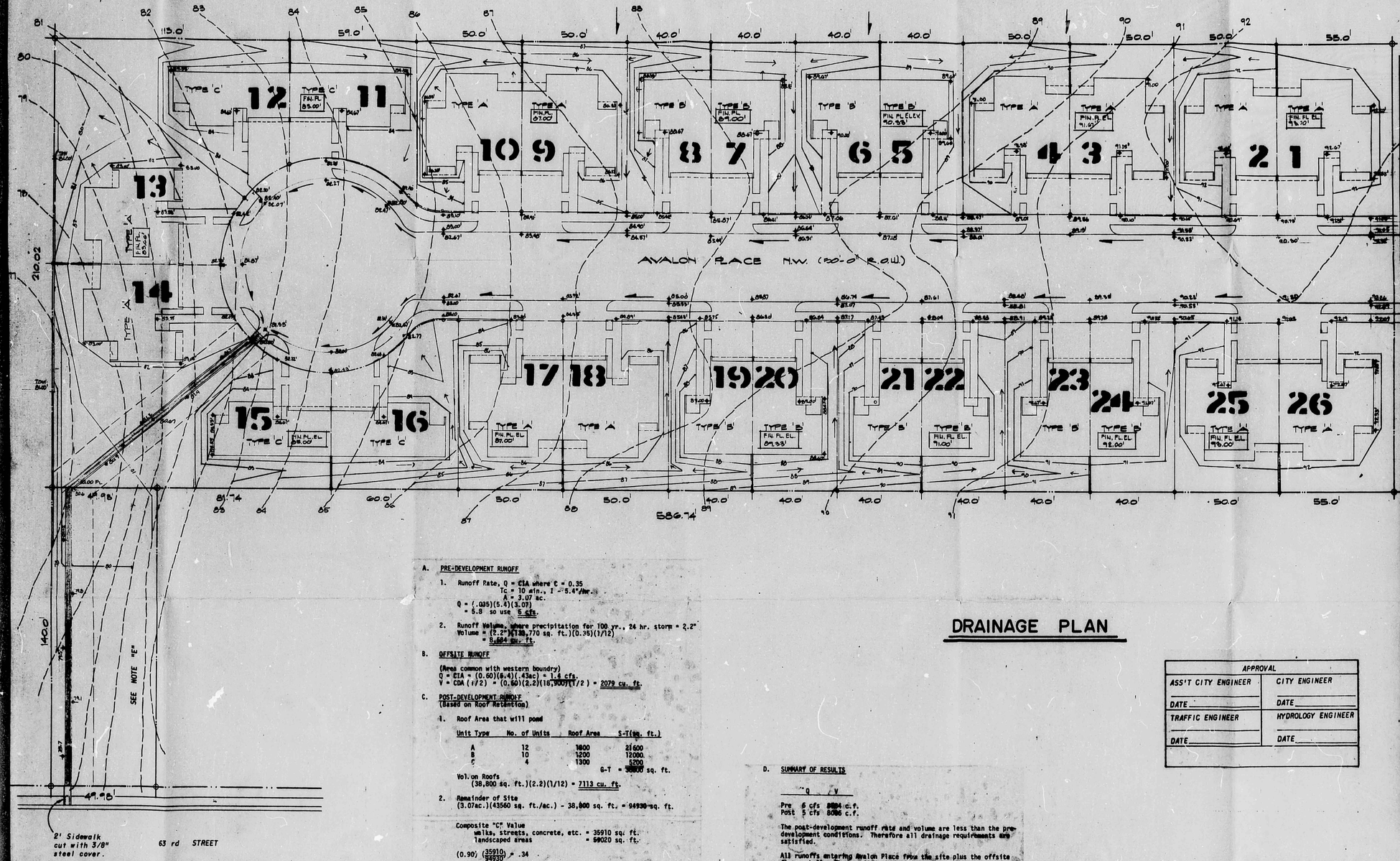
HYDROLOGY K11/D2 3 PLANS

K11/D2

3 PLANS

CITY OF ALBUQUERQUE
THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT

CITY OF ALBUQUERQUE



A. PRE-DEVELOPMENT RUNOFF

1. Runoff Rate, Q = CIA where C = 0.35
   Tc = 10 min., I = 5.4"/hr.
   A = 3.07 ac.
   Q = (.035)(5.4)(3.07)
   = 5.8 so use 5 cfs.

