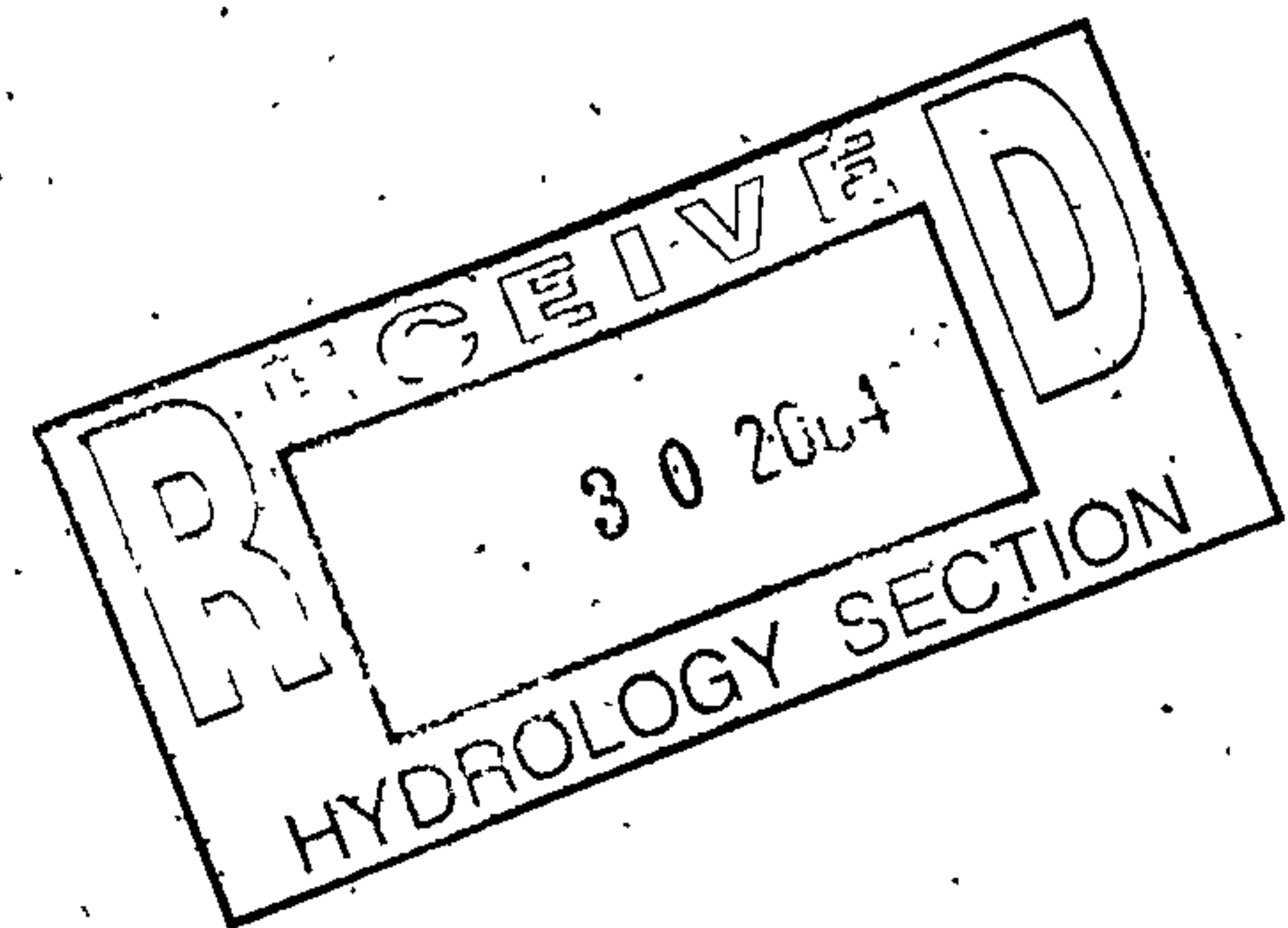


TABLE OF CONTENTS

1. SITE DESCRIPTION..... 8
2. DESIGN-CRITERIA / LAND TREATMENTS 8
3. EXISTING DRAINAGE CONDITIONS 9
4. DRAINAGE MANAGEMENT PLAN..... 9
5. CONCLUSION..... 9

Appendix A

Zone Atlas Maps
Firm Map
Previous Drainage Report by Doug Andrews / Smith Engineering

Appendix B

Existing Condition Calculations
Developed Condition Calculations

Appendix C

Storm Drain Calculations

Plates

Proposed Basin Map 1 of 1
Grading Plan 1 of 1
Preliminary Plat 1 of 1

SITE DESCRIPTION

The proposed subdivision, Mira Mesa Estates comprised of 12.5 acres zoned R2 is to be developed on the east side of Coors Blvd. and west of 68th Street., near West Mesa High School. An additional 7.5 acres, zoned C-2, of the site is not designated for development at this time, and it will remain in natural condition. The site location is shown on the enclosed zone atlas map J-10. The report represents an overall drainage management and grading plan for approval by the City of Albuquerque in order that the subsequent subdivision and development may proceed. The Subdivision site is not located in a designated Flood Hazard Zone per FEMA – Firm Map 35001C0327E. However, the commercial area is. Per the USDA Soil Conservation Services (SCS), the soils type for this site is “Type A”.

DESIGN-CRITERIA

The drainage plan presented in this report has been prepared in accordance with the City of Albuquerque Drainage Ordinances and Chapter 22 of the Development Process Manual DPM.

