HYDROLOGY

C17/D1B

CLIFFORD INDUSTRIAL PARK OFFICE

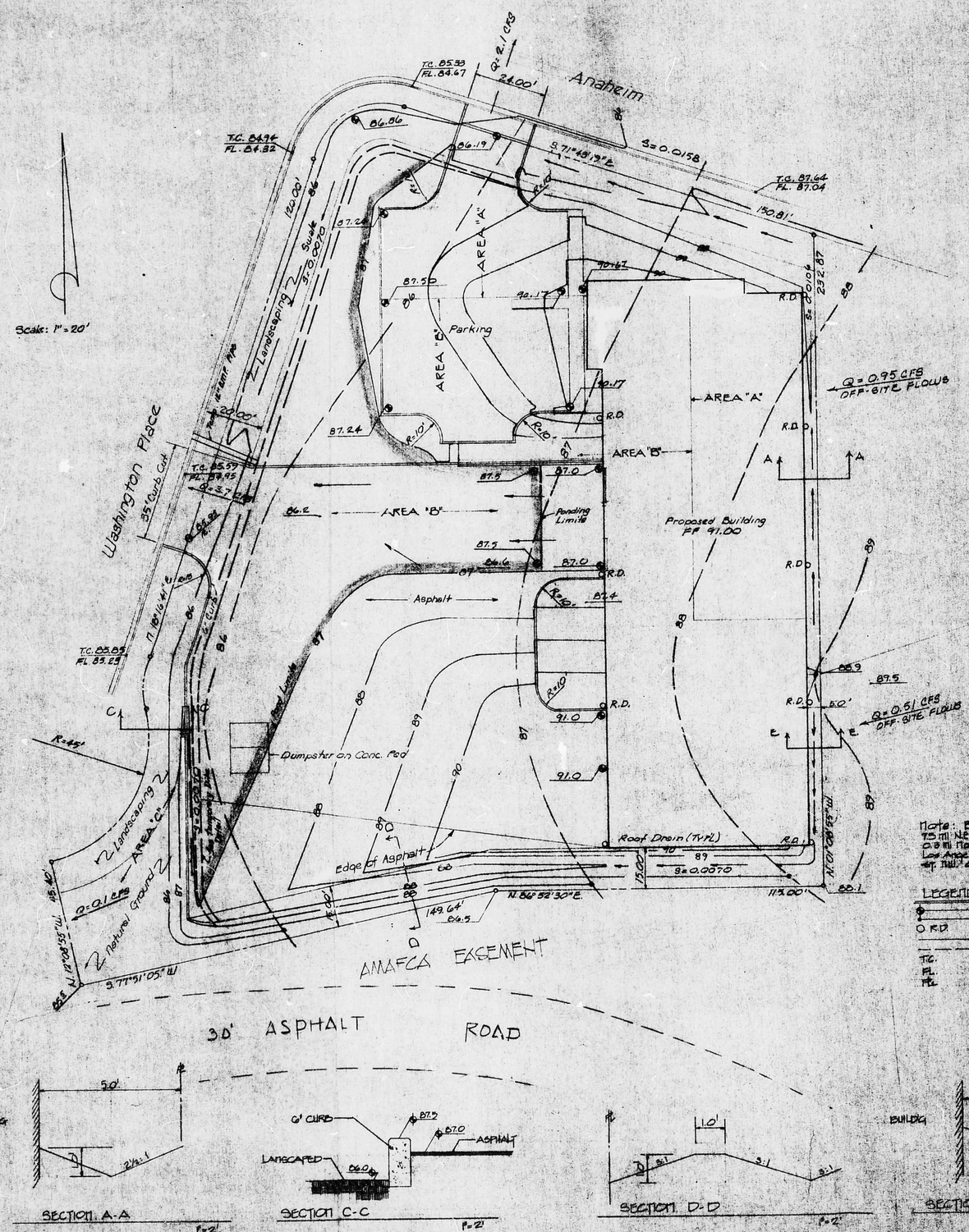
LOTS 45 & 46

C17 / DIB

CLIFFORD INDUSTRIAL
PARK OFFICE
LOTS 45 + 46

2 PLANS

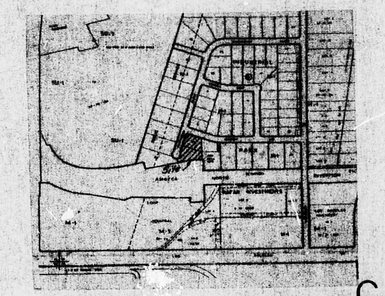
EROSION CONTROL PLAN



Note: B.M. E-C17
0.3 mi NE of Downtown
0.3 mi North of Intersection
Los Angeles Blvd. & Washington
Elev. 1111' On top of Conc. Curb

