

1. PRE-DEVELOPMENT RUNOFF:

$Q = CIA$, where $C = 0.40$, $I = 5.4"/hr.$, $A = 1.43$ ac.
 $Q = (0.40)(5.4)(1.43)$
 $= 3.1$ use 3 cfs

$V = CD(1/12)A$, where $D = 2.2"$
 $= (0.40)(2.2)(1/12)(62291)$
 $= 4568$ cu. ft.

2. OFF-SITE RUNOFF:

Flows from the west will enter the site at the northwest and southwest corners as shown in the following maximum conditions.

$Q = CIA$, where $C = 0.30$, $I = 5.4$, $A = 7500$ s.f.
 $Q = (0.30)(5.4)(.17)$
 $= .3$ cfs

$V = CDA(1/12)$, where $A = 7500$ s.f., $D = 2.2"$
 $V = (0.30)(2.2)(7500)(1/12)$
 $= 413$ cu. ft.

3. POST-DEVELOPMENT RUNOFF:

A. Area subject to backyard ponding.
 Total area = 12,688 sq. ft.

Impervious $0.90 \times \frac{11920}{12688} = .16$
 Landscaped $0.25 \times \frac{10,868}{12688} = .21$

Composite "C" for ponding areas = .37

$V = CD(1/12)A$
 $= (0.37)(2.2)(1/12)(12,688)$
 $= 861$ cu. ft.

This volume is divided into two ponds. The northeast pond will require a ponding capacity of 423 cu. ft.; while the capacity of the southeast pond will be 438 cu. ft.

B. Area of site subject to runoff
 (Total area) - (ponding area) = (area to runoff)
 62291 - 12688 = 49,603 sq. ft.

Composite "C" Factor:

roofs, streets, walks, etc. = $0.90 \times \frac{28133}{49603} = .51$
 landscaped areas = $0.20 \times \frac{11420}{49603} = .05$
 non-landscaped areas = $0.40 \times \frac{2200}{49603} = .01$
 turf stone driveways = $0.50 \times \frac{6040}{49603} = .06$
 interior grass contained areas = $0.10 \times \frac{1760}{49603} = .00$
 Composite "C" Factor = .63

$Q = CIA$
 $= (0.63)(5.4)(1.14)$
 $= 3.9$ cfs

$V = CD(1/12)A$
 $= (0.63)(2.2)(1/12)(49603)$
 $= 5729$ cu. ft.

These values exceed the pre-development figures, therefore, additional ponding shall be required.

Consider roof top retention on structures #3 through 10, plus total runoff retention of parking structures #6 and #7 by means of dry wells.

Total roof area = 7056 sq. ft.

$V = (2.2)(1/12)(7056)$
 $= 1,294$ cu. ft.