The hydrological analysis is based on the 100-year frequency, 6-hour duration storm, as represented in Section 22, Part A, Hydrology, of the Development Process Manual. Rainfall intensities per this report are as follows:

Zone	P60	P360	P1440
1	1.87	2.20	2.66

LAND TREATMENT

Residential DPM-Eqn a-4, Section 22

$N=92 \text{ LOTS}/12.5 \text{ ACRES} = 7.36$

$7 \text{ SQRT } (54.17 + 5 (7.36)) = 66\% \text{ D}$

Treatment Type	A	B	C	D
	0.00%	17%	17%	66%

EXISTING DRAINAGE CONDITIONS

The site is currently undeveloped. Topography consists of sparse vegetation and native grasses and chamisa. It has a cross-slope of approximately 1.0 to 2%. The site accepts no offsite flows. The drainage basin to the south (Basin D2-D of West Mesa Diversion Project) is routed to two existing inlets along Glenrio Road. The drainage basin to the north is designed to enter the West Mesa Diversion Project through future inlets in Hanover Road. Runoff currently outfalls to an existing pond within Basin E2-D. The allowable runoff for this site was previously determined in the Drainage Report done by Smith Engineering –West Mesa Diversion Project COA#5381.01 May 1997. In the report, flows from Basin D6-D drain into the two inlets along the north side of Glenrio Road with a Q of 45.7 cfs, and flows from Basin E2-D will drain to an inlet in Hanover Road with a flow of 119.1 cfs.