LEGEND

	NEW SPOT ELEV.
	EXIST. ELEV.
R.D.	ROOF DRAIN
	NEW CONTOURS
	EXIST'G CONTOURS
T.C.	TOP OF CURB
F.L.	FLOW LINE
P.L.	PROPERTY LINE



Vicinity Map

C 17

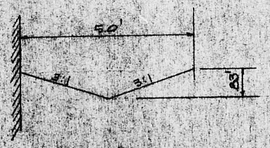
Soil Survey Map - Soil Type $E_{m}B$

Flood Hazard Map

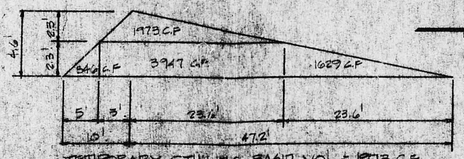
SECTION A-A

SECTION C-C

SECTION D-D



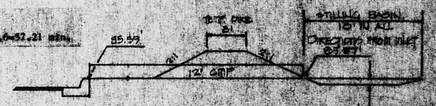
SECTION E-E



TEMPORARY STILLING BASIN VOL. = 1973 C.F.

Actual Volume — Area Between Dike & BT Contour

Est. Vol. = Area × 1.0' / 3 = 7384 × 1.0 / 3 = 2463 C.F.



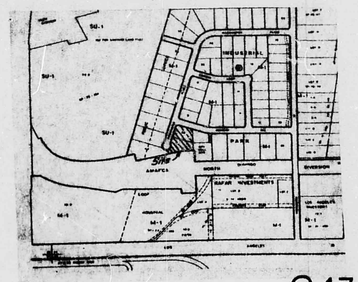
TEMPORARY DIKE & STILLING BASIN DETAIL

RECEIVED
AUG 01 1988
HYDROLOGY SECTION

Revised July 1988
Revised July 1988

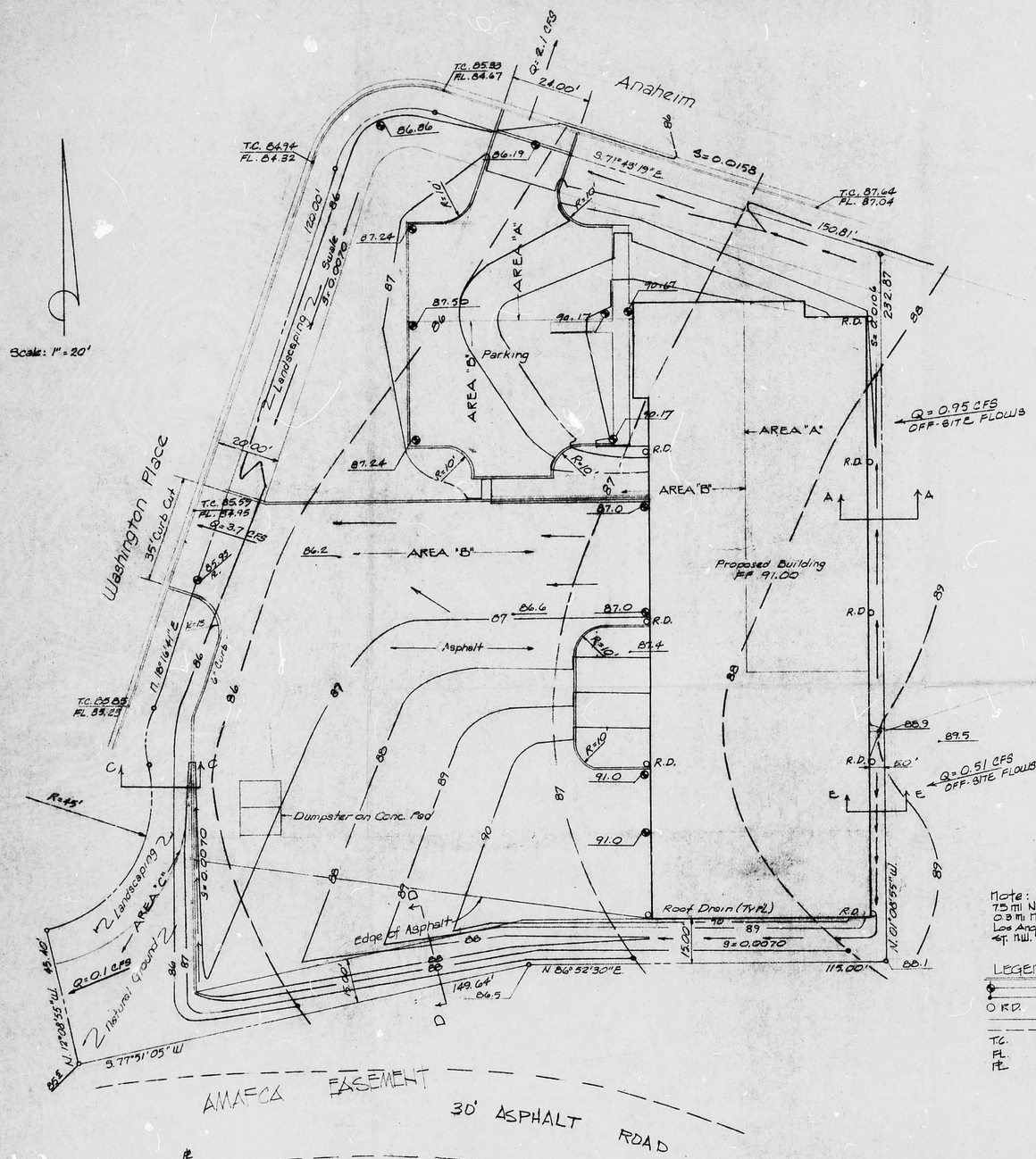
OFFICE / WAREHOUSE FOR:
TEMPLE INC.
ALBUQUERQUE, NEW MEXICO
JUNE 1988

