HYDROLOGY M16/D7 6 PLANS

M16/D7

Le Plans

2501 SUNPORT BLVD

ENCHANTMENT ENGINEERING Inc.
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ALBUQUERQUE, N.M. Ph. 294-8859

MAY 8, 1981

BUDGET RENT · A · CAR
MUNICIPAL ADDITION No 9

REVISED OUTFLOW CALCULATIONS

10' DRAIN PIPE FROM RETENTION POND
MATERIAL : PVC

$Q = \frac{0.463}{n} d^{8/3} s^{1/2}$ (Eq. '30(c), p. 4-68 Urquhart, 4TH ED.)

$n = .010$ (assumed)

$d = .833$ ft

$s = .0114$ ft/ft

$= \frac{0.463}{.010} \cdot (.833^{2.67}) \cdot (.0114^{.50}) = \underline{3.04 \text{ CFS}}$

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
JOHN W. BETTIS
NEW MEXICO

BUDGET RENT A CAR
MUNICIPAL ADDITION NO.9

DRAINAGE REPORT

BUDGET RENT-A-CAR SERVICE CENTER

WITHIN MUNICIPAL ADDITION NO. 9

ENCHANTMENT ENGINEERING
1517 Eubank Blvd., NE
Albuquerque, New Mexico 87112

June 26, 1980

RECEIVED
JUL 1 '80
CIVIL ENGINEER

PURPOSE

The purpose of this report is to present ot governing agencies a reasonable and feasible method of complying with City Ordinance 59-1976. The method outlined in this report will lessen the runoff being discharged from this site to an amount which approximates the discharge expected during a 5-year storm under natural conditions on the site.

LOCATION AND TERRAIN

The parcel under study is a leased portion of Municipal Addition No.9 near the Albuquerque International Airport. It lies about 700 feet west of the intersection of Girard Blvd. and Sunport Blvd. on the north side of Sunport Blvd. (See the Vicinity Map) The site slopes from southeast to northwest at a rate of about three percent. Soil on the site is primarily sand with a very small amount of clay. There is no vegetation of any size on the site. The soil type is the prime consideration given to the runoff from the site; infiltration has been proven high in this area and a natural runoff coefficient of .20 has been used in the calculations included with this report. No natural storage of runoff occurs on the parcel.

PROPOSED DEVELOPMENT

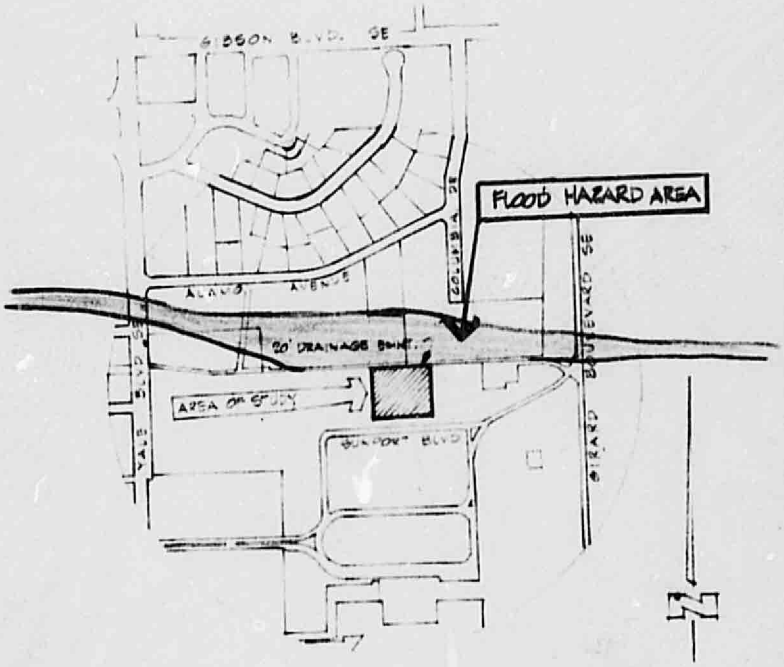
The site drainage plan included shows the planned location of the building, contours at one foot intervals, and the proposed location and maximum extent of the detention area. With the exception of the building itself, the entire parcel

is to be covered with an asphalt mat. This of course will mean that the site is to be entirely impervious to infiltration. There is a steep slope dropping off from the north side of the site (See plan) and this plan calls for the construction of a retaining wall along the northwest corner of the site that is to be used for the detention of the generated storm runoff. Normally the ponding facilities are left with natural surfaces but in this instance the asphalt is to be continued to the face of the proposed wall. It should serve to prevent the infiltration of water under the wall and the subsequent erosion below the footing of the wall.

UPLAND DRAINAGE & INTERNAL DRAINAGE

Our field inspection and the available orthophoto maps show that there is not much of an upstream area contributing to flows across this parcel. Only the area immediately to the east of the site lying between Sunport Blvd. and the embankment to the north could possibly contribute any offsite flows. We noted that there were two very small watercourses running from southeast to northwest across the site and the swales designed in the paving more or less reflect the location of those flowlines. They should direct the internal flows into the ponding area at the northwest corner. This ponding area has been designed to contain up to 14600 cubic feet of water before a free discharge over the wall will occur. For quantities less than capacity, the rate of outflow will be governed by two 3-inch diameter pipes through the wall. At maximum pond capacity that rate of outflow will be .74 cfs

compared to 1.12 cfs from the site in its natural state during a 5-year storm. (for the 5-yr. storm and an overland flow time of 10 minutes, an intensity of 2.8 in/hr was used) The controlled outflow is considerably less than the potential uncontrolled rate of 10.84cfs. The slope below the pipes should be covered with a layer of concrete to prevent discharges from undermining the wall footing.



VICINITY MAP
NO SCALE