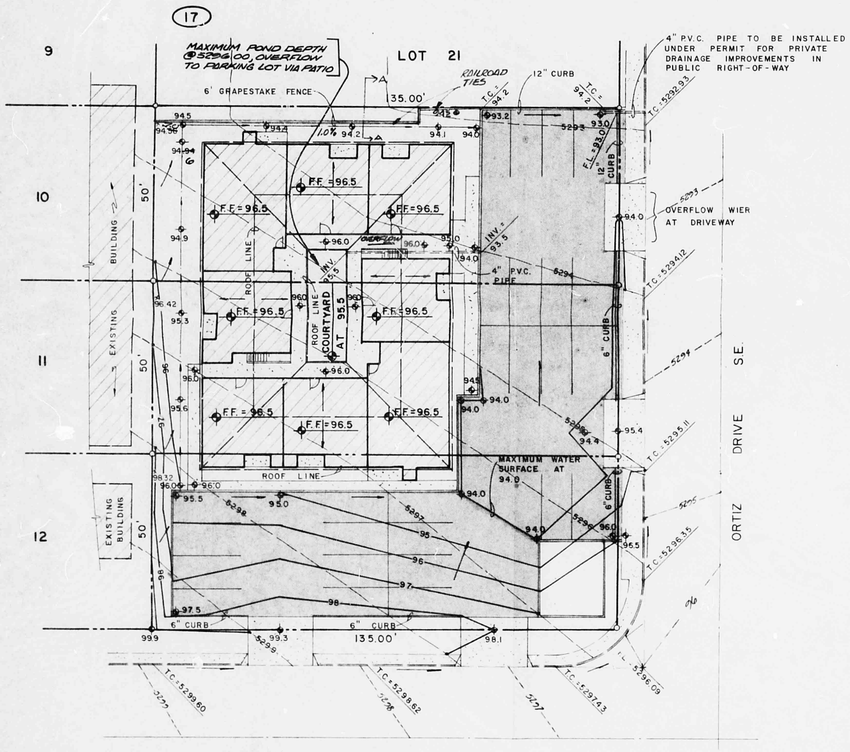
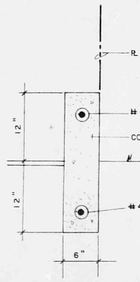
HYDROLOGY

L18/D15
ONE PLAN

L18-D15

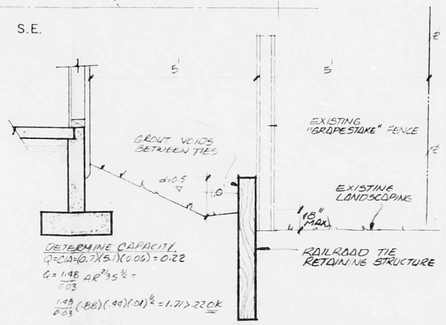
1 PLAN





12" CURB DETAIL

1" = 1.0'



SECTION A-A

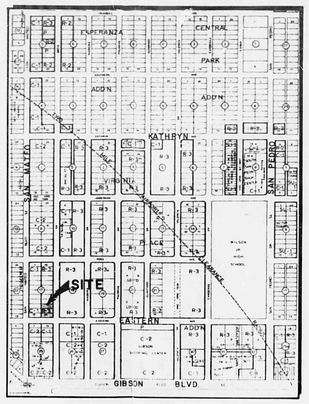
1" = 2'

0 10 20 40

N

LEGEND

- ASPHALT PAVING
- LANDSCAPED AREA
- PROPERTY LINE
- EXISTING CURB & GUTTER W/SIDEWALK
- 12.7 EXISTING SPOT ELEVATION
- 12 EXISTING CONTOUR
- 12.7 PROPOSED SPOT ELEVATION
- 12 PROPOSED FINISHED CONTOUR
- SURFACE FLOW DIRECTION
- BUILDING STRUCTURE



VICINITY MAP – L-18

BENCH MARK: CITY OF ALBUQUERQUE
SM BOS. ELEVATION = 5319.98

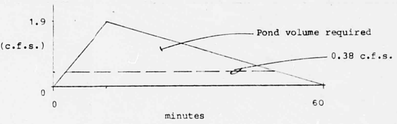
T.B.M.: FIRE HYDRANT ON THE NWN RETURN OF ORTIZ DRIVE & EASTERN AVENUE S.E. ELEVATION = 5398.35

