



# County of Bernalillo

## State of New Mexico

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

May 7, 1996

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Jake Bordenave, P.E.  
Bordenave Designs  
P.O. Box 91194  
Albuquerque, New Mexico 87199

RE: GRADING AND DRAINAGE PLAN FOR PIGGOTT RESIDENCE, LOT 505, SANDIA  
HEIGHTS SOUTH (C23/D51) (PWD-96-48) SUBMITTED FOR BUILDING PERMIT  
APPROVAL, ENGINEER'S STAMP DATED 4/26/96.

Dear Mr. Bordenave:

Based on the information provided in the submittal of May 2, 1996, the above referenced plan is approved for building permit release.

Please be advised that prior to final inspection and release of the Certificate of Occupancy, the Engineer's Certification must be submitted to and approved by my office.

If you have any questions, or if I may be of further assistance to you please call me at 768-2666.

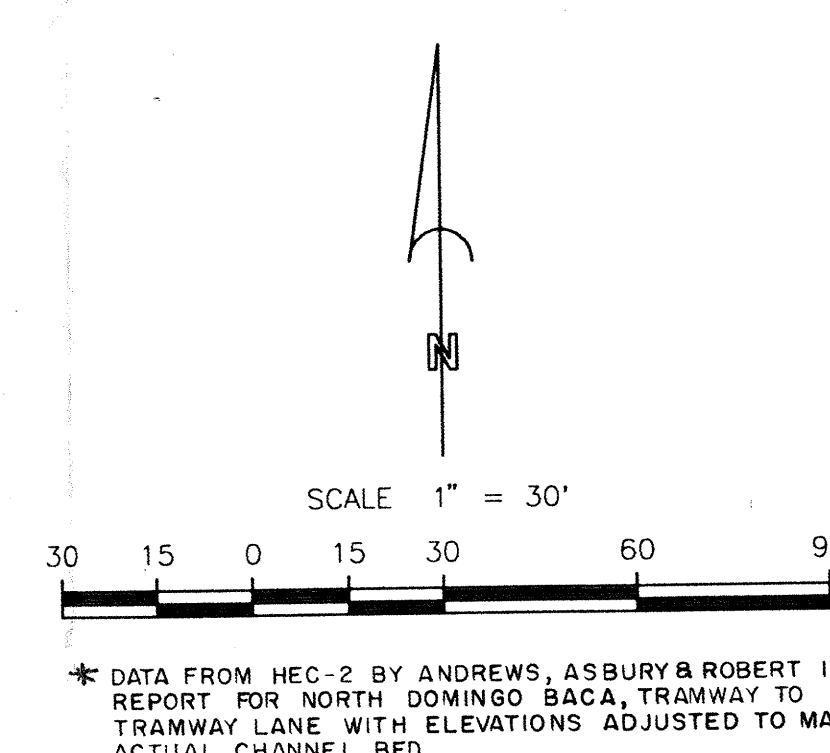
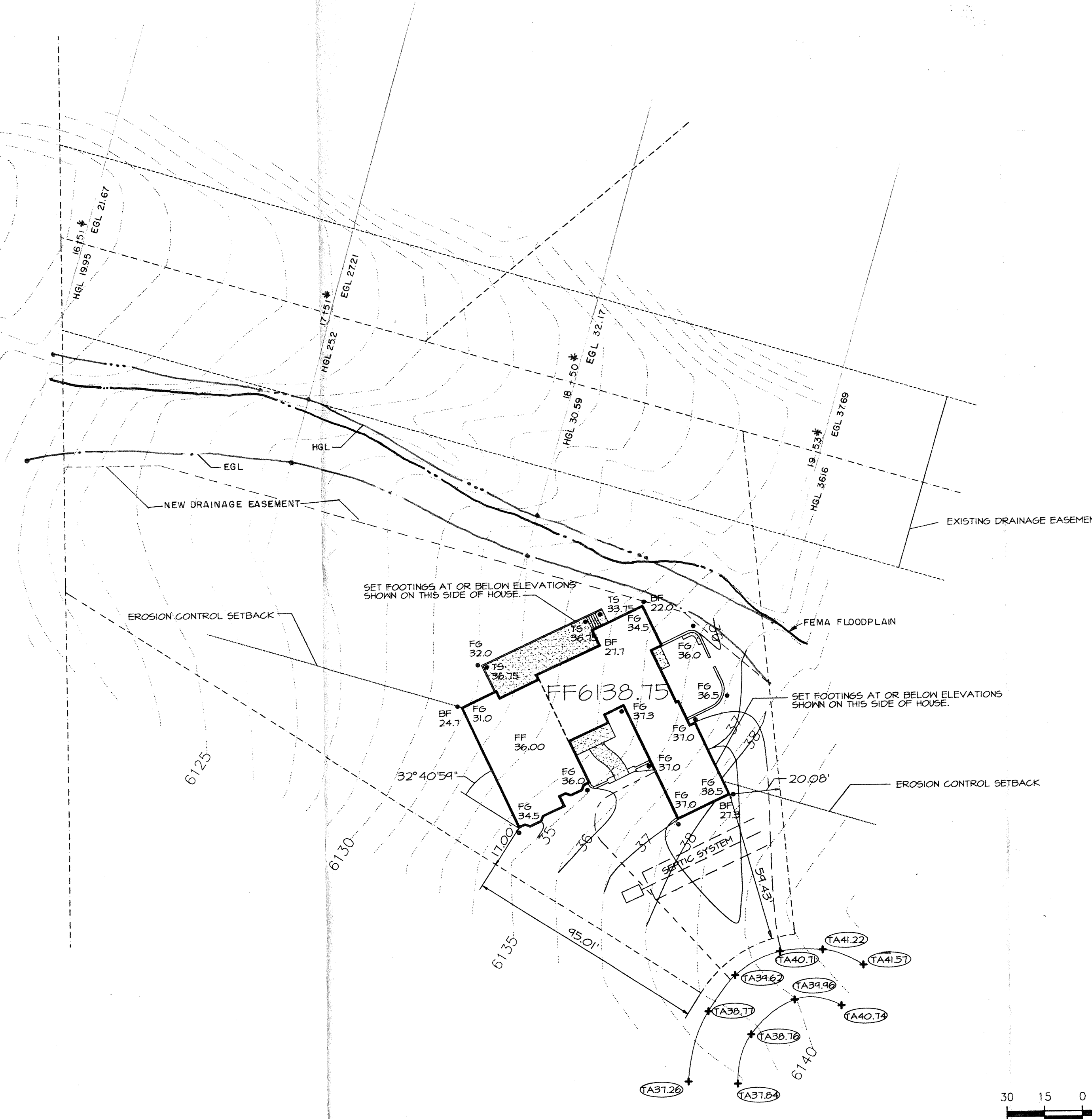
Sincerely,