DRAINAGE PLAN



Vicinity Map

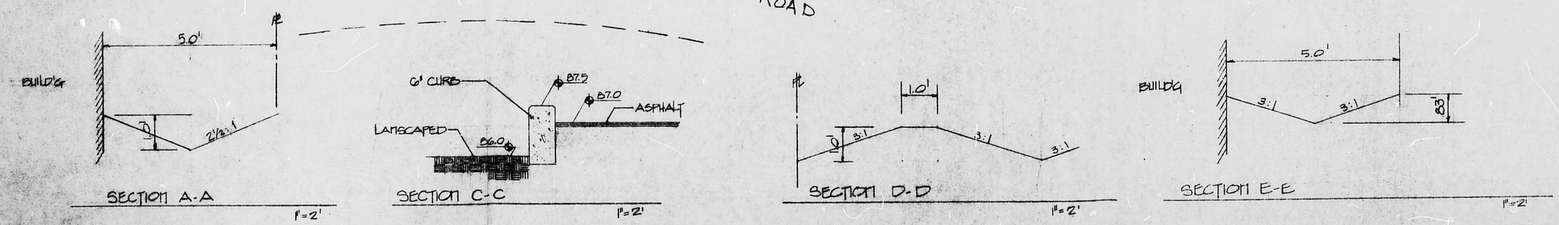
C 17



Note: B.M. B-C17
7.5 mi N.E. of Downtown
0.5 mi North of Intersection
Los Angeles Blvd. & Washington
ST. N.W. On top of cont. Curb.

LEGEND

	NEW SPOT ELEV.
	EXIST. ELEV.
O R.D.	ROOF DRAIN
	NEW CONTOURS
	EXIST'G CONTOURS
T.C.	TOP OF CURB
F.L.	FLOW LINE
P.L.	PROPERTY LINE



SECTION A-A 1"=2'

SECTION C-C 1"=2'

SECTION D-D 1"=2'

SECTION E-E 1"=2'

DRAINAGE CALCULATIONS

I. OFF-SITE FLOWS

A. Undeveloped. See Drainage Report for Clifford Industrial Park, August, 1982, Plate 4, Undeveloped Drainage. Also, see Plate 5, Developed Drainage, which has the same contour base.

1. AREA
On Plate 5, beginning at SE corner of Area J and extending a line perpendicular to the contour lines to Anaheim Avenue, the off-site area is a triangle with base 260', height 310'; area is 40,300 square feet, or 0.925 acres.