DRAINAGE NOTES AND CALCULATIONS

1. Legal Description: Lot 24, 23, and 22 of Block 17 of Tract 17, Virginia Place Addition
2. Zoning: R-3
3. Soil Type: As per the USDA Soil Conservation Report on Soils of Bernalillo County this soil is defined as sandy loam and is in the B Hydrologic Soil Group.
4. Off-site Flows: The site slopes to the northeast. There is some off-site flows generated by some existing buildings located to the west. The majority of the flows fall to San Mateo. For discussion purposes only 1/3 of the sites will be assumed to drain to this property with 50% impervious surface. Hence C = 0.58 (Plate 22.2C1), A = 0.15, I = 5.1; Q = CIA = 0.58 x 0.15 x 5.1 = 0.4 c.f.s. This flow will be located to the east and allowed to overflow thru the drivepad on Ortiz.
5. Undeveloped Conditions: This site drains to the northwest corner of the site and is totally undeveloped. The tracts comprises of 0.46 acres. Using Plate 22.2C1 DRM Vol. 2, C = 0.34. Using Plate 22.2D1 DRM, Vol. 2, the rainfall amount (P) is equal to 2.4 inches. The time of concentration (t_c) used to calculate the rainfall Intensity (I) is 10 minutes. $I = P(6.84)t_c^{-0.51} = (2.4)(6.84)(10)^{-0.51} =$ 5.1 inches/hour. Q_{100} Undeveloped = CIA = (0.34)(5.1)(.46) = 0.80 c.f.s.
6. Developed Drainage Management Plan: Since this site contributes to flood plains downstream controlled discharge will be required with an allowable discharge rate of a 4" diameter pipe. The maximum depth allowed will be 10" since the pond will be in the parking lot.

The site will comprise of 3,224 square feet pervious surface; 17,026 square feet impervious surface (84% impervious) from plate 22.2 C-1, DPM Vol. 2, C = 0.8. I = 5.1 inches/hour; A = 0.46 acres, Q_{100} = CIA = 0.8 x 5.1 x .46 = 1.90 c.f.s.

The rainfall amount for the 6 hour precipitation is equal to 2.4 inches (P). The time of concentration is equal to 10 minutes, and it follows that the developed hydrograph will have a time base of less than 60 minutes. Using plate 22.2D-3 Vol. 2 it is determined that 84% of P occurs. Assuming 0.3" of initial abstraction intercepted by the site, a total rainfall amount of 1.7 inches contributes to the runoff volume. Volume = (1.7/12)(20,250) = 2869 cubic ft.. Time of hydrograph = 2(2869)-1.9(60) = 50 minutes.



$Q_{outfall} = Ca\sqrt{2gh}$ w/h=0.5'; $Q_{outfall}$ = 0.34 c.f.s.

pond volume required = 1,818 c.f.t.

Actual pond volume provided:

Elev.	Area		
93.0	0		
		971 x .5 =	486
93.5	1941		
		3206 x .5 =	1603
94.0	4470		2089 cubic feet

Courtyard Area:

The total area draining to the courtyard is 2,752 sq. ft.

Q = CIA = (1)(5.1)(2752/43560) = 0.32 c.f.s.

Volume = 1/2(10)(5)(60)(0.32) = 480 cubic feet

Storage capacity in courtyard = 32 x 12 x .5 = 192 cubic feet

4" pipe outfall using manning's equation w/n = 0.012

s = 0.05 ft./ft.; Q = 0.46 c.f.s. > 0.32 c.f.s. OK

Note courtyard and patio is 0.5' minimum lower than finish floor so flooding is not a problem.

INLET CONTROL $Q = CA\sqrt{2gh} = (0.6)(0.07)\sqrt{64.4(5)} = 0.3$ c.f.s.
= 100 YR. FLOW RATE OK

RECEIVED
OCT 07 1983
ENGINEERING

L18/D15

REVISED

C.T.S. INC. ENGINEERING
1100 ALVARADO N.E. SUITE A
ALBUQUERQUE, NEW MEXICO 87110
(505) 266-3444

REVISIONS	DATE

DESIGNED	A.H.	9-83
DRAWN	M.W.	9-83
CHECKED	A.H.	9-83

DRAINAGE / GRADING PLAN

ORTIZ APARTMENT COMPLEX

ANDRE HOUSE NEW MEXICO 7878 REGISTERED PROFESSIONAL ENGINEER

10-7-83

SHEET 1 OF 1