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City of Albuquerque
P. O. Box 1293
Albuquerque, New Mexico 87103

November 29, 1983
AL-S01-231-50

ATTN: Mr. Fred J. Aguirre, Civil Engineer/Hydrology

RE: DRAINAGE PLAN FOR SUNWEST OPERATIONS CENTER ANNEX
515 SLATE AVENUE, N.W., J-14-Z

Dear Fred:

Transmitted herewith are three copies of the subject drainage plan.

As noted in Item 4 of our November 2, 1983 Pre-Design Conference, we have routed all runoff to the street via a new standard drivepad, to eliminate the need for detention ponding.

The matter of City-approved alley grades is discussed in the report. Although not expressly stated in Item 2, your concern with the alley north of the site was that access at some future date should not be impaired by the on-site grading. Elevation data taken from a topographic survey conducted November 11 by Ronald Forstbauer, L.S. 6126 show that alley access will not be impaired. Moreover, as the site will not drain to the alley, drainage patterns will not be affected if the alley is paved by the City at some future date.

Please call if you have any questions during the review of this report. We will be happy to provide whatever answers we can to assist in a timely review of this plan.

Sincerely,

BOYLE ENGINEERING CORPORATION

Thornton D. Schwenk

Thornton D. Schwenk, P.E.
Senior Civil Engineer

cc: Glenn Fellows; Stevens, Mallory, Pearl & Campbell

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INFORMATION SHEET

PROJECT TITLE Sunwest Bank Operations Center Annex

TYPE OF SUBMITTAL Drainage Plan

ZONE ATLAS PAGE NO. J14

CITY ADDRESS 515 Slate N.W.

LEGAL DESCRIPTION Lots 19,20, 21 and 22, Block 3, Grant Tract Addition Albuquerque, New Mexico

ENGINEERING FIRM BOYLE ENGINEERING CORPORATION

CONTACT Thornton D. Schwenk PHONE (505) 883-7700

ADDRESS 3939-D San Pedro, N.E.,Albuquerque, N.M.

OWNER Sunwest Bank of Albuquerque, N.A.

CONTACT Vernon Doak PHONE 865-2035

ADDRESS P.O. Box 1340

ARCHITECT Stevens, Mallory, Pearl and Campbell

CONTACT Glenn Fellows PHONE 255-8668

ADDRESS 115 Amherst Dr. S.E., Albuquerque, N.M.

SURVEYOR Forstbauer Surveying Co.

CONTACT Ronald Forstbauer PHONE 268-0248

ADDRESS 516 Chama N.E., Albuquerque, N.M.

CONTRACTOR To be selected by a bid process

CONTACT PHONE

ADDRESS

DATE SUBMITTED November 29, 1983

BY Thornton D. Schwenk

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

HYDROLOGY SECTION PROJ. NO. _____ DATE: 11/2/83

PLANNING DIVISION NO. _____

CONFERENCE RECAP

SUBJECT: 515 Slate N.W. (J 14)

	WHO	REPRESENTING
ATTENDANCE:	Thornton Schwenk	
	Fred J. Aguirre	

FINDINGS:

1. Drainage Plan appropriate per the DPM
2. City approved alley grades required
3. Lot lines removal may be required - will depend on zoning ~~requirements~~ requirements
4. Pooling not required, however all discharge must be routed to the street via driveway or city approved curb-cut

The undersigned agrees that the above findings are summarized accurately and are only subject to change if further investigation reveals that they are not reasonable or that they are based on inaccurate information.

SIGNED: Fred J. Aguirre	SIGNED: Thornton D. Schwenk
TITLE:	TITLE: Sr. Engr. - Boyle Engr. Corp.
DATE: 11/2/83	DATE: 11/2/83

DRAINAGE PLAN

FOR THE

SUNWEST BANK OPERAIONS CENTER ANNEX

ALBUQUERQUE, NEW MEXICO

I. PURPOSE:

The purpose of this report is to present information, calculations, and recommendations relative to storm runoff for the site of the proposed Sunwest Bank Operations Center Annex.

