



County of Bernalillo

State of New Mexico

ONE CIVIC PLAZA, N.W.
ALBUQUERQUE, NEW MEXICO 87102
ADMINISTRATION (505) 768-4000
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FAX (505) 768-4329
November 9, 1993

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Paul Brasher, P.E.
Brasher Engineering
11930 Menaul NE Suite 113
Albuquerque, NM 87112

RE: DRAINAGE REPORT FOR LOTS 630 AND 632, UNIT 6, SANDIA HEIGHTS SOUTH,
(C-23/D44), ENGINEER'S STAMP DATED SEPTEMBER 12, 1993.

Dear Mr. Brasher:

Based on the information provided on the referenced submittal received October 25, 1993, the building addition is acceptable for Building Permit release.

Prior to final inspection by the County Building Department, an Engineer's Certification should be submitted and approved by this office.

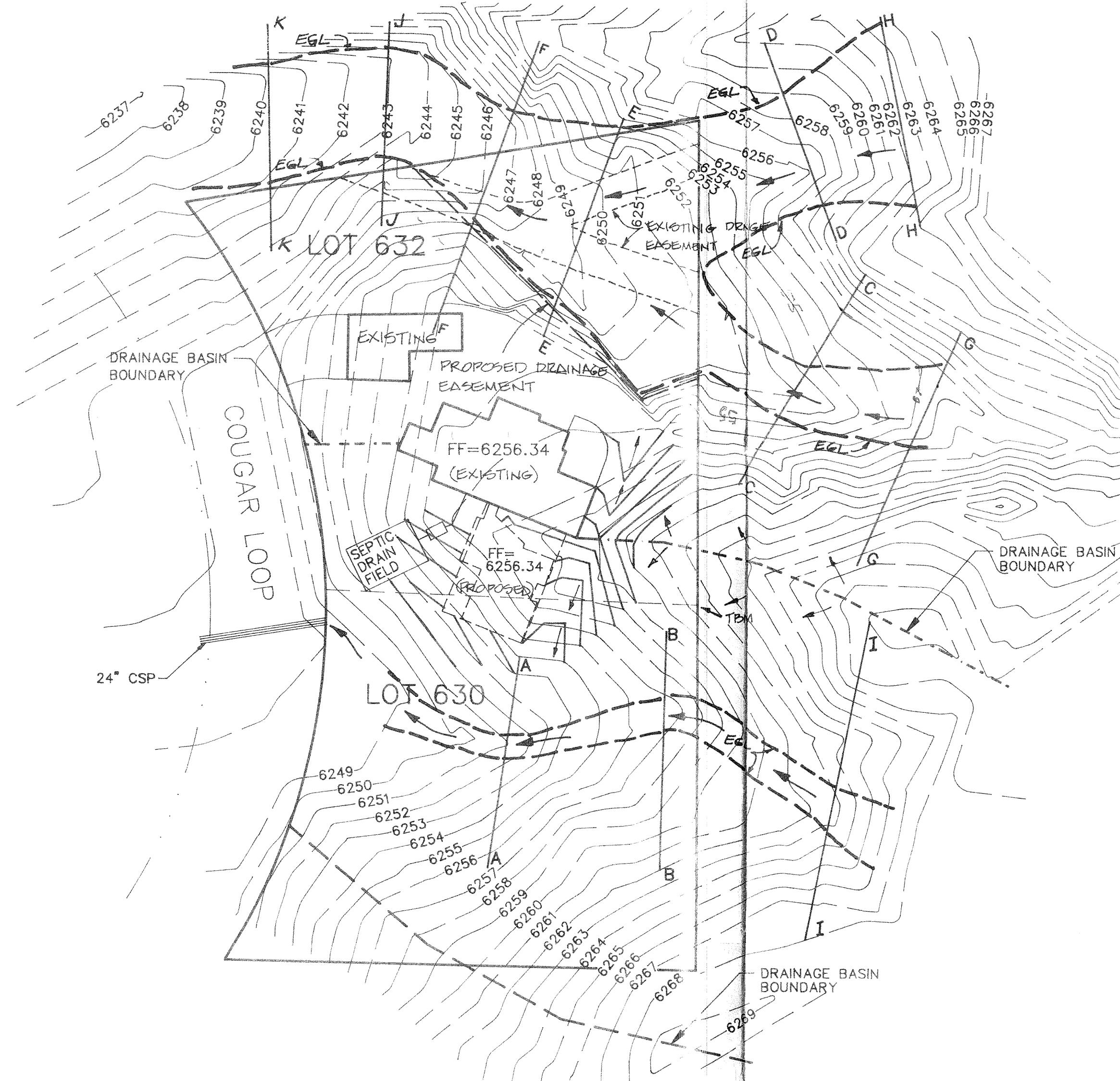
This acceptance includes AMAFCA and County PWD. If you should have any questions, please do not hesitate to call me at 768-2650.