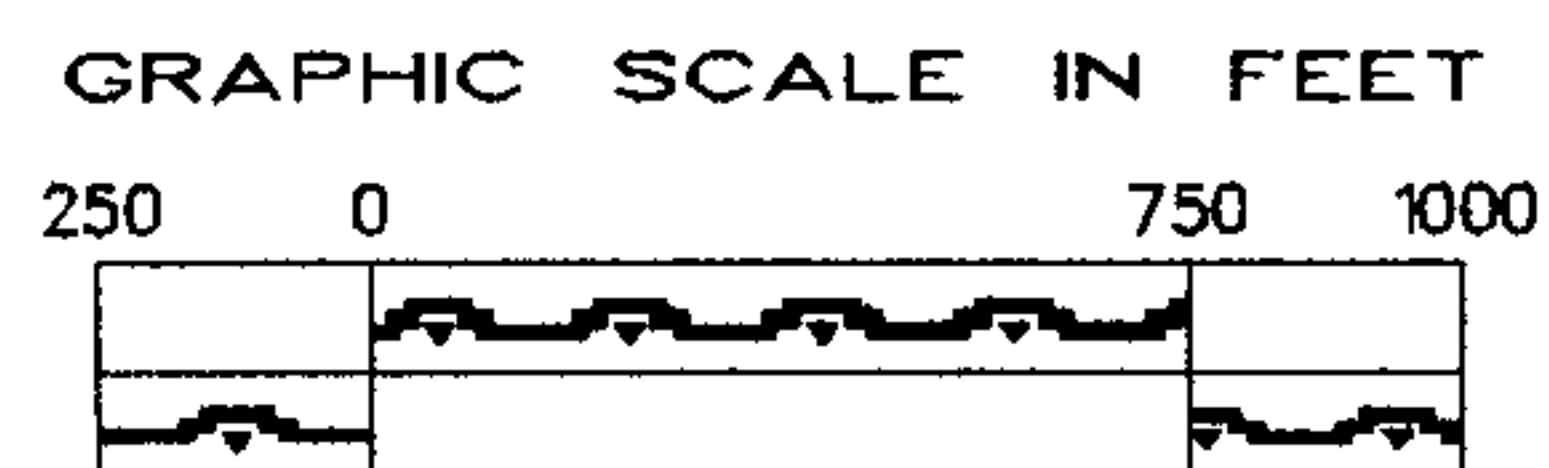
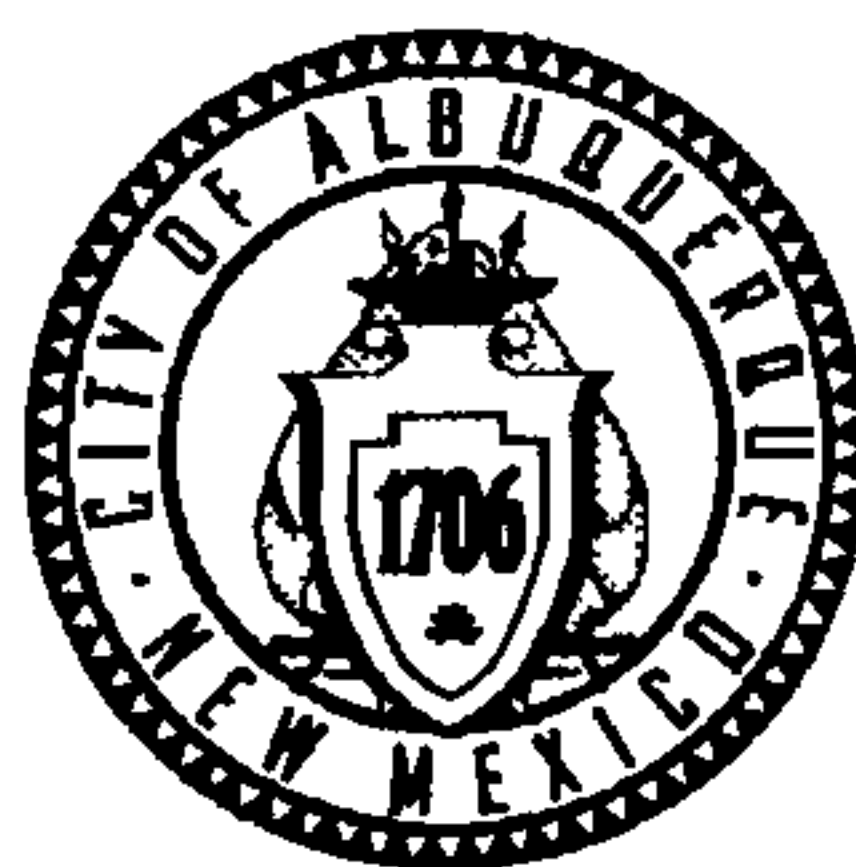
