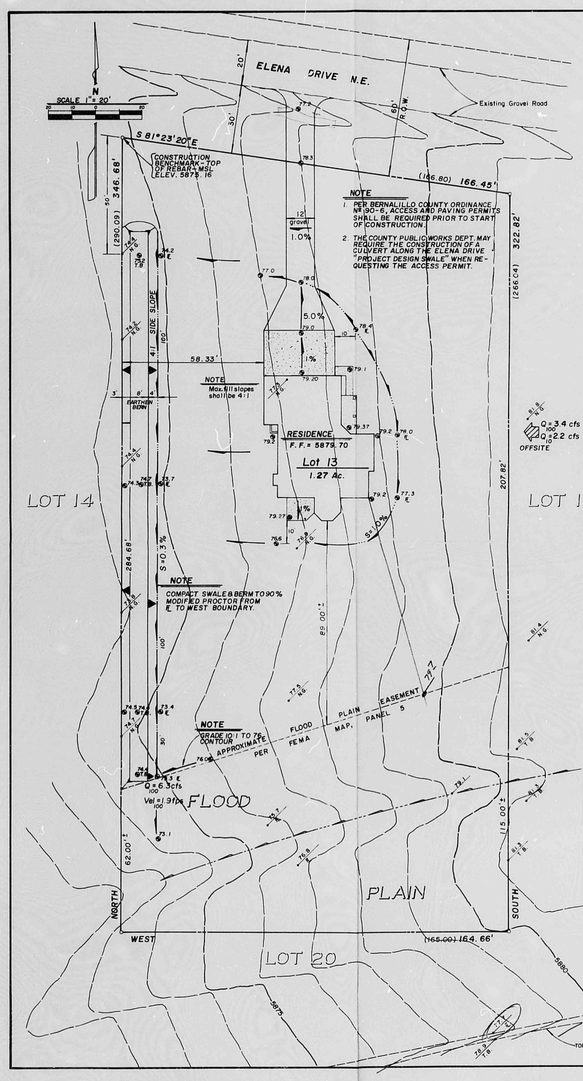
PUBLIC WORKS/HYDROLOGY

B22/D6



GRADING AND DRAINAGE PLAN

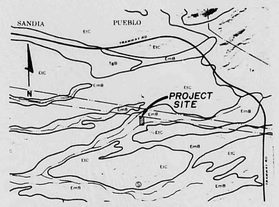
THE PROPOSED RESIDENTIAL HOME IS LOCATED IN NORTH ALBUQUERQUE ACRES, APPROXIMATELY 15 MILES NORTHEAST OF THE DOWNTOWN CORE OF ALBUQUERQUE, NEW MEXICO. THE GRADING AND DRAINAGE SCHEME HEREON IS IN COMPLIANCE WITH THE BERNALILLO COUNTY FLOOD HAZARD ORDINANCE NO. 88-46, AND STORM DRAINAGE ORDINANCE NO. 90-6. THE PLAN IS REQUIRED TO FACILITATE THE OWNER'S REQUEST FOR BUILDING PERMIT. THE PROPOSED PLAN SHOWS:

1.) EXISTING AND NEW CONTOURS WITH EXISTING AND NEW SPOT ELEVATIONS.
2.) PROPOSED IMPROVEMENTS; DWELLING, DRIVEPAD AND GRAVEL DRIVEWAY.
3.) CONTINUITY BETWEEN EXISTING AND PROPOSED ELEVATIONS.
4.) QUANTIFICATION AND ACCEPTANCE OF UPSTREAM OFF SITE FLOWS WHICH CONTRIBUTE TO THE DEVELOPED FLOWS GENERATED BY THE IMPROVEMENTS.

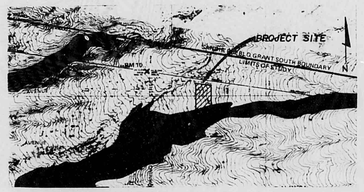
THE PURPOSE OF THE PLAN IS TO FLOOD PROOF THE RESIDENTIAL DWELLING AND TO ESTABLISH CRITERIA FOR CONTROLLING STORM RUN OFF GENERATED BY THE PROPOSED IMPROVEMENTS. THE PLAN DETERMINES THE RUNOFF RESULTING FROM THE 100 YEAR/6HR. DURATION AND 10 YEAR/6HR. STORMS FOR BOTH THE EXISTING AND DEVELOPED CONDITIONS.