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

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

c: Roger Paul, Bernalillo County Public Works Division  
Kurt Browning, Albuquerque Metropolitan Arroyo Flood Control Authority  
File





LEGAL DESCRIPTION

LOT 505, SANDIA HEIGHTS SOUTH, UNIT 5

PERMANENT BENCHMARK

ACS 2-C23(REV.13) ELEVATION 6078.77

GRADING CERTIFICATION

I, Jean J. Bordenave, New Mexico Professional Engineer and Land Surveyor No. 5110, hereby certify that I have personally inspected the property shown hereon and that it appears that no grading, filling or excavation has occurred thereon since the contour map shown hereon was prepared.  
*Jean J. Bordenave* 03/28/96  
Jean J. Bordenave, NM PE & PS No. 5110

GENERAL NOTES

- There is a flow increase of 0.46 and 0.51 cfs for the 10 year and 100 year storms respectively. The 6 hour runoff volumes for the two storms increase by 783 and 1044 cubic feet. The 100 year developed peak flow rate is 0.64 cfs less than the accepted average for the area.
- The proposed residence is located on a lot impacted by a major arroyo (1210 cfs). The residence is within the erosion setback limits of the arroyo and deep foundations (minimum of 1 foot below local scour depth) have been required.
- The site is located in a designated 100 year flood hazard area per FEMA FIRM No. 11. The building is not in the designated flood plain.
- Topography shown on this sheet was prepared by Baseline Field Services dated 02/96.
- Earth surfaces disturbed in the construction process shall be either formally landscaped or seeded in accordance with City of Albuquerque Standard Spec. No. 1012, "Native Grass Seeding".
- No fences or walls, other than those shown, are proposed.