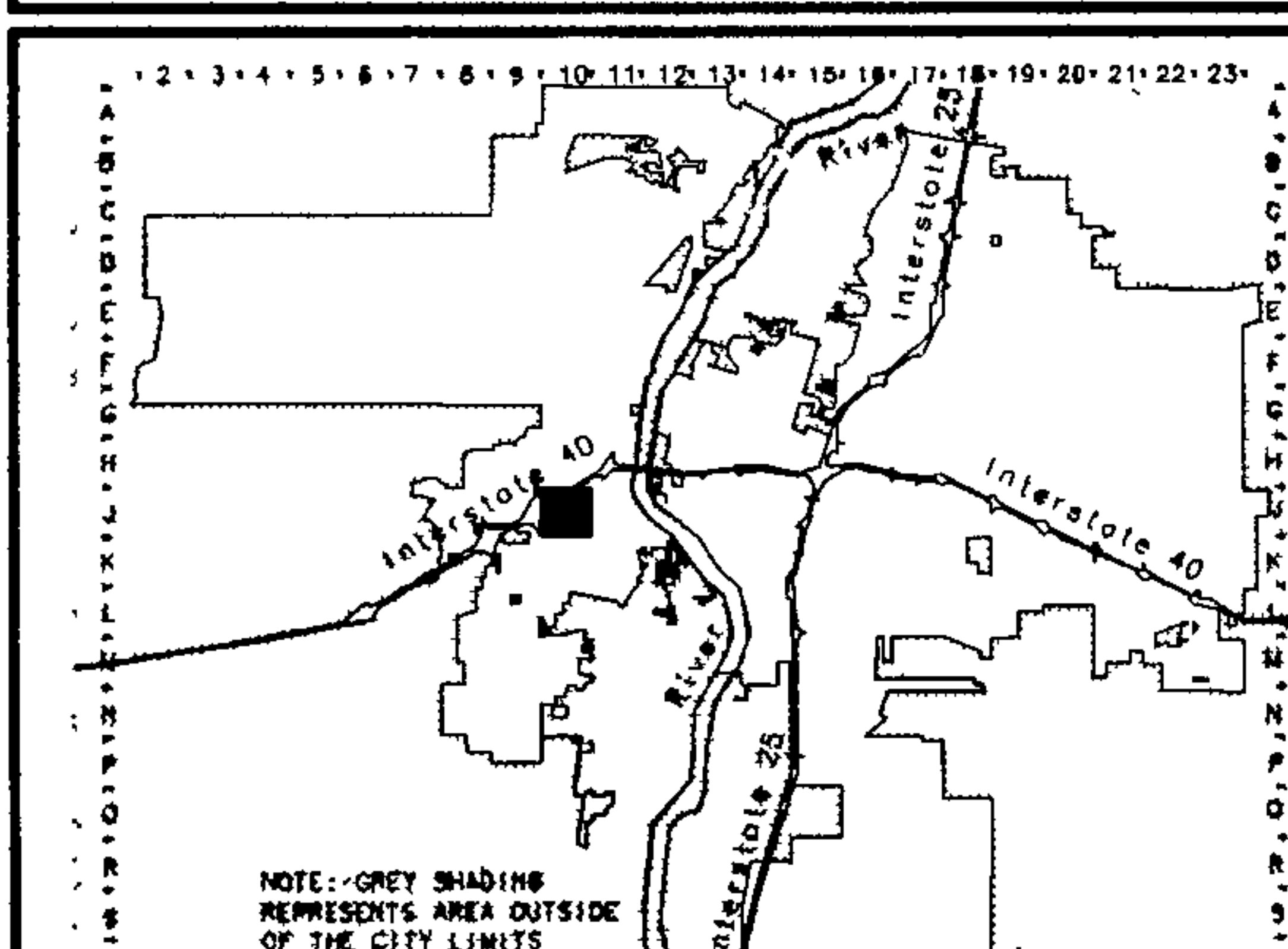
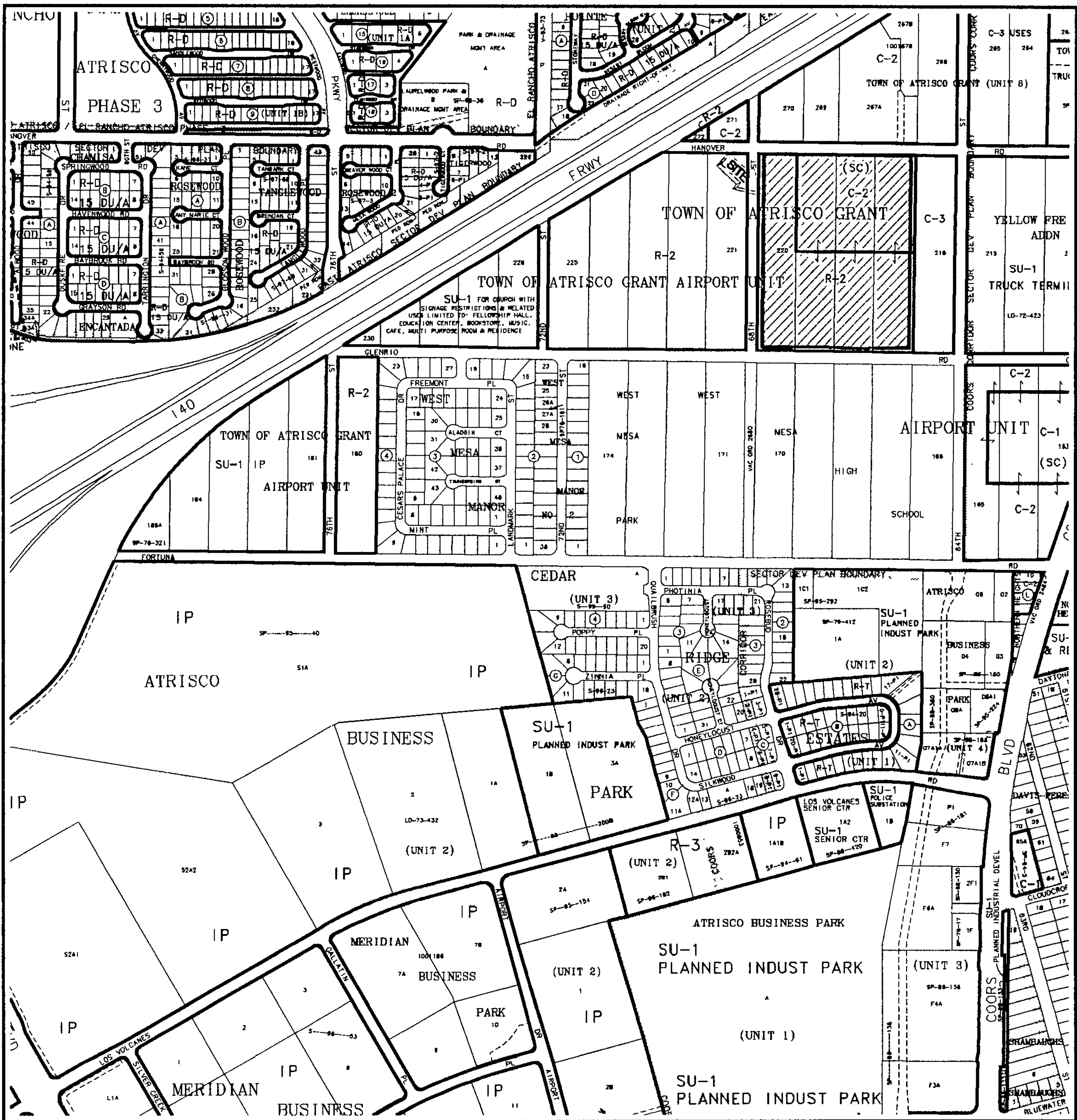
DRAINAGE MANAGEMENT PLAN

