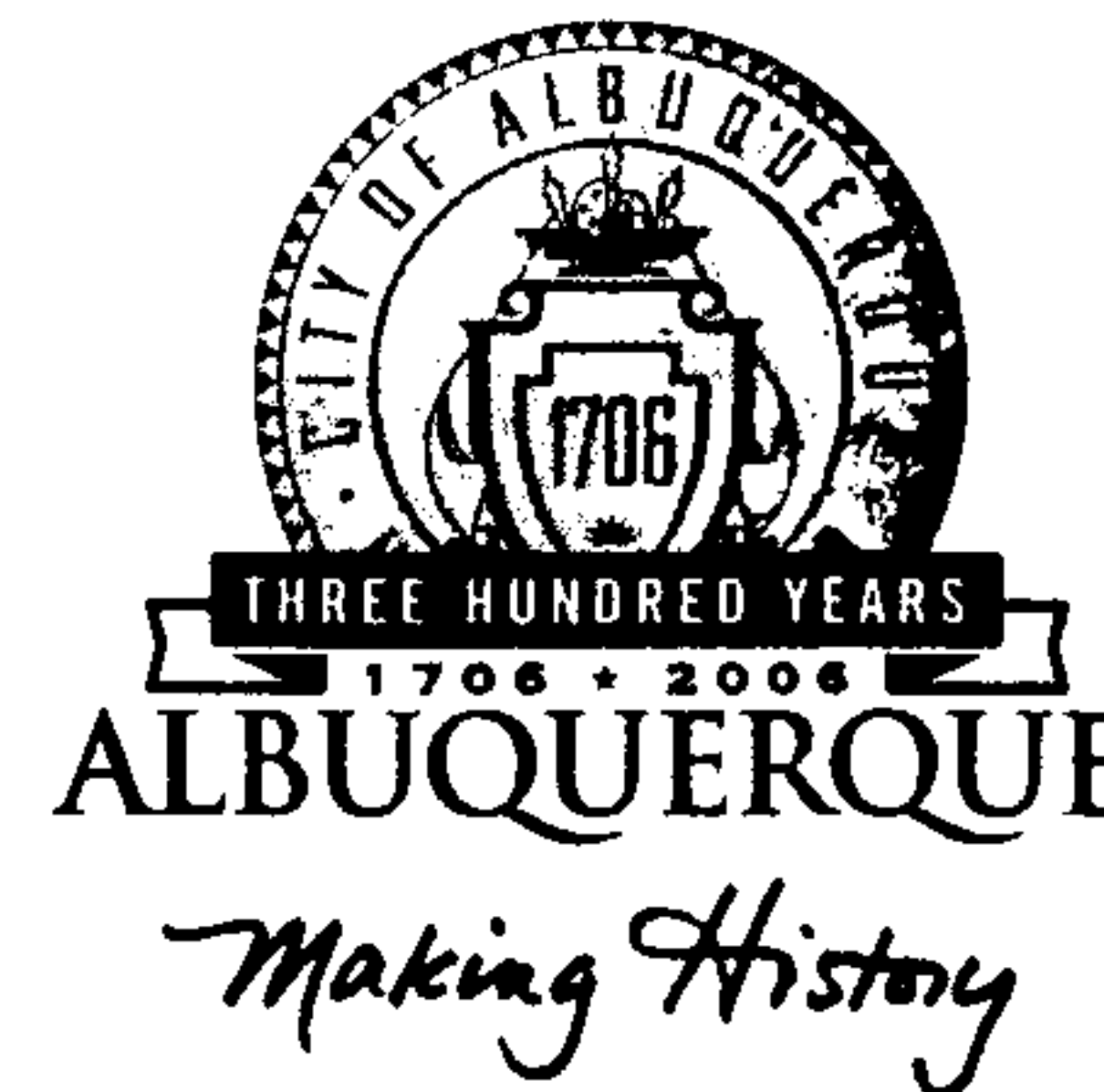


CITY OF ALBUQUERQUE



December 5, 2005

Amy L.D. Niese, PE
ISAACSON & ARFMAN, PA
128 Monroe St. NE
Albuquerque, NM 87108

RE: SUNRISE RIDGE SUBDIVISION (E-10/D8)
Engineers Certification for Release of Financial Guaranty
Engineers Stamp dated 11/10/2004
Engineers Certification dated 12/05/2005

Dear Amy:

Based upon the information provided in your Engineer's Certification Submittal dated 12/05/2005, 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,