II. SCOPE:

This report is limited to an investigation of the existing and proposed conditions which affect storm flows on the study site. The proposed development is to be protected from flooding due to storm runoff, without increasing the threat of damage to downstream properties. Upstream areas which have been constructed since 1972 are presumed to meet the restrictions of applicable drainage ordinances and resolutions, beginning with AMAFCA Resolution 1972-2. Estimation of maximum runoff is based on the site being developed as proposed.

III. LOCATION:

The study site is a 0.3260-acre (14,200 sq. ft.) parcel located near downtown Albuquerque at 515 Slate Ave., N.W.. Legally the parcel is defined as Lots 19,20,21 and 22, Block 3 of the Grant Tract Addition, City of Albuquerque, Bernalillo County, New Mexico. The site location is shown in Figure 1.

The site is bounded on the north by a dirt and gravel alley, and on the south by Slate Avenue, N.W., a paved street. Residential structures occupy the lots east and west of the site.

IV. EXISTING DRAINAGE CONDITIONS:

A. Topography and Soils

The existing site consists of an asphalt paved parking lot. The high point at the northeast corner of the property is 4957.00 feet. The low point, located near the existing drive pad access to Slate Avenue, is 4955.78 feet. The distance between these points is 153 feet, giving an average slope of 0.80%.

The natural soils at the site are described in the SCS Soil Survey of Bernalillo County as "GK - Glendale", a clayloam or loam, as shown in Figure 4. The Hydrologic Soil Group is "B".

B. On-Site Drainage

The existing site drainage generally flows from north to south and is discharged through the drive pad access to Slate Avenue. An existing asphalt curb at the east and west site boundary prevents flows from entering or leaving the site in those directions. The grading at the alley is such that off-site flows do not enter the site from the alley. Since the existing site is an asphalt parking lot, an impervious material, the existing coefficient of runoff is 1.00.

There are no natural or artificial water courses crossing the site. Moreover, the site does not lie in a 100-year flood hazard area as shown in Figures 2 and 3.

V. PROPOSED DRAINAGE CONDITIONS:

A. Criteria

The computations, conclusions and recommendations contained in this report are based on criteria found in the City of Albuquerque Development Process Manual, Volume 2, Design Criteria.

B. Site Drainage

During the initial planning conference with the City Engineer's office on November 2, 1983, it was determined that detention ponds would not be required at the site. Storm water from the developed site is to be routed to Slate Avenue through a drive pad.

The site grading plan (See Plate I.) was designed to carry runoff away from the building, alley, and west edge of the parking area, towards a new Albuquerque City standard drive pad, which will also prevent gutter flows from entering the site. The existing asphalt curb along the west property line will remain in place to prevent flows from either leaving or entering the site along this boundary. Grading at the north boundary will be such that alley flows will be unable to enter the site. Roof drainage from the proposed office building will be discharged to the parking area at four locations on the west side of the structure.

After entering Slate Avenue, the runoff will flow west as indicated by the plan and profile in Figure 5. It will continue to the northeast corner of the intersection of Slate Avenue and Sixth Street where the runoff will enter a catch basin connected to a 12-inch storm drain.

In determining the runoff from the developed site a coefficient of runoff of 1.00 uas used. This is a conservative approach since the effects of the landscaped areas are neglected. Detailed drainage computations of the 0.3260-acre site are presented in Appendix A.

C. Alley Access & Alley Grades

The owner does not intend to provide access to the alley from the parking area and he will not remove the fence across the possible entry. However, in the event a future owner wishes to provide alley access, the site was graded in a manner that would allow vehicle passage as shown by the elevations given on Plate I. These elevations are based on an owner-furnished survey, as there are no City-approved grades for this alley. The elevations are based on the City of Albuquerque Control Station 1-J14 whose elevation is 4955.60 feet.

VI. EROSION CONTROL PLAN:

As noted previously, the site presently consists of an asphalt paved parking lot. The western portion of this lot will remain in place during and after construction of the new office building. Soil disturbance will occur only in

the areas occupied by the building itself and by the new sidewalks adjacent to the building.

Rainfall on the disturbed soil will be confined to the area inside the continuous footing around building during the early phases of building construction, so that sediment will not be transported to the street. A formal Erosion Control Plan is not required under Section 22.5

of the DPM as this project does not involve the grading of more than 1.0 acres or more than 500 cu. yd. of earthwork.

