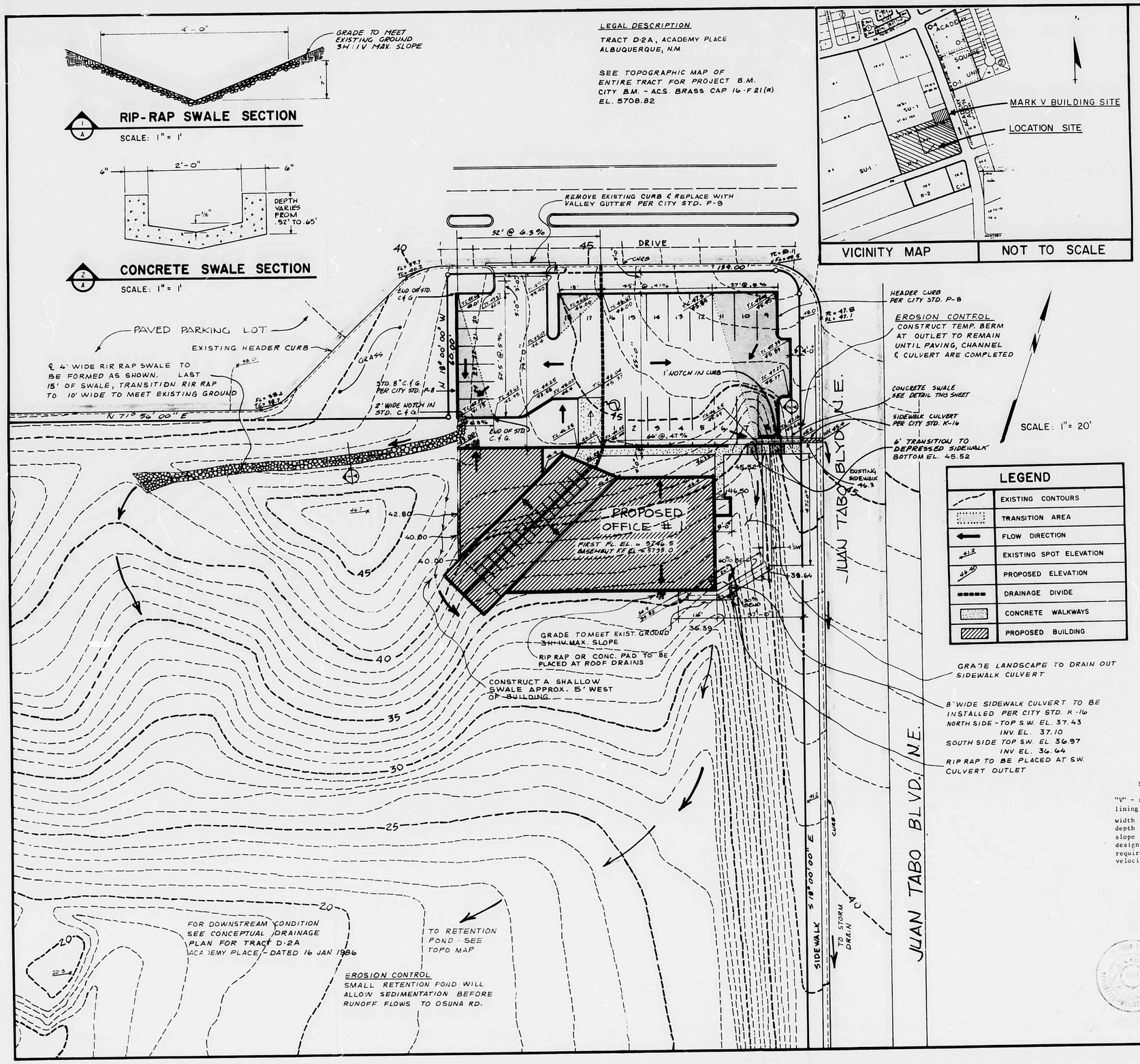
HYDROLOGY

F21/D51A
ONE PLAN

F 21- D 51 A

1 PLAN




## GENERAL

LAND USE
present - vacant lot with frontage onto Juan Tabo NE which is paved and has curb and gutter

proposed - office complex in the northeast corner of the lot

SOIL TYPE
Embudo - gravelly fine sandy loam and gravelly sandy loam
Hydrologic Soil Group B

