HYDROLOGY F18/D17 ONE PLAN

F 18- D 17

1 PLAN

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

MAYOR
David Rusk

April 23, 1979

F18-D17

Mr. Thomas Mann
Goldberg-Mann & Assoc.
911 Pennsylvania N.E.
Albuquerque, N.M. 87110

Re: Vista del Oso Subdivision

Dear Mr. Mann:

The drainage report for the captioned development has been reviewed and my comments are as follows:

In Albuquerque, in most townhouse developments, preference is given to southwestern landscaping with underlying polyethelene film cover. It is therefore my opinion that ponding provisions should be planned with the assumption that after development, most of the site is rendered impervious. For this development, rear yard retention with conveyance of the roof runoff to the back yard, can adequately compensate for the increased runoff volume. (The requirement of roof runoff conveyance to the back yard is not specifically stipulated in the drainage report).

This concept must be incorporated in the large scale and detailed grading plan (required scale 1" = 10') that will be submitted with the construction plans, at the time of application for building permit for the individual units. Since only minor modifications are needed to bring the plan submitted in compliance with the requirements above, the site development plan and plat for this subdivision will be approved after reception by this office of a letter of concurrence with the stipulations stated above.

Very truly yours,

Bruno Conegliano
Assistant City Engineer-Hydrology

BC/fs

cc - Dick Heller
Rich Leonard

Drainage file
Reading file

DRAINAGE REPORT for the VISTA DEL OSO SUBDIVISION

RECEIVED
APR 04 1979
CITY ENGINEERS

Goldberg · Mann & Associates
Engineers-Planners
911 Pennsylvania N.E. Albuquerque, New Mexico 87110

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

January 29, 1979 8-79

Mr. Charles Bacheller
Tipton & Associates
Suite 437E
6400 Uptown Boulevard N.E.
Albuquerque, New Mexico 87110

Re: Vista del Oso Subdivision Drainage Report

Dear Mr. Bacheller:

We are herewith transmitting two (2) copies of the drainage report for the Vista del Oso Subdivision.

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

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

Yours sincerely,

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

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

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President

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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 under existing and developed conditions.

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

LOCATION AND DESCRIPTION OF PROJECT

The Vista Del Oso Subdivision is located within the corporate limits of the City of Albuquerque in the northeast quadrant. The site is on the southeast corner of the intersection of Osuna Road N.E. and San Pedro Drive N.E.

The parcel is approximately 3.0 acres in size and will be developed as a 20 Lot Subdivision containing duplexes. The natural topography of the area slopes from the east to the west on the southern half of the site and from the south to the north on the northern half, with slopes varying from 3% to 7%, (refer to Grading Plan). The site is higher than the bounding Osuna Road N.E. and San Pedro Drive N.E.