It is the intent of this plan to utilize the street sections to transport the developed flows to a drop inlet structure in the roadway near the SE Corner of the subdivision. This flow will then be routed with 30" RCP to the storm drain in Glenrio Road. The storm drain in Glenrio Road outfalls to an existing system in 64th Street. The Subdivision inlet will capture 42.53 cfs. Of the anticipated flows to the inlet in Hanover Road 6.29 cfs will be diverted from Basin E2-D to D6-D (See Basin Map). Minor flows at each entrance will be routed by existing improvements. The design capacity of the existing system can accommodate the proposed drainage (See Storm Drain Calcs.).

CONCLUSION

No adverse impact will result due to developed conditions. Developed flows will be contained within existing improvements. The existing storm drain improvements for the 64th Street Storm Drain system have been designed and built to accommodate the developed flows from this subdivision.

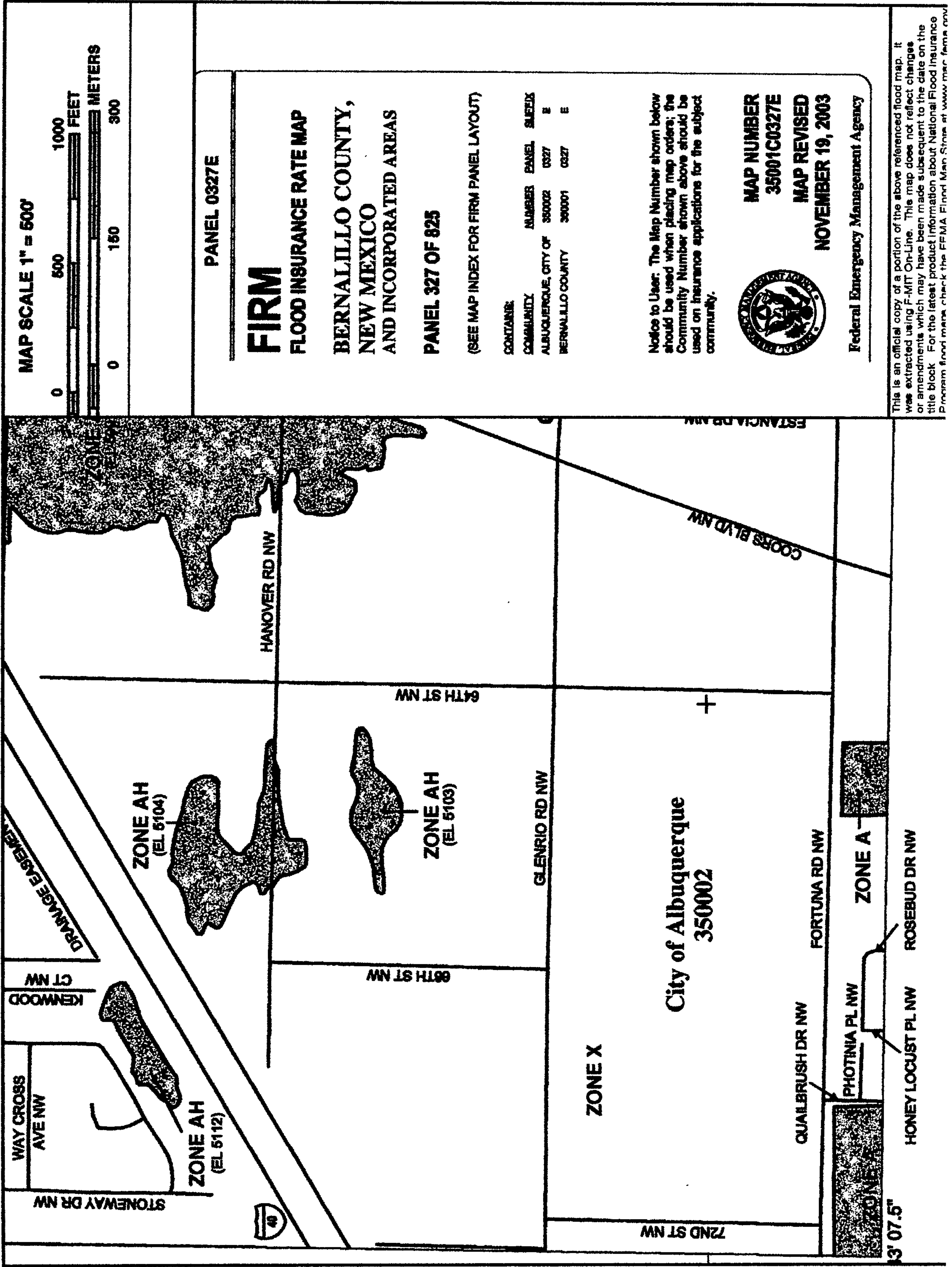
APPENDIX A



Zone Atlas Page
J-10-Z

Albuquerque **G**eographic **I**nformation **S**ystem
PLANNING DEPARTMENT

© Copyright 2003



CITY OF ALBUQUERQUE, NEW MEXICO

WEST MESA DIVERSION PROJECT DRAINAGE ANALYSIS



DRAFT COPY

COA PROJECT NO. 5381-01
PUBLIC WORKS DEPARTMENT
HYDROLOGY DIVISION

Prepared by



Smith Engineering Company

A Full Service Engineering Company

SEE WMDP REVISION
NOTE BOOK FOR ALL
REVISION INFORMATION

DLH

CHANGES WITHIN
THIS DOCUMENT
SHOULD ALSO BE
IMPLEMENTED INTO
FINAL REPORT

DRAFT REPORT: MAY, 1997

CITY OF ALBUQUERQUE, NEW MEXICO

**WEST MESA DIVERSION PROJECT
DRAINAGE ANALYSIS**

**COA PROJECT NO. 5381-01
PUBLIC WORKS DEPARTMENT
HYDROLOGY DIVISION**

DRAFT REPORT: MAY 1997

Prepared by

**SMITH ENGINEERING COMPANY
6400 UPTOWN BOULEVARD NE SUITE 500E
ALBUQUERQUE, NEW MEXICO 87110**

SEC No. 196105

□(s16.67h8.5vOT□&18D

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
 INPUT FILE = 42mod1.in

RUN DATE (MON/DAY/YR) = 06/24/2002
 USER NO. = C_ANDRSN.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= 2.660
SEDIMENT BULK										PK BF = 1.02
COMPUTE NM HYD	A1-D&AP-1	-	1	.06440	87.83	7.319	2.13089	1.800	2.131	PER IMP= 80.00
ROUTE MCUNGE	AP-1.R	1	2	.06440	85.93	7.296	2.12420	1.850	2.085	CCODE = .2
COMPUTE NM HYD	B3-D&AP-2	-	88	.01900	41.13	2.341	2.30977	1.550	3.382	PER IMP= 90.00
COMPUTE NM HYD	B1-D&AP-3	-	1	.02930	74.98	3.330	2.13089	1.500	3.999	PER IMP= 80.00
ROUTE MCUNGE	AP-3.R	1	3	.02930	69.31	3.304	2.11441	1.550	3.696	CCODE = .2
COMPUTE NM HYD	B2-D	-	1	.01850	30.94	2.102	2.13089	1.650	2.613	PER IMP= 80.00
ADD HYD	AP-4	1& 3	70	.04780	92.51	5.407	2.12077	1.550	3.024	
ADD HYD	PART AP-5	70&88	5	.06680	133.63	7.747	2.17452	1.550	3.126	
ADD HYD	AP-5	5& 2	89	.13120	173.23	15.043	2.14981	1.650	2.063	
ROUTE MCUNGE	AP-5.R	89	2	.13120	171.72	15.023	2.14690	1.650	2.045	CCODE = .2
COMPUTE NM HYD	C3-D	-	90	.01750	30.03	1.989	2.13089	1.650	2.681	PER IMP= 80.00
ADD HYD	PART AP-7	2&90	3	.14870	201.75	17.011	2.14500	1.650	2.120	
COMPUTE NM HYD	C1-D&AP-6	-	1	.04860	88.78	5.060	1.95202	1.600	2.854	PER IMP= 70.00
ADD HYD	AP-7	3& 1	3	.19730	285.34	22.071	2.09746	1.650	2.260	
COMPUTE NM HYD	I40D-1	-	1	.12600	81.46	6.514	.96940	1.800	1.010	PER IMP= 25.00
ROUTE RESERVOIR	AP-11	1	2	.12600	4.84	5.613	.83529	3.400	.060	AC-FT= 4.688
ROUTE	AP-11.R	2	4	.12600	4.81	5.581	.83056	3.650	.060	
COMPUTE NM HYD	I40D-2	-	1	.04840	60.20	2.502	.96940	1.500	1.943	PER IMP= 25.00
ADD HYD	AP-12	1& 4	5	.17440	60.21	8.084	.86909	1.500	.539	
ROUTE	AP-12.R	5	6	.17440	55.62	8.068	.86745	1.600	.498	
COMPUTE NM HYD	C4-D	-	1	.03820	91.98	3.977	1.95201	1.500	3.762	PER IMP= 70.00
ADD HYD	AP-13	1& 6	4	.21260	136.62	12.045	1.06232	1.550	1.004	
ROUTE MCUNGE	AP-13.R	4	6	.21260	135.07	12.034	1.06132	1.550	.993	CCODE = .1
