
* HEC-2 WATER SURFACE PROFILES *
* *
* Version 4.6.2; May 1991 *
* *
* RUN DATE 08AUG95 TIME 16:21:07 *

* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET, SUITE D *
* DAVIS, CALIFORNIA 95616-4687 *
* (916) 756-1104 *

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08AUG95 16:21:07

HEC-2 WATER SURFACE PROFILES

THIS RUN EXECUTED 08AUG95 16:21:07

Version 4.6.2; May 1991

T1 Richard J. Heggen
T2 Chris Weiss Engineering
T3 Tract 1-E, Caballo de Fureza Rd.

J1 ICHECK INQ NINW IDIR STRI METRIC HVINS Q WSEL FQ

NC .03 .03 .03 .1 .02 .5 22600 72
1

X1	1	5	0	130	63	63	118	75	130
GR	76	0	66	65	65	103	66		
X1	2	5	0	123	30	30	30	73	123
GR	73	0	65	31	64	68	65	108	
X1	3	5	0	127	57	57	57	72	127
GR	72	0	64	33	63	75	64	104	
X1	4	5	0	138	102	102	102	71	138
GR	70	0	63	42	62	82	63	105	
X1	5	5	0	125	97	97	97	70	125
GR	69	0	68	42	62	53	61	95	
X1	6	5	0	153	34	34	34	71	153
GR	74	0	62	20	60	93	61	124	
X1	7	5	0	153	106	106	106	71	153
GR	74	0	62	20	59	100	61	124	
X1	8	5	0	158	90	90	90	71	158
GR	69	0	59	26	59	122	69	140	
X1	9	5	0	125	75	75	75	67	125
GR	67	0	59	20	58	75	59	115	
X1	10	5	0	210	51	51	51	67	210
GR	71	0	58	33	58	130	62	180	
X1	11	5	0	210					
GR	70	0	58	60	57	92	58	197	210

SUMMARY PRINTOUT TABLE 150

SECD	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRINS	EG	10MKS	VCH	AREA	.01K
1.000	.00	.00	.00	65.00	22600.00	75.57	78.44	85.54	203.76	25.33	892.08	1585.24
* 2.000	63.00	.00	.00	64.00	22600.00	73.07	76.29	84.13	229.57	26.70	846.48	1491.58

3.000	30.00	.00	.00	63.00	22600.00	72.07	75.40	83.40	246.76	27.00	836.99	1438.72
4.000	57.00	.00	.00	62.00	22600.00	70.99	74.17	81.82	255.58	26.41	855.81	1413.66
* 5.000	102.00	.00	.00	61.00	22600.00	75.09	75.09	80.20	71.91	18.13	1246.67	2665.07
* 6.000	97.00	.00	.00	60.00	22600.00	68.77	71.38	77.57	181.79	23.81	949.22	1676.19
7.000	34.00	.00	.00	59.00	22600.00	68.75	71.06	76.76	155.47	22.72	994.78	1812.51
* 8.000	106.00	.00	.00	59.00	22600.00	68.44	70.06	74.98	111.62	20.53	1100.80	2139.11
* 9.000	90.00	.00	.00	58.00	22600.00	69.58	69.58	74.66	68.13	18.07	1250.38	2738.08
* 10.000	75.00	.00	.00	58.00	22600.00	65.15	67.31	72.37	188.93	21.56	1048.03	1644.23
11.000	51.00	.00	.00	57.00	22600.00	64.24	66.37	71.42	179.19	21.51	1050.76	1688.29

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PAGE 10

Tract 1-E, Caballo de Fu

SUMMARY PRINTOUT TABLE 150

SEENO	Q	CWSEL	DIFMSP	DIFMSX	DIFKMS	TOPWID	XLCH
1.000	22600.00	75.57	.00	.00	3.57	127.20	.00
* 2.000	22600.00	73.07	.00	-.75	.00	123.00	63.00
3.000	22600.00	72.07	.00	-.99	.00	127.00	30.00
4.000	22600.00	70.99	.00	-1.09	.00	137.98	57.00
* 5.000	22600.00	75.09	.00	.37	.00	125.00	102.00
* 6.000	22600.00	68.77	.00	-.18	.00	137.81	97.00
7.000	22600.00	68.75	.00	-.02	.00	137.72	34.00
* 8.000	22600.00	68.44	.00	.01	.00	137.49	106.00

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Tract 1-E Caballo de Fuerza ZONE ATLAS / DRNG. FILE #: L-24 / 102
LEGAL DESCRIPTION: Tract 1-E Caballo de Fuerza. Bernalillo County, NM
CITY ADDRESS: N/A

ENGINEERING FIRM: C.L. Weiss Engineering CONTACT: Chris Weiss
ADDRESS: P.O. Box 97, Sandia Park NM, 87047 PHONE: 281-1800

OWNER: Richard Polk BUSINESS: Enchantment Heating and Air Cond.
ADDRESS: 701 Gibson SE, Albuq. NM 87102 PHONE: 294-6802