2. Runoff Volume, where precipitation for 100 yr., 24 hr. storm = 2.2"
   Volume = (2.2")(133,770 sq. ft.)(0.35)(1/12)
   = 5,804 cu. ft.

B. OFFSITE RUNOFF

(Area common with western boundry)
Q = CIA = (0.60)(6.4)(.43ac) = 1.4 cfs.
V = CDA (1/2) = (0.60)(2.2)(18,900)(1/2) = 2079 cu. ft.

C. POST-DEVELOPMENT RUNOFF
(Based on Roof Retention)

1. Roof Area that will pond

Unit Type	No. of Units	Roof Area	S-T(sq. ft.)
A	12	1800	21600
B	10	1200	12000
C	4	1300	5200
		G-T =	38800 sq. ft.

Vol. on Roofs
(38,800 sq. ft.)(2.2)(1/12) = 7113 cu. ft.

2. Remainder of Site
(3.07ac.)(43560 sq. ft./ac.) - 38,800 sq. ft. = 94930 sq. ft.

Composite "C" Value
walks, streets, concrete, etc. = 35910 sq. ft.
landscaped areas = 59020 sq. ft.

(0.90) $\left(\frac{35910}{94930}\right)$ = .34

(0.20) $\left(\frac{59020}{94930}\right)$ = .12
= .46 = Composite "C"

3. Runoff Rate Q = CIA, where C = 0.46, I = 5.4"/hr.
   A = 2.18 ac. (for 100 yr. - 6 hr. storm)
   Q = (0.46)(5.4)(2.18)
   = 5.4 cfs.

Runoff Volume V = CDA(1/12) D = 2.2"
V = (0.46)(2.2)(94930)(1/12)
= 8006 cu. ft.

D. SUMMARY OF RESULTS

	Q	V
Pre	6 cfs	5804 c.f.
Post	5 cfs	8006 c.f.

The post-development runoff rate and volume are less than the pre-development conditions. Therefore all drainage requirements are satisfied.

All runoffs entering Avalon Place from the site plus the offsite flows, shall exit onto 63rd. Street by-means of a concrete run-down located between lots 14 and 15.