COMPUTE NM HYD	C5-D	-	1	.03950	74.99	3.622	1.71947	1.550	2.966	PER IMP= 57.00
ADD HYD	AP-14	1& 6	7	.25210	210.06	15.656	1.16444	1.550	1.302	
ROUTE MCUNGE	AP-14.R	7	8	.25210	201.88	15.624	1.16204	1.550	1.251	CCODE = .2
COMPUTE NM HYD	C6-D	-	1	.02530	50.91	2.851	2.11301	1.600	3.144	PER IMP= 79.00
ADD HYD	AP-15	1& 8	9	.27740	252.76	18.475	1.24877	1.550	1.424	
ROUTE MCUNGE	AP-15.R	9	10	.27740	249.83	18.426	1.24548	1.600	1.407	CCODE = .2
COMPUTE NM HYD	C2-D	-	1	.00970	23.37	1.010	1.95202	1.500	3.764	PER IMP= 70.00
ADD HYD	AP-15A	10& 1	9	.28710	265.94	19.436	1.26935	1.600	1.447	
ROUTE MCUNGE	AP-15A.R	9	10	.28710	261.63	19.390	1.26634	1.600	1.424	CCODE = .2
COMPUTE NM HYD	C7-D	-	1	.00560	10.61	.583	1.95201	1.600	2.960	PER IMP= 70.00
ADD HYD	AP-16	1&10	30	.29270	272.24	19.973	1.27945	1.600	1.453	
ADD HYD	PART AP-16A	3&30	21	.49000	555.45	42.044	1.60883	1.600	1.771	
COMPUTE NM HYD	CRDP-1	-	30	.00466	4.04	.115	.46298	1.500	1.355	PER IMP= .00
ADD HYD	AP-16A	21&30	30	.49466	558.71	42.159	1.59803	1.600	1.765	
ROUTE RESERVOIR	AP-17	30	33	.49466	95.97	41.839	1.58590	2.400	.303	AC-FT= 20.309
ROUTE MCUNGE	AP-17.R	33	12	.49466	95.98	41.835	1.58575	2.400	.303	CCODE = .2
COMPUTE NM HYD	D1-D&AP-18	-	1	.03270	39.52	2.780	1.59426	1.700	1.889	PER IMP= 50.00
ADD HYD	PART AP-19	1&12	40	.52736	114.56	44.616	1.58628	1.850	.339	
COMPUTE NM HYD	D3-D&AP-22	-	1	.02640	62.67	3.252	2.30977	1.550	3.709	PER IMP= 90.00
ADD HYD	AP-19	1&40	34	.55376	143.47	47.868	1.62077	1.700	.405	
ROUTE MCUNGE	AP-19.R	34	41	.55376	143.43	47.852	1.62026	1.750	.405	CCODE = .2
COMPUTE NM HYD	D2-D&AP-20	-	42	.02950	34.94	2.508	1.59426	1.750	1.850	PER IMP= 50.00
ADD HYD	AP-21	41&42	43	.58326	178.37	50.361	1.61894	1.750	.478	
ROUTE MCUNGE	AP-21.R	43	44	.58326	178.36	50.352	1.61867	1.750	.478	CCODE = .2
COMPUTE NM HYD	I40D-3&AP-23	-	45	.00897	16.17	.842	1.75941	1.550	2.816	PER IMP= 64.00
ROUTE MCUNGE	AP-23.R	45	46	.00897	16.15	.842	1.76007	1.600	2.814	CCODE = .2
COMPUTE NM HYD	D4-D	-	47	.01500	36.12	1.562	1.95201	1.500	3.763	PER IMP= 70.00
ADD HYD	AP-24	47&46	48	.02397	45.38	2.404	1.88015	1.550	2.958	
ROUTE MCUNGE	AP-24.R	48	49	.02397	43.82	2.391	1.87044	1.650	2.857	CCODE = .1
COMPUTE NM HYD	D5-D	-	50	.04230	94.42	4.081	1.80891	1.500	3.488	PER IMP= 62.00
ADD HYD	AP-25	50&49	51	.06627	120.60	6.472	1.83116	1.550	2.844	
ROUTE MCUNGE	AP-25.R	51	52	.06627	113.10	6.427	1.81843	1.600	2.667	CCODE = .2
COMPUTE NM HYD	D6-D	-	53	.02330	45.70	2.426	1.95201	1.550	3.065	PER IMP= 70.00
ADD HYD	AP-26	53&52	54	.08957	157.69	8.853	1.85317	1.550	2.751	
ADD HYD	AP-27	44&54	56	.67283	315.23	59.205	1.64988	1.650	.732	
ROUTE MCUNGE	AP-27.R	56	58	.67283	310.86	59.167	1.64884	1.650	.722	CCODE = .2
COMPUTE NM HYD	E1-D&AP-28	-	94	.03430	61.53	4.225	2.30977	1.650	2.803	PER IMP= 90.00
ROUTE MCUNGE	AP-28.R	94	95	.03430	60.48	4.212	2.30250	1.700	2.755	CCODE = .2
ADD HYD	PART AP-31	95&58	96	.70713	368.75	63.379	1.68054	1.650	.815	
COMPUTE NM HYD	I40D-4&AP-29	-	59	.01360	20.03	1.276	1.75941	1.650	2.301	PER IMP= 64.00
ROUTE MCUNGE	AP-29.R	59	60	.01360	18.89	1.269	1.74918	1.850	2.170	CCODE = .1
COMPUTE NM HYD	E2-D	-	61	.05010	119.12	5.933	2.22033	1.500	3.715	PER IMP= 85.00
ADD HYD	AP-30	61&60	62	.06370	119.39	7.201	2.11973	1.550	2.928	

6.11390

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 = 2 NOTATION
ADD HYD	AP-31	96&62	97	.77083	456.46	70.581	1.71684	1.650	.925	
ROUTE MCUNGE	AP-31.R	97	67	.77083	449.76	70.501	1.71490	1.650	.912	CCODE = .2
COMPUTE NM HYD	F1-D&AP-32	-	68	.03155	76.14	3.887	2.30978	1.550	3.771	PER IMP= 90.00
ADD HYD	AP-33	68&67	69	.80238	503.83	74.388	1.73829	1.650	.981	
ROUTE MCUNGE	AP-33.R	69	70	.80238	496.65	74.308	1.73643	1.650	.967	CCODE = .2
COMPUTE NM HYD	I40D-5&AP-34	-	74	.01470	19.85	1.379	1.75941	1.700	2.110	PER IMP= 64.00

