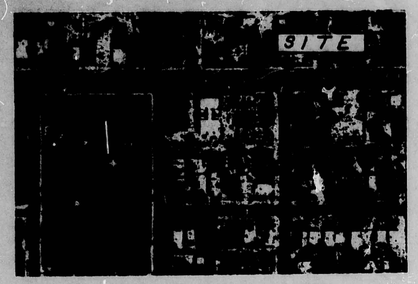
HYDROLOGY K15/D27 ADD'N. TO CAFE OCEANA

K15/D27

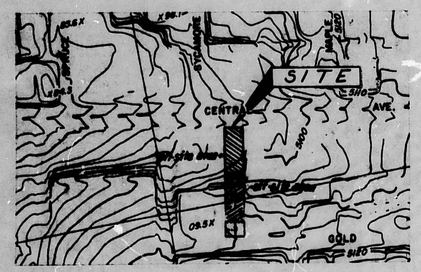
Add'n to Cafe

Ocean

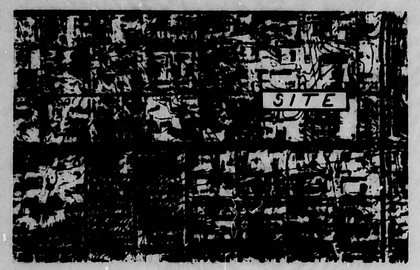
1 Plan



City of Albuquerque Aerial Photo Map
Scale 1" = 200'

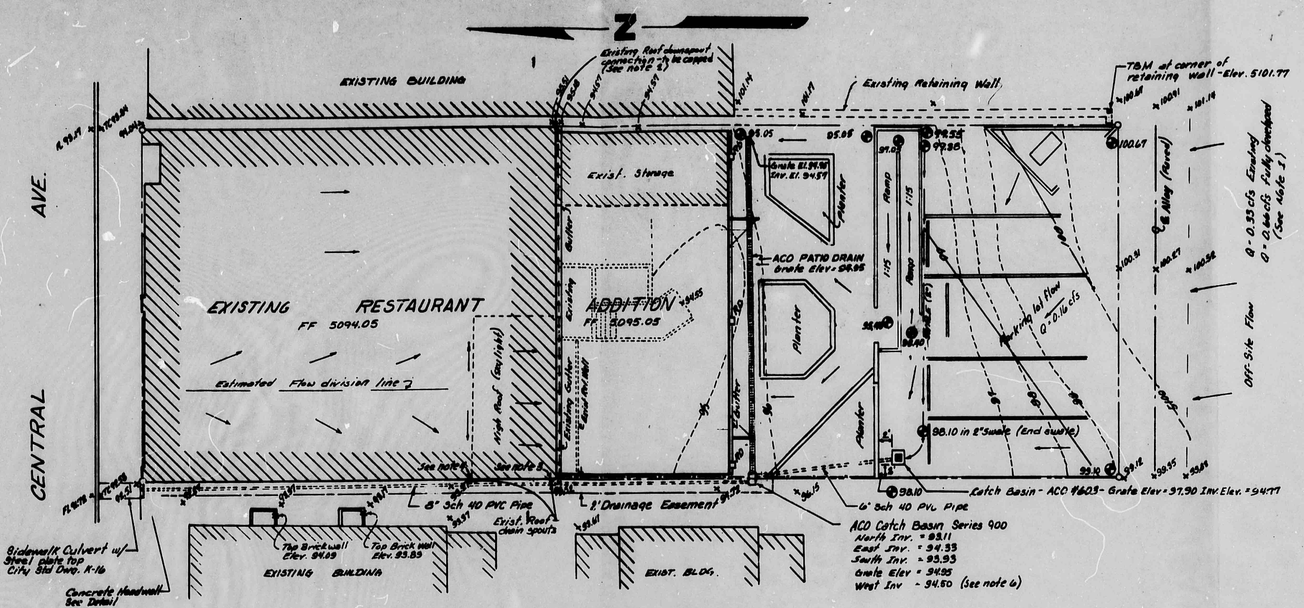


City of Albuquerque Topographic Map
Scale 1" = 200'

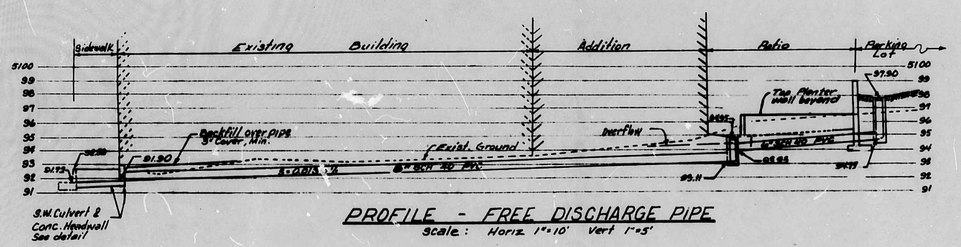


City of Albuquerque Flood Hazard Map
Scale 1" = 500'

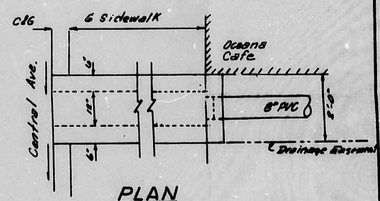
Bernalillo County Soil Survey Map
Scale 1" = 2,000'



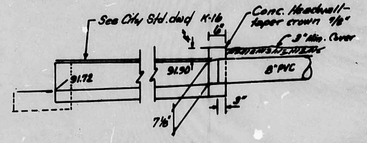
SITE PLAN
Scale 1" = 10'



PROFILE - FREE DISCHARGE PIPE
Scale: Horiz. 1" = 10' Vert 1" = 5'



PLAN
1/8" = 1'-0"



SECTION
1/2" = 1'-0"

SIDEWALK CULVERT AND HEADWALL
Scale 1/2" = 1'-0"

LOCATION MAP
K-15 N.T.S.