E. LOT ON 63rd. STREET SHALL HAVE PONDING AT CURCITY FOR FUTURE DEVELOPMENT.

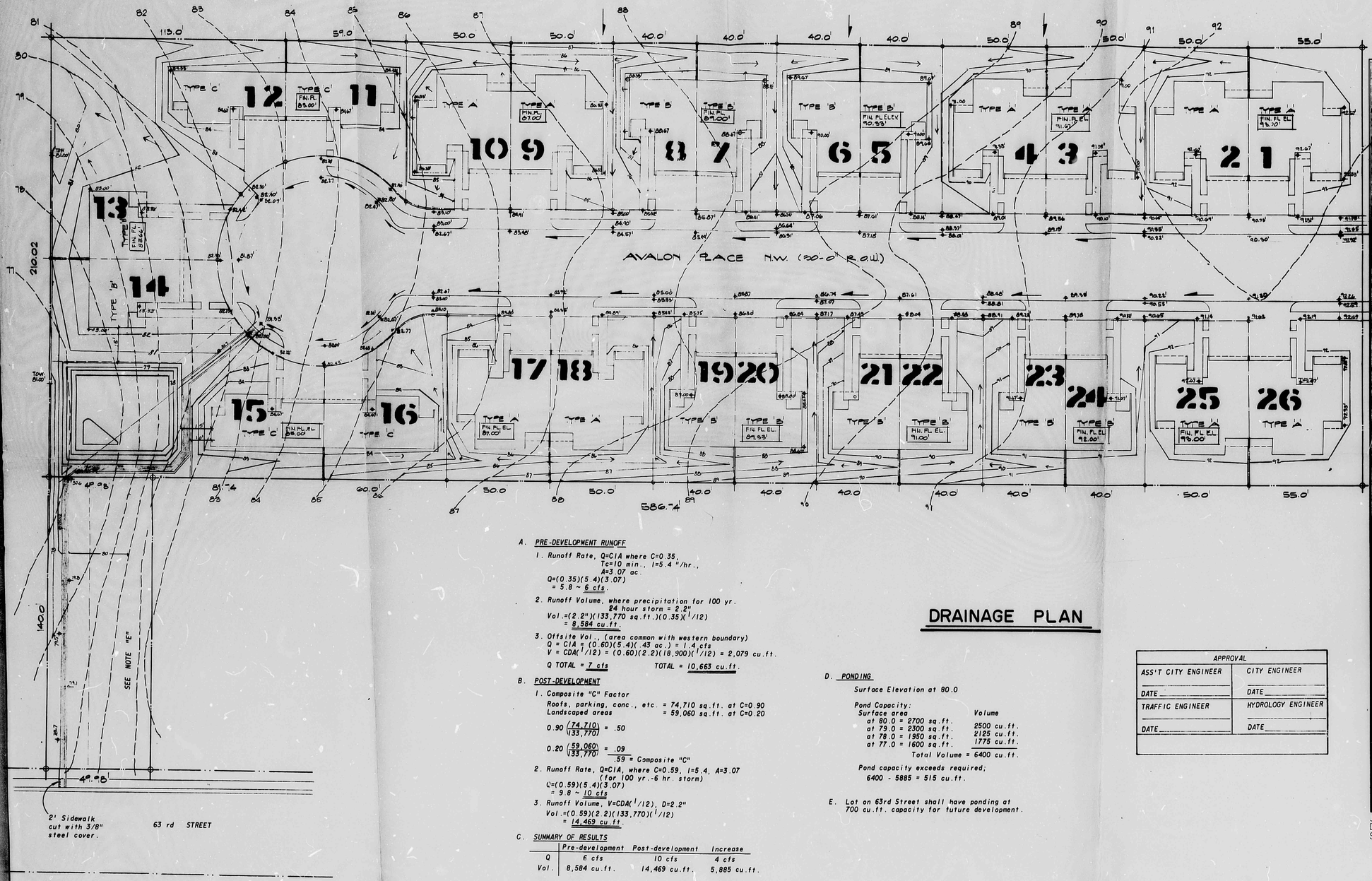
DRAINAGE PLAN

APPROVAL	
ASS'T CITY ENGINEER	CITY ENGINEER
DATE	DATE
TRAFFIC ENGINEER	HYDROLOGY ENGINEER
DATE	DATE

JOB NO. 70-7
DATE FEBRUARY 1979
SHEET 5 OF

CITY OF ALBUQUERQUE
THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT

CITY OF ALBUQUERQUE



A. PRE-DEVELOPMENT RUNOFF

1. Runoff Rate, Q=CIA where C=0.35, Tc=10 min., I=5.4 "/hr., A=3.07 ac.
   Q=(0.35)(5.4)(3.07)
   = 5.8 ~ 6 cfs.

2. Runoff Volume, where precipitation for 100 yr. 24 hour storm = 2.2"
   Vol.=(2.2")(133,770 sq.ft.)(0.35)(1/12)
   = 8,584 cu.ft.

3. Offsite Vol., (area common with western boundary)
   Q = CIA = (0.60)(5.4)(.43 ac.) = 1.4 cfs
   V = CDA(1/12) = (0.60)(2.2)(18,900)(1/12) = 2,079 cu.ft.

   Q TOTAL = 7 cfs TOTAL = 10,663 cu.ft.

