HYDROLOGY E18/D9 1 PLAN

E18/D9

1 Plan

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STORM DRAINAGE STUDY
FOR
ACADEMY ACRES UNIT NO. 11

APRIL 1973

GENERAL

This report presents the calculated probable storm drainage runoff from a 100 year storm of this proposed development of ACADEMY ACRES UNIT NO. 11.

LOCATION

ACADEMY ACRES UNIT NO. 11 is bounded on the East by unplatted land; on the North by unplatted land; on the West by Academy Acres Unit No. 3; and on the South by Academy Acres Unit No. 8. It is situated in the Northeast Quarter (NE/4) of Section 25, Township 11 North, Range 3 East, N.M.P.M.

EXISTING DRAINAGE

The present topography shows a fairly consistant slope to the Southwest of 2% mainly as sheet flow. There are outside contributing areas involved with this site.

Drainage for the East is intercepted by Louisiana Boulevard, N.E., to be constructed as part of this unit, and diverted to the natural drainage channel of the Arroyo Del Pino.

PROPOSED DRAINAGE PLANS

In order to reduce runoff, yard ponding will be used. The drainage will be colleted at the most Westerly street and carried North to the Arroyo Del Pino. The streets are designed to carry all runoff without over topping.

RUNOFF QUANTITIES

The quantities of storm runoff to be expected from each drainage area were determined using the Rational Formula, Q=CIA, where Q=quantity of storm runoff in cubic feet per second; C=coefficient of runoff dependent upon the type of surface drained; I=intensity of rainfall in inches per hour for a duration equal to the total accumulation time in minutes; and A=area of contributing watershed in acres.

The area (A) of each separate contributing area was determined by outlining the watershed on the contour map and measuring the area (by planimeter) in acres.

Intensity Duration Frequency Curves (Chart 1) for the Albuquerque Area, "Master Plan of Drainage - City of Albuquerque, New Mexico and Environs," 1963, prepared by Gordon Herkenhoff and Associates, Consulting Engineers, together with the expected accumulation of runoff from each of the areas. The total accumulation times are determined by a combination of Yarnell's Method and probable future streets and drainage channel alignments and grades, as shown; assuming overland flows to cross grass surfaces, depending upon the probable type of development in each area and estimating the probable type of grading to be done in each area. the coefficient of runoff (C) was determined by using percentage of area covered by grass, buildings and paving, using respective runoff factors from the Master Plan of Drainage.

STREET DRAINAGE

Street capacities are based on Manning's Equation, Q=AV, where $V=\frac{1.486}{n} R \quad S$ When A=cross-sectional area of the channel or structure; R=hydraulic radius of channel or area divided by wetted perimeter; S=slope of channel or facility in feet per foot; and "n" values of 0.015 for concrete and asphalt surfaces.

CONCLUSIONS

The computations indicate that the proposed design is adequate to satisfactorly handle a 100 year storm. The street section and minium slope will be selected from Exhibit I.

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