A&E ENGINEERING INC.
CIVIL ENGINEERING, LAND PLANNING, AND SURVEYING

June 23, 1977

Mr. [illegible] Bowlin
JOHN F. CARSON, ARCHITECT
12000 East 47th Avenue
Suite 317
Denver, CO 80239

Dear Sir:

We are transmitting this drainage report on the First National Bank - Menaul Branch - in Albuquerque, New Mexico, located on the Northwest corner of Menaul Boulevard and San Pedro Drive. The control of the runoff shall comply with the requirements of the Albuquerque Metropolitan Arroyo Flood Control Authority and with present City of Albuquerque policies.

We do appreciate this opportunity to serve you. If any questions develop, we will be available to assist you in your response.

Very truly yours,

A & E ENGINEERING, INC.

John F. Esquibel, President

JFE/km

5823 LOMAS N.E. ALBUQUERQUE, NEW MEXICO 87110 505/266-8791

DRAINAGE REPORT

FOR

THE FIRST NATIONAL BANK

MENAUL BRANCH

ALBUQUERQUE, NEW MEXICO

PREPARED FOR:

JOHN F. CARSON, ARCHITECT

DENVER, COLORADO

BY:

A & E ENGINEERING, INC.

5823 LOMAS BOULEVARD, N.E.

ALBUQUERQUE, NEW MEXICO

June 23, 1977

Theodore M. Conrardy

THEODORE M. CONRARDY
REGISTERED PROFESSIONAL
ENGINEER No. 2933

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GENERAL:

This drainage report consists of a hydrologic study of a probable 100-year storm affecting this proposed development on the Northwest corner of the Menaul Boulevard and San Pedro Drive intersection.

LOCATION AND DESCRIPTION:

The property under study is a parcel of land zoned commercial (C-2) and contains approximately two (2.0) acres. It is located at the Northwest corner of the intersection of Menaul Boulevard and San Pedro Drive. This property is more particularly described as the South half of Block 16 of the MIRAMONTES PARK UNIT NO. 1 SUBDIVISION; and is bordered by Menaul Boulevard on the South, San Pedro Drive on the East, undeveloped land on the North and by Cagua Drive on the West.

The existing terrain for the parcel slopes to the Southwest at about 1.4 per cent grade.

PROPOSED DEVELOPMENT:

This parcel of land is to be developed into a branch for The First National Bank in Albuquerque. It will be graded, paved and landscaped to retain storm water on the property, so that a small percentage will flow out into Menaul Boulevard. A pond (or depression) will be constructed with a controlled outlet pipe

which will drain into an existing catch basin. This will allow for the storm water to flow out after major runoff has been drained off to streets and local drainage systems.

PROPOSED DRAINAGE PLANS:

In order to control the on-site drainage developed by this proposed development, the area has been designed with limiting grades in order to reduce runoff velocities.

The drainage has been divided into two (2) drainage areas to prevent concentration at only one point. Each of the areas will drain out at different locations which will result in a controlled runoff for the area. Area One's runoff will flow to the Southwest corner where a pond (or depression) will be constructed with a catch basin. A 10-inch pipe will drain the pond into an existing catch basin located on the North curb of Menaul Boulevard. Area Two will flow out into Cagua Drive.

No provisions have been made for off-site drainage since it flows into Cagua Drive and San Pedro Drive, and only a small percentage will flow onto the proposed grassy area on the North side of the development. The architect has designed the roofs to drain into the parking areas.

DISCUSSION OF METHOD:

Development of this area will be controlled by the guidelines set forth in the recent Resolution of the Albuquerque Metropolitan Arroyo Flood Control Authority and the City of Albuquerque.

The amount of storm water is computed by using a 100-year storm, this being a storm consisting of 100-year 6 hours precipitation as shown by the Rainfall Frequency Maps for New Mexico, June 1967, published by the Special Studies Branch, Office of Hydrology, United States Weather Bureau.