ARCHITECT: N/A CONTACT: _____
ADDRESS: _____ PHONE: _____

SURVEYOR: A & E Surveying Co. CONTACT: _____
ADDRESS: _____ PHONE: _____

CONTRACTOR FIRM: N/A CONTACT: _____
ADDRESS: _____ PHONE: _____

PRE-DESIGN MEETING:

☐ YES DRB NO. _____
☐ NO EPC NO. _____
☐ COPY OF CONFERENCE RECAP PROJ. NO. _____
SHEET PROVIDED

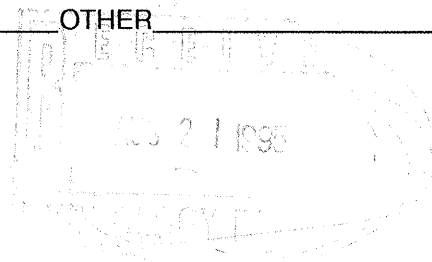
TYPE OF SUBMITTAL:

☐ DRAINAGE REPORT
☒ DRAINAGE PLAN
☐ CONCEPTUAL GRADING & DRAINAGE PLAN
☒ GRADING PLAN
☐ EROSION CONTROL PLAN
☐ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

☐ SKETCH PLAT
☐ PRELIMINARY PLAT
☐ SITE DEVELOPMENT PLAN
☐ FINAL PLAT
☒ BUILDING PERMIT
☐ FOUNDATION PERMIT
☐ CERT. OF OCCUPANCY
☐ ROUGH GRADING PERMIT
☐ GRADING / PAVING PERMIT
☐ OTHER _____

DATE SUBMITTED: August 18, 1995
BY: C.L. Weiss Engineering, Inc.





County of Bernalillo

State of New Mexico

ONE CIVIC PLAZA, N.W.
ALBUQUERQUE, NEW MEXICO 87102
ADMINISTRATION (505) 768-4000
COMMISSION (505) 768-4217
FAX (505) 768-4329

BOARD OF COUNTY COMMISSIONERS

ALBERT "AL" VALDEZ, CHAIRMAN
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JUAN R. VIGIL, COUNTY MANAGER

DAVID K. ANDERSON, ASSESSOR
JUDY D. WOODWARD, CLERK
THOMAS J. MESSALL, PROBATE JUDGE
JOE BOWDICH, SHERIFF
H. R. FINE, TREASURER

August 29, 1995

Chris Weiss, P.E.
C.L. Weiss Engineering
P. O. Box 97
Sandia Park, NM 87047

RE: GRADING AND DRAINAGE PLAN FOR TRACT 1 - E, CABALLO DE FUERZA (L24/D2) (PWD 95-129) SUBMITTED FOR BUILDING PERMIT APPROVAL, ENGINEER'S STAMP DATED 8/18/95.

Dear Mr. Weiss:

Thank you for the thorough response to my previous comments. Based on the information provided in the above referenced resubmittal of August 21, 1995, the plan is approved for Building Permit release.

All easement documents must be approved by the County for the Tijeras Arroyo drainage easement. Any development within the drainage easement will require an encroachment license with the County.

Please be advised that prior to the County Building Department performing final inspection, an Engineer's Certification must be submitted to and approved by this office.

If you should have any questions, please do not hesitate to call me at 768-2666.

Sincerely,

A handwritten signature in cursive script, reading "Susan Calongne".

Susan M. Calongne, P.E.
City/County Floodplain Administrator

c: Chris Rivera, City Hydrology
Roger Paul, County PWD
Kurt Browning, AMAFCA
Richard Polk, Owner
File

L24/02



County of Bernalillo

State of New Mexico

2400 BROADWAY, S.E.
ALBUQUERQUE, NEW MEXICO 87102
PUBLIC WORKS (505) 848-1500

BOARD OF COUNTY COMMISSIONERS

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JUDY D. WOODWARD, CLERK
THOMAS J. MESSALL, PROBATE JUDGE
JOE BOWDICH, SHERIFF
H. R. FINE, TREASURER

Date: 09-AUG-95

Subject: Submittal

Case No.: PWD-95-129

Zone Map No.: L-24

Street Address:

Legal Description: TR 1-E CABALLO DE FUERZA

Name of Applicant: C L Weiss Engineering

Dear Applicant:

Bernalillo County Public Works Department will require **TWO WEEKS** for review and comment of submittal and resubmittals, and **ONE WEEK** for final review and plat sign-off. Major submittals may require more than two weeks for review and comment.

The issuance of a permit or a review or approval of plan specifications, computations, and shop drawings shall not be interpreted to be a permit for or an approval of any variance or violation of any of the provisions of any County or State codes, ordinances, standards, or policies. Nor shall such issuance of a permit or approval of plans, specifications, computations, and shop drawings prevent any authorized County representative or County inspector from thereafter requiring the correction of errors in said plans, specifications, computations, or shop drawings or from stopping construction operations which are being carried on thereunder when in violation of any County or State codes, ordinances, standards, or policies.