VII. CONCLUSIONS:

A. The total 100-year developed discharge for the entire site is 1.52 cfs which is identical to the discharge from the existing parking lot.

B. The surface flow discharged directly to Slate Avenue via a standard drive pad is 1.52 cfs.

VIII. RECOMMENDATIONS:

A. Provide site grading such that runoff will be routed to a standard drive pad entrance to Slate Avenue.

B. Do not remove the existing asphalt curb at the west edge of the site to prevent onsite drainage from entering the adjacent residential property.

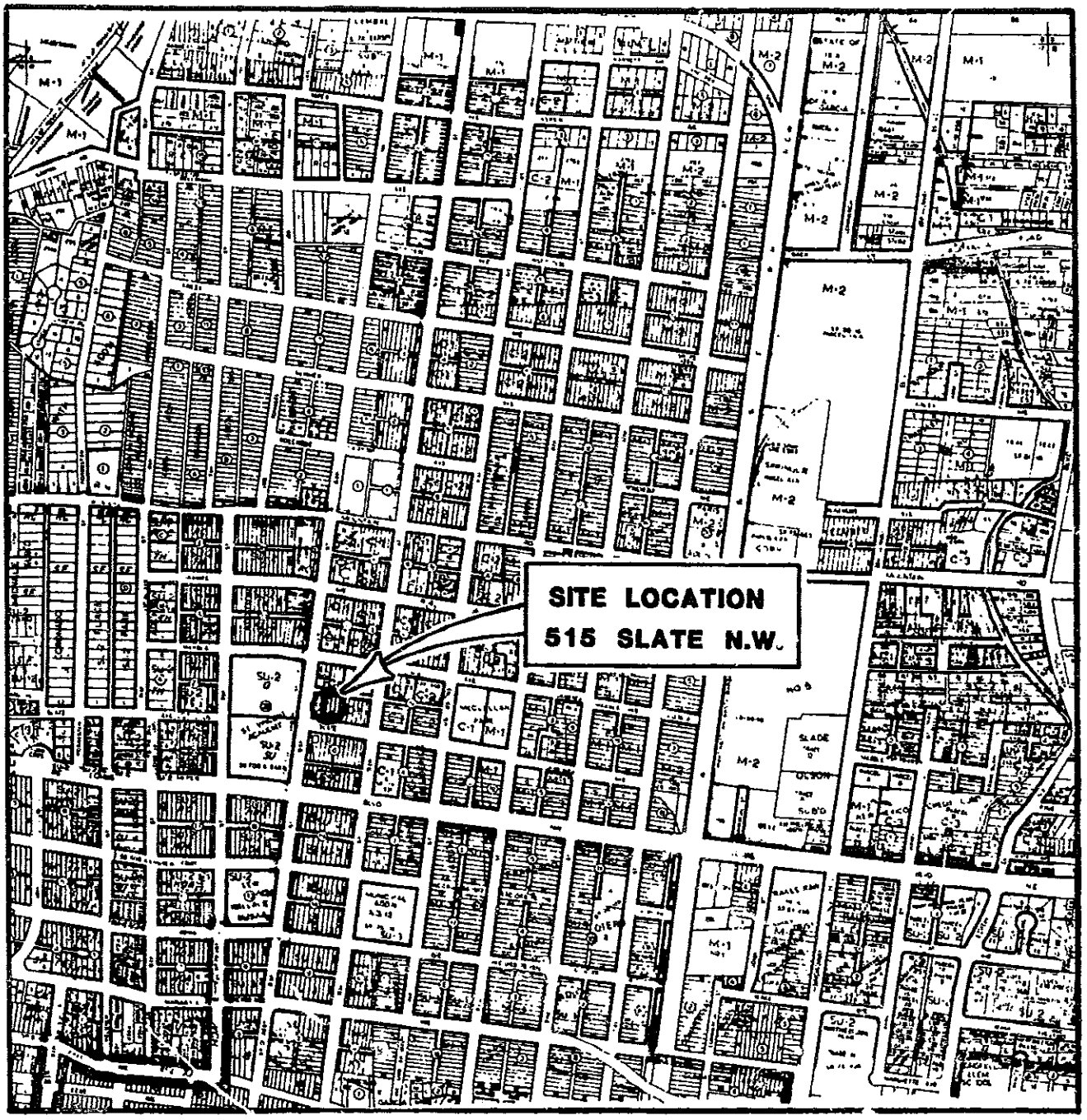
C. Discharge roof runoff ot the parking area for subsequent discharge to Slate Avenue.