The pond area was calculated so that the volume of water ponded would exceed the increased volume runoff resulting from the development.

ON-SITE DRAINAGE CALCULATIONS:

The 100-year 6 hour precipitation factor for this area is 2.5 inches.

The area is 1.86 acres = 81,000 square feet.

Volume of runoff before development, allowing for 40% perculation:

$$\frac{2.5}{12} \times 81{,}000 \text{ sq. ft.} \times 0.60 = 10{,}125 \text{ cu.ft.}$$

Volume of runoff after development, allowing for natural landscaped areas, grassed and rock gravel.

This being 20% which will not contribute runoff.

Therefore, use a runoff contributing factor of 0.80:

$$\frac{2.5}{12} \times 81{,}000 \text{ sq. ft.} \times 0.80 = 13{,}500 \text{ cu.ft.}$$

13,500 cu. ft. after development
10,125 cu. ft. before development

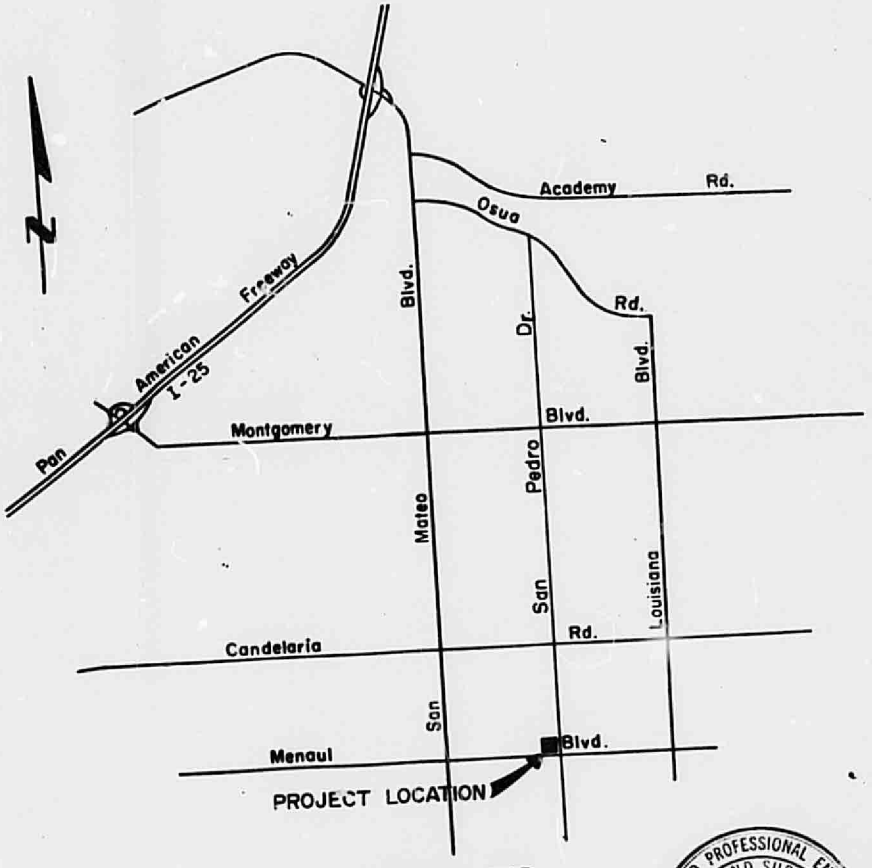
3,375 - amount of water that needs to be retained in ponding area.

The ponded area or depression will have a capacity of 3,900 cubic feet; therefore, it will retain the amount of runoff which would be generated by the development.

A 10-inch pipe will drain the ponded water into an existing catch basin after the storm water runoff in the streets and storm sewers become cleared in the immediate area. This will control the runoff from the project and will not allow additional runoff to flow into the area during peak periods of the storm.

SUMMARY:

It is recommended that this development be approved since the computations show that the proposed design is adequate to satisfactorily handle a 100-year storm.



LOCATION MAP

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