ADD HYD
FINISH
□(sOp10h4099T□&16D

AP-35 70&74 99

.81708

42MOD1.SUM
516.28

75.687

1.73684

1.650

.987

APPENDIX B

100prop6-sum

□(s16.67h8.5vOT□&18D

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) -
INPUT FILE = C:\QDEPRO~4\MILEHI~1\100PROP6.TXT

- VERSION: 1997.02d

RUN DATE (MON/DAY/YR) =08/27/2004
USER NO.= AHYMO-I-9702c01000X43-AH

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= 1										RAIN6= 2.200
COMPUTE NM HYD	D1	-	1	.01789	42.52	1.502	1.57456	1.499	3.714	PER IMP= 66.00
FINISH										

□(s0p10h4099T□&16D

RUN DATE (MON/DAY/YR) =08/27/2004
USER NO.= AHYMO-I-9702c01000X43-AH

[illegible]

RUN DATE (MON/DAY/YR) =08/27/2004
USER NO.= AHYMO-I-9702c01000X43-

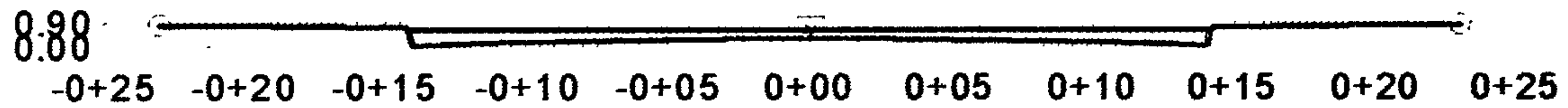
[illegible]

APPENDIX C

Cross Section std C+G
Cross Section for Irregular Channel

Project Description	
Worksheet	Standard C&G
Flow Element	Irregular Chanr
Method	Manning's Forr
Solve For	Discharge

Section Data	
Mannings Coefficier	0.017
Slope	0.005000 ft/ft
Water Surface Elev:	0.66 ft
Elevation Range	1.00 to 0.85
Discharge	43.07 cfs



V:1
H:1
NTS

Mile High Estates Standard C&G - .5% Grade Worksheet for Irregular Channel

Project Description	
Worksheet	Irregular Channel
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

Input Data	
Slope	0.005000 ft/ft
Water Surface Elev:	0.66 ft

Options	
Current Roughness Method	Overlotter's Method
Open Channel Weighting Method	Overlotter's Method
Closed Channel Weighting	Horton's Method

Results	
Mannings Coefficient	0.017
Elevation Range	0.00 to 0.85
Discharge	43.07 cfs
Flow Area	12.4 ft ²
Wetted Perimeter	29.37 ft
Top Width	28.33 ft
Actual Depth	0.66 ft
Critical Elevation	0.64 ft
Critical Slope	0.005912 ft/ft
Velocity	3.48 ft/s
Velocity Head	0.19 ft
Specific Energy	0.85 ft
Froude Number	0.93
Flow Type	Subcritical

Roughness Segments		
Start Station	End Station	Mannings Coefficient
-0+23	0+23	0.017

Natural Channel Points	
Station (ft)	Elevation (ft)
-0+23	0.85
-0+15	0.67
-0+14	0.67
-0+14	0.00
-0+12	0.13
0+00	0.37
0+12	0.13
0+14	0.00
0+14	0.67
0+15	0.67
0+23	0.85

Mile High Estates Mountabe C&G - .5% Grade Worksheet for Irregular Channel

Project Description	
Worksheet	Mountable Curl
Flow Element	Irregular Chanr
Method	Manning's Forr
Solve For	Discharge

Input Data	
Slope	005000 ft/ft
Water Surface Elev:	0.43 ft

Options	
Current Roughness Metho	oved Lotter's Method
Open Channel Weighting	oved Lotter's Method
Closed Channel Weighting	Horton's Method

Results	
Mannings Coeffic	0.017
Elevation Range	1.00 to 0.50
Discharge	18.08 cfs
Flow Area	8.3 ft ²
Wetted Perimeter	39.77 ft
Top Width	39.41 ft
Actual Depth	0.43 ft
Critical Elevation	0.40 ft
Critical Slope	0.007342 ft/ft
Velocity	2.18 ft/s
Velocity Head	0.07 ft
Specific Energy	0.50 ft
Froude Number	0.84
Flow Type	Subcritical

Roughness Segments		
Start Station	End Station	Mannings Coefficient
-0+23	0+23	0.017

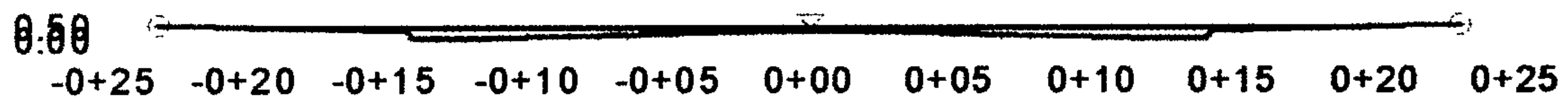
Natural Channel Points	
Station (ft)	Elevation (ft)
-0+23	0.50
-0+15	0.33
-0+14	0.30
-0+14	0.00
-0+12	0.06
0+00	0.30
0+12	0.06
0+14	0.00
0+14	0.30
0+15	0.33
0+23	0.50

Cross Section Mountable

Cross Section for Irregular Channel

Project Description	
Worksheet	Mountable Curl
Flow Element	Irregular Chanr
Method	Manning's Forr
Solve For	Discharge

Section Data	
Mannings Coefficier	0.017
Slope	0.005000 ft/ft
Water Surface Elev:	0.43 ft
Elevation Range	1.00 to 0.50
Discharge	18.08 cfs



V:1
H:1
NTS

Page 1

Line No.	Line ID	Flow rate (cfs)	Line size (in)	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line slope (%)	HGL down (ft)	HGL up (ft)	Minor loss (ft)	Dns line No.
1		43.00	30 c	130.0	5090.00	5090.65	0.500	5095.00*	5096.43*	1.19	End
Project File: milehigh2.stm		I-D-F File: SAMPLE.IDF			Total No. Lines: 1			Run Date: 09-08-2004			
NOTES: c = circular; e = elliptical; b = box; Return period = 100 Yrs.; * Indicates surcharge condition.											