Respectfully submitted,

BOYLE ENGINEERING CORPORATION

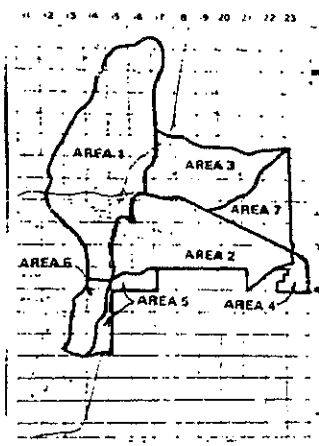
Thornton D. Schwenk

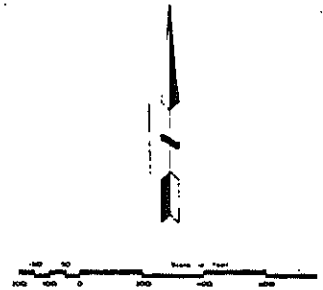
Thornton D. Schwenk, P.E.
Senior Civil Engineer



J-14-Z

FIGURE 1





LEGEND

100 YEAR FLOOD HAZARD AREA

10 YEAR FLOOD HAZARD AREA

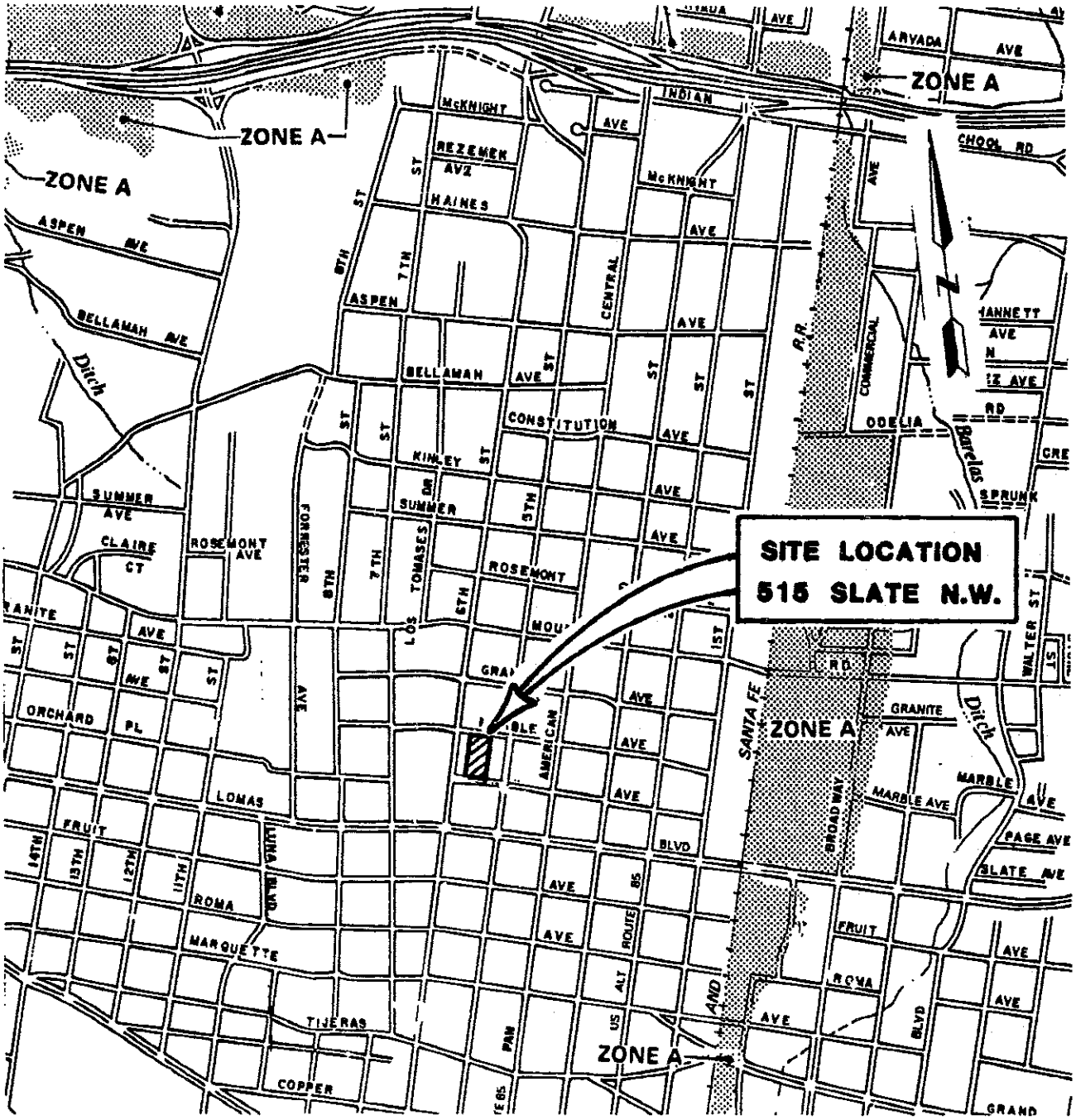
PROPOSED STORM DRAINAGE IMPROVEMENTS

ANALYSIS POINT

COMPILED BY PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHS TAKEN MARCH 1978 BY HOGGLE & PAULS ENGINEERING, ALBUQUERQUE, NEW MEXICO