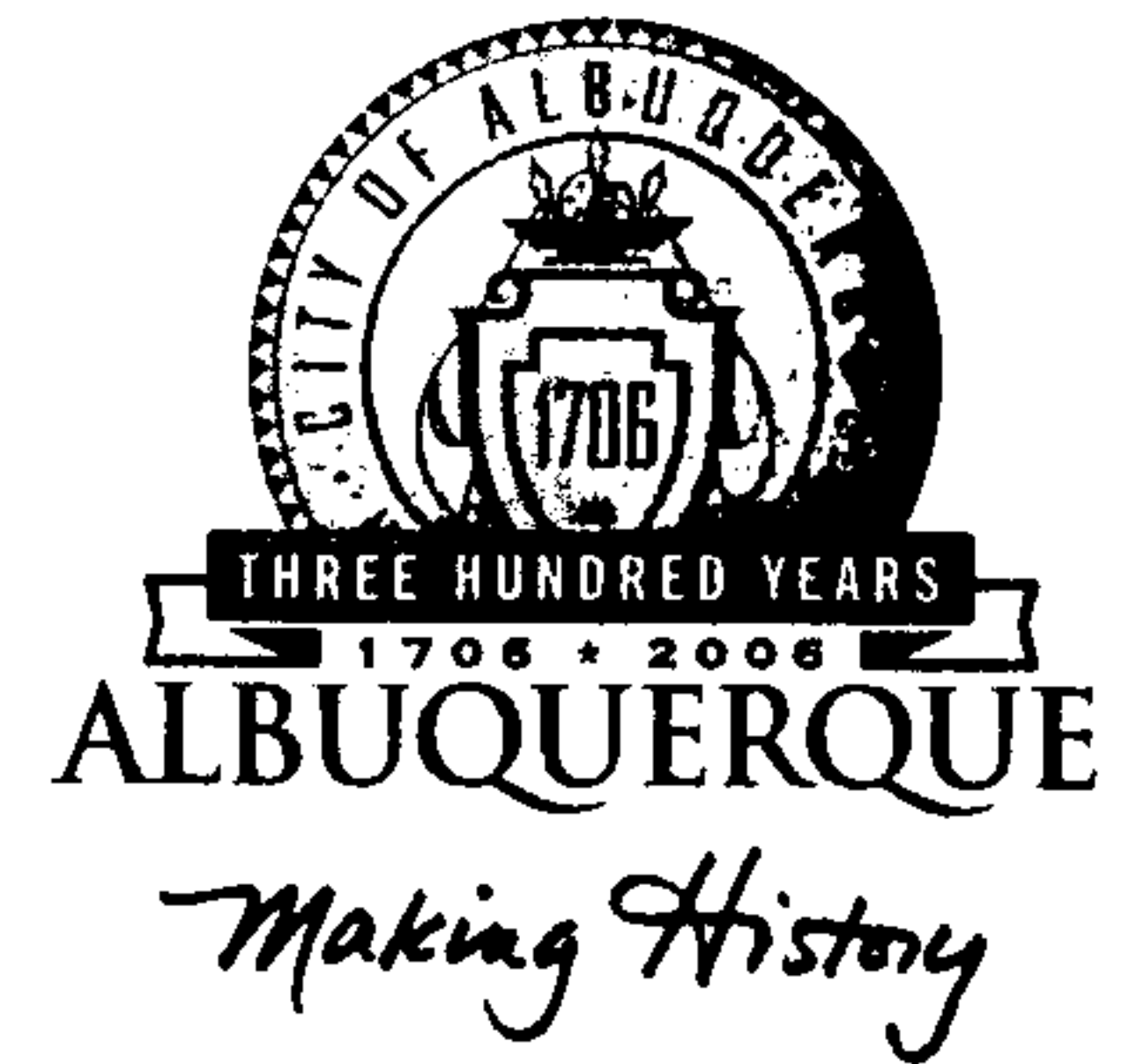
Arlene V. Portillo
Plan Checker, Planning Dept.- Hydrology
Development and Building Services

New Mexico 87103

www.cabq.gov

C: Marilyn Maldonado, COA# 753681
File

CITY OF ALBUQUERQUE



October 27, 2004

Fred Arfman, PE
Isaacson & Arfman
128 Monroe NE
Albuquerque, NM 87108

Re: Sunrise Ridge Subdivision Drainage Report
Engineer's Stamp dated 9-29-04, (E10/D8)

Dear Mr. Arfman,

P.O. Box 1293

Based upon the information provided in your submittal dated 10-1-04, the above referenced report is approved for Preliminary Plat action by the DRB. Once that board approves the plan, please submit a mylar copy for my signature in order to obtain a Rough 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 REPORT

FOR

SUNRISE RIDGE

**A 29-LOT SINGLE FAMILY
RESIDENTIAL SUBDIVISION**

**ALBUQUERQUE, NEW MEXICO
OCTOBER 2004**

Prepared by:

**ISAACSON & ARFMAN, P.A.
128 Monroe Street NE
Albuquerque, NM 87108
(505) 268-8828**


Fred C. Arfman
Fred C. Arfman, P.E. **09.29.04**
Date

II. INTRODUCTION

Sunrise Ridge is a proposed 4.737-acre subdivision in the Taylor Ranch area that will create 29 single-family residential lots. This report references the S.A.D. 197 Drainage Report, prepared by Bohannon Huston, Inc., and the Shadow Ridge Subdivision Drainage Report (Hydrology drainage file E10-D8), prepared by Isaacson & Arfman, P.A.