B. POST-DEVELOPMENT

1. Composite "C" Factor
   Roofs, parking, conc., etc. = 74,710 sq.ft. at C=0.90
   Landscaped areas = 59,060 sq.ft. at C=0.20

   $0.90\left(\frac{74,710}{133,770}\right) = .50$

   $0.20\left(\frac{59,060}{133,770}\right) = .09$

   .59 = Composite "C"

2. Runoff Rate, Q=CIA, where C=0.59, I=5.4, A=3.07 (for 100 yr.-6 hr. storm)
   Q=(0.59)(5.4)(3.07)
   = 9.8 ~ 10 cfs

3. Runoff Volume, V=CDA(1/12), D=2.2"
   Vol.=(0.59)(2.2)(133,770)(1/12)
   = 14,469 cu.ft.

C. SUMMARY OF RESULTS

	Pre-development	Post-development	Increase
Q	6 cfs	10 cfs	4 cfs
Vol.	8,584 cu.ft.	14,469 cu.ft.	5,885 cu.ft.

DRAINAGE PLAN

D. PONDING

Surface Elevation at 80.0

Pond Capacity:

Surface area	Volume
at 80.0 = 2700 sq.ft.	2500 cu.ft.
at 79.0 = 2300 sq.ft.	2125 cu.ft.
at 78.0 = 1950 sq.ft.	1775 cu.ft.
at 77.0 = 1600 sq.ft.	
Total Volume = 6400 cu.ft.	

Pond capacity exceeds required;
6400 - 5885 = 515 cu.ft.

E. Lot on 63rd Street shall have ponding at 700 cu.ft. capacity for future development.

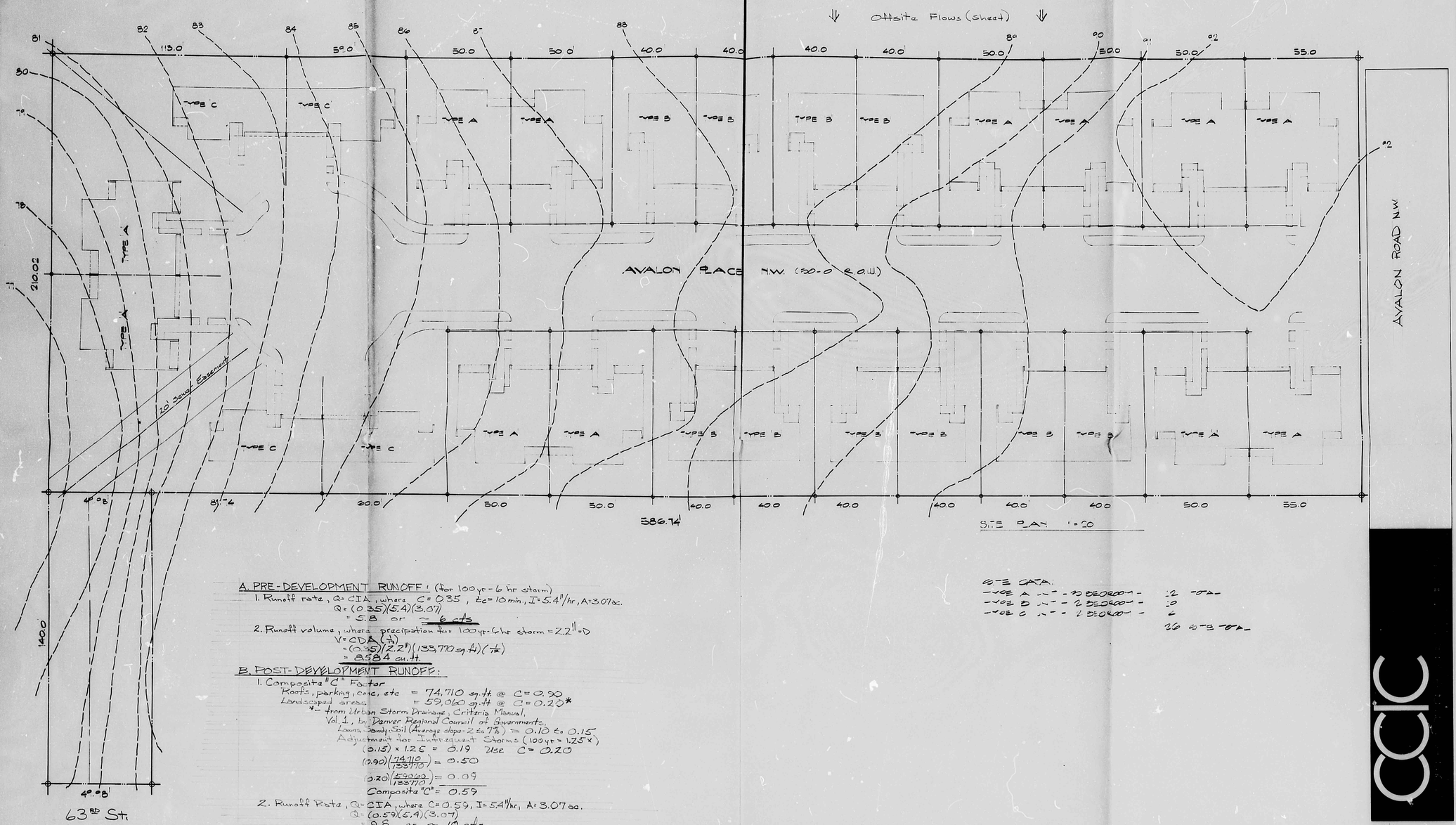
APPROVAL	
ASS'T CITY ENGINEER	CITY ENGINEER
DATE	DATE
TRAFFIC ENGINEER	HYDROLOGY ENGINEER
DATE	DATE