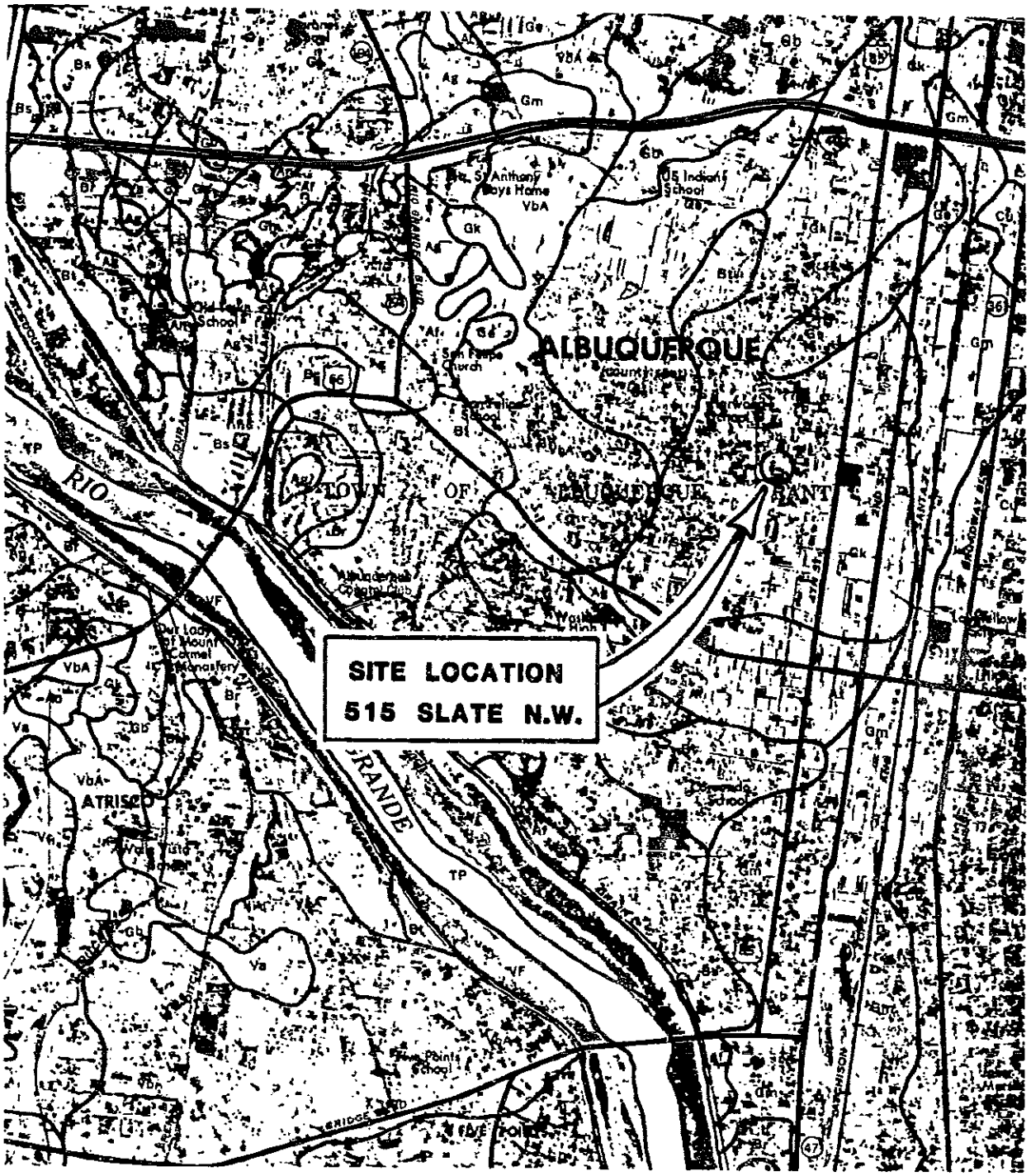
ALBUQUERQUE MASTER DRAINAGE STUDY

J-14
FIGURE 2