III. EXISTING CONDITIONS

The existing site is an undeveloped 4.737-acre tract. The tract to the north is owned by the City of Albuquerque and has an existing well, and the tract to the west is a residential development--Shadow Ridge Subdivision. Tesuque Drive bounds the property to the east and Montano Road bounds the property to the south. The northerly 2/3 of the site drains 4.2 cfs to an on-site ponding area, and the southerly 1/3 of the site drains 1.9 cfs to Tesuque Drive and Montano Road. See Appendix A for an Existing Basin Exhibit and Appendix B for Runoff Calculations for Existing Conditions.

IV. PROPOSED CONDITIONS

The S.A.D. 197 Drainage Report included the area that is now Shadow Ridge Subdivision in a basin that drained to Tesuque Drive. Appendix D shows the S.A.D. 197 Basin Exhibit, which was marked-up by this report to show the outline of Shadow Ridge Subdivision. When the Shadow Ridge Subdivision was developed, these flows were routed southwest via a storm drain across Unser Blvd. to the San Antonio Arroyo. Thereby, the flows entering Tesuque Drive were reduced by 26 cfs--approximately 65% of the total 40 cfs from Shadow Ridge Subdivision. The storm drain in Tesuque Drive was in place when Shadow Ridge Subdivision was developed. Since the flows in Tesuque Drive were reduced by 26 cfs, the storm drain has capacity for the 16.6 cfs from this site.

A pre-design meeting was held with Brad Bingham, Hydrology Division, and he concurred that the site would be allowed free discharge to Tesuque Drive.

Per the Proposed Runoff Calculations in Appendix B, Basin B1 will discharge 0.4 cfs to Tesuque Drive at the Peanut Road entrance. The remainder of the site--Basins B2, B3 and B4--will discharge 16.6 cfs to the low point in Tesuque Drive at the Crystal Road entrance where the flows will be captured by an existing inlet. See Proposed

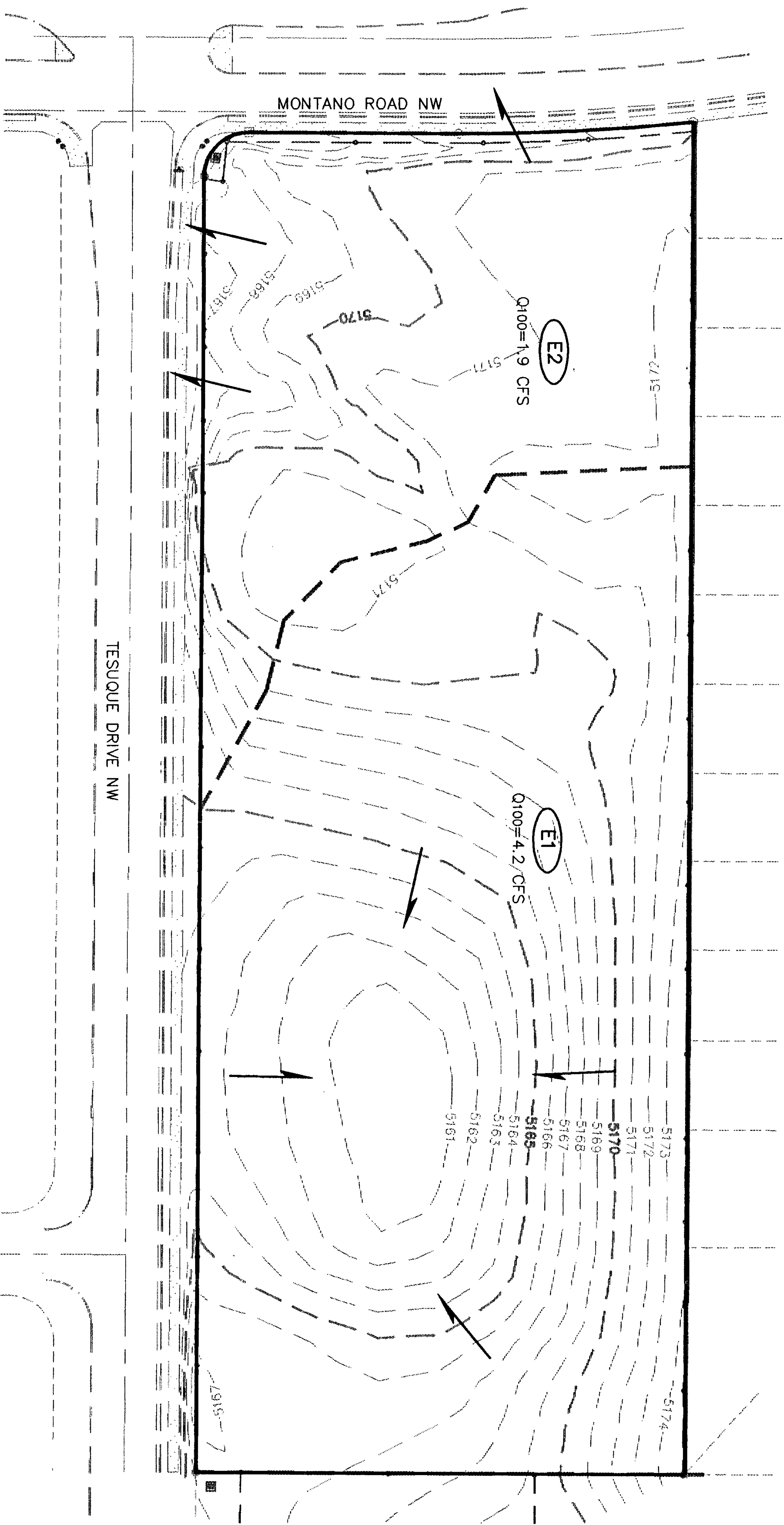
Basin Exhibit in Appendix A and the Grading & Drainage Plan in the Pocket at the end of this report.