Cordially,

Gilbert Aldaz, P.E. & P.S.
City/County Floodplain Administrator

xc: Clifford E. Anderson, AMAFCA
Bob Foglesong, County PWD
Tom Burlison, County Building Dept.
File

wp+8091



DRAINAGE PLAN

EXISTING CONDITIONS:

The property is located in Sandia Heights South, east of Tramway, on Cougar Loop. The project consists of the addition of a room to the south side of an existing single family residence on Lot 632. The configuration of the addition is such that it will encroach on Lot 630, as shown. The property owner of Lot 632 is also the owner of Lot 630, and is in the process of replating both lots to eliminate the common lot line. Lot 630 is presently undeveloped. As evident from the topography, the land slopes from east down to the west across both lots. Besides the existing house on Lot 632, the remainder of both lots is in its undisturbed condition with the natural density of native grasses and shrubs. The existing residence is situated on the high ground of Lot 632. The convergence of two unlined arroyos occurs near the site's northeast corner, and a single arroyo continues along the north property line of Lot 632, discharging to the paved Cougar Loop, just north of the Lot 632 northwest corner. An arroyo with a small upstream basin runs across Lot 630, south of the south property line of Lot 632. The proposed addition will be sited in the slope of this small arroyo, but well outside its energy grade line. According to FEMA Floodway Map Panel 11, a small portion of Lot 632 is encumbered by the flood hazard zone of the arroyo along its north boundary. The plat for Lot 632 provides for converging 15-foot drainage easements in locations non-specific other than that they are centered about the estimated invert lines of the north side arroyos.

DRAINAGE CONDITIONS:

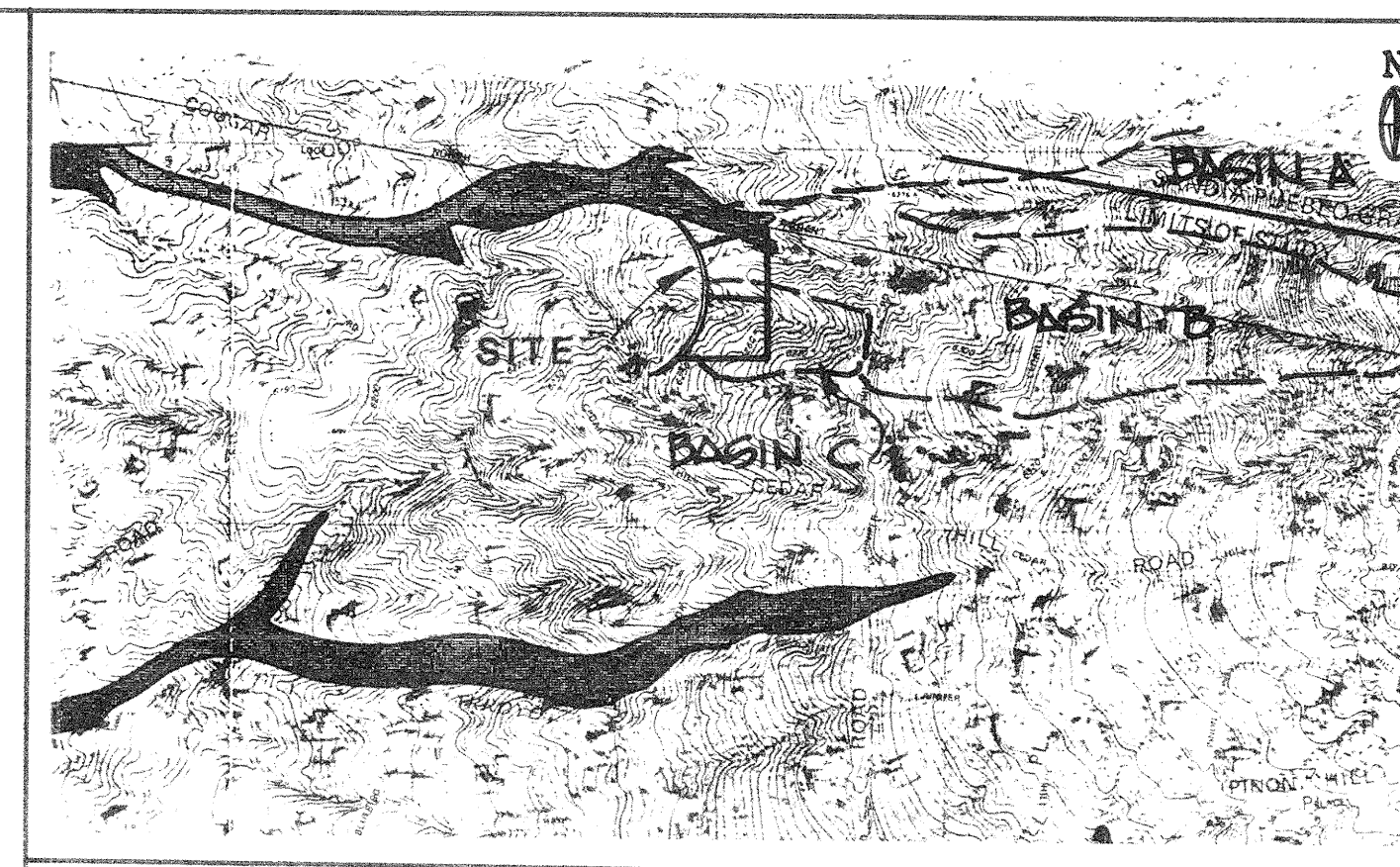
Although the proposed addition does not affect any arroyo of either lot, this Drainage Plan sets forth the analysis of existing drainage conditions for each arroyo. The north arroyo is a combination of two upstream arroyos with drainage areas of 44.4 and 14.0 acres, and 156.71 cfs and 52.18 cfs, respectively, upstream of their confluence. The south arroyo has a basin of 1.9 acres, generating a flowrate of 6.64 cfs. This small arroyo is drained across Cougar Loop through an existing 24" CSP beneath the road with a conveyance capacity of 21.4 cfs. The addition is graded to be constructed at the same finished floor elevation as the main residence and to drain away from the site. These elevations and distance from the small arroyo serve to maintain adequate separation between the addition and the flowing channel. Conditions on the north side of Lot 632 remain unchanged. In order to define the extent of the flowing channels, each arroyo was analyzed using HEC-2 to estimate the elevation of the energy grade lines. Part of this Drainage Plan, submitted separately, is the grant of an easement to contain the energy grade line of the north arroyos on Lot 632. Results of the analyses show that the existing and proposed structures are well outside the energy grade lines both horizontally and vertically, and that flow through the site is not impeded.