FIGURE 1.
LOCATION MAP

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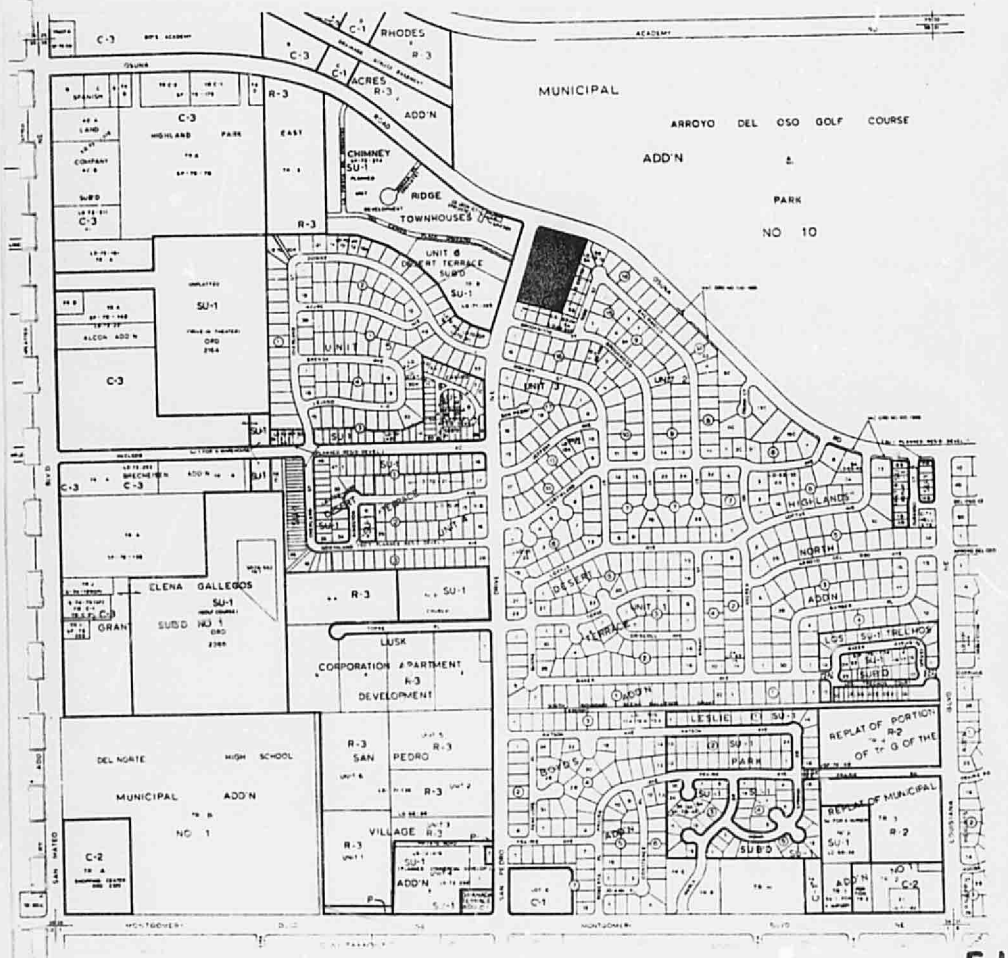


F-18

APPLICANT

NAME: Charles Bacheller
ADDRESS: 6400 Uptown Blvd. N.E.
Albuquerque, N.M. 87110
PHONE: (505) 883-6600
SIGNATURE:_____

LOCATION OF PARCEL

LOT NO: - BLOCK NO: -
SUBDIVISION: Desert Terrace
STREET ADDRESS: San Pedro N.E. & Osuna Road
CURRENT ZONING: SU-1