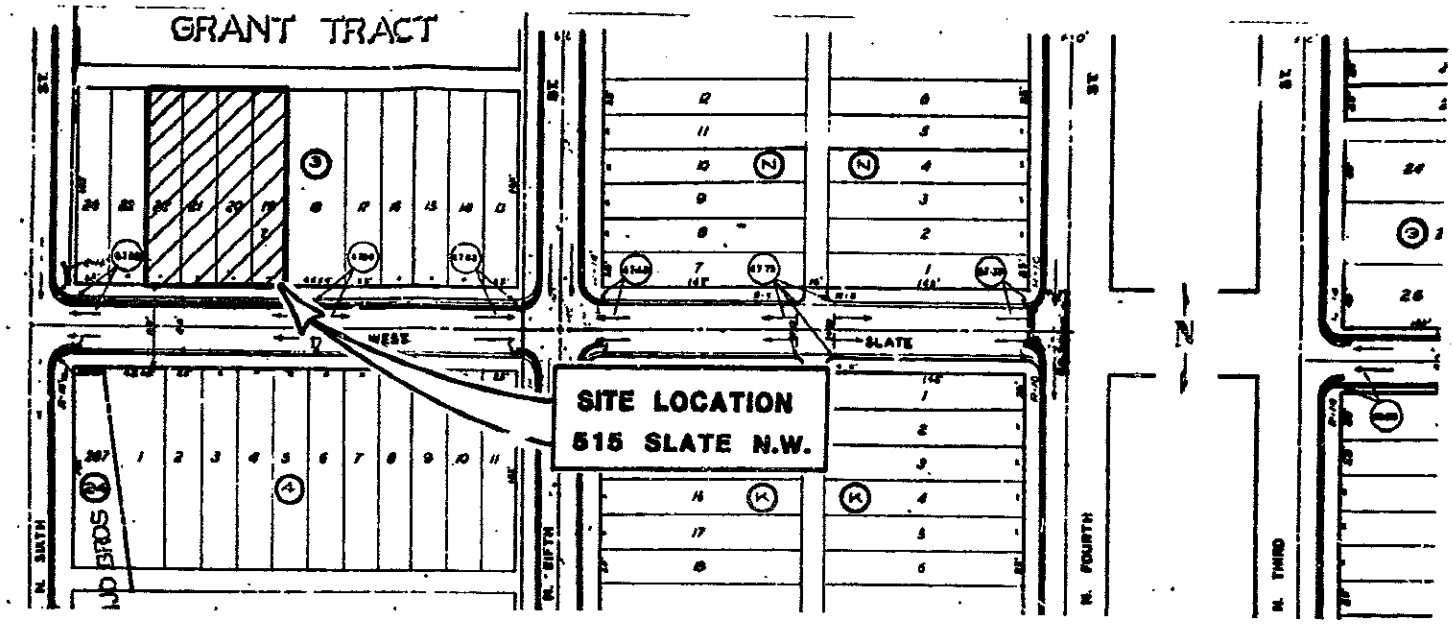
FLOOD HAZARD BOUNDARY MAP
COMMUNITY PANEL NUMBER
350002 0005B 12-4-79