LOT AREA
Total tract area - irregular shape - 5.51 acres
Development area 0.47 acres

## HYDROLOGY

TIME OF CONCENTRATION
flow length across lot 740 ft.
elevation difference 35 ft.
time of concentration 4 minutes; use 10 minutes

6 - HOUR RAINFALL DEPTH
10 - yr 1.66 in.
100 - yr 2.52 in.

RAINFALL INTENSITY
10 - yr 3.60 in./hr.
100 - yr 5.47 in./hr.

RUNOFF COEFFICIENTS
present condition C= ~~0.340~~
developed condition C= 0.365 for entire tract

RUNOFF RATES
present condition
10 - yr 6.7 cfs
100 - yr 10.2 cfs
developed condition
10 - yr 6.9 cfs
100 - yr 10.6 cfs

RUNOFF VOLUMES
present condition
10 - yr 11,288 cu. ft.
100 - yr 17,136 cu.ft.
developed condition
10 - yr 11,644 cu. ft.
100 - yr 17,676 cu. ft.

## ON SITE FLOWS

The existing drainage runoff flows into a retention pond formed by landfill. The pond is shown on the topographical map of Tract D-2 included in this submittal. The pond has an approximate capacity of 7600 cubic feet. As shown on the hydrology notes, the existing 100-year volume of runoff is 17,136 cubic feet. When the pond overflows the runoff flows into Osuna Road NE then westward to a storm drain which empties into Bear Arroyo.

The proposed development will increase the runoff rate by only 0.4 cfs. Since this increase is minimal, we propose to leave the existing drainage condition as is. Another factor considered was the storm drain in Osuna Road NE. The inlets are approximately 1860 feet west of this development. They are draining a residential subdivision in which all runoff flows along paved, curbed streets. The time of concentration for this area will be very short. The retention pond on Tract D-2A will slow the time of concentration of runoff from this site allowing flow from the residential subdivision to flow out of this area first.

Finally, this is to be a temporary solution. The whole tract is to be developed. At that time a drainage plan describing a more permanent solution will be submitted.

Approximately half of the developed flow will empty into Juan Tabo NE. These flows will be carried in the street to storm drain inlets at the intersection of Juan Tabo NE and Osuna Road NE. The storm drain carries the flow to Bear Arroyo. The inlets are at the low point in Juan Tabo NE so if they would be plugged [illegible] Osuna Road NE and end up in Bear Arroyo, where the flow would end up, if no development [illegible].

## OFF-SITE FLOWS

Flows on Juan Tabo NE are contained within the curb and gutter. Flows west of the Tract flow to Osuna Road NE, south of the site. Osuna Road NE drains westward into a storm drain which carries the flow to Bear Arroyo. The lot to the north does drain across the far west side of the property within a 20 foot drainage easement. This runoff flows through a 6-inch diameter pipe which empties into the easement as shown on the topographical map. From here it flows into the storm drain in Osuna Road NE. There is no affect on the proposed development site.

## SWALE HYDRAULICS

"V" - shaped swale with rip rap lining

| | |
|---|---|
| width | 4 feet |
| depth | 7 inches |
| slope | 0.28% |
| design Q | 1.1 cfs |
| required Q | 0.7 cfs |
| velocity | 1 fps |

APPROVED FOR DRAINAGE
2/11/86
Roger A. Green, Pe Hydrology

| | |
|---|---|
| DESIGNED BY: S.D. | DRAINAGE AND GRADING PLAN |
| DRAWN BY: A.F. | MARK V BUILDING |
| CHECKED BY: E.D. | |
| DEC. 1985 | PREPARED BY: RESOURCE TECHNOLOGY INC. |

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