Review of construction plans, specifications, computations, and shop drawings is only for general conformance with the design concept of the project and general compliance with the plans and specifications and shall not be construed as relieving the Contractor, Land Divider, Subdivider, Engineer/Surveyor, or applicant of the full responsibility for: providing materials, equipment, and work required by the contract; the proper fitting and construction for the work; the accuracy and completeness of the submittal; selecting fabrication processes and techniques of construction; and performing the work in a safe manner.

REV 4-22-91 BR



C.L. Weiss Engineering, Inc
Post Office Box 97
Sandia Park, N.M. 87047

Phone / Fax (505) 281-1800
Alvarado Office (505) 266-3444

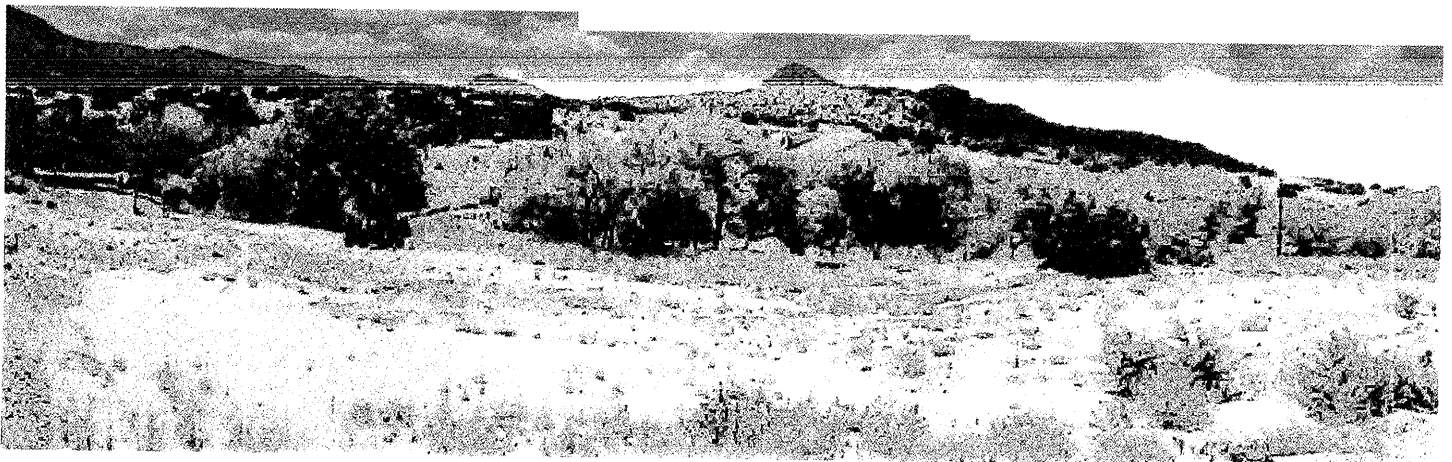
17 August, 1995

Ms. Susan Calongne, P.E.
City/County Floodplain Administrator
County of Bernalillo
One Civic Plaza, NW
Albuquerque, NM 87102

RE: Richard Polk Proposed Site Improvements (L24/D2) (PWD 95-129)

Dear Ms. Calongne:

This letter is in response to the review comments generated by the original D/G Plan submittal dated 7-21-95. These responses correspond to your letter dated August 4, 1995. The following photo of the Tijeras Arroyo was taken from the mid point of the site, looking south.

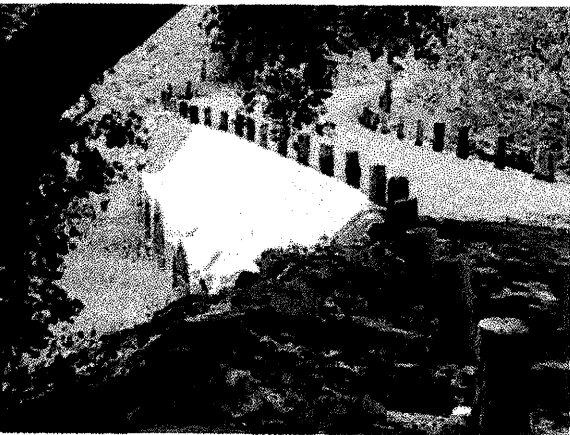


- The nature of the proposed building located within the flood hazard on the west side of the site was a support building for the horse boarding facility. My client has agreed to eliminate the building from his plan. We did not show the approximate flood boundary from the FHBM because of the poor accuracy of the data that would be obtained from that map. The WSEL and the EGL was established from a HEC-2 analysis, which verifies all proposed buildings are located outside the flood plain limits.
- The original flow rate of 13,600 cfs came from a 1983 report and was the only data your office had reference to at that time until we were made aware of the Tijeras Arroyo Drainage Management Plan, prepared by Leedshill-Herkenhoff, August, 1990, which used a 100 year flow rate of 22,600 cfs. (Reference Table VI-2, Reach # 5 - from Four Hills Road eastward one mile). All calculations has been revised to reflect this number.