Jamers Drive has adequate capacity with mountable curb from the south end to Lots 23/24 and from Crystal Road to the north end. Standard curb will be constructed in Jamers Drive from Lots 23/24 to Crystal Road. Peanut Road and Crystal Road will be constructed with standard curb. (See Street Flow Capacity Calculation Sheets in Appendix C.)

V. SUMMARY & CONCLUSIONS

Based on information in previous sections, it is recommended that the following items be constructed for drainage considerations with this development:

1. Mountable curb on Jamers Drive from the south end of the street to Lots 23/24 and from the low point by the intersection of Crystal Road to the north end of the street.
2. Standard curb on Peanut Road and Crystal Road and on Jamers Drive from Lots 23/24 to the low point at the intersection with Crystal Road.



LEGEND

EXISTING CONTOUR

BASIN BOUNDARY

BASIN ID

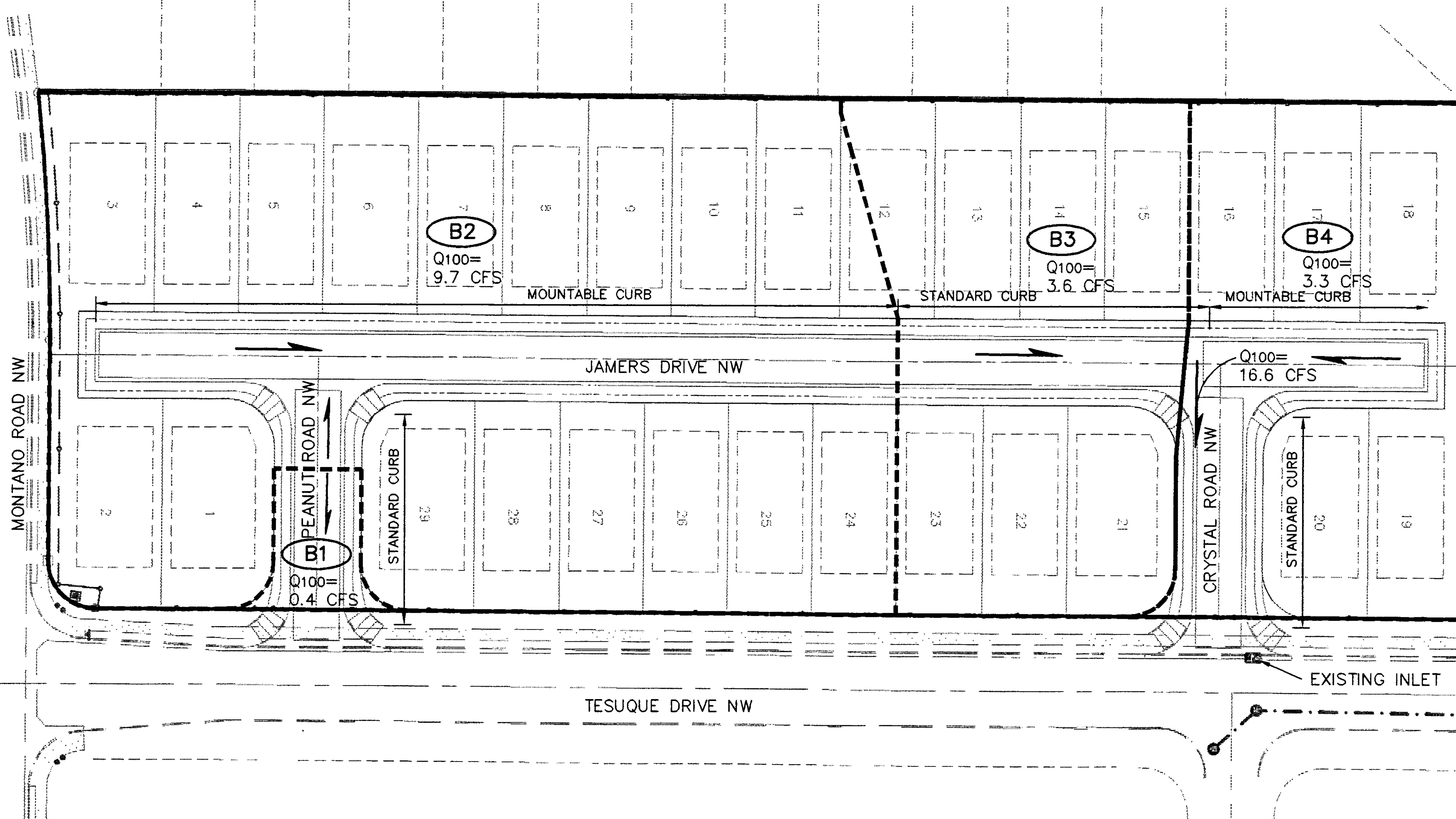
FLOW ARROW

SCALE:
1"=60'