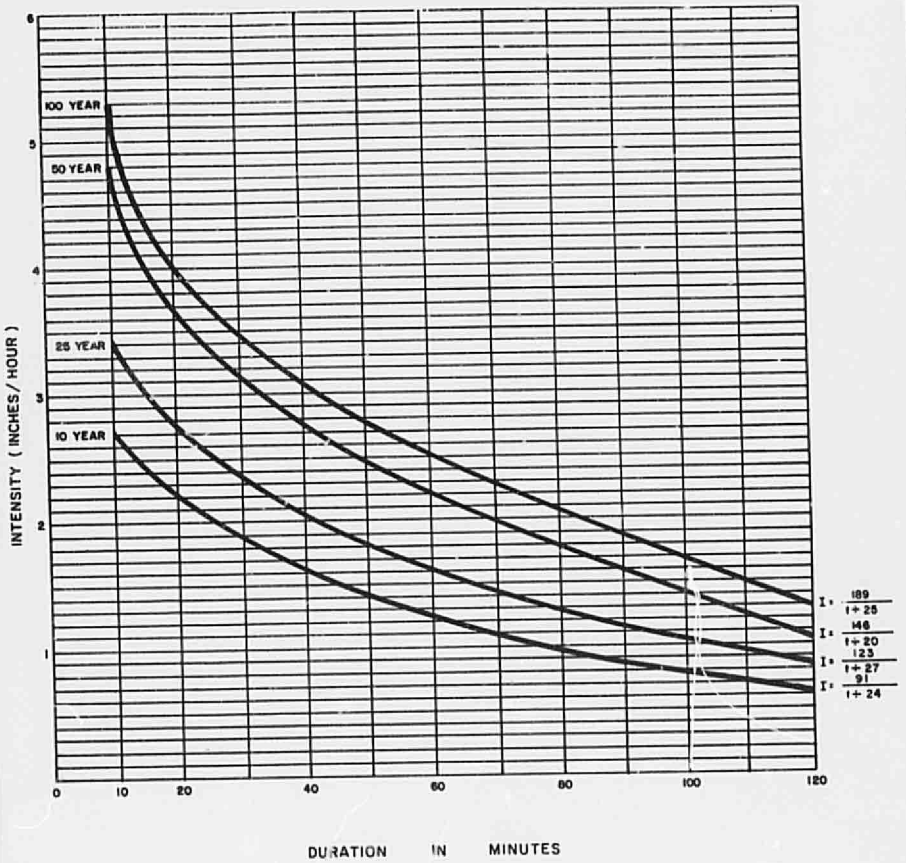
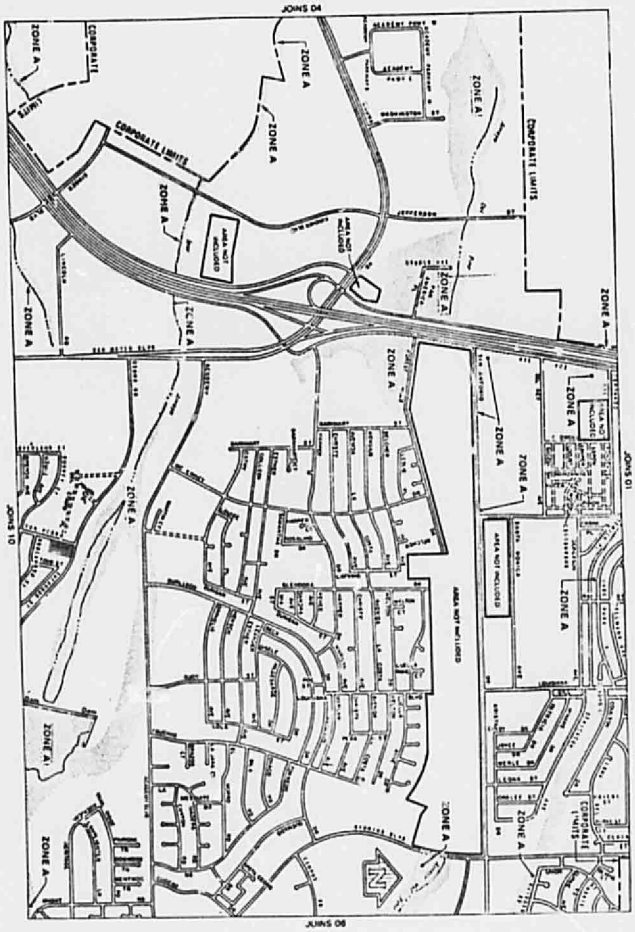


FIGURE 2

INTENSITY DURATION FREQUENCY CURVES



DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT Federal Insurance Administration CITY OF ALBUQUERQUE, NM (BERNALILLO CO)	APPROXIMATE SCALE 1000 0 1000 2000 3000 FEET FLOOD HAZARD BOUNDARY MAP	MAP REVISED 2/14/78	FIGURE 3

05

DESIGN CRITERIA

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

Where:

Q = Runoff quantity in cubic feet/second.

A = Contributing area in acres.

I = Intensity in inches/hour for a duration equal in minutes and obtained from Figure 3, 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 on the Grading Plan (refer to Figure 4). The site is bounded on the east and south by existing residential development. Along these boundaries there exists block walls which cut off any off-site flows that had historically passed over the site. Therefore, offsite flows are not a factor in this drainage plan.

All flows from the site drain into either San Pedro Drive N.E., at the western site boundary, or into Osuna Road N.E. at the northern site boundary. All flows eventually proceed west on Osuna Road N.E.

PROPOSED DRAINAGE CONDITIONS

The Grading Plan for the proposed subdivision is shown in Figure 4. The conveyances of off-site flows will not be altered.