- In the matter of your request to establish an erosion setback limit, I feel the setback requirement pertains more to an alluvial arroyo bed situation which could change its depth and path with each passing storm event. The upstream reach of the Tijeras Arroyo is lined with exposed granite and will not be subject to streambed erosion or any meandering prior to reaching the site. In regard to erosion potential adjacent to the site, all proposed fill established by the site improvements will be limited to areas above the high water elevation, with all permanent structures established above the EGL.



Typical exposed rock on each side of the Tijeras Arroyo upstream from the road crossing



- HEC-2 data has been provided for the existing conditions. The proposed conditions reflect the same data, with no significant difference to the hydraulic profile. The existing culverts/road crossing were assumed to be destroyed after overtopping began somewhere between 1000 and 2000 cfs.

- The existing well shown on the site was established in 1958 and presently serves five houses on the south side of the Tijeras Arroyo.
- The drive originally proposed to serve the support building has been removed along with the building.
- An easement has been established based on the EGL reflecting the proposed finished grading plan.

Please call me if you have any questions concerning this submittal. Our client is most anxious to proceed with final grading and begin the first building before the advent of Winter. Thank you.

Sincerely,

Christopher L. Weiss, P.E.
C.L. Weiss Engineering, Inc.

INTERSTATE 40

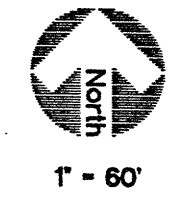
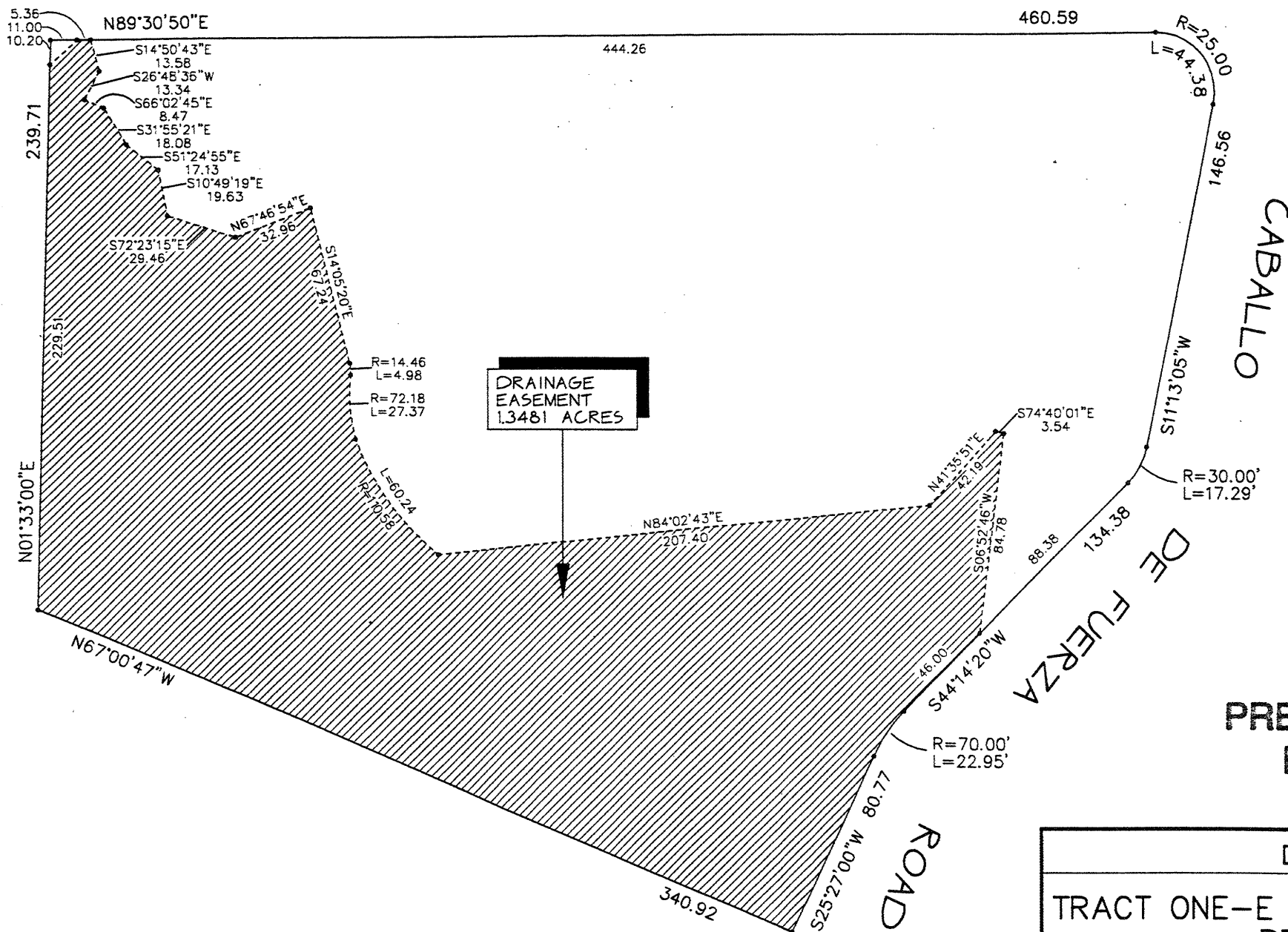