**SUNRISE RIDGE
EXISTING BASIN EXHIBIT**

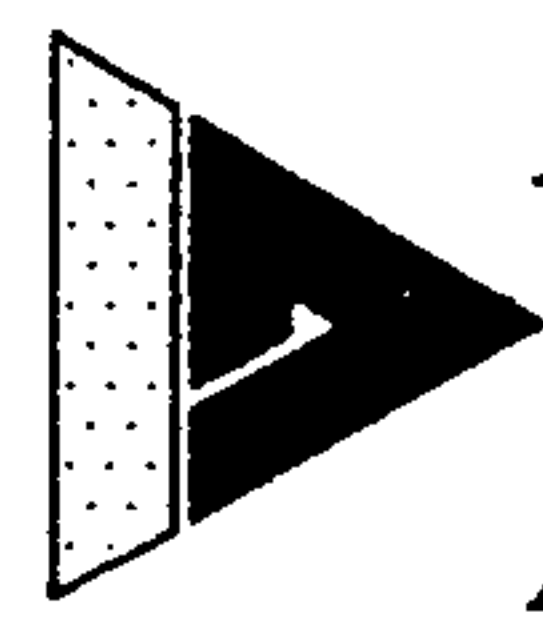
ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates
128 Monroe Street N.E.
Albuquerque
New Mexico
1352EXHBASINS.DWGonw
9/28/04



- LEGEND**
- BASIN BOUNDARY
 - (B1) BASIN ID
 - FLOW ARROW

SCALE:
1"=60'

**SUNRISE RIDGE
PROPOSED BASIN EXHIBIT**



ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates
128 Monroe Street N.E.
Albuquerque New Mexico
1352EXHBASINS.DWGanw 9/28/04

RUNOFF CALCULATIONS FOR EXISTING CONDITIONS (Q_{100})

100-YEAR, 6-HOUR STORM

Per the City of Albuquerque D.P.M. Section 22.2

PROJECT NAME: **SUNRISE RIDGE**

JOB NUMBER: 1352

PRECIP ZONE	Q ₁₀₀ RUNOFF RATES (cfs/Ac)			
	A	B	C	D
1	1.29	2.03	2.87	4.37
2	1.56	2.28	3.14	4.70
3	1.87	2.60	3.45	5.02
4	2.20	2.92	3.73	5.25

% LAND TREATMENTS				
	TREAT TYPE 1	TREAT TYPE 2	TREAT TYPE 3	TREAT TYPE 4
A	100			
B	0			
C	0			
D	0			
Σ% =	100	0	0	0

PRECIPITATION ZONE: 1

TREATMENT TYPE 1							
BASIN #	LAND TREATMENT AREAS (Ac)					Q ₁₀₀ (cfs)	REMARKS
	A _{TOTAL}	A _A	A _B	A _C	A _D		
E1	3.262	3.26	0	0	0	4.2	RETAINED ON SITE
E2	1.475	1.48	0	0	0	1.9	DRAINS TO MONTANO

RUNOFF CALCULATIONS FOR DEVELOPED CONDITIONS (Q_{100})

100-YEAR, 6-HOUR STORM

Per the City of Albuquerque D.P.M. Section 22.2

LAND TREATMENT %D

D.P.M. Section 22.2, Table A-5

$N = 29/4.737 = 6.1$

$\%D = 7 \cdot (N^2 + 5 \cdot N)^{.5} = 57.6$

PROJECT NAME: SUNRISE RIDGE
JOB NUMBER: 1352

PRECIP ZONE	Q_{100} RUNOFF RATES (cfs/Ac)			
	A	B	C	D
1	1.29	2.03	2.87	4.37
2	1.56	2.28	3.14	4.70
3	1.87	2.60	3.45	5.02
4	2.20	2.92	3.73	5.25

% LAND TREATMENTS				
	TREAT TYPE 1	TREAT TYPE 2	TREAT TYPE 3	TREAT TYPE 4
A	0	0		
B	0	21		
C	5	21		
D	95	58		
$\Sigma \% =$	100	100	0	0

PRECIPITATION ZONE:

1

TREATMENT TYPE 1							
BASIN #	LAND TREATMENT AREAS (Ac)					Q_{100} (cfs)	REMARKS
	A_{TOTAL}	A_A	A_B	A_C	A_D		
B1	0.0854	0	0	0.00	0.08	0.4	

TREATMENT TYPE 2							
BASIN #	LAND TREATMENT AREAS (Ac)					Q_{100} (cfs)	REMARKS
	A_{TOTAL}	A_A	A_B	A_C	A_D		
B2	2.7203	0	0.57	0.57	1.58	9.7	
B3	0.9962	0	0.21	0.21	0.58	3.6	
B4	0.9351	0	0.20	0.20	0.54	3.3	

