HYDROLOGY G12/D12 ALVARADO ADDITION UNIT III

G12/D12

ALVARADO ADD'N.

UNIT III

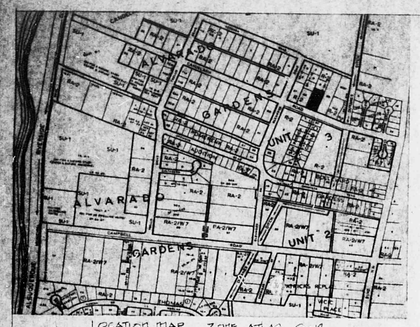
1 PLAN

DRAINAGE PLAN
GRADING PLAN AND REPORT

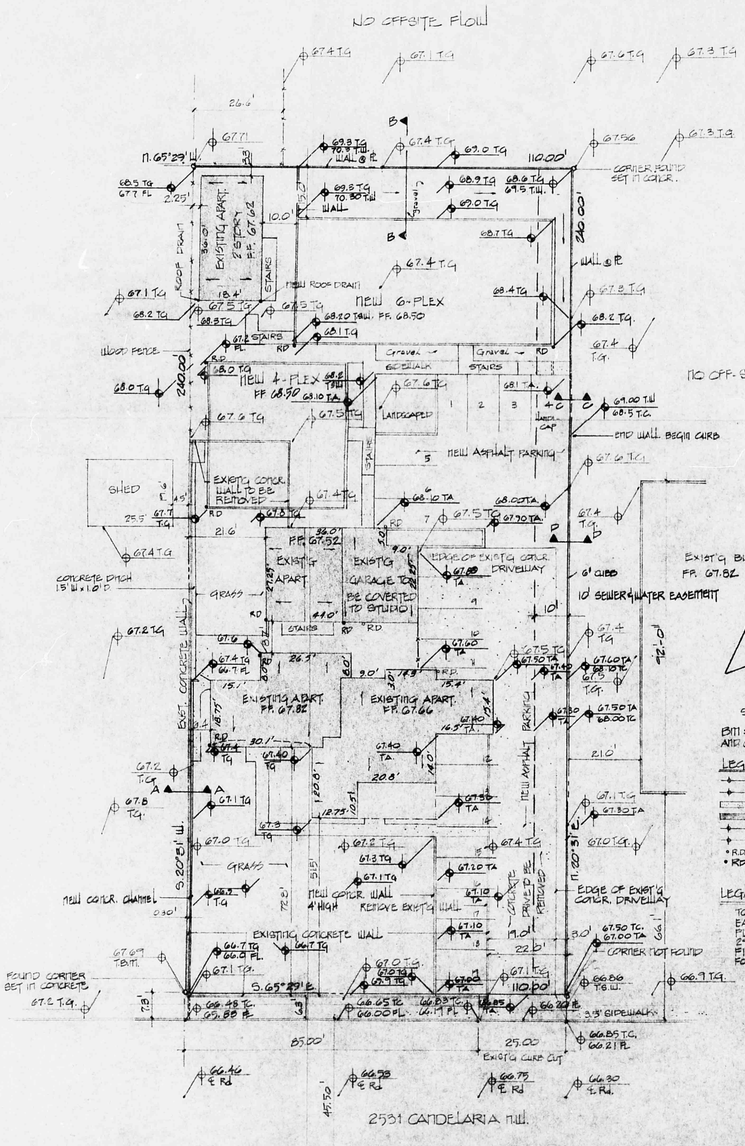
FOR

LOT C, WESTERLY 1/2 OF TRACT 29
ALVARADO ADDITION
UNIT 3

DECEMBER 1984



LOCATION MAP ZONE ATLAS G-12



DRAINAGE INFORMATION

I. References
- A. City of Albuquerque, Development Process Manual (DPM), Vol. 2, Design Criteria
- B. Soil Survey of Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico, U.S. Soil Conservation Service, Sheet 20
- C. Flood Insurance Rate Map, City of Albuquerque, New Mexico Panel

II. General Information
- A. Site Location and Elevation Data
  1. Legal Description: Lot C of Alvarado Addition, Bernalillo County, New Mexico.
  2. Total Site Area: .6061 Ac., 26400 S.F.
  3. City Address: 2531 Candelaria Rd. N.W.
  4. City Bench Mark: 10-G13A ELEV. 4968.16
  5. City Zone Atlas: G-12
- B. Soil Type (REFERENCE B) Ga, Gila Clay Loam
  Hydrologic Soils Group A
- C. 6-hour, 100-year rain, P_6 = 2.2 inches Reference A, Plate 22.2 D-1
- D. Runoff Coefficient ("C") Factor, Curve is 0.34
  Developed "C" Factor, assume the following values:

Building	1.00
Concrete	1.00
Asphalt	0.90
Landscape	0.34

Weighted "C" Factor:

Type of Surface	"C"	Area (SF)	CxA
Buildings	1.00	8958.0	8958.0
Concrete	1.00	1525.0	1525.0
Asphalt	0.90	7319.0	6587.1
Landscaping	0.34	8598.0	2923.3
TOTALS		26400	19993.4

Weighted "C" Factor: $\frac{19993.4}{26400.0} = 0.76$

E. Time of Concentraction-Developed Area

Watershed length L= 240 ft.
Watershed change of elevation H= 1.68 ft.
Watershed slope S= 0.007

Velocity= 0.85 fps

T_c = 240/(.85x60)= 4.71 use 10 minutes

F. Intensity (Plate 22.2 D-2) Developed Area
$I = R_6 \times 6.84 \times Tc^{-.51} = 4.65$

G. Peak Discharge - Rational Method Developed Area

Q = CIA
Q=.76x4.65x.606)= 2.14 cfs

III. Existing Conditions
- A. "C" Factors

Buildings	1.00
Concrete	1.00
Landscaping	0.34

Weighted "C" Factors:

Type of Surface	"C"	Area (SF)	CxA
Buildings	1.00	4172.0	4172.0
Concrete	1.00	3877.6	3877.6
Landscaping	0.34	18351.0	6239.3
TOTALS		26400.0	14288.3

Weighted "C" Factor $\frac{14288.3}{26400.0} = 0.54$

- B. Time of Concentration
  Watershed length L=240 ft
  Watershed change in elevation H=0.6 ft
  Watershed slope S=0.0025 ft

  Velocity = 0.50 ft/s

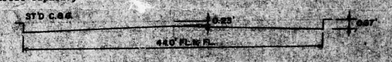
  T_c= 240/(.50x60)=8.0

- C. Intensity Reference, Plate 22.2 D-2
  $I = R_6 \times 6.84 \times Tc^{-.51}$
  I= 4.65 in./hr.

- D. Peak Discharge - Rational Method: Q=CIA

  Q = 0.54x4.65x0.6061 = 1.52 cfs
  Q_6-Q_1= 0.62

IV. Street Capacity



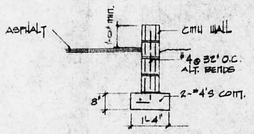
R = A/P
$Q = 1.49/0.015 \times A \times R^{2/3} \times S^{1/2}$

A = 19.80 sq ft
P = 45.33 ft
R = 0.4368 ft
S = 0.00321

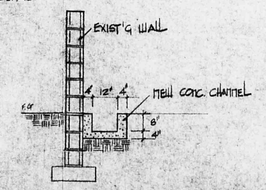
$Q = 1.49/0.015 \times 19.80 \times (0.4368)^{2/3} \times (0.00321)^{1/2}$
= 64.15 cfs

V. Conclusion

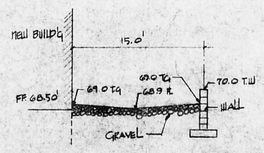
This property is not in a flood hazard boundary according to Panel 22 of FIRM Maps. Candelaria Blvd NW is not subject to flooding for 100-year storm runoff according to Panel 22 of FIRM Maps. The site is not contributing to any flooding downstream according to FIRM Map 22. The total increase of 0.62 cfs to the street will not effect the existing capacity of 64 cfs since this site is at the beginning of the drainage basin and all water east of this point is picked up by the 24" force main in Candelaria Blvd. Therefore, free discharge is recommended.



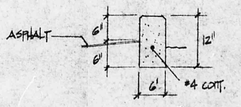
SECTION C-C
3/8"=1'-0"



SECTION A-A
3/8"=1'-0"



SECTION B-B
N.T.S.



SECTION D-D CONCR. CURB
3/4"=1'-0"

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JAN 15 1985
HYDROLOGY SECTION

REGISTERED PROFESSIONAL ENGINEER
NEW MEXICO
No. 7918

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G-12/D12