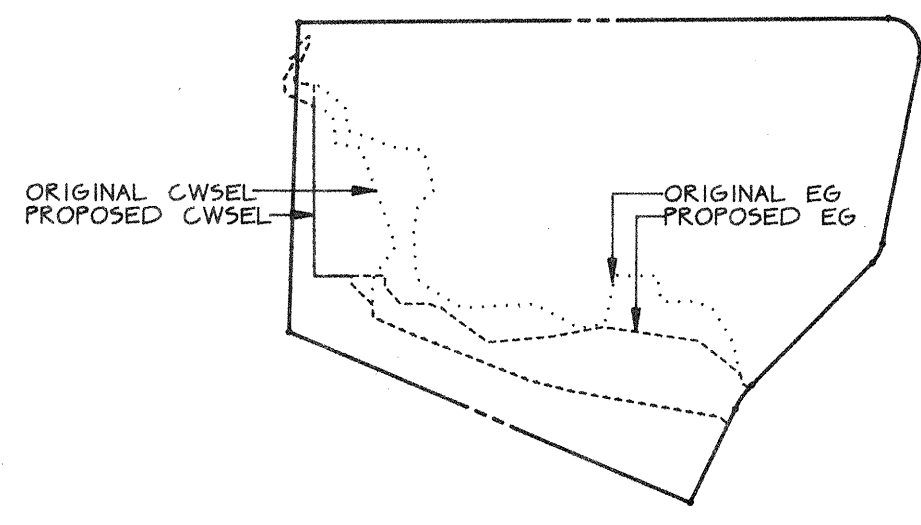
EXHIBIT A

PRELIMINARY DRAWINGS
FOR REVIEW ONLY

DRAINAGE EASEMENT
TRACT ONE-E (1-E) OF CABALLO DE FUERZA BERNALILLO COUNTY NEW MEXICO

HEC-2 SUMMARY DATA

SECT. NO.	XLCH	ELMIN	Q	CWSEL	CRWS	E6	AREA
1	0.00	65.00	13600.00	73.31	75.62	80.71	622.77
2	65.00	64.00	13600.00	70.83	73.38	79.24	584.33
3	32.00	63.00	13600.00	69.13	72.55	78.47	579.78
4	59.00	62.00	13600.00	69.22	71.46	76.71	619.26
5	104.00	61.00	13600.00	72.21	72.21	75.87	886.87
6	99.00	60.00	13600.00	66.82	68.55	72.86	670.00
7	36.00	59.00	13600.00	66.71	68.17	72.12	734.12
8	108.00	58.00	13600.00	66.36	66.76	70.58	824.31
9	12.00	58.00	13600.00	66.70	66.70	70.32	884.76
10	77.00	58.00	13600.00	64.12	64.76	68.00	860.53
11	53.00	57.00	13600.00	62.84	63.76	67.26	806.22



NOTE: SECTION 9 REPRESENTS A CHANGE FROM SUPER TO SUB CRITICAL FLOWS SHOWN COULD CROSS OVER TOP OF PENINSULA. THIS SECTION OF BUILDING COULD BE SUBJECT TO WAVE ACTION AND SHORT TERM SCOUR. A COMMON SENSE APPROACH FOR THE USE OF THIS AREA WOULD BE TO USE THE PROPERTY FOR STRUCTURES THAT CAN BE TEMPORARILY FLOODED IF THE F.F. FLOOR IS BELOW THE E.G. LINE SHOWN BUT ABOVE THE WATER SURFACE ELEVATION AS SHOWN.

SCOPE:
The proposed improvements include 20,600 SF (footprints) for 3 barns and 1 office / hay barn (future). In addition, there will be a horse track, and access gravel road with adjacent general site work and site grading.

The present site is an undeveloped property which slopes at appx. 12% to the southwest. Interstate 40 borders the site on the north. Caballo de Fuerza Road borders the site on the east. The Tijeras Arroyo borders the property on the south. The property to the west is developed residential property.

The intent of this plan is to show:

- Grading relationships between the existing ground elevations and proposed finished elevations in order to facilitate positive drainage to designated discharge points.
- The extent of proposed site improvements, including buildings, walks and pavement.
- The flow rate/volume of rainfall runoff across or around these improvements and methods of handling these flows to meet Bernalillo County requirements for drainage management.
- The relationship of on-site improvements with existing neighboring property to insure an orderly transition between proposed and surrounding grades.