STREET FLOW CAPACITY CALCULATIONS			
STREET NAME:		JAMERS DRIVE	
LOCATION:		LOW POINT BY CRYSTAL RD	
STREET INFORMATION		HALF STREET CALCULATIONS	
Slope	0.005	Road Width/2	14
Q ₁₀₀	16.6	Curb Height	0.67
Right-of-way Width	46	1/2 Wetted Perimeter (P)	14.468
Road Width	28	1/2 Area(STD)	3.487
Curb Type	STD	1/2 Area(MDN)	----
Road Cross Slope	0.02	1/2 Area(MTBL)	----
Manning's N	0.017	Discharge (1/2 Q)	8.308
Depth		0.468	
RESULTS			
<u>HGL</u>			
Q ₁₀₀ FLOW CAPACITY =		16.62 cfs	OK
at an HGL Depth=		0.47 ft	< Curb height = 0.67
			OK
<u>EGL</u>			
Velocity		2.38 fps	
V ² /2g		0.09 ft	
EGL Depth =		0.56 ft	< Right-of-way height = 0.84
			OK

STREET NAME:		JAMERS DRIVE	
LOCATION:		LOTS 23/24	
STREET INFORMATION		HALF STREET CALCULATIONS	
Slope	0.005	Road Width/2	14
Q ₁₀₀	9.7	Curb Height	0.33
Right-of-way Width	46	1/2 Wetted Perimeter (P)	14.320
Road Width	28	1/2 Area(STD)	----
Curb Type	MTBL	1/2 Area(MDN)	----
Road Cross Slope	0.02	1/2 Area(MTBL)	2.520
Manning's N	0.017	Discharge (1/2 Q)	4.863
Depth		0.320	
RESULTS			
<u>HGL</u>			
Q ₁₀₀ FLOW CAPACITY =		9.73 cfs	OK
at an HGL Depth=		0.32 ft	< Curb height = 0.33
			OK
<u>EGL</u>			
Velocity		1.93 fps	
V ² /2g		0.06 ft	
EGL Depth =		0.38 ft	< Right-of-way height = 0.50
			OK