CALCULATIONS:

The hydrology used to calculate peak flowrates is per the City of Albuquerque Development Process Manual, Section 22.2, Part C, dated January, 1993. HEC-2 is the Water Surface Profiles generalized computer program developed by the U.S. Army Corps of Engineers Hydrologic Engineering Center, dated September, 1982. Copies of the computer output are submitted separately with this Drainage Plan. This Plan shows calculations of the critical cross sections taken for HEC-2 analysis. For each arroyo, under peak flow conditions, the two or three cross-sections shown on the plan were preceded in the analysis by triple replication of the most upstream section in order to establish the steady flow conditions practical to be applied to the critical sections downstream. The development of the flow rates based on this hydrology is as follows:

Precipitation Zone 4 P360 - 2.90"

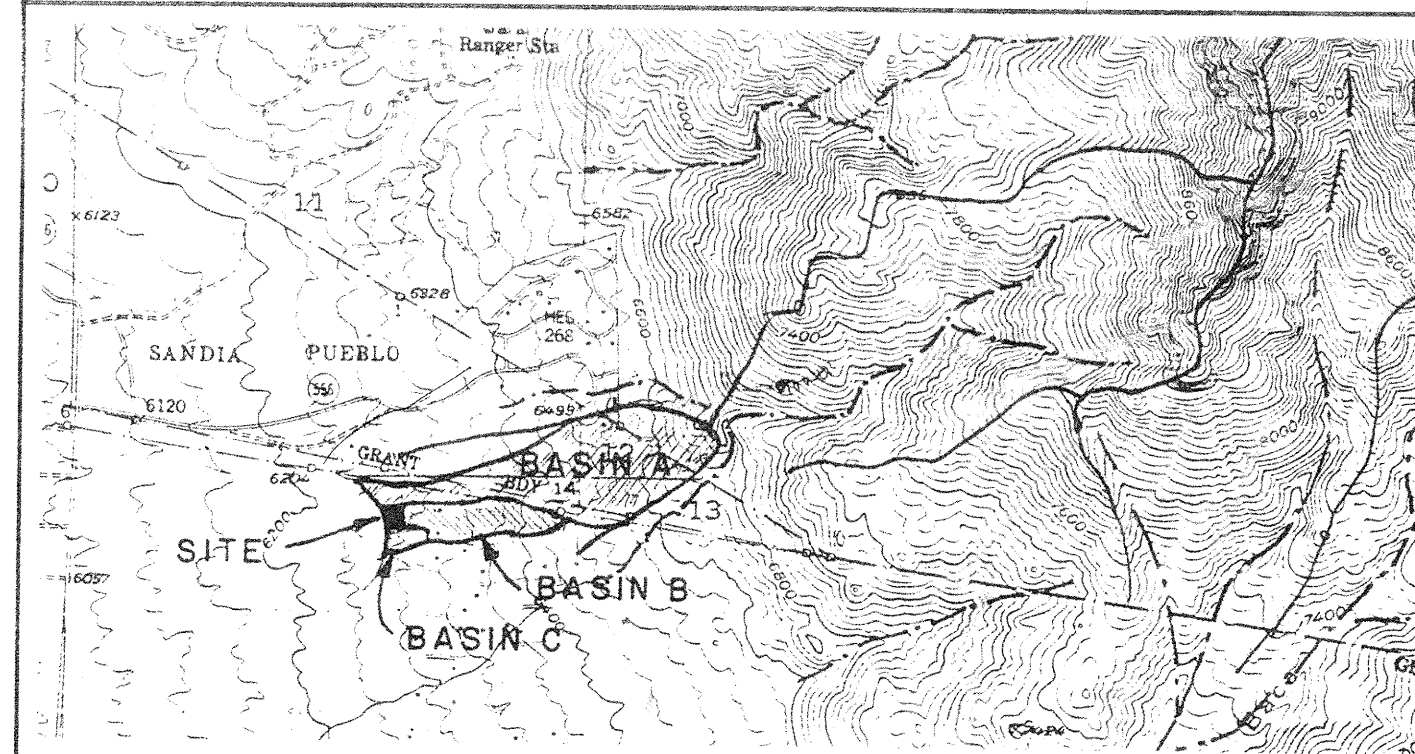
BASIN	AREA (ac.)	A	B	C	D	Ew (in.)	Q100 (cfs)	V100 (af)
Developed Conditions								
A	44.4	6.22	17.60	10.80	9.78	1.48	156.71	5.46
B	14.0	1.54	3.97	4.85	3.64	1.59	52.18	1.85
C	1.9	0.09	0.98	0.51	0.32	1.43	6.64	0.23



ALTHOUGH THE TOPOGRAPHY SHOWN HEREON DOES NOT REFLECT RECENT DEVELOPMENT THE DRAINAGE BASINS REMAIN ESSENTIALLY UNCHANGED