DRAINAGE PLAN CONCEPT: Swales as shown will direct flows around the proposed buildings and horse track. The Tijeras Arroyo flows will pass through the site and will not be altered within the Water Surface Elevation. Sacrificial earthwork and construction are planned within the E.G. boundary as shown. The north basin carries flows from the north side of I-40, within a 48" diameter CMP culvert where it enters a concrete lined channel located at the northwest property corner. The flows then continue south to access the Tijeras Arroyo. No analysis was done to this area because the existing pipe, concrete, and flowpath are not affected by the construction.

GENERAL NOTES:

LEGAL: Tract One-E (1-E) of Caballo de Fuerza, Bernalillo County, New Mexico.

SURVEYOR: A & E Surveying Co.

B.M.: "NM Bar 5", a disk set in the top of a concrete post 0.4' above the ground located approximately 120' east and 48' north of the intersection of Highway 66 and Camino del la Sierra (approx. 9.5 miles east of downtown Albuquerque) Elevation = 5764.54' (M.S.L.D.)

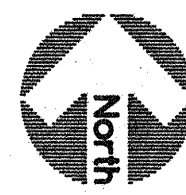
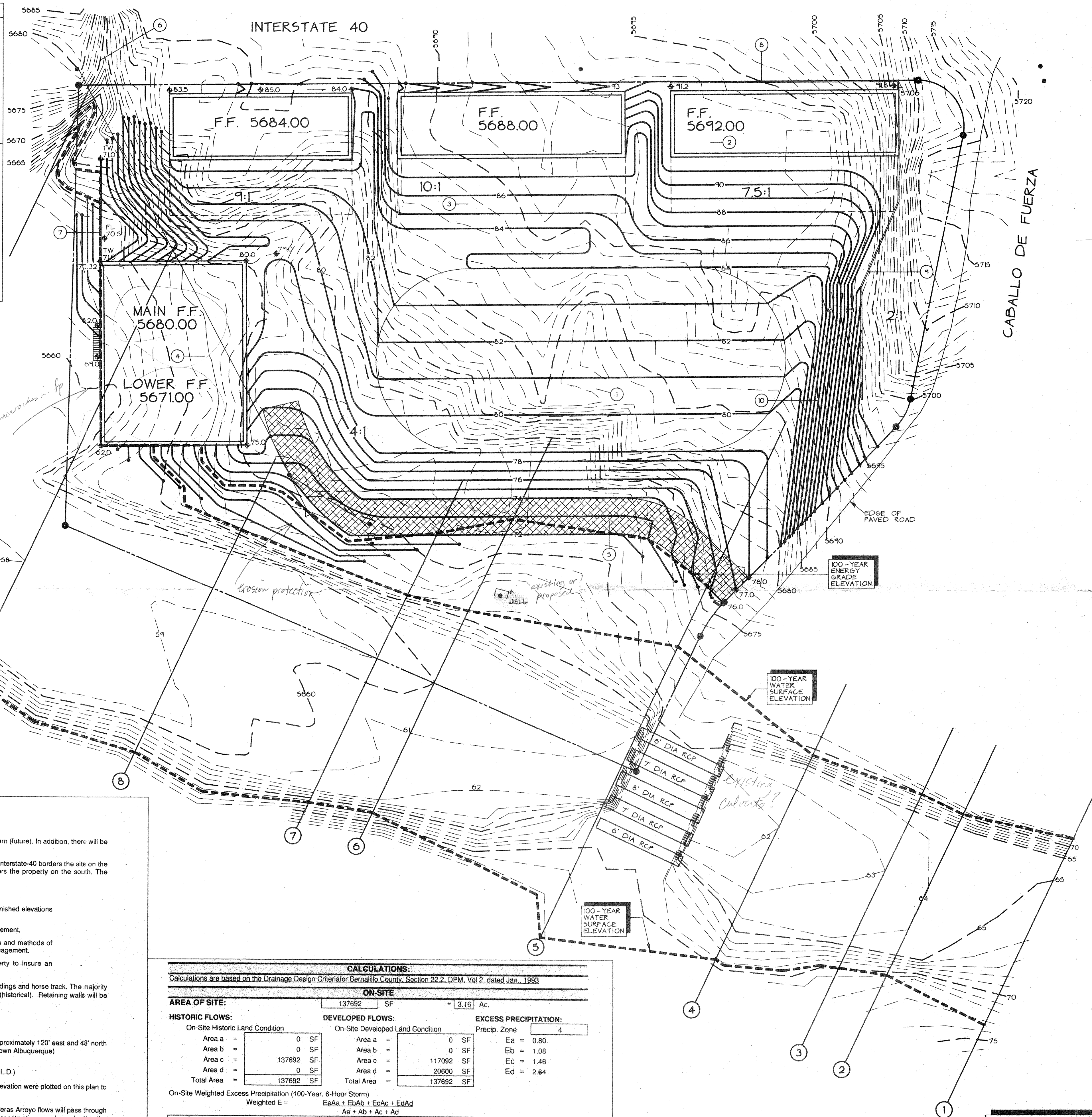
I.B.M.: Top of Rebar located at the southeast property corner. Elevation = 5656.45' (M.S.L.D.)