STREET FLOW CAPACITY CALCULATIONS			
STREET NAME:		JAMERS DRIVE	
LOCATION:		NORTH OF LOW POINT BY CRYSTAL RD	
STREET INFORMATION		HALF STREET CALCULATIONS	
Slope	0.02	Road Width/2	14
Q ₁₀₀	3.3	Curb Height	0.33
Right-of-way Width	46	1/2 Wetted Perimeter (P)	8.619
Road Width	28	1/2 Area(STD)	----
Curb Type	MTBL	1/2 Area(MDN)	----
Road Cross Slope	0.02	1/2 Area(MTBL)	0.714
Manning's N	0.017	Discharge (1/2 Q)	1.664
Depth 0.169			
RESULTS			
<u>HGL</u>			
Q ₁₀₀ FLOW CAPACITY =		3.33 cfs	OK
at an HGL Depth=		0.17 ft	< Curb height = 0.33
			OK
<u>EGL</u>			
Velocity		2.33 fps	
V ² /2g		0.08 ft	
EGL Depth =		0.25 ft	< Right-of-way height = 0.50
			OK

~~~~~



| STREET FLOW CAPACITY CALCULATIONS |       |                          |                              |
|-----------------------------------|-------|--------------------------|------------------------------|
| STREET NAME:                      |       | CRYSTAL ROAD             |                              |
| LOCATION:                         |       |                          |                              |
| STREET INFORMATION                |       | HALF STREET CALCULATIONS |                              |
| Slope                             | 0.061 | Road Width/2             | 14                           |
| Q <sub>100</sub>                  | 16.6  | Curb Height              | 0.67                         |
| Right-of-way Width                | 46    | 1/2 Wetted Perimeter (P) | 12.478                       |
| Road Width                        | 28    | 1/2 Area(STD)            | 1.561                        |
| Curb Type                         | STD   | 1/2 Area(MDN)            | ----                         |
| Road Cross Slope                  | 0.02  | 1/2 Area(MTBL)           | ----                         |
| Manning's N                       | 0.017 | Discharge (1/2 Q)        | 8.373                        |
| Depth                             |       | 0.328                    |                              |
| RESULTS                           |       |                          |                              |
| <u>HGL</u>                        |       |                          |                              |
| Q <sub>100</sub> FLOW CAPACITY =  |       | 16.75 cfs                | OK                           |
| at an HGL Depth=                  |       | 0.33 ft                  | < Curb height = 0.67         |
|                                   |       |                          | OK                           |
| <u>EGL</u>                        |       |                          |                              |
| Velocity                          |       | 5.36 fps                 |                              |
| V <sup>2</sup> /2g                |       | 0.45 ft                  |                              |
| EGL Depth =                       |       | 0.77 ft                  | < Right-of-way height = 0.84 |
|                                   |       |                          | OK                           |

| STREET NAME:                     |       | PEANUT ROAD              |                              |
|----------------------------------|-------|--------------------------|------------------------------|
| LOCATION:                        |       |                          |                              |
| STREET INFORMATION               |       | HALF STREET CALCULATIONS |                              |
| Slope                            | 0.015 | Road Width/2             | 14                           |
| Q <sub>100</sub>                 | 0.4   | Curb Height              | 0.67                         |
| Right-of-way Width               | 46    | 1/2 Wetted Perimeter (P) | 2.380                        |
| Road Width                       | 28    | 1/2 Area(STD)            | 0.136                        |
| Curb Type                        | STD   | 1/2 Area(MDN)            | ----                         |
| Road Cross Slope                 | 0.02  | 1/2 Area(MTBL)           | ----                         |
| Manning's N                      | 0.017 | Discharge (1/2 Q)        | 0.213                        |
| Depth                            |       | 0.130                    |                              |
| RESULTS                          |       |                          |                              |
| <u>HGL</u>                       |       |                          |                              |
| Q <sub>100</sub> FLOW CAPACITY = |       | 0.43 cfs                 | OK                           |
| at an HGL Depth=                 |       | 0.13 ft                  | < Curb height = 0.67         |
|                                  |       |                          | OK                           |