All lots within the subdivision will have rear yard ponding areas. (Refer to Figure 4 typical lot detail). All roofs will drain to the rear yard. The runoff from the front of the lots will be carried in the streets.

Vista Del Oso Court will collect runoff from lots adjacent to it and convey the flow west to San Pedro Drive, and then northward to Osuna Road N.E. The frontage street on Osuna Road N.E. will collect runoff from lots adjacent to it and convey the flow to Osuna Road N.E. The accumulation of all this flow will be conveyed westward on Osuna Road N.E.

All drainage facilities will be designed in accordance with the City of Albuquerque Standards.

CONCLUSIONS

The following conclusions and recommendations are made for the development of Vista Del Oso Subdivision.

1. Construct rear yard ponds for all of the lots.
2. Drain all of the roofs to the rear yard.
3. Ponds on Lots 7-11, 17, 19 and 20 shall retain in excess of 750 c.f.
4. Ponds on all other lots shall retain in excess of 360 c.f.

CALCULATIONS

Areas

Area to pond	1.84 acres
Area to street drain	1.16 acres
Total Area	3.00 acres

Undeveloped Flows

Area = 3.00 acres

Lenth = 400'

Slope = 4.3%

Tc = 10 min.

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

$Q_{100} = (0.35)(5.4)(3.00) = 5.67$ c.f.s.

Developed Flows

Area Draining to Street

Impervious Areas	= .94 acres	= 81%
Pervious Area	= .22 acres	= 19%
Total Area	1.16 acres	= 100%

Composite "C" Factor

.95 x .81 = .77

.35 x .19 = .07

.84

Area 1 = .39 acres

Q = (.84)(5.4)(.39) = 1.81 c.f.s.

Area 2 = .77 acres

Q = (.84)(5.4)(.77) = 3.5 c.f.s.

Total Developed Runoff 5.3 c.f.s.

Total Undeveloped Runoff 5.7 c.f.s.

PONDING DATA

Ponds on Lots 7-11, 17, and 19-20 are designed to retain 100 percent of the runoff due to topographical and site layout limitations. All other lots are designed for 100 percent retention of the increased runoff. Lots 14 and 18 are designed for 100 percent retention of the increased runoff by the implementation of overflow pipes.

SIZE OF PONDS

Impervious area - 86,840 s.f.

Pervious area - 32,830 s.f.

Total Pond Volume Required

$86{,}840 \times 0.1 = 8{,}684$ c.f.

Pond Volume

Lots 7-11, 17, 19-20

$$80 \times 45 \times \frac{2.5}{12} = 750 \text{ c.f.}$$

All Other Lots

$$80 \times 45 \times 0.1 = 360 \text{ c.f.}$$

Total Volume

$750 \times 8 + 360 \times 12 = 10{,}080$ c.f.

Average Pond Area

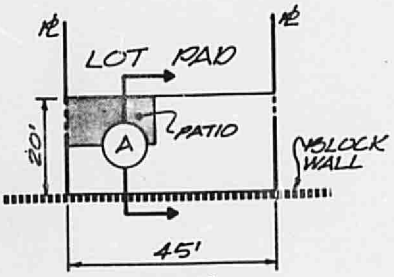
$(10 \times 45) + (15 \times 10) = 600$ s.f.

Pond Depth

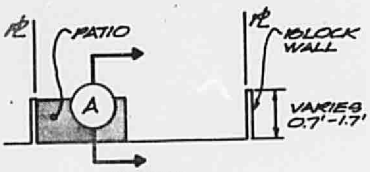
Varies 0.7' to 1.7'

POND CONFIGURATION

NO SCALE



PLAN



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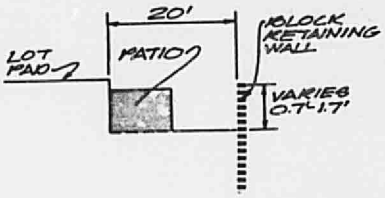

SECTION A

NOTE: CONFIGURATION VARIES FROM LOT TO LOT.

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