C. Adjusted Post-Development Runoff

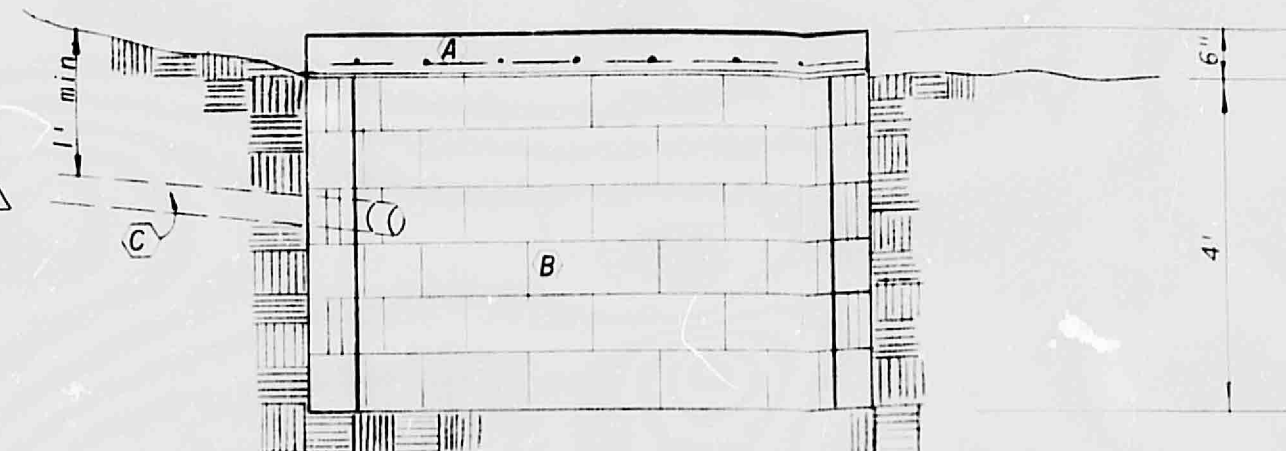
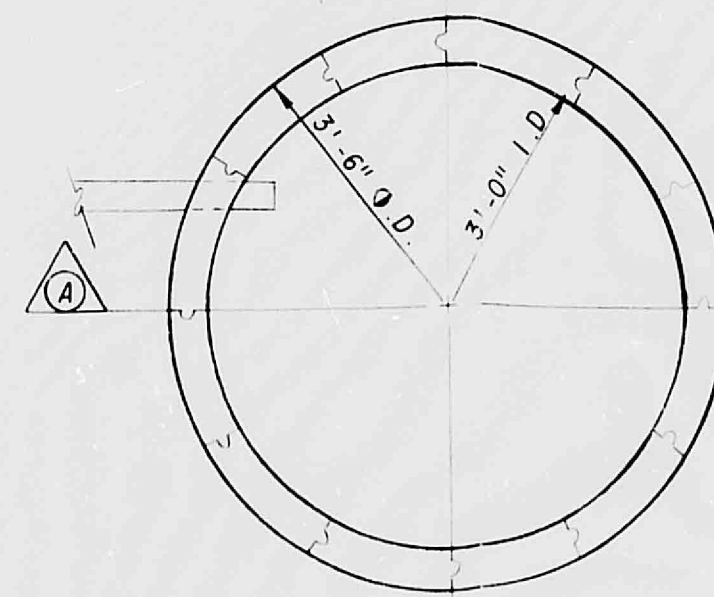
$Qa = CaIaA$, where $C = 0.58$, $Aa = .58$ ac.
 $Qa = (0.58)(5.4)(.98)$
 $= 3$ cfs

$V = CaD(1/12)Aa$
 $= (0.58)(2.2)(1/12)(42547)$
 $= 4,524$ cu. ft.

4. SUMMARY:

Casita Vista Townhouse drainage requirements are satisfied due to the retention of 2155 cu. ft. by means of roof-top and backyard ponding.

	Q	V	Area contributing to runoff	Volume Ponded
Pre-Dev.	3 cfs	4568 cu. ft.	62291 sq. ft.	-0-
(1) Post-Dev.	4 cfs	5729 cu. ft.	49603 sq. ft.	861 cu. ft.
(2) Post-Dev. (adjusted)	3 cfs	4524 cu. ft.	42547 sq. ft.	2155 cu. ft.



SECTION A-A

- A 6" concrete slab, incorporated into walkway. Use #4 rebar at 6" o.c. each way.
- B Concrete block, no mortar.
- C 4" diameter P.V.C. from units #6 and #7 garage structures.



DRAINAGE PLAN

1"=20'-0"

DRAINAGE PLAN

CCIC

JOB NO. 1077-3
 DATE: APRIL 1978
 SHEET 6 OF 6

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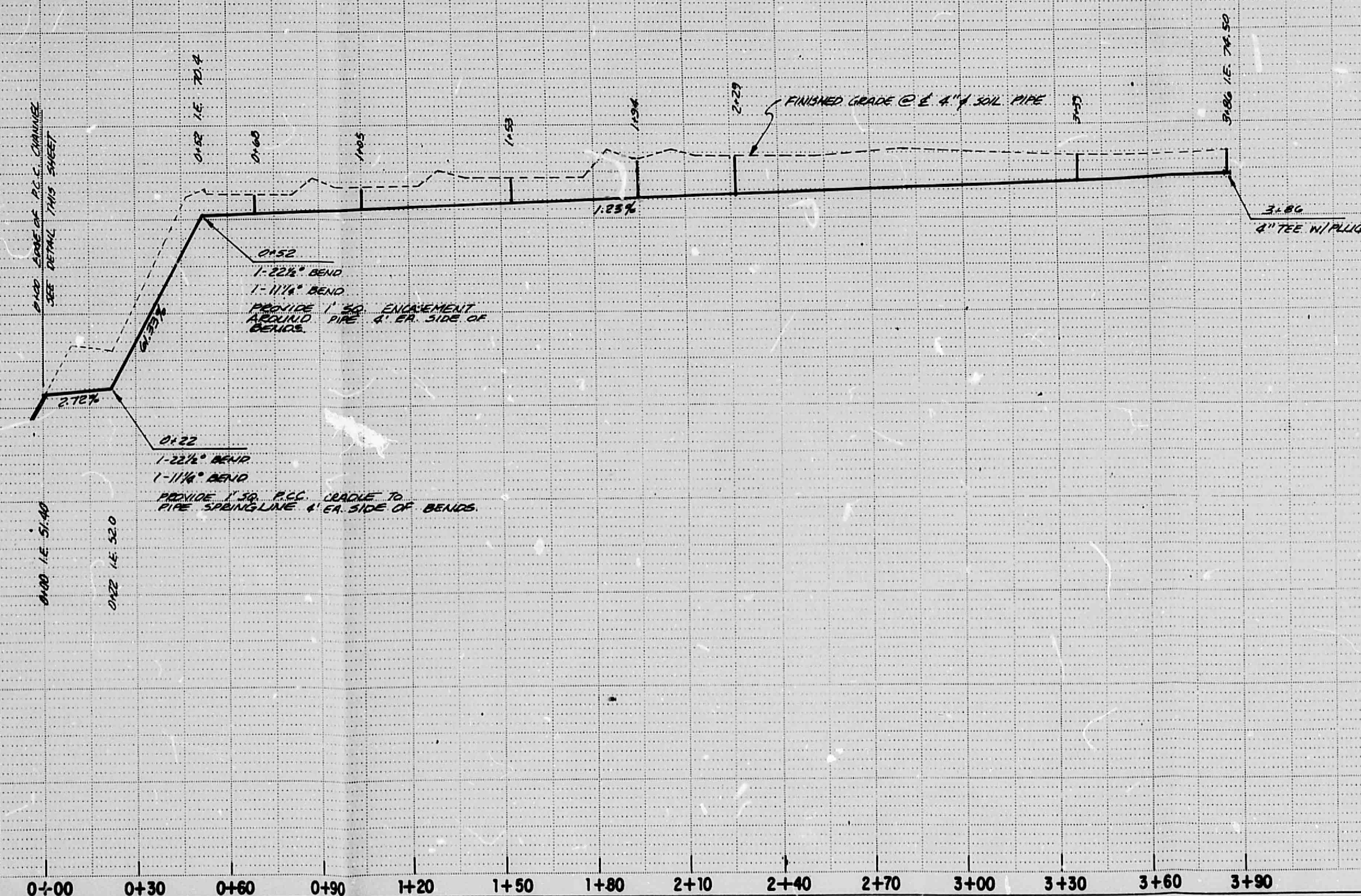
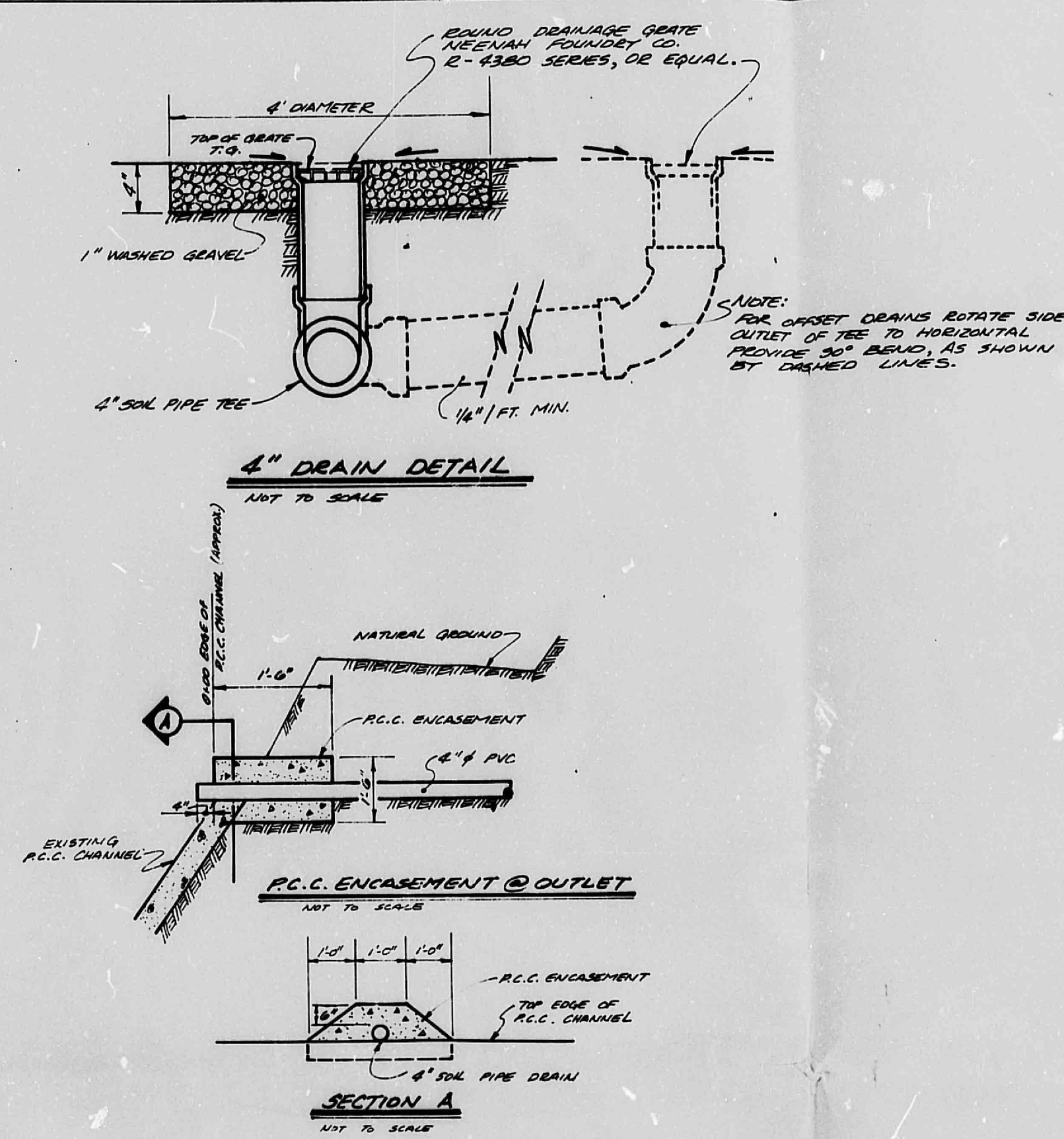
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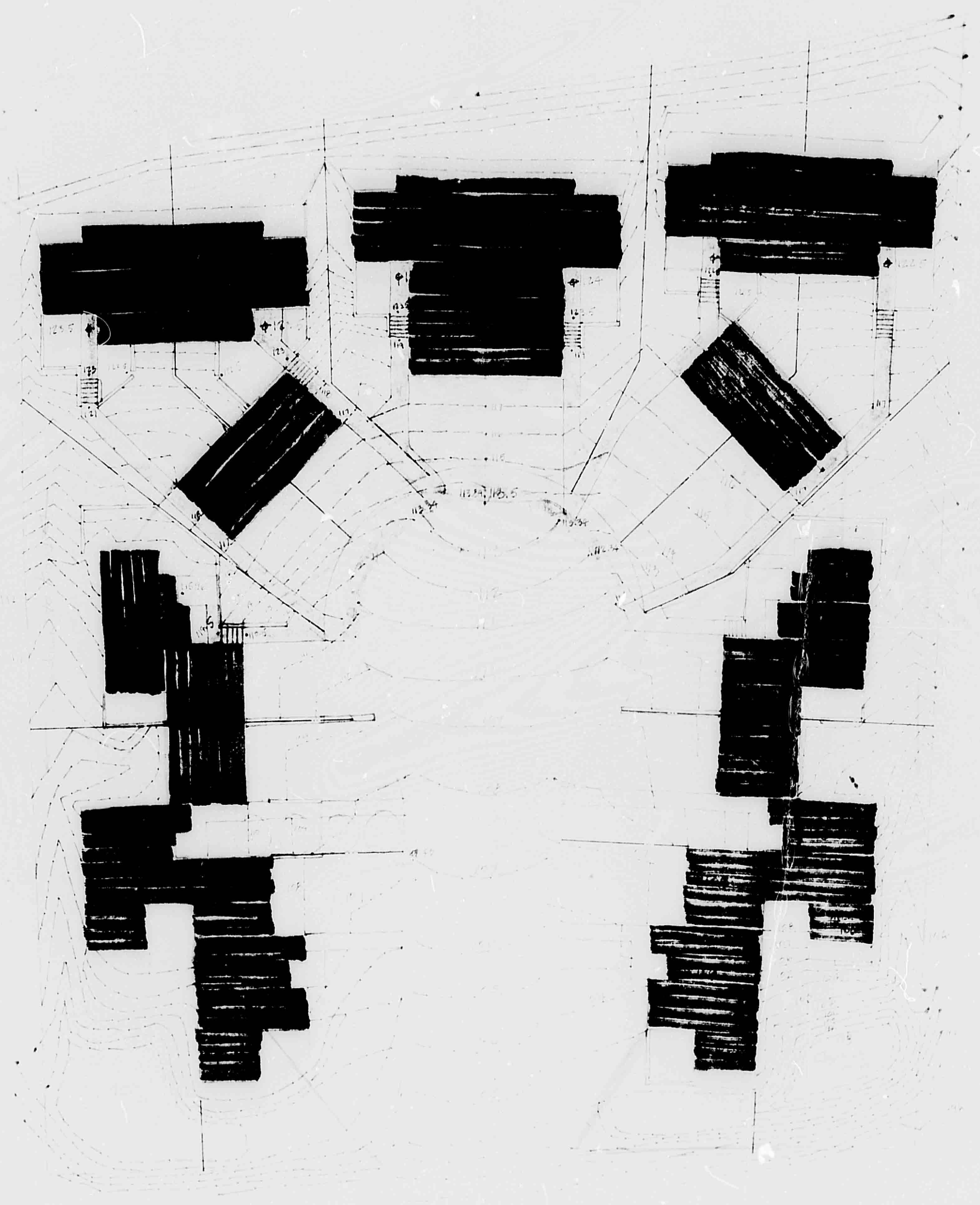
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PLOTTED			
GRADES CHECKED			
B. M. S. NOTED			



Kent M. Whitman

CITY OF ALBUQUERQUE PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION					
TITLE: CASITA VISTA REAR YARD DRAIN LINE					
APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
City Engineer			Liquid Waste		
ACE Design			Traffic		
ACE Hydrology			Water		
DRAWING NO.			SHEET 5 OF 5		

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SITE DATA

Area = 1.18 ac
 "C" = 0.30; Developed "C" = 0.60
 D = 2.2" = .1831

I. UNDEVELOPED CHARACTERISTICS

Q = CIA
 = (0.30)(5.4)(1.18)
 = 1.9 use 2 cfs
 V = (0.30)(.183)(1.18)(43560)
 = 2827 cu. ft.

II. DEVELOPED CHARACTERISTICS (uncontrolled)

Q = CIA, where C = 0.60
 = (0.60)(5.4)(1.18)
 = 3.82 use 4 cfs
 V = (0.60)(.183)(1.18)(43560)
 = 5654 cu. ft.

III. PONDING REQUIREMENTS

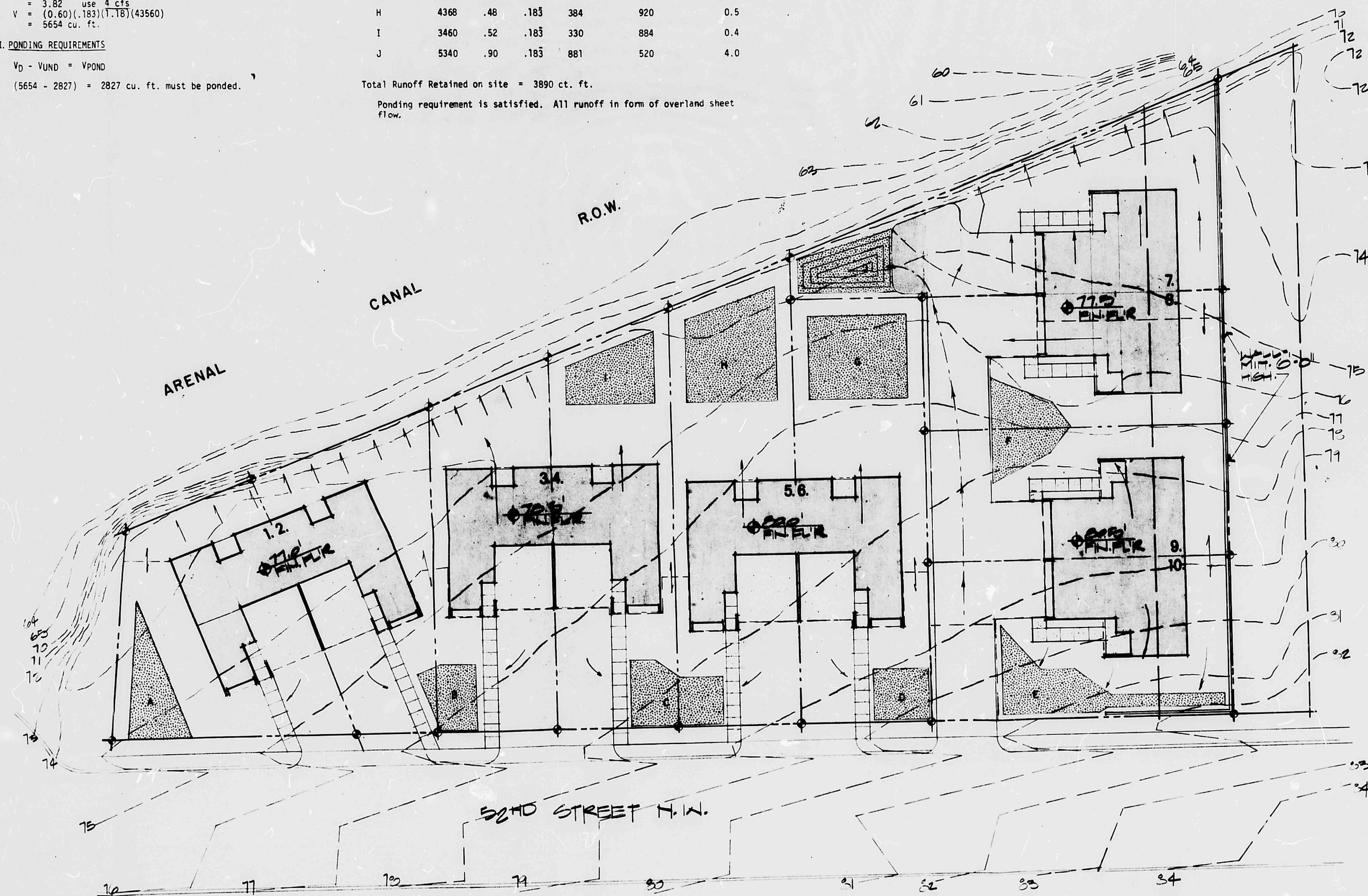
V_p - V_{UND} = V_{POND}
 (5654 - 2827) = 2827 cu. ft. must be ponded.

TABLE I

Drainage Area	Area (sq. ft.)	"C"	D(ft.)	Runoff Volume	Pond Surf. Area (sq. ft.)	Depth of Pond (ft.)
A	3240	.55	.183	327 cu. ft.	492	0.8
B	2828	.60	.183	311	392	0.9
C	2964	.60	.183	326	516	0.75
D	1520	.60	.183	167	296	0.70
E	3732	.52	.183	356	740	0.6
F	4620	.45	.183	440	572	0.9
G	4456	.45	.183	368	496	0.9
H	4368	.48	.183	384	920	0.5
I	3460	.52	.183	330	884	0.4
J	5340	.90	.183	881	520	4.0

Total Runoff Retained on site = 3890 cu. ft.

Ponding requirement is satisfied. All runoff in form of overland sheet flow.



DRAINAGE PLAN

1" = 20' - 0"

CASITA VISTA TOWNHOUSES
 ALBUQUERQUE PHASE II
 NEW MEXICO

CCIC

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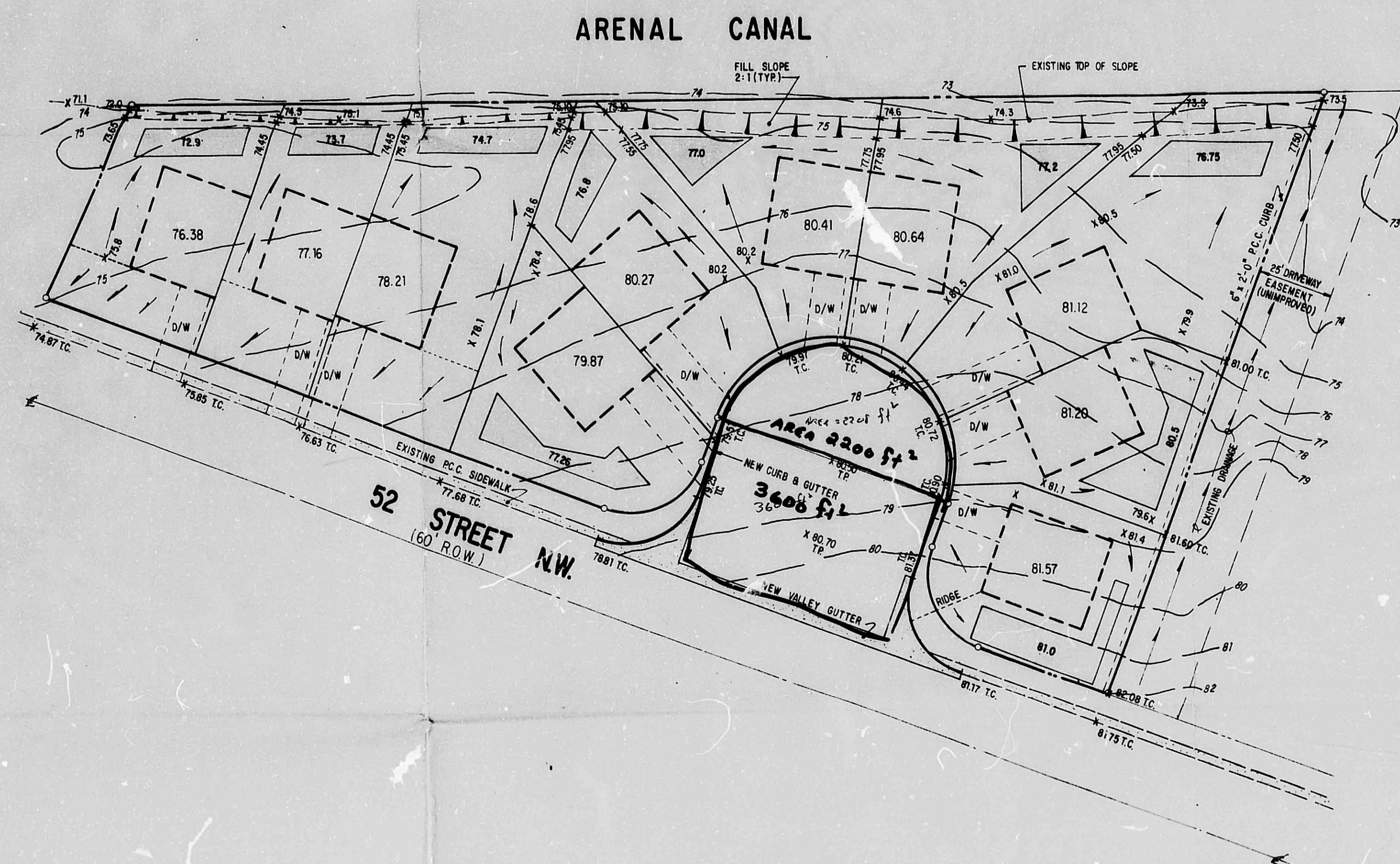


PLATE 3
 DRAINAGE MANAGEMENT PLAN
 CASITA VISTA
 UNIT 2

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