FIGURE 3



SOIL SURVEY OF
BERNALILLO COUNTY
(SHEET 31)
SCS, JUNE, 1977

FIGURE 4



HOMESTEAD AND GARDENSPOT ADDITION **FIGURE 5**

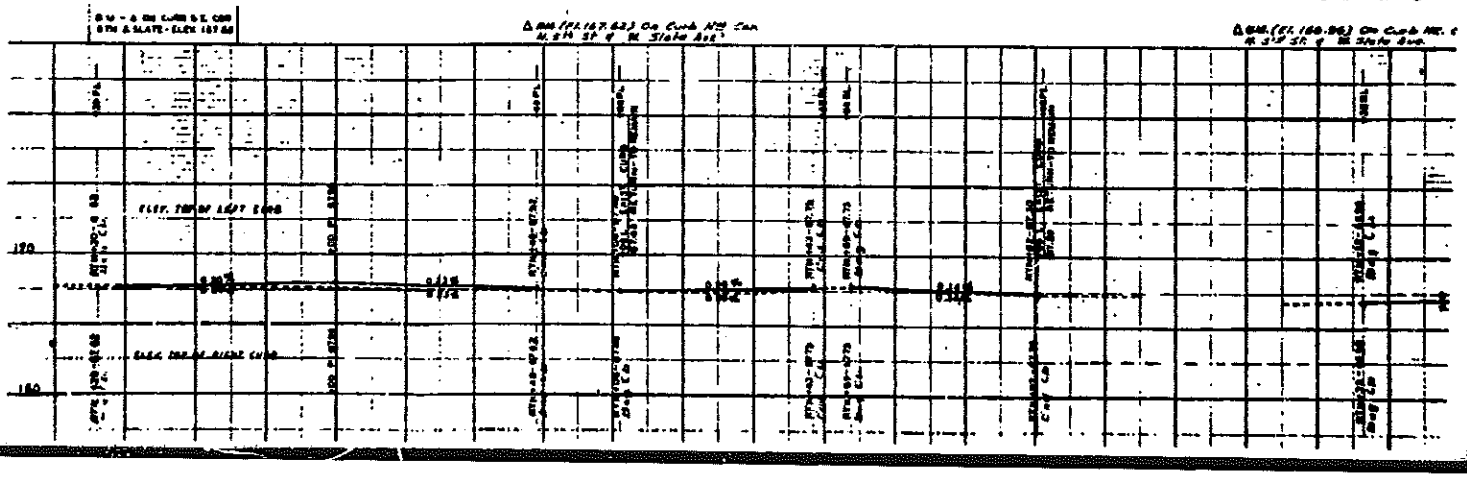


FIGURE 6

CONTROL STATION DATA

City of Albuquerque, New Mexico
Public Works Department
Engineering Division

Name of Station 1-J 14 State New Mexico County Bernalillo

Establishing Agency ACS Year 1970 Chief of Party R. London

Section ____ Township ____ Range ____ Map No. J 14

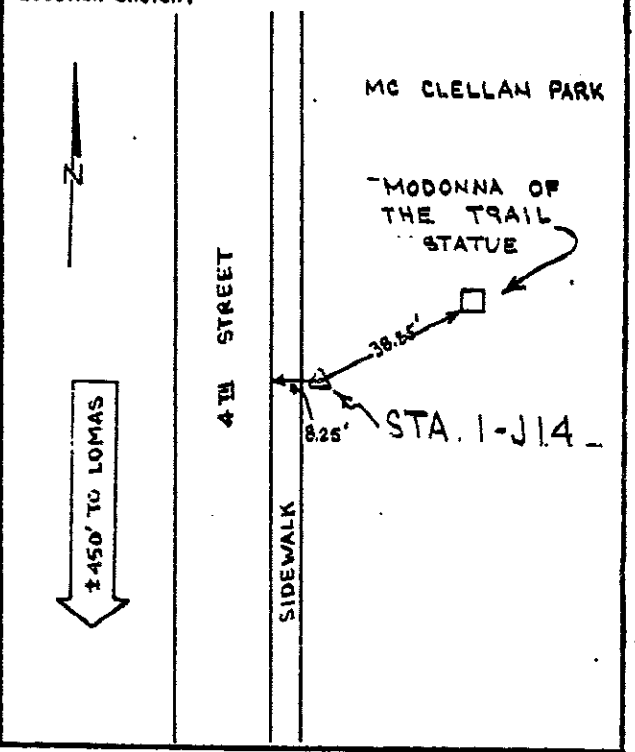
Description: Station is located downtown Albuquerque on 4th St. and is in the approximate center of the west side of McClellan Park.