THE SITE IS BOUNDED ON THE NORTH BY A GRAVEL RESIDENTIAL STREET, ELENA DRIVE. THE ADJACENT TRACTS ARE ALL RESIDENTIAL AND PRESENTLY UNDEVELOPED. THE SITE GENERALLY FALLS FROM EAST TO WEST AT 4 PERCENT. OFFSITE FLOWS ENTER THE SITE FROM THE EAST. THE LOT IS ENCUMBERED ON THE SOUTH PORTION BY A DESIGNATED FEMA FLOODPLAIN AS DEPICTED ON PLAN. (AO2 ZONE)

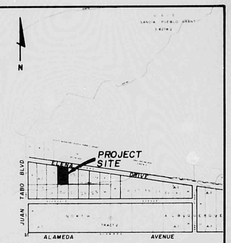
THE PROPOSED PLAN IS TO SET THE FINISH FLOOR OF THE RESIDENCE A MINIMUM OF 2 FOOT ABOVE THE HIGHEST DESIGNATED LOT ELEVATION ASSOCIATED WITH THE FLOWLINE OF THE FLOOD PLAIN THAT IS NORMAL TO THE AFFECTED RESIDENCE CORNER, AS A SOLUTION TO POTENTIAL FLOODING. HISTORICAL SITE RUN-OFF OUTFALL LOCATIONS WILL BE DIRECTED TO THE LA CUEVA ARROYO BY THE USE OF A COMPACTED EARTHEN SWALE. DEVELOPED VELOCITIES ARE SHOWN ON THE PLAN. PER THE COUNTY DRAINAGE ENGINEER, FREE DISCHARGE OF STORM RUN OFF IS GRANTED FOR THIS SITE SINCE THE PROJECT LAND USE INTENSITY IS LESS THAN (1) DWELLING UNIT PER ACRE AND LOCATED WITHIN NORTH ALBUQUERQUE ACRES. HYDROLOGIC PROCEDURES AND CALCULATIONS ARE IN ACCORDANCE WITH THE CITY OF ALBUQUERQUE DEVELOPMENT PROCESS MANUAL CHAPTER 22, VOL. II.



SOILS SURVEY - SHEET (12)
SCALE: 1" = 2,000'



FEMA FLOOD PLAIN MAP PANEL 5
SCALE: 1" = 500'



VICINITY MAP
ZONE MAP NO. B-22-Z

LEGEND

- FOUND REBAR W/CAP
- EXISTING SPOT ELEVATION
- N.G. - NATURAL GROUND
- T.B. - TOP OF BERM
- ℄ - FLOW LINE
- NEW SPOT ELEVATION
- F.F. FINISH FLOOR ELEVATION
- NEW CONCRETE
- 5880 EXISTING CONTOURS
- BOUNDARY LINE
- NEW SWALE
- EXIST. FLOWLINE

CALCULATIONS

I. DESIGN CRITERIA

HYDROLOGIC METHODS AS OUTLINED IN CHAPTER 22, VOL. II., OF THE DEVELOPMENT PROCESS MANUAL (DPM)
DISCHARGE RATE: Q = CIA...RATIONAL METHOD
VOLUMETRIC DISCHARGE: VOL. = R.O. x A..."SCS METHOD AS OUTLINED IN DPM"

SOIL TYPE, 'B' - EMBUDO
P_{100} = 2.5 IN.
I = P6.84TC*-0.51
$TC = 0.0078\ L^{0.77} \div S^{0.385}$
$'C'_{dev.} = 0.90$; $'C'_{pvm.} = 0.95$; $'C'_{undev.} = 0.40$; $'C'_{L.S.} = 0.25$

II. EXISTING CONDITIONS

A = 1.27 AC. R.O. = 0.5 IN., 100-YR.
I_{100} = 5.28 IN/HR. TC = 10 MIN.
C = 0.40 CN = 70
Q_{100} = 2.7 CFS Q_{10} = 1.8 CFS
$VOL._{100}$ = 2305 C.F. $VOL._{10}$ = 922 C.F.