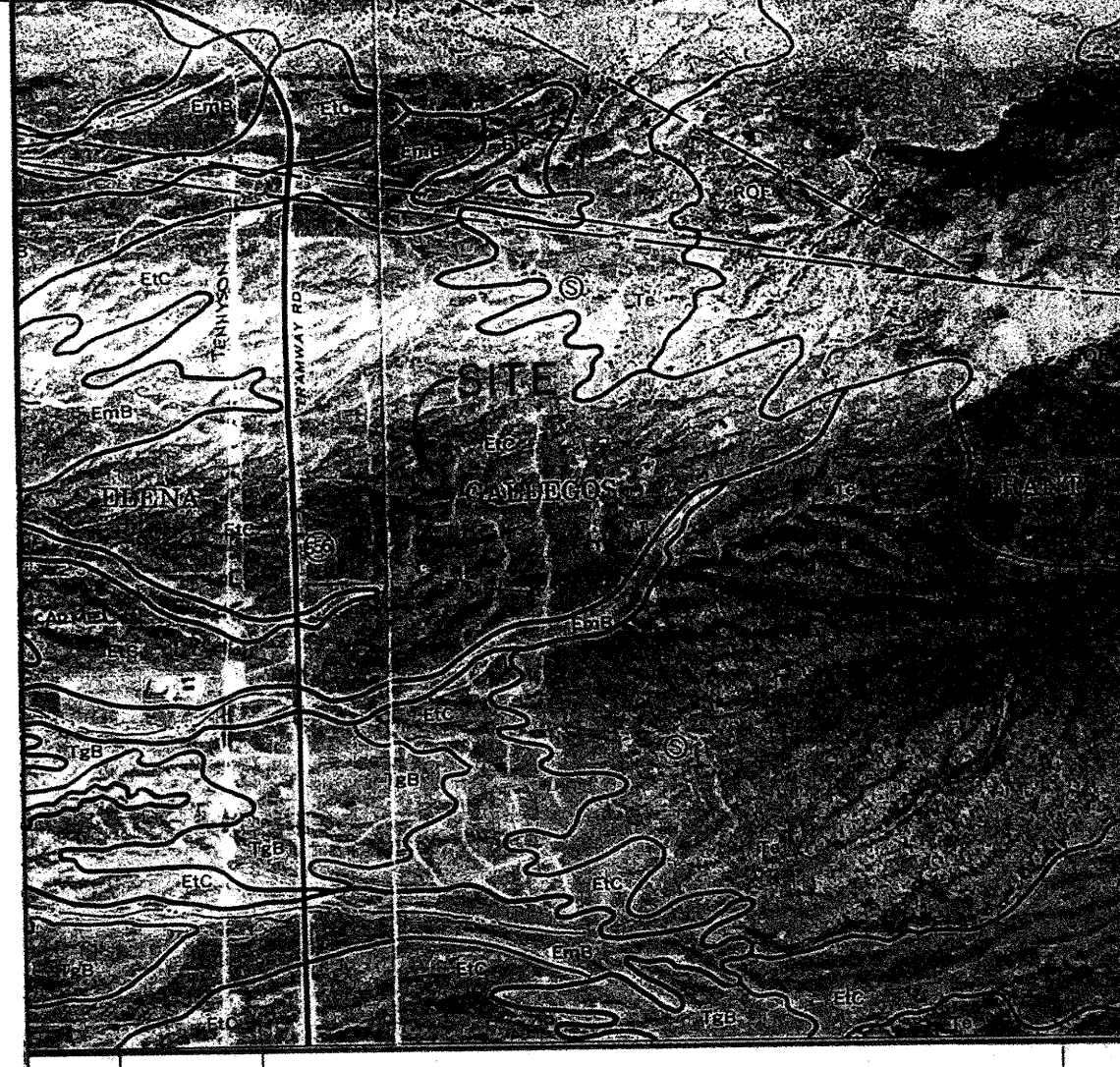
VICINITY MAP NO. C-23



FEMA FIRM PANEL NO. 11



SCS SOILS MAP NO. 12

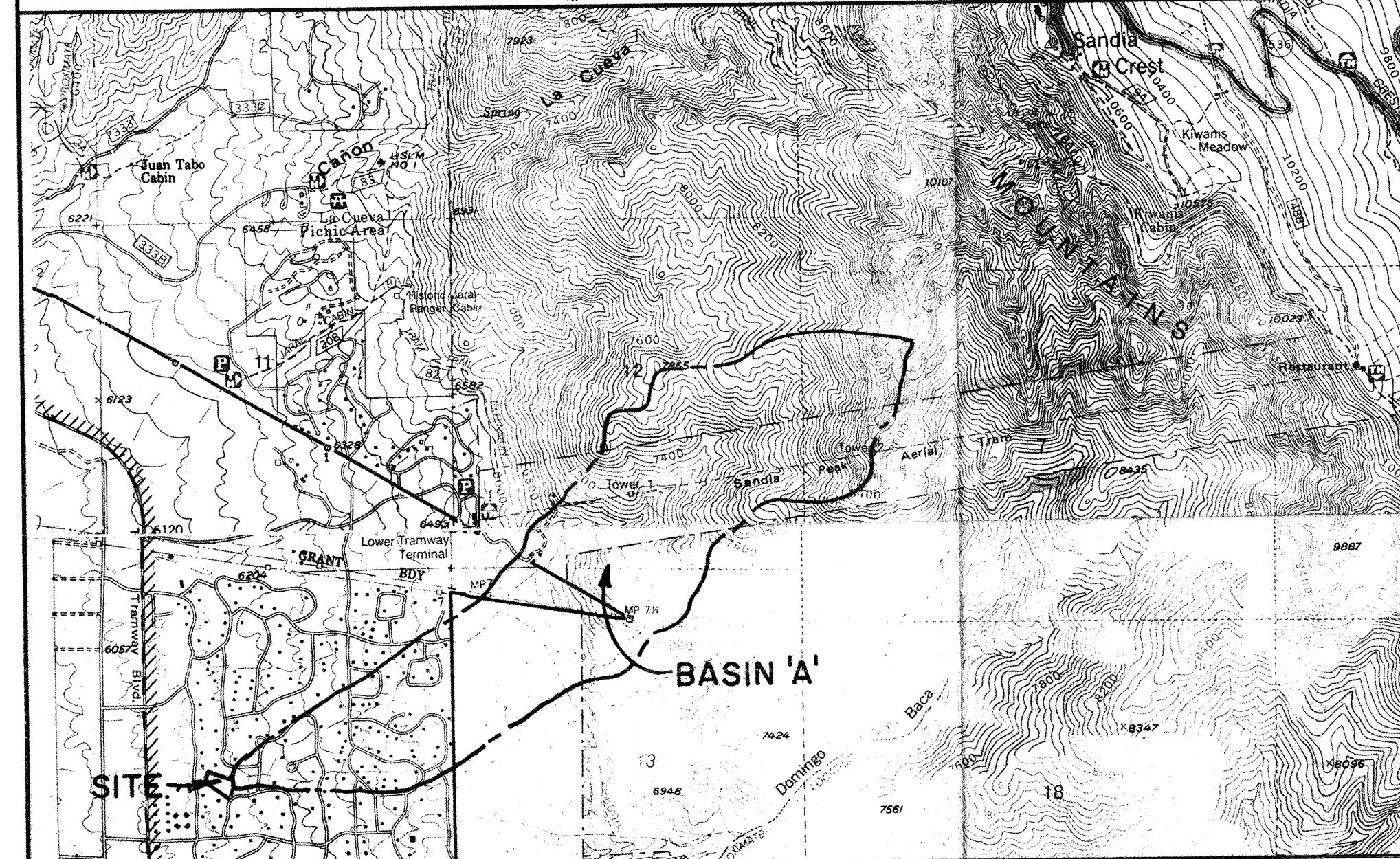


LEGEND

TBM	TEMPORARY BENCHMARK
FF	FINISH FLOOR
FG	FINISH GRADE
FL	FLOWLINE
TA	TOP OF ASPHALT
TCP	TOP OF CONCRETE PAD
TC	TOP OF CURB
TP	TOP OF EARTH PAD
TS	TOP OF SIDEWALK
TW	TOP OF WALL
FH	FIRE HYDRANT
WM	WATER METER
WV	WATER VALVE
MH	MANHOLE
CB	CATCH BASIN GRATE
GM	GAS METER
GV	GAS VALVE
LP	LIGHT POLE
PP	POWER POLE
GW	GUY WIRE
PED	ELEC. OR TEL. PEDESTAL
RD	ROOF DRAINAGE POINT
BF	BOTTOM OF FOOTING
	FEMA FLOODPLAIN BOUNDARY
	DRAINAGE BASIN BOUNDARY
	EROSION SETBACK LINE
	EXISTING CONTOUR
	PROPOSED CONTOUR
XX.XX	EXISTING SPOT ELEVATION
XX.XX	PROPOSED SPOT ELEVATION
XX.XX	RECORD SPOT ELEVATION

