HYDROLOGY C17/D1e CLIFFORD INDUSTRIAL PARK LOT

C17 / DIE

LOT 2, CLIFFORD

INDUSTRIAL PARK

1 PLAN

AMENDED

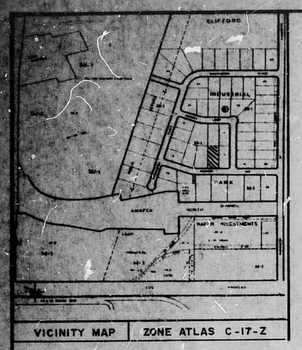
GRADING & DRAINAGE PLAN

FOR

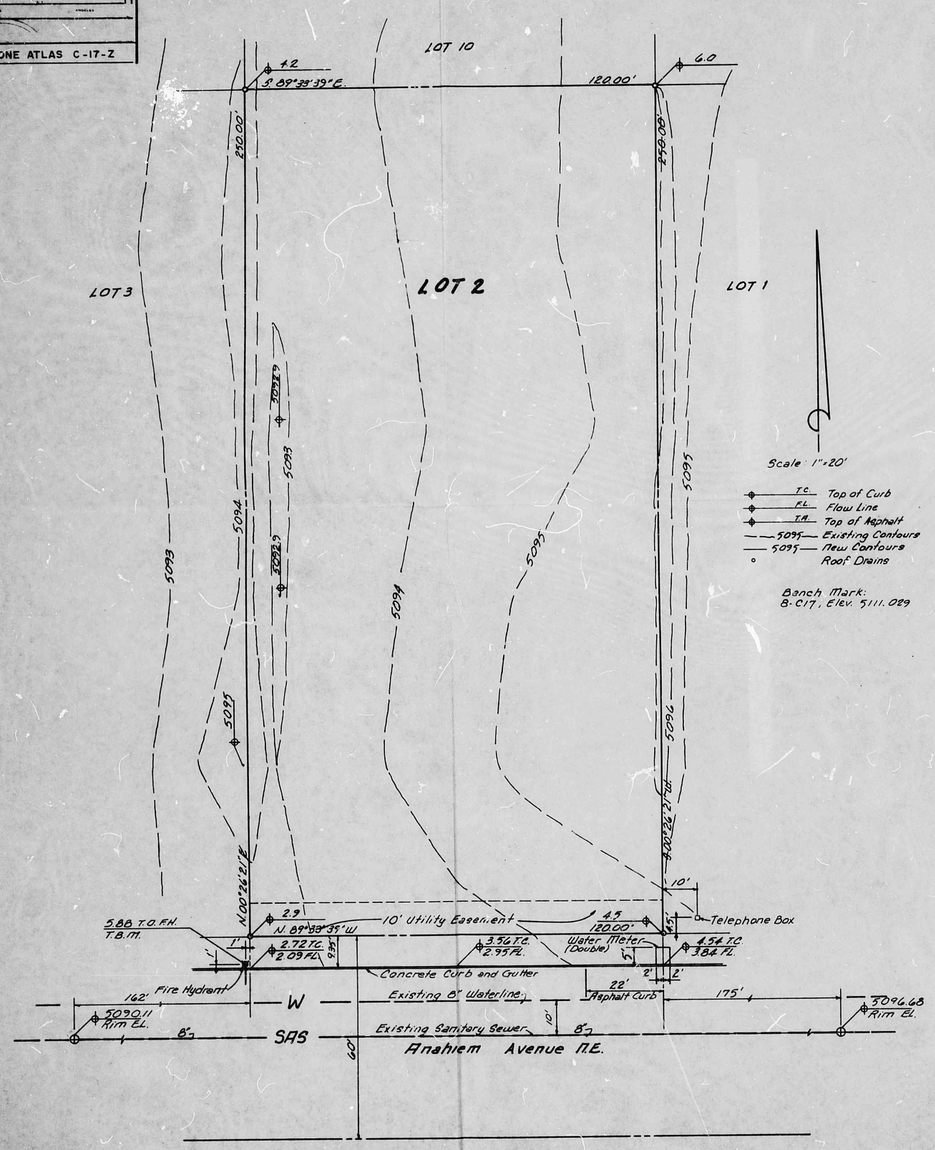
LOT 2

Clifford Industrial Park

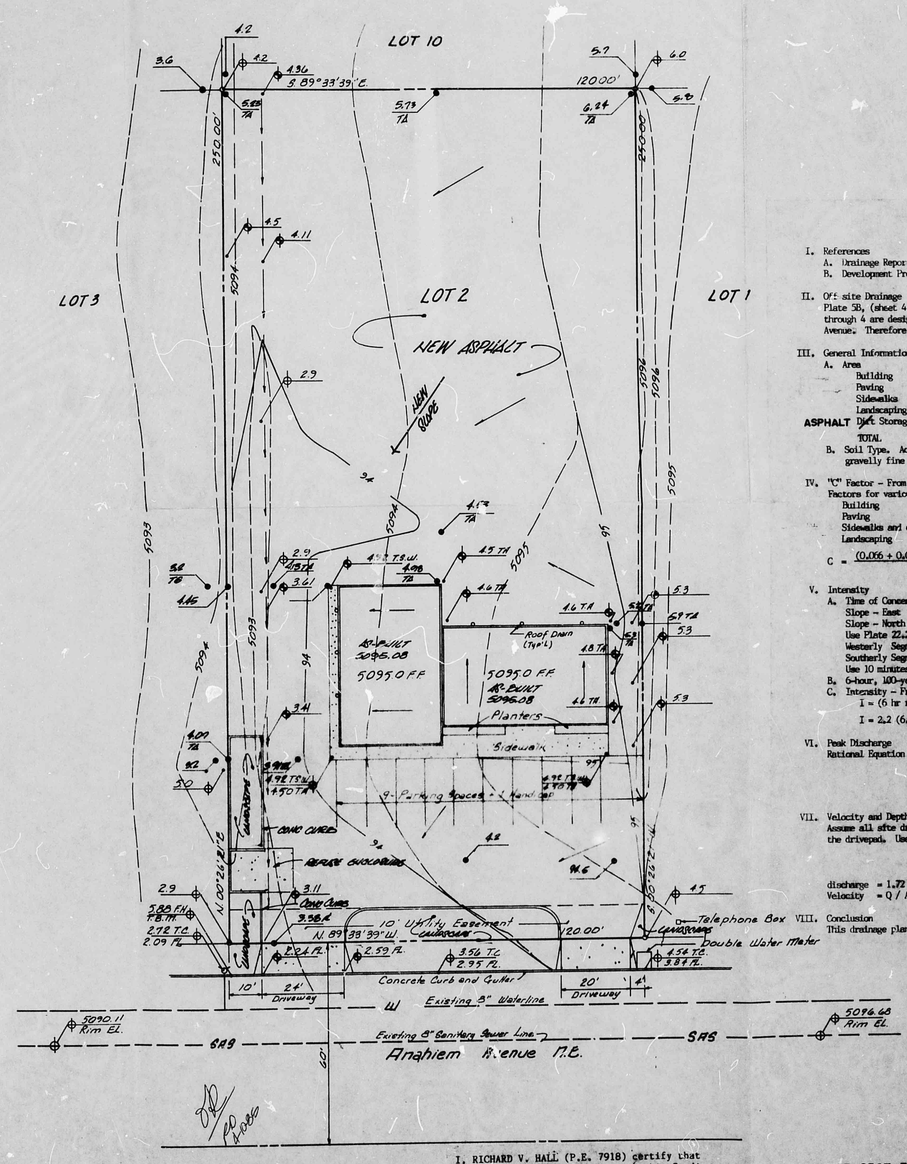
August 1984



VICINITY MAP | ZONE ATLAS C-17-Z



Topographic Survey



Drainage Study

DRAINAGE CALCULATIONS

I. References
A. Drainage Report for Clifford Industrial Park, August 1982 by Bohannan - Houston, Inc.
B. Development Process Manual (DPM), Volume 2, Design, City of Albuquerque.