QUANTIFY EXISTING UPSTREAM OFF-SITE FLOWS:
A = 1.50 ACRES; BASIN DETERMINED FROM FEMA MAP
L =200'; S = 4.0% .. TC = 10 MIN.
'CC' = 0.43, SEE III. $R.O._{100yr}$ = 0.50 IN.
Q_{100} = 3.4 CFS Q_{10} = 2.2 CFS
$VOL._{100}$ = 2723 C.F. $VOL._{10}$ = 1090 C.F.

III. DEVELOPED CONDITIONS

A = 1.27 AC.
CALCULATE COMPOUND 'C' & CN:

GRAVEL	= 0.03 AC.,	'C' = 0.73;	CN = 85
PAVEMENT	= 0.02 AC.,	'C' = 0.95;	CN = 95
ROOF	= 0.05 AC.,	'C' = 0.90;	CN = 95
L.S.	= 0.06 AC.,	'C' = 0.25;	CN = 61
UNDEV.	= 1.11 AC.,	'C' = 0.40;	CN = 70
	1.27 AC.		

'CC' = 0.43
COMPOUND CN. = 71 R.O. = 0.51
Q_{100} = 2.9 CFS Q_{10} = 1.9 CFS
$VOL._{100}$ = 2351 C.F. $VOL._{10}$ = 968 C.F.

ENGINEER'S CERTIFICATION

I, PHILIP W. CLARK, A PROFESSIONAL ENGINEER LICENSED IN ACCORDANCE WITH THE LAWS OF THE STATE OF NEW MEXICO, DO HEREBY CERTIFY THAT I HAVE VISITED THE SITE SHOWN HEREON AND THAT THE CONTOURS SHOWN REPRESENT THE EXISTING GROUND CONDITIONS AND DO FURTHER CERTIFY THAT NO EARTHWORK OF ANY KIND NOR ANY OTHER DISTURBANCE OF THE EXISTING GROUND HAS OCCURRED ON THIS SITE SINCE THE CONTOURS WERE DETERMINED.

PHILIP W. CLARK N.M.P.E. #10265 DATE 3/26/90

PHILIP W. CLARK 10265 NEW MEXICO PROFESSIONAL ENGINEER

GENERAL INFORMATION

LEGAL DESCRIPTION: LOT 13, BLOCK B, TR. 2, UNIT 1,, NORTH ALBUQUERQUE ACRES, BERNALILLO COUNTY, NEW MEXICO.
PROJECT BENCHMARK: A STANDARD ACS ALUMINUM CAP, STAMPED "Z-822 1985", LOCATED 27 AND 130 FEET EAST AND NORTH, RESPECTIVELY, OF THE CENTERLINE INTERSECTION OF JUAN TABO AND MODESTO AVE. N.E. MSL ELEV. 5852.9.
PROPERTY ADDRESS: 11300 ELENA DR. N.E., ALBUQUERQUE, NEW MEXICO.
TOPOGRAPHIC SURVEY: TOPOGRAPHIC INFORMATION SHOWN WAS COMPILED FROM SURVEY PERFORMED BY A&E ENGINEERING, INC. DATED APRIL 16, 1990.