OFFSITE DRAINAGE MAP

1" = 2000'



DRAINAGE DATA

CONDITION	STORM A RETURN PERIOD	TREATMENT TYPE	TREATMENT AREA	EXCESS PRECIPITATION	PEAK RUNOFF	RUNOFF VOLUME	RUNOFF RATE
	year	(table 4)	sq. ft.	in.	cfs/acre	cu. ft.	cfs
EXISTING	10	A	51810	0.28	0.87	1209	1.03
		B	0	0.46	1.45	0	0.00
		C	0	0.73	2.26	0	0.00
		D	0	1.69	3.57	0	0.00
		TOTAL	51810			1209	1.03
ON SITE	100	A	51810	0.80	2.20	3454	2.62
		B	0	1.08	2.92	0	0.00
		C	0	1.46	3.73	0	0.00
		D	0	2.64	5.25	0	0.00
		TOTAL	51810			3454	2.62
DEVELOPED	10	A	41893	0.28	0.87	978	0.84
		B	1600	0.46	1.45	61	0.05
		C	2730	0.73	2.26	166	0.14
		D	5567	1.69	3.57	787	0.46
		TOTAL	51810			1992	1.49
ON SITE	100	A	41893	0.80	2.20	2793	2.12
		B	1600	1.08	2.92	144	0.11
		C	2730	1.46	3.73	352	0.23
		D	5567	2.64	5.25	1229	0.67
		TOTAL	51810			4498	3.13
ON SITE	100	A(43%)	22278	0.80	2.20	1485	1.13
		B(20%)	10362	1.08	2.92	933	0.69
		C(20%)	10362	1.46	3.73	1261	0.89
		D(17%)	8808	2.64	5.25	1938	1.06
		TOTAL	51810			5616	3.77

**OFFSITE BASIN 'A'**  
DPM SECTION 22.2.B.5 STEEP CHANNEL  
Initial estimate of flow where:  
L = 13000 ft therefore: L<sub>s</sub> = 0.425 hr  
LCA = 6497 ft t<sub>c</sub> = 0.567 hr  
S = 3170/13000 = 0.244 ft/ft I = 3.27 in/hr  
Q<sub>p</sub> = 1134 cfs  
Revised estimate of flow where:  
S' = 0.0680 ft/ft therefore: Q<sub>p</sub> = 1210 cfs OK  
K = 2.717  
v = 7.085 fps  
t<sub>c</sub> = 0.5097 hr  
I = 3.49 hr

**ARROYO HYDRAULICS**  
IRREGULAR CHANNEL (40 foot bottom; 6:1, 1 foot deep south; 5:1, 4 feet deep north; 30:1 overbank, south; n = 0.035, channel; n = 0.045, overbank; s = 0.053 ft/ft)  
therefore:  
depth = 1.79 ft  
velocity = 12.4 fps  
F = 1.97  
velocity head = 2.38 ft

**LOCAL SCOUR**  
Y<sub>s</sub> = (1.79) (4) (1.97)<sup>0.33</sup> = 8.7 ft (perpendicular)  
Y<sub>s</sub> = (1.79) (0.73 + 0.14 (3.14) (1.97)<sup>2</sup>) = 2.3 ft (parallel)

**EROSION SETBACK**  
Q<sub>10</sub> = (0.2) (1210) = 242 cfs  
W = (4.6) (242)<sup>0.33</sup> = 41.3 ft  
offset = (0.92 + 4.6 (log 242)) (242)<sup>0.33</sup> = 107 ft

1 04/29/96 ADD HGL, EGL & EASEMENT MAY 4 1996 JJB

no. date remarks by

REVISIONS

project title  
**PIGGOTT RESIDENCE  
505 BLACK BEAR LOOP NE  
ALBUQUERQUE, NM**

sheet title  
**GRADING & DRAINAGE PLAN**

sheet date 04/01/96 design by JJB project no. 9606

sheet

**BORDENAVE DESIGNS**  
P.O. BOX 91194, ALBUQUERQUE, NM 87199  
(505) 823-1344