2. SOIL
The soil is Embudo gravelly fine sandy loam (EmB), from the USDA Soil Conservation Service Soil Survey. The soil type is classified as Hydrologic Soil Group "B".

3. "C" FACTOR
Soil is 0% impervious. From City of Albuquerque's Development Process Manual (DPM) Chapter 22, Plate 22.2 C-1, the undeveloped "C" Factor is 0.34.

4. TIME OF CONCENTRATION
Slope = 3.5/350 = 0.016 1/1. From DPM Plate 22.2 B-1, the velocity is 0.75 fps.

$$Tc = \frac{L}{V \times 60} = \frac{350}{0.75 \times 60} = 7.7 \text{ min. Use 10 min.}$$

5. INTENSITY (See Page 2 of Master Drainage Report)

$$I = 2.2 \times 6.84 \times 10^{-0.51} = 4.65$$

6. PEAK DISCHARGE
Q = CIA = 0.34 x 4.65 x 0.925 = 1.46 cfs; 153/233 (1.46) = 0.95 cfs flows North, remaining 0.51 cfs flows South.

B. Developed. See Master Drainage Report for Clifford Industrial Park, Plate 5, Developed Drainage. Developed drainage for Area K flows to Anaheim Avenue. Developed drainage for off-site flows to 24" RCP under landfill access road. Therefore, in the future when these sites are developed, there will no longer be any off-site drainage entering this site.

II. ON-SITE FLOWS

A. Concept - See Master Drainage Report for Clifford Industrial Park, Plate 5, Developed Drainage. Area J is shown draining into Washington Place, none into Anaheim Avenue. However, capacity of Anaheim Avenue, based on slope of 0.017 1/1 (see Plate 22.3 D-1) is 44 cfs x 2 = 88 cfs. Actual "Q" is 30.0 cfs North, 5.4 cfs south; therefore, Anaheim Avenue has adequate capacity to accept some discharge from this site.

B. Drainage Areas

1. TOTAL SITE AREA: Lot 45 contains 0.6672 acres; lot 46 contains 0.7062 acres. Total site area is 1.3734 acres or 59,825 square feet.

2. AREA "A"

Building	C = 1.0	4,920	Weighted "C" Factor:
Asphalt	C = 0.9	2,978	$\frac{4920 \times (0.9 \times 2978) + 132 + (0.34 \times 6393)}{14,423} = 0.68$
Concrete	C = 1.0	132	
Unpaved and Landscaping C = 0.34		6,393	USE C = 0.70 from Master Drainage Report
		14,423	

Q = CIA = 0.7 x 4.65 x (14,423/43,560) = 1.1 cfs

3. AREA "B"

Building	C = 1.0	9,794	Weighted "C" Factor:
Asphalt	C = 0.9	13,377	$\frac{9794 + (0.9 \times 13377) + 376 + (0.34 \times 18919)}{42466} = 0.67$
Concrete	C = 1.0	376	
Unpaved and Landscaping C = 0.34		18,919	USE C = 0.70 from Master Drainage Report
		42,466	

Q = CIA = 0.7 x 4.65 x (42466/43560) = 3.2 cfs

4. AREA "C" (Undeveloped Fringe Area that sheet-flows into Washington Place)
Total Area = 2936 square feet Q = 0.34 x 4.65 . 2936/43560 = 0.1 cfs

C. Velocities and Depths

1. NORTHEAST DITCH: Q = 0.95 (off-site) + 1.1 cfs = 2.05 cfs. Try V-Ditch, 2.5:1 side slopes, 1 foot deep, 8-inch flow depth: s = 0.106, n = 0.035 (by HP 41CV Program "V-Ditch" (Manning's Equation: V = Q/A)
Q = 2.25 cfs - OK V = 2.00]

2. SOUTH DITCH: Q = 0.51 (off-site) + 0.25 cfs = 0.76 cfs. Try V-Ditch, 3:1 side slopes, 10" deep, 6-inch flow depth: s = 0.007, n = 0.035 [by HP 41CV Program "V-Ditch" (Manning's Equation: V = Q/A)
Q = 1.25 cfs - OK V = 1.66]

Revised July 10, 1984
Revised July 31, 1984

RICHARD V. HALL
NEW MEXICO
7918
REGISTERED PROFESSIONAL ENGINEER

OFFICE / WAREHOUSE FOR:
TEMPLE INC.
ALBUQUERQUE, NEW MEXICO
JUNE 1984

HALL ENGINEERING