Hydraflow Inlet Report

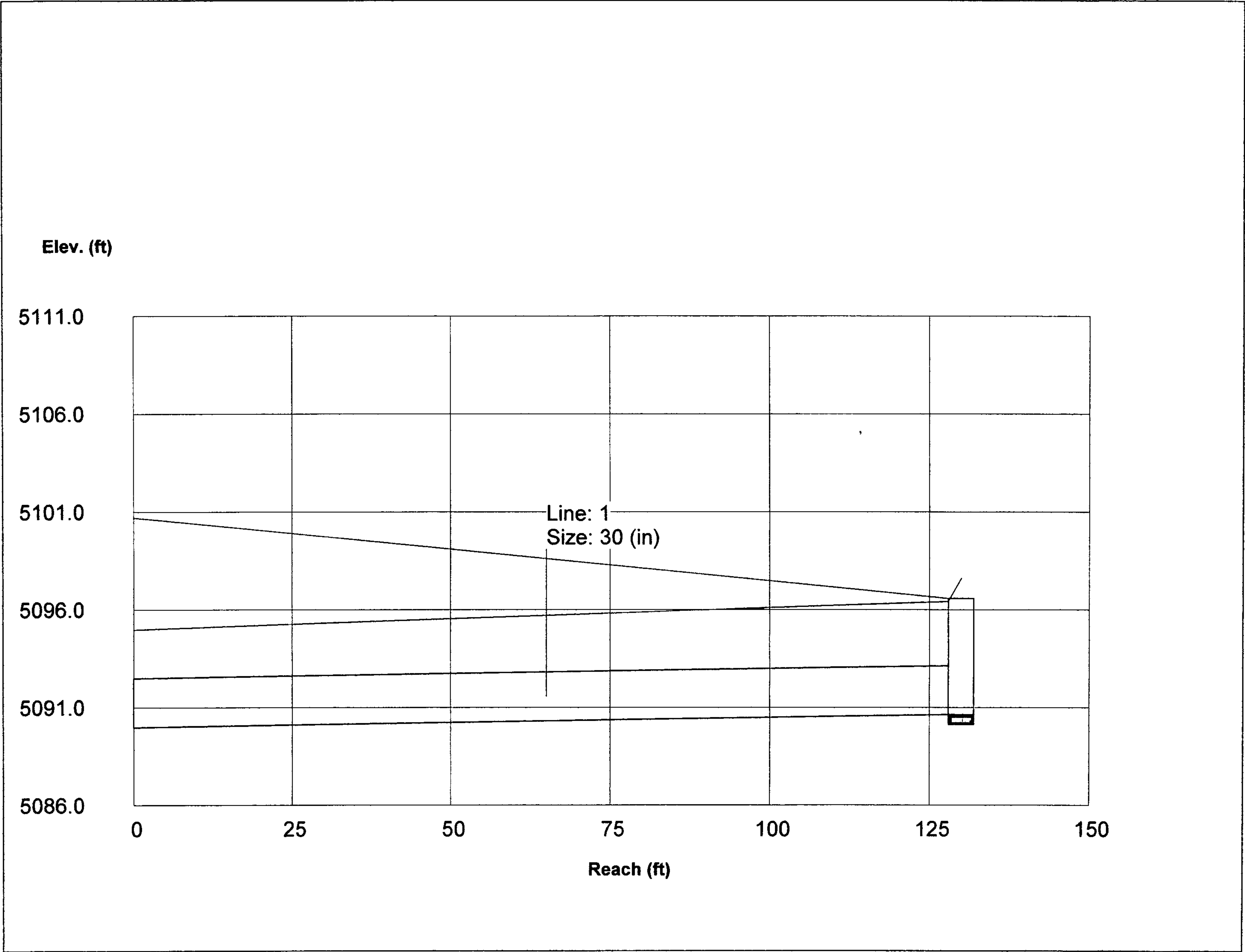
Line No	Line ID	A (ac)	Inlet time (min)	I (in/hr)	C	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q byp (cfs)	Junc type	Curb Inlet		Grate Inlet			Gutter				Flow		Byp line No
											Ht (in)	L (ft)	area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	depth (ft)	spread (ft)	
1		0.00	0.0	0.00	0.00	43.00*	0.00	43.00	0.00	Comb	8.0	20.00	20.00	12.00	2.00	Sag	2.00	0.062	0.020	0.60	9.68	Offsite
Project File: milehigh2.stm						I-D-F File: SAMPLE.IDF						Total number of lines: 1						Run Date: 09-08-2004				
NOTES: Inlet N-Values = 0.016 ; Design depth for grate(s) = 0.3 (ft); Intensity = 0.00 / (Inlet time + 0.00) ^ 0.00; Return period = 100 Yrs. ; * Indicates Known Q added																						

Hydraflow Hydraulic Grade Line Computations

Line	Size (in)	Q (cfs)	Downstream								Len (ft)	Upstream								Check		JL coeff (K)	Minor loss (ft)
			Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)		Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)		
1	30	43.00	5090.00	5095.00	2.50	4.91	8.76	1.19	5096.19	1.100	130	5090.65	5096.43	2.50	4.91	8.76	1.19	5097.62	1.099	1.100	1.429	1.00	1.19
Project File: milehigh2.stm								I-D-F File: SAMPLE.IDF								Total number of lines: 1				Run Date: 09-08-2004			
NOTES: Initial tailwater elevation = 5095 (ft) , * Normal depth assumed., ** Critical depth assumed.																							

Storm Sewer Profile

Proj. file: milehigh2.stm



PLATES