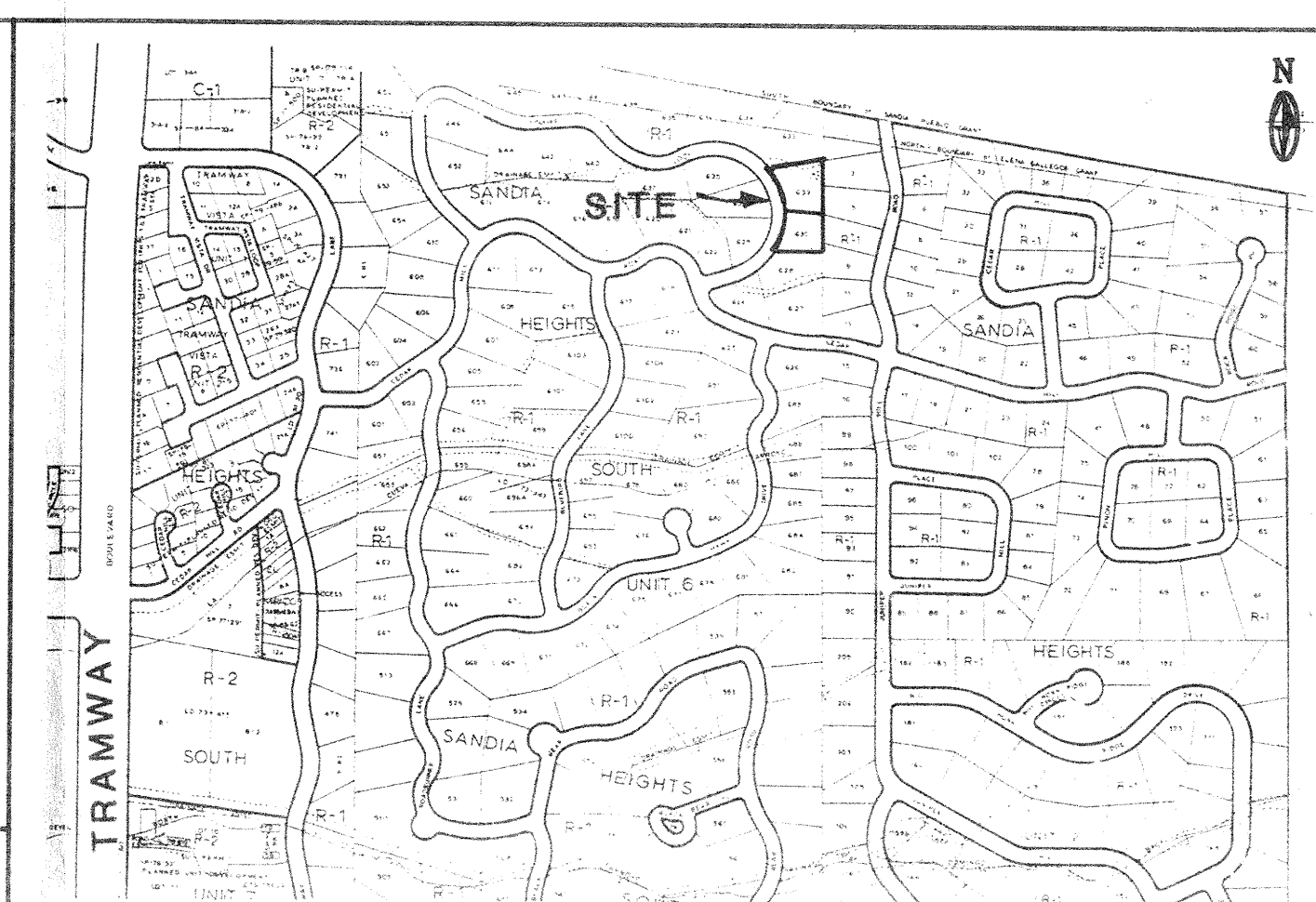
FLOODWAY & OFFSITE DRAINAGE MAP

1"=500'



REGIONAL TOPOGRAPHY USGS

1"=2000'



LOCATION MAP

1"=800'

LEGEND

- 6001 — EXISTING CONTOUR ELEVATION
- 02.5 x EXISTING SPOT ELEVATION
- 01 — PROPOSED CONTOUR ELEVATION
- PROPERTY LINE
- 01.5 + PROPOSED SPOT ELEVATION
- ← DIRECTION OF FLOW
- DRAINAGE SWALE
- DRAINAGE BASIN DIVIDE

PROPERTY ADDRESS

632 Cougar Loop NE

LEGAL DESCRIPTION

LOT 630 and LOT 632 UNIT 6 SANDIA HEIGHTS SOUTH

PROJECT BENCHMARK

TBM: SE property corner, a 1/2" rebar with cap. Elevation 6262.06 feet

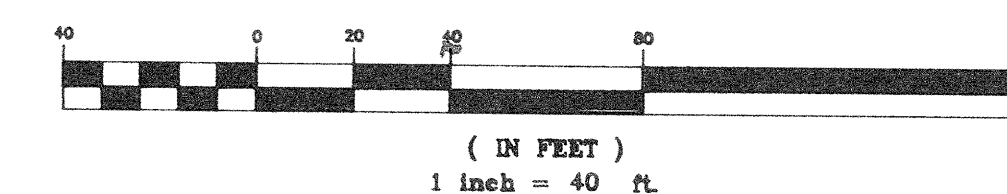
SURVEY

Topographic and Improvement field measurements by Brasher Engineering INC. Dated August, 1993

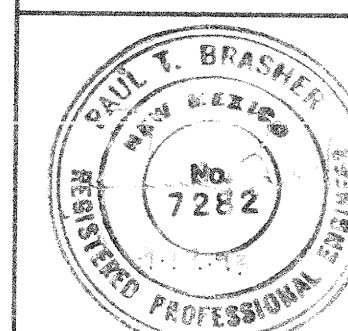
I, Paul Brasher, hereby certify that I personally inspected the site shown on this plan on August 31, 1993, and as of that date it appeared that no filling, grading, or excavation had occurred thereon since completion of the topographic survey used to prepare this plan.



GRAPHIC SCALE



SCHULER RESIDENCE ADDITION GRADING & DRAINAGE PLAN



BRASHER ENGINEERING, INC.
11930 MENAUL BLVD. N.E., SUITE 113
ALBUQUERQUE, NEW MEXICO 87112
(505)296-0422

DRAWN BY: STAFF

DATE: SEPTEMBER 1993

Approved by
Clyde E. Olsen 10/29/97
ALH/PCA

Alameda County Public Works

RECEIVED
OCT 25