To reach the station from the intersection of Central Ave. and Broadway, go north on Broadway 0.4 mile to the intersection of Broadway and Lomas. Turn west (left) on Lomas and continue west 0.5 mile to 4th St. - Turn north (right) on 4th St. 450.0 ft. to station.

The station is located in the middle of the block on east side of the street, between the east-west streets of Marble and Slate. It is 8.0 ft. east of the back of curb and 12.0 ft. northeast of a powerpole.

The station is a standard City of Albuquerque disk stamped "1-J14 ACS", set in a square block of concrete.

Location Sketch:



HORIZONTAL DATA ✓

FIELD METHOD: ☒ Traverse ☐ Triangulation ☐ Trilateration

GEOGRAPHIC POSITION (NAD 1927) 2nd-order

Latitude 35° 05' 32.91380" Longitude 106° 38' 57.86613"

PLANE COORDINATES Projection TM State N.M. Zone Central

X 380520.84 Y 1,489142.91 Ground-to-Grid Factor .99967935

ELEVATION DATA ✓

SPIRIT LEVEL ELEVATION (SLD 1929) Feet 4955.595 Meters 1510.469 2nd-Order

TRIGONOMETRIC ELEVATION Feet ____ Meters ____

AZIMUTH DATA ✓

θ (or Δα) Angle -0° 13' 47"

Station	Azimuth	Back Azimuth	DISTANCE Feet	DISTANCE Meters
National	28° 08' 16"		1541.65	469.896
2-J 14	16° 06' 54"		449.93	137.139

APPENDIX

DRAINAGE CALCULATIONS

1) Time of Concentration:

$L = 153'$ $\quad \Delta E = 4957.00 - 4955.78 = 1.22'$

$S = \frac{1.22}{153} = 0.0080$ ft/ft or 0.80%

$T_c = 0.0078 \frac{L^{0.77}}{S^{0.385}}$ (p22.2-3 DPM)

$= 0.0078 \frac{(153)^{0.77}}{(0.0080)^{0.385}} = 2.4$ minutes

$\therefore$ Use $T_c = 10$ min.

2) Rainfall Intensity (Ref: Plate 22.2 D-1, DPM)

100-yr, 6-hr rainfall volume is 2.20 inches $= i_{100}$

$I_{100} = i_{100} (6.84) T_c^{-0.51}$ (Plate 22.2 D-2, DPM)

$I_{100} = 2.20 (6.84) 10^{-0.51} = 4.65$ inches/hour

$I_5 = 0.541 I_{100} = 0.541 (4.65) = 2.52$ inches/hour

3) Undeveloped Volumes and Flows:

$A = 0.3260$ acres $= 14,200$ ft^2

$C = 1.00$ (100% impervious)

$V_{100} = \frac{2.20}{12}(14,200)(1.00) = 2603$ ft^3

$Q_{100} = 1.00(4.65)(0.326) = 1.52$ cfs

4) Developed Volumes and Flows:

$A = 0.3260$ acres $= 14,200$ ft^2

$C = 1.00$ (actual value is probably less, see text)

$V_{100} = \frac{2.20}{12}(14,200)(1.00) = 2603$ ft^3

$Q_{100} = 1.00(4.65)(0.326) = 1.52$ cfs.

Note:

Since both the developed and undeveloped areas are 100% impervious, there is no change in the estimated flows as a result of development.

Net developed discharge $= 1.52 - 1.52 = 0.0$ cfs