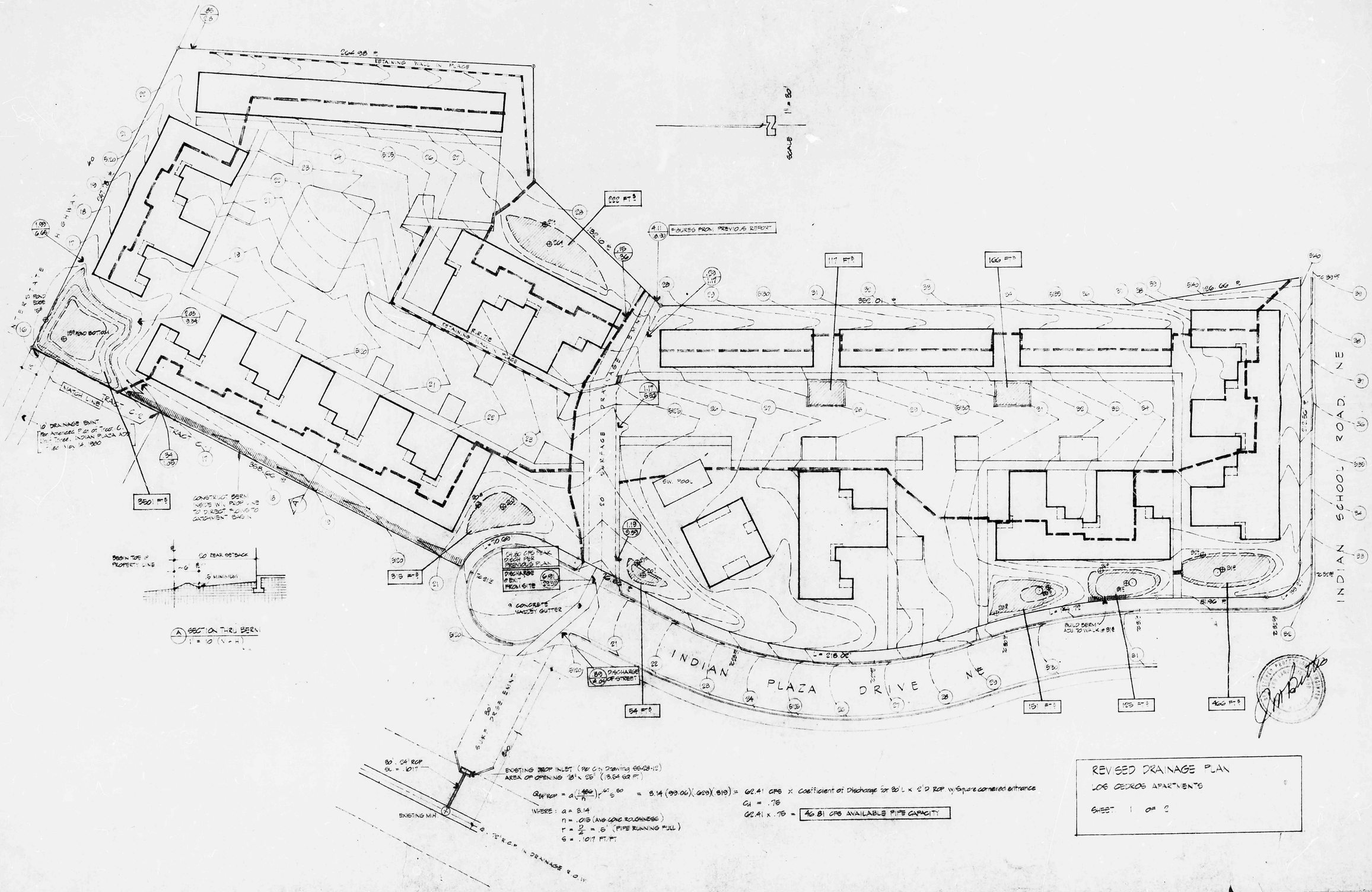