FLOOD HAZARD: Based on HEC-2 analysis, the water surface elevation, energy grade elevation were plotted on this plan to indicate the flood hazard potential for this site.

OFF-SITE DRAINAGE: There are two off-site basins draining through this property. The Tijeras Arroyo flows will pass through the site and will not be altered within the Water Surface Elevation. Sacrificial earthwork and construction are planned within the E.G. boundary as shown. The north basin carries flows from the north side of I-40, within a 48" diameter CMP culvert where it enters a concrete lined channel located at the northwest property corner. The flows then continue south to access the Tijeras Arroyo. No analysis was done to this area because the existing pipe, concrete, and flowpath are not affected by the construction.

EROSION CONTROL: The contractor is responsible for retaining on-site all sediment generated during construction by means of temporary earth berms or silt fences at the low points on the west property line.

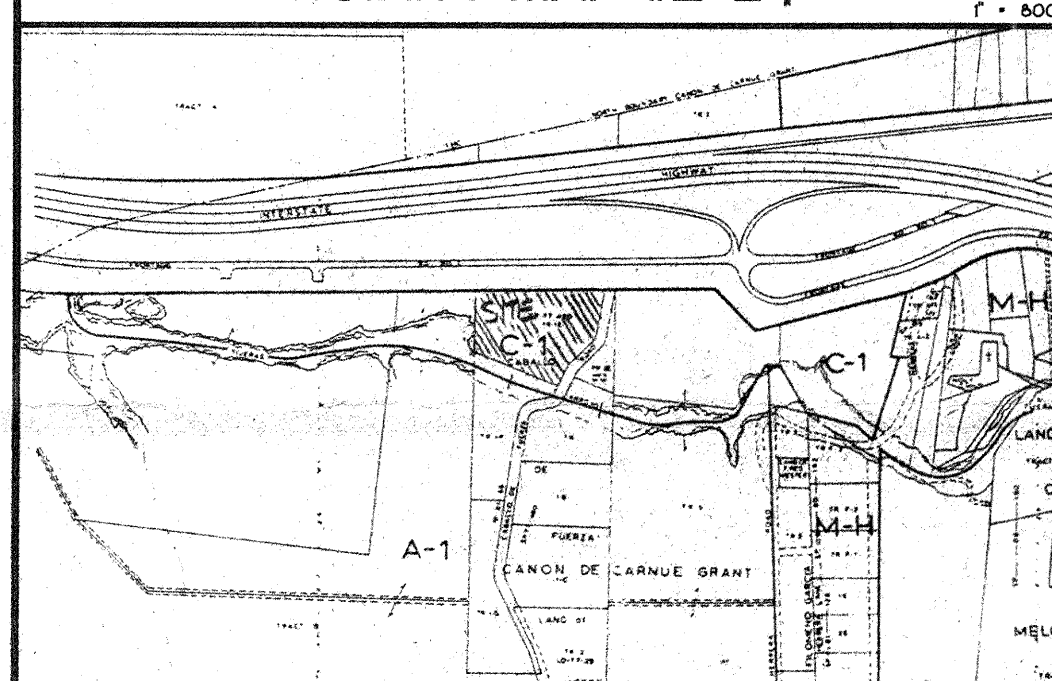
INTERSTATE 40



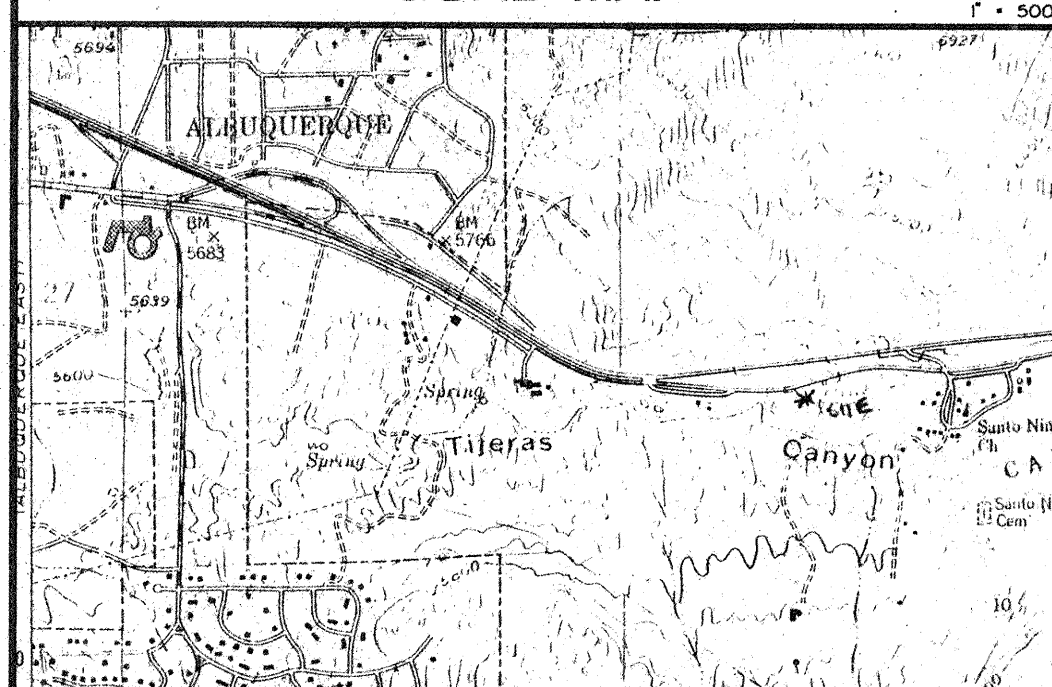
KEYNOTES

- GRADED OPEN HORSE ARENA
- COVERED BARN AREA. TYPICAL OF THREE.
- GRADED FENCED AREA. TYPICAL OF THREE.
- FUTURE OFFICE / HAY BARN SITE MULTILEVEL
- PROPOSED ACCESS DRIVE TO BE GRADED AS SHOWN.
- EXISTING 48" DIA. CMP CULVERT WITH CONCRETE LINED SWALE WHICH CARRIES OFF-SITE FLOWS ACROSS CORNER OF PROPERTY TO ADJACENT PROPERTY.
- CONSTRUCT RETAINING WALL WHERE SHOWN. TOP OF WALL MINIMUM = 710. PROVIDE 1'-1" WIDE X 6" HIGH OPENING IN WALL AT FLOWLINE ELEV. 70.5 TO ALLOW FLOWS TO PASS.
- CONSTRUCT RETAINING WALL ON PROPERTY LINE THIS AREA.
- CONSTRUCT RETAINING WALL THIS AREA TO MINIMIZE GRADING AND TO MAINTAIN NATURAL LANDSCAPING.
- ALL DISTURBED AREAS WITH SLOPES GREATER THAN 3:1 SHALL BE RESEED TO MINIMIZE EROSION.