II. Off site Drainage
Plate 5B, (sheet 4 of 6) of reference I.A. above shows that the site, Lot 2, is in Basin G. Each of basins 1 through 4 are designed with berms along the west property line which direct all flow from the lot to Anaheim Avenue. Therefore, there is no off-site flow entering this lot.

III. General Information

A. Area	251 x 120	=	30,120 SF	=	0.6915 ac
Building			2,850 SF	=	0.066 ac
Paving			5,850 SF	=	0.134 ac
Sidewalks			348 SF	=	0.008 ac
Landscaping			832 SF	=	0.019 ac
ASPHALT Dirt Storage yard			20,090 SF	=	0.461 ac
TOTAL			30,000 SF	=	0.688 ac

B. Soil Type. According to the Soil Survey of Bernalillo County, the soil type at the site is Bail, Bahada gravelly fine sandy loams, hydrologic soil group "B".

IV. "C" Factor - From Plate 22.2 C-1, the undeveloped "C" factor is 0.34 for 0 percent impervious. Assume 90% Factors for various types of surfaces are as follows:

Building	=	1.0
Paving	=	0.9
Sidewalks and other concrete surfaces	=	1.0
Landscaping	=	0.34

$$C = \frac{(0.066 + 0.008)\,1.0 + (0.134)\,0.9 + (0.019 + 0.461)\,0.34}{0.688} = 0.42 \text{ (weighted)}$$

V. Intensity
A. Time of Concentration
Slope - East to West, 0.0273
Slope - North to South, 0.005 (Minimum slope for drainage)
Use Plate 22.2 B-1 to determine velocity.
Westerly Segment V = 2.25 T = 2.25 x 120 / 60 = 4.5 min
Southerly Segment V = 1.0 T = 1.0 x 250 / 60 = 4.2 min
Use 10 minutes as minimum time of concentration.
B. 6-hour, 100-year rainfall. From Plate 22.2 D-1, the 6-hour rainfall is 2.2 inches.
C. Intensity - From Plate 22.2 D-2, the intensity is determined as follows:
$I = (6 \text{ hr rain})\, 6.84\, T_c^{-0.51}$
$I = 2.2\,(6.84)(10)^{-0.5} = 4.65$ inches per hour

VI. Peak Discharge
Rational Equation $Q = CIA$
C = 0.52
I = 4.65
A = 0.688
$Q = (0.52)\,(4.65)\,(0.688) = 1.66$ cfs

VII. Velocity and Depth
Assume all site drainage drains to swale 10' to 12' East of West property line and discharges into street via the driveway. Use Manning Equation (HP Program "V" Ditch) For Depth D = 0.33
Side slope Z = 1:1
n = 0.03
S = 0.005 ft/ft
discharge = 1.72 cfs slightly exceeds 1.66 cfs.
Velocity = Q / A = 1.72 / 1.63 = 1.06 fps

VIII. Conclusion
This drainage plan is in conformance with the approved master plan drainage report for the subdivision.

I, RICHARD V. HALL (P.E. 7918) certify that I have checked the elevations on this Grading and Drainage Plan hereon and have found substantial compliance with approved Drainage Plan.

Richard V. Hall
Richard V. Hall, P.E. #7918

AS-BUILT SPOT ELEVATION

5.7

RECEIVED
MAR 29 1985
HYDROLOGY SECTION

RICHARD V. HALL
NEW MEXICO
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REGISTERED PROFESSIONAL ENGINEER

September 11, 1984

C17/D1E

HALL ENGINEERING CONSULTANTS