RECEIVED MAY 3 1990 HYDROLOGY DIVISION

TVS
TECHNICAL MANAGEMENT SERVICES CO.
1900 BROADWAY BLVD. N.E. SUITE 102
ALBUQUERQUE, N.M. 87102
PHONE (505) 888-1755

LOT 13, BL. B, TR. 2, UNIT 1
NORTH ALBUQUERQUE ACRES

GRADING & DRAINAGE PLAN

DATE	REVISION	DESIGNED BY	DRAWN BY	SHEET NO.
3-26-90	REVISED	P.W.C.		1 of 1
		CHECKED BY P.W.C.	DATE 3/90	

R# 24 DATE 3/14/92 DP
CITY OF ALBUQUERQUE
This microimage is certified to be a complete and accurate copy of the original as it appears in the files of the Public Works Department and was created in the normal course of business.
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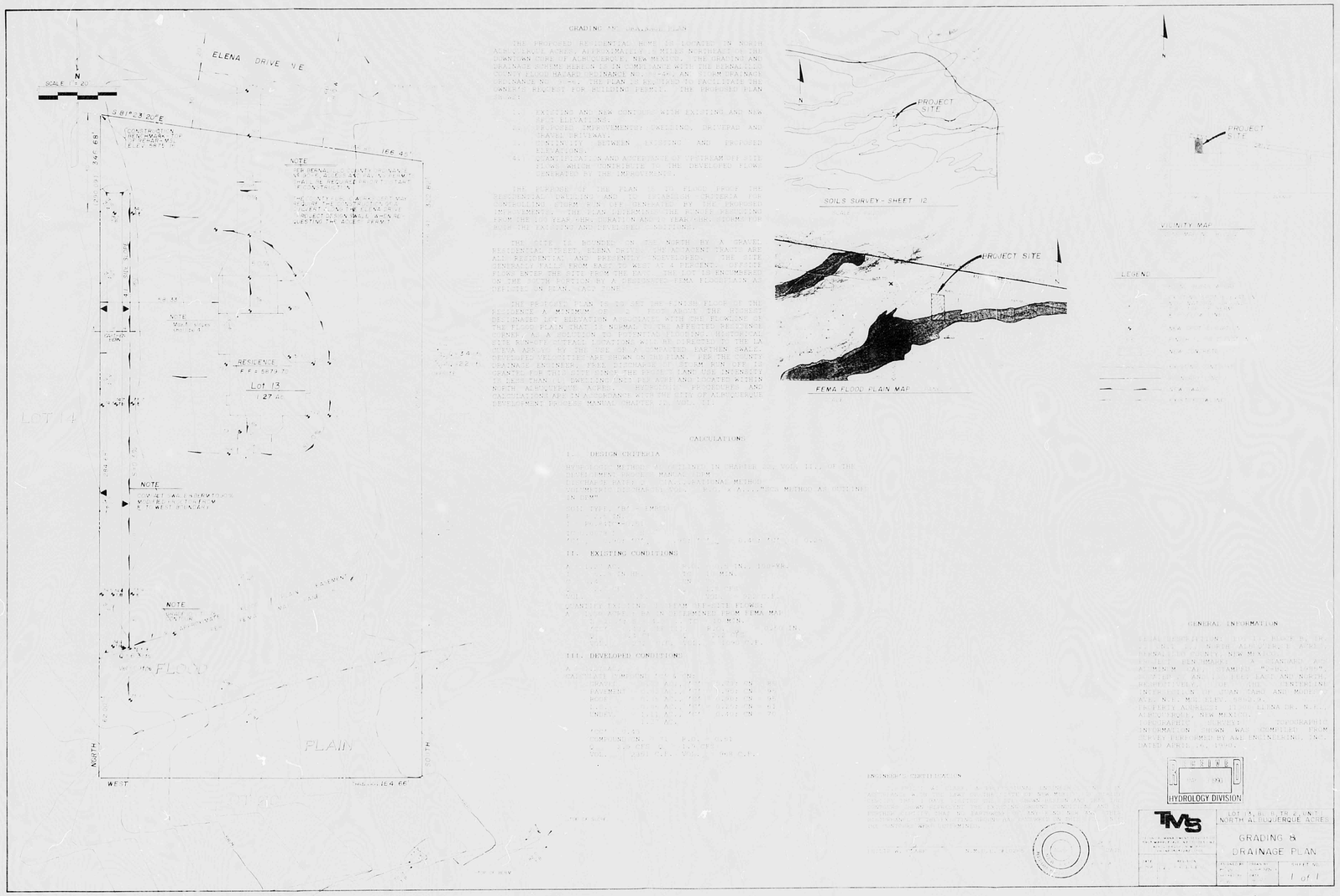
DIRECTOR 11/5/92
NOTARY PUBLIC
OFFICIAL SEAL Roberta Duran NOTARY PUBLIC STATE OF NEW MEXICO
PLAN SHOT TWICE ONCE ON LIGHT ONCE ON DARK
CITY OF ALBUQUERQUE THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT.
PLANS/PLATS ON FILE
FILE DESC: B22/D46
PLANS/PLATS 1

E 30 D 24 C 20 B 16 A 12 CITY OF ALBUQERQUE C D F



E 30 D 24 C 20 B 16 A 12

CITY OF ALBUQERQUE

C D F