CCIC

JOB NO. 1077-4
DATE FEBRUARY 1978
SHEET 5 OF 6

CITY OF ALBUQUERQUE
THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT

CITY OF ALBUQUERQUE



SITE DATA:

TYPE A	10,000	12
TYPE B	2,000	2
TYPE C	2,000	2
		16 SITE

A. PRE-DEVELOPMENT RUNOFF: (for 100 yr - 6 hr storm)

1. Runoff rate, Q = CIA, where C = 0.35, tc = 10 min., I = 5.4"/hr, A = 3.07 ac.
   Q = (0.35)(5.4)(3.07)
   = 5.8 or ≈ 6 cfs
2. Runoff volume, where precipitation for 100 yr-6 hr storm = 2.2" = D
   V = CDA (1/12)
   = (0.35)(2.2")(133,770 sq.ft)(1/12)
   = 8,584 cu.ft.

B. POST-DEVELOPMENT RUNOFF:

1. Composite "C" Factor
   Roofs, parking, conc, etc = 74,710 sq.ft @ C = 0.90
   Landscaped areas = 59,060 sq.ft @ C = 0.20*
   *- from Urban Storm Drainage, Criteria Manual, Vol. 1, by Denver Regional Council of Governments.
   Lawns, Sandy Soil (Average slope - 2 to 7%) = 0.10 to 0.15
   Adjustment for Infrequent Storms (100 yr = 1.25 x)
   (0.15) × 1.25 = 0.19 Use C = 0.20
   (0.90)(74,710 / 133,770) = 0.50
   (0.20)(59,060 / 133,770) = 0.09
   Composite "C" = 0.59
2. Runoff Rate, Q = CIA, where C = 0.59, I = 5.4"/hr, A = 3.07 ac.
   Q = (0.59)(5.4)(3.07)
   = 9.8 or ≈ 10 cfs
   This is an increase of 4 cfs which will have to be controlled.
3. Runoff Volume: V = CDA (1/12)
   = (0.59)(2.2)(133,770)(1/12)
   = 14,469 cu.ft. = An increase of 5,885 cu.ft.
4. Offsite Runoff, where A = 18,900, C = 0.60
   Q = CIA
   = (0.60)(5.4)(18,900) = 1.4 cfs
   Vol = CDA
   = (0.60)(2.2)(18,900)(1/12) = 2,079 cu.ft.

CCIC

CITY OF ALBUQUERQUE
THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT

CITY OF ALBUQUERQUE