| <u>EGL</u>                       |       |                          |                              |
| Velocity                         |       | 1.57 fps                 |                              |
| V <sup>2</sup> /2g               |       | 0.04 ft                  |                              |
| EGL Depth =                      |       | 0.17 ft                  | < Right-of-way height = 0.84 |
|                                  |       |                          | OK                           |

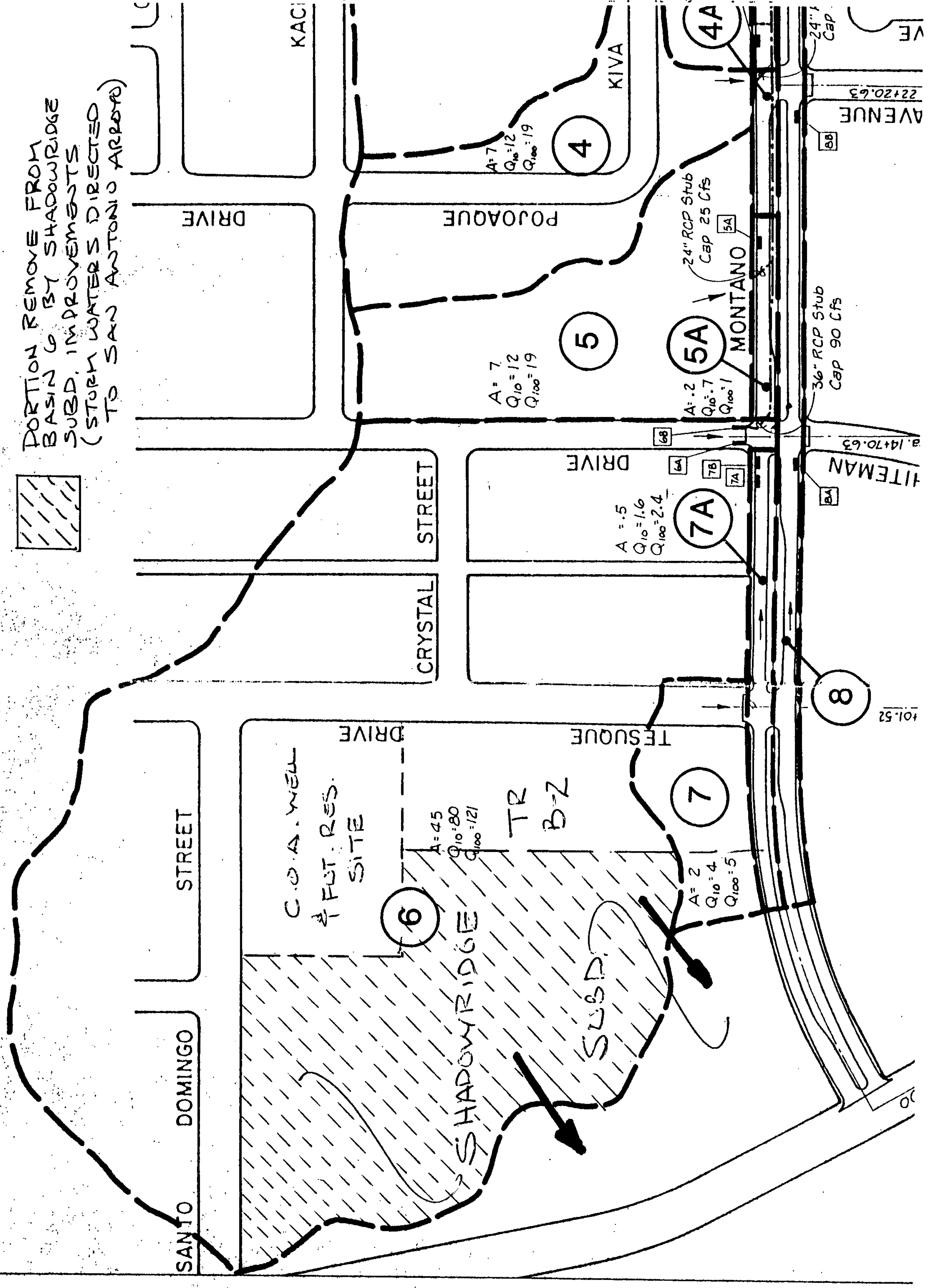


## STREET FLOW DEPTH SUMMARY

| STREET       | LOCATION                         | STREET<br>WIDTH | CURB<br>TYPE | SLOPE (ft/ft) | Q <sub>100</sub> (cfs) | DEPTH (ft) |
|--------------|----------------------------------|-----------------|--------------|---------------|------------------------|------------|
| JAMERS DRIVE | LOW POINT BY CRYSTAL RD          | 28' F-F         | STD          | 0.005         | 16.6                   | 0.47       |
| JAMERS DRIVE | LOTS 23/24                       | 28' F-F         | MTBL         | 0.005         | 9.7                    | 0.32       |
| JAMERS DRIVE | NORTH OF LOW POINT BY CRYSTAL RD | 28' F-F         | MTBL         | 0.020         | 3.3                    | 0.17       |
| CRYSTAL ROAD |                                  | 28' F-F         | STD          | 0.061         | 16.6                   | 0.33       |
| PEANUT ROAD  |                                  | 28' F-F         | STD          | 0.015         | 0.4                    | 0.13       |
|              |                                  |                 |              |               |                        |            |



PORTION REMOVE FROM  
 BASIN 6 BY SHADOWRIDGE  
 SUBD. IMPROVEMENTS  
 (STORM WATERS DIRECTED  
 TO SAN ANTONIO ARROYO)







# *City of Albuquerque*

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

March 3, 1995

Fred Arfman  
Isaacson & Arfman  
128 Monroe St. NE  
Albuquerque, NM 87108

RE: ENGINEER CERTIFICATION FOR FINANCIAL GUARANTEE RELEASE FOR  
WORK ORDER 4885.90 (E10-D8) ENGINEER'S CERTIFICATION  
STATEMENT DATED 3/1/95 AND ADDITIONAL INFORMATION RECEIVED  
MARCH 2, 1995.

Dear Mr. Arfman:

Based on the information provided on your March 2, 1995  
submittal, Engineer Certification for the above referenced site  
is acceptable for Financial Guarantee release.

If I can be of further assistance, please feel free to contact me  
at 768-2667.

Sincerely,

Bernie J. Montoya, CE  
Engineering Associate

BJM/dl

c: Andrew Garcia  
Terri Martin  
File





# City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

April 15, 1994

Fred Arfman  
Isaacson & Arfman  
128 Monroe St. NE  
Albuquerque, NM 87108

RE: REVISED DRAINAGE/GRADING PLAN FOR SHADOWRIDGE SUBDIVISION (E10-D8)  
ENGINEER'S STAMP DATED 4/6/94.

Dear Mr. Arfman:

Based on the information provided on your April 8, 1994 resubmittal, the above referenced site is approved for Final Plat and Work Order.

Please be advised that prior to release of Financial Guarantees for this Subdivision by D.R.C., and Engineer's Certification must be submitted and approved by this office.

Also, the following listed items will need to be addressed:

1. Concurrence from William Otto (Manager, Water Utilities Division/PWD) for the items listed on Myers & Oliver letter (February 11, 1994) to Mr. Otto.
2. Concurrence from Ms. Cheryl Hamilton (U.S. Post Office) for items listed on Mr. Arfman's letter dated November 8, 1993.

Please be advised that Engineer Certification of the erosion control measures must be accepted by this office prior to Building Permit release.

If I can be of further assistance, please feel free to contact me at 768-2667.

Sincerely,

*Bernie J. Montoya*  
Bernie J. Montoya, CE  
Engineering Associate

BJM/d1/WPHYD/8098

c: Andrew Garcia  
Lynda Michelle DeVanti, DRC  
Mike Mendoza, Water Utilities  
Ms. Cheryl Hamilton, U.S. Post Office  
File





# *City of Albuquerque*

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

March 18, 1994

Fred Arfman  
Isaacson & Arfman  
128 Monroe St. NE  
Albuquerque, NM 87108

RE: EROSION CONTROL PLAN FOR SHADOW RIDGE SUBDIVISION (E10-D8)  
REVISION DATED 3/10/94.

Dear Mr. Arfman:

Based on the information provided on your March 14, 1994 submittal, the above referenced site is approved for Rough Grading Permit.

Please be advised that the erosion control plan must be implemented and certified prior to Building Permit release.

Also, prior to Final Plat and Work Order release, the comments listed on my January 28, 1994 letter will need to be addressed.

If I can be of further assistance, please feel free to contact me at 768-2667.

Sincerely,

Bernie J. Montoya, CE  
Engineering Associate

BJM/d1/WPHYD/8090

c: Larry Caudill  
Andrew Garcia  
File