VICINITY MAP #L-24



QUAD MAP



C.L. WEISS ENGINEERING, INC.

SANDIA PARK OFFICE
POST OFFICE BOX 97
SANDIA PARK, NM 87047
(505) 281-1800

ALVARADO OFFICE
100 ALVARADO DR. NE
ALBUQUERQUE, NM 87110
(505) 266-3444



Revisions

NO.	DATE	DESCRIPTION
1	7/12/95	ISSUED FOR PERMIT

TRACT 1-E CABALLO de FUERZA (POLK)

Client: Richard Polk

Scale: 1" = 30' Drawn By: DUB Checked By: CLW Job Number: 7-12-95 Date: 7/12/95

Drainage and Grading Plan

C-1
SH. 1 OF 1

ON THE WEEK OF APRIL 19, 1995
I, INSPECTED
TRACT 1-E, CABALLO DE FUERZA.
AT THAT TIME, IT APPEARED THAT NO GRADING,
FILLING OR EXCAVATION HAD OCCURRED THEREON
SINCE THE PREPARATION OF THE EXISTING CONTOUR
MAP USED IN THE PREPARATION OF THIS PLAN.

Christopher L. Weiss
DATE: 7-12-95

CALCULATIONS:

Calculations are based on the Drainage Design Criteria: Bernalillo County, Section 22.2, DPM, Vol. 2, dated Jan., 1993

AREA OF SITE:		ON-SITE		EXCESS PRECIPITATION:	
	137692 SF		3.16 Ac.		
DEVELOPED FLOWS:		ON-SITE DEVELOPED LAND CONDITION		PRECIP. ZONE	
On-Site Historic Land Condition	On-Site Developed Land Condition	Area a =	0 SF	Ea =	0.80
Area a =	0 SF	Area b =	0 SF	Eb =	1.08
Area b =	0 SF	Area c =	117092 SF	Ec =	1.48
Area c =	137692 SF	Area d =	20600 SF	Ed =	2.64
Area d =	0 SF	Total Area =	137692 SF		
Total Area =	137692 SF				

On-Site Weighted Excess Precipitation (100-Year, 6-Hour Storm)
Weighted E =

Historic E =	1.46 in.	Developed E =	1.64 in.
--------------	----------	---------------	----------

On-Site Volume of Runoff: V360 = E^{2.4} / 12
Historic V360 = 16753 CF | Developed V360 = 18778 CF

On-Site Peak Discharge Rate: Qp = QpaAa + QpbAb + QpcAc + QpdAd / 43,560

For Precipitation Zone 4	Qpa = 2.20	Qpc = 3.73
Qpb = 2.92	Qpd = 5.25	
Historic Qp =	11.8 CFS	Developed Qp =

All flows discharge to the Tijeras Arroyo