LEGEND

- PROPERTY LINE
- DRAINAGE EASEMENT
- EXISTING BOARD FENCE
- EXISTING STRUCTURE
- ROOF DRAIN
- 91 EXISTING CONTOUR
- 99 PROPOSED CONTOUR
- 95.51 EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION

NOTES

1. The system is designed for total imperviousness of lot 10, except for required minimum landscaping.
2. Gutter is to discharge onto roof of existing storage building. Provide splash protection.
3. Remove gutter downspout and discharge flow to roof of addition. Provide splash protection.
4. Install gutter from this roof drain running south to intercept flow from downspout in note 3 above. Discharge both flows on to roof of new addition. Provide splash protection.
5. ACO drain grate is slotted steel (pain) high-load grate.
6. For overflow spillway, break out and invert of [illegible] catch basin to elev 94.50 and ditch to day light.

BENCH MARK

City Bench Mark 5-K15 located at Central and University at the east median of the intersection. Station is a standard ACS brass disk set in a concrete cylinder in the ground at the nose of the median. Station is stamped "5-K15, 1970" Elevation is 5134.159.

LEGAL DESCRIPTION:

Lot numbered 3 in Block numbered 41 Terrace Addition.

DRAINAGE CALCULATIONS

I. Off-site flows

A. Time of concentration $L = 120$ $\Delta h = 5110 - 5100 = 10'$
$S = 10/120 = 0.0833$ '/' $T_c = 0.0078 (L^{0.77}/S^{0.385}) = 0.81$ minutes.
Use 10 minute, minimum time of concentration.

B. Intensity. From DPM Plate 22.2 D-1, 6-hr, 100-year Rain = 2.25"
$I = (2.25)(6.84)(10)^{-0.51} = 4.76$ inches/hour

C. Area. The alley slopes from south to north so that part of the runoff from lot 10 runs across into lot 3.
Area = (135 x 50)/43560 = 0.155 acres

D. Soil Type. From Soil Survey of Bernalillo County, the soil

E. "C" Factor House 2000 sf, Other Buildings 500 sf, Alley 1000 sf
Total Impermeable Area 3500 sf = 0.08 Acres
Percent impermeable = (0.080/0.155)100 = 52 %
From Plate 22.2 C-1 C = 0.45 (Assume full Dev. Use 0.90)

F. Runoff $Q = CIA = 0.90 \times 4.76 \times 0.155 = 0.66$ cfs

II. On-site Flows

A. From parking Area (50 x 29) + (12 x 5) = 1,504
$C = 1.0$ $Q = 1.0 \times 4.76 (1504/43560) = 0.16$

B. From Patio Total area = 1370 SF = 0.031 Ac ; Planter Area = 360 SF
Impervious area = 1,010 ; % impervious = (1010/1370)100 = 74 %
"C" = 0.57 (Plate 22.2 C-1) $Q = CIA = 0.57 \times 4.76 \times 0.31 = 0.05$ cfs

C. From New Addition A = 1,250 sf = 0.0286 acres
$Q = 1.0 (4.76)\, 0.029 = 0.13$ cfs

D. Existing Building; Area = 3000 SF = 0.069 Ac
$Q = 1.0 (4.76)\, 0.069 = 0.33$ cfs

III. Catch Basin Outlet Pipe Capacities

A. Parking Lot Catch Basin. Orifice equation $Q = CA\sqrt{2gh}$
$C = 0.6$ $a = (\pi d^2 / 144) = 0.1963$ $h = (97.90 - 94.70) - 0.25 = 2.95$
$Q = 0.6 \times 0.1963 \sqrt{2 \times 32.2 \times 2.95} = 1.62$ cfs
Actual Q = Off-site flow plus Parking lot flow = 0.66 + 0.16 = 0.82 cfs

B. Patio catch basin By orifice equation $Q = CA\sqrt{2gh}$
$h = (94.95 - 93.11) - 0.25 = 1.51'$ Use 8 inch pipe $a = \frac{\pi d^2}{144} = 0.3491$ SF
$Q = 0.6 \times 0.3491 \sqrt{2 \times 32.2 \times 1.51} = 2.07$ cfs
Actual flow into catch basin =

From off-site	Q = 0.66
Parking lot	Q = 0.16
Patio	Q = 0.08
Addition	Q = 0.13
Existing Building	Q = 0.33
Total	Q = 1.36 < 2.07

RECEIVED
MAY 31 1984
HYDROLOGY SECTION

Revised May 21, 1984

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NEW MEXICO
8512
REGISTERED PROFESSIONAL ENGINEER

CAFE OCEANA
DRAINAGE PLAN

PROJECT NO.
K15-

SHEET 1 OF 1