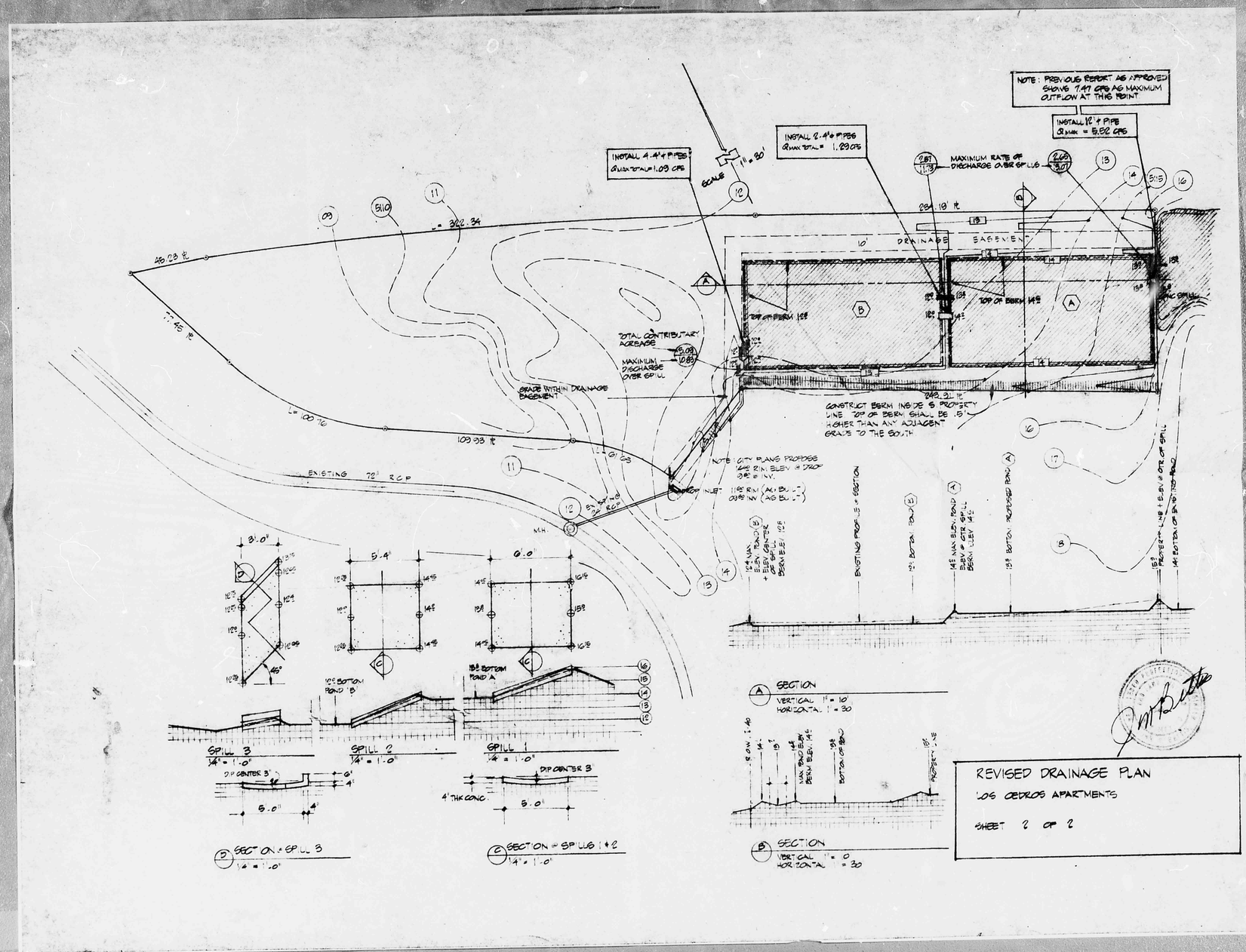
