HYDROLOGY K14/D5 1 PLAN

K14/D5

1 PLAN

Goldberg · Mann & Associates
Engineers·Planners
911 Pennsylvania St. Albuquerque, New Mexico 87110 (505) 265-3521

March 20, 1979

9-11

K14-D5

Mr. Bruno Conegliano
Assistant City Engineer/
Hydrology
Division of Engineering
P.O. Box 1293
Albuquerque, New Mexico 87103

Re: FBI Building Drainage Plan

Dear Bruno:

Transmitted herewith are two (2) copies of the drainage plan for the FBI Building. The building was designed by the Burns-Peters Group and has been submitted for a building permit.

If you have any questions, do not hesitate to call.

Thank you.

Yours truly,

GOLDBERG-MANN & ASSOCIATES

Thomas T. Mann, Jr., P.E.
President

TTM:jj
Enc.

HYDROLOGY K14/D5 1 PLAN

K14/D5

1 PLAN

DRAINAGE REPORT

for

GRAND PLAZA

development

Goldberg · Mann & Associates
Engineers · Planners
2339 Wisconsin N.E., Albuquerque, New Mexico 87110

DRAINAGE REPORT

for

GRAND PLAZA

development

Goldberg · Mann & Associates
Engineers · Planners
2329 Wisconsin N.E., Albuquerque, New Mexico 87110

Goldberg · Mann & Associates
Engineers · Planners
2329 Wisconsin N.E., Suite E Albuquerque, New Mexico 87110 (505) 292-1092

7-37

November 11, 1977

Holmes & Giannini
6400 Uptown Blvd. N.E.
Albuquerque, NM 87110

Re: Grand Plaza Development Project

We are herewith submitting three (3) copies of the drainage plan for the Grand Plaza Development Project.

This plan is in accordance with the requirements of the city of Albuquerque and Resolution 1972-2, Albuquerque Metropolitan Arroyo Flood Control Authority.

We have enjoyed working with you on this project and look forward to future opportunities to assist you.

Sincerely yours,

Thomas T. Mann Jr. P.E.
President

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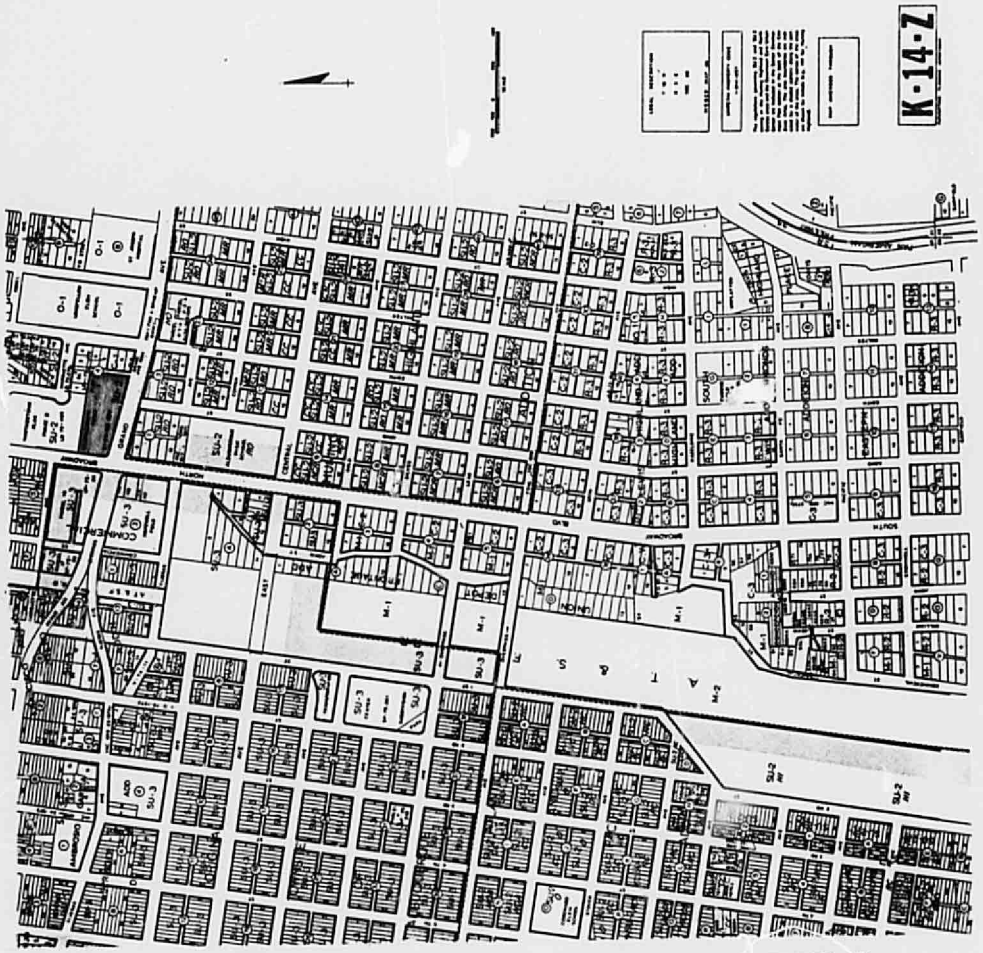
FIGURE 1.
LOCATION MAP

DATE
RECEIVED_____



NAME: Holmes & Giannini, Arch.
ADDRESS: 6400 Uptown Blvd. N.E.
Albuquerque, NM
PHONE: 292-0537
SIGNATURE:

LOT NO: 7 BLOCK NO: 4
SUBDIVISION: Belvedere Add.
STREET ADDRESS: Broadway and
Grande N.E.
CURRENT ZONING: SU-2

DRAINAGE REPORT
FOR
GRAND PLAZA DEVELOPMENT PROJECT

PURPOSE AND SCOPE

The purpose of this drainage plan is to establish the criteria for controlling surface runoff from a particular development in a manner that is acceptable to the City of Albuquerque and to the Albuquerque Metropolitan Arroyo Flood Control Authority.

This plan will determine the runoff resulting from a 100-year frequency storm falling on the site of the Grand Plaza Development Project.

The scope of this plan is to insure that the proposed project will be protected from storm runoff and that the construction of this project will not increase the flooding potential of the adjacent properties.

LOCATION AND DESCRIPTION OF PROJECT

The proposed project is located at the intersection of Grand Avenue and Broadway on the northeast corner. The project area is totally within the Martineztown neighborhood development project and contains approximately 2.5 acres.

The proposed project will develop an office complex consisting of seven (7) separate buildings that will have a total leaseable area of 24,256 square feet. There are 109 parking spaces and the development is accessible from both Grand Avenue and Broadway. The site plan delineates two distinct areas, one with three buildings and one with four buildings, each of which faces a circular fountain.

Design Criteria

In analyzing the storm runoff, the Rational Formula, $Q = CIA\ C_f$ is used.

Where:

Q = Runoff quantity in cubic feet/second.

A = Contributing area in acres.

C_f = Frequency factor for Rational Formula.

I = Intensity in inches/hour for a duration equal to the time of accumulation (duration) measured in minutes and obtained from Figure 2, Intensity Duration Frequency Curves, Albuquerque Area 1961. (Note: Where a Time of Concentration Tc is less than ten minutes, the intensity value derived from a Tc of ten minutes is employed.)

C = Runoff Coefficient (No Units). This coefficient represents the integrated effects of infiltration, detention storage, evaporation, retention, flow routing, and interception which all affect the time distribution and peak rate of runoff.

EXISTING DRAINAGE CONDITIONS

The existing contours are shown in Figure 3. The land has a uniform slope from southeast to northwest. The property is bordered on the south and west by Grand Avenue N.E. and Broadway Blvd. N.E. respectively, an inverted crown alley on the east and a block wall to the north. Thus there are no off-site flows entering the site. At the present time all storm waters from the site flow into Broadway Blvd.

There is an existing double 'c' drop inlet at the east northeast curb return of the intersection. There are 30" and 48" storm drains in Grand Avenue and Broadway Blvd. respectively, and the existing runoff from the property is approximately 4.5 cfs.

PROPOSED DRAINAGE CONDITIONS

The proposed grading plan is shown in Figure 3. The proposed drainage plan utilizes a series of ponds and some discharge to Broadway Blvd. to achieve the goal of reduced storm runoff from the property.

The parking area along the north side of the property will be allowed to drain into Broadway Blvd. and approximately 2.6 cfs will enter the street. The undeveloped flow is approximately 4.5 cfs.

All other flows will be directed into ponding areas as shown in Figure 3. Approximately 10,870 cubic feet of storage will be provided. This exceeds the required storage of 8280 cubic feet.

CONCLUSIONS

The following conclusions and recommendations are made for the development of Grand Plaza.

1. Allow flow from parking lot along the north side of the property to flow into Broadway Blvd.
2. Flow from site is approximately 4.5 cfs in the undeveloped state and 2.6 in the developed state.
3. Direct all other flows into ponds. The required pond storage is 8280 cubic feet. The storage provided is approximately 10,870 cubic feet.

CALCULATIONS

UNDEVELOPED FLOWS

area = $497 \frac{185+233}{2}$ = 103,873 sq. ft. = 2.4 acres

T_c = 10 minutes

I = $\frac{189}{10+25}$ = 5.4 inches per hour

Q = 0.35 (5.4) 2.4 = 4.5 cfs

DEVELOPED FLOWS

Area drainage to ponds = 82,764 sq.ft. = 1.9 acres

Area draining to Broadway 0.5 acres

Total area 2.4 acres

Required pond volume = 82764 x 0.1 = 8280 cubic feet

Pond volumes

1. $\frac{2990+625}{2}$ x 2 = 3616

   625 x.5 = 312

   3928 — 3928

2. 1300 x 1 = 1300

   300 x .5 = 150

   1450 — 1450

3. $\frac{(26x52)+(18x45)}{2}$ x 1 = 1861

   18x45x.5 = 405

   2266 — 2266

4. $\frac{(150x12)+(142x4)}{2}$ x 1 = 1184

   142x4x.25 = 142

   1326 — 1326

5. $\frac{(47x40)+(32x30)}{2}$ x 1 = 1420

   32x30x.5 = 480

   1900 — 1900

Total Storage = 10870 cf

Flow to Broadway Blvd.

Q = 0.95 (5.4) .5 = 2.6 cfs

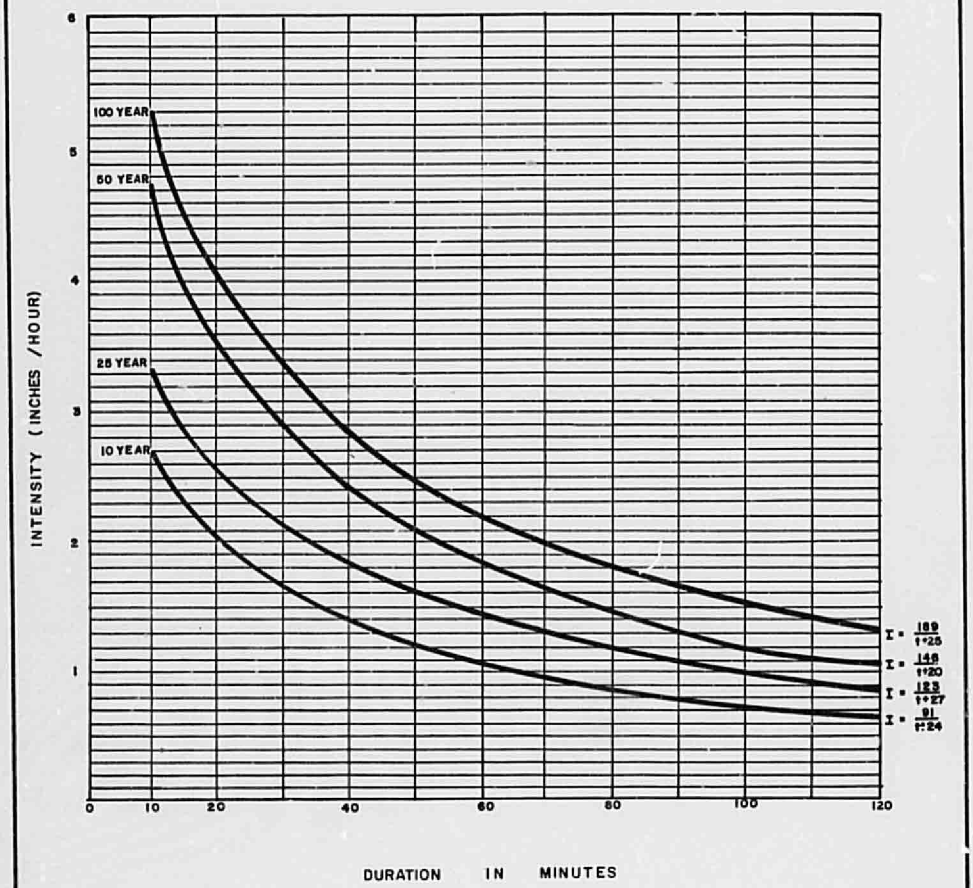


FIGURE 2

INTENSITY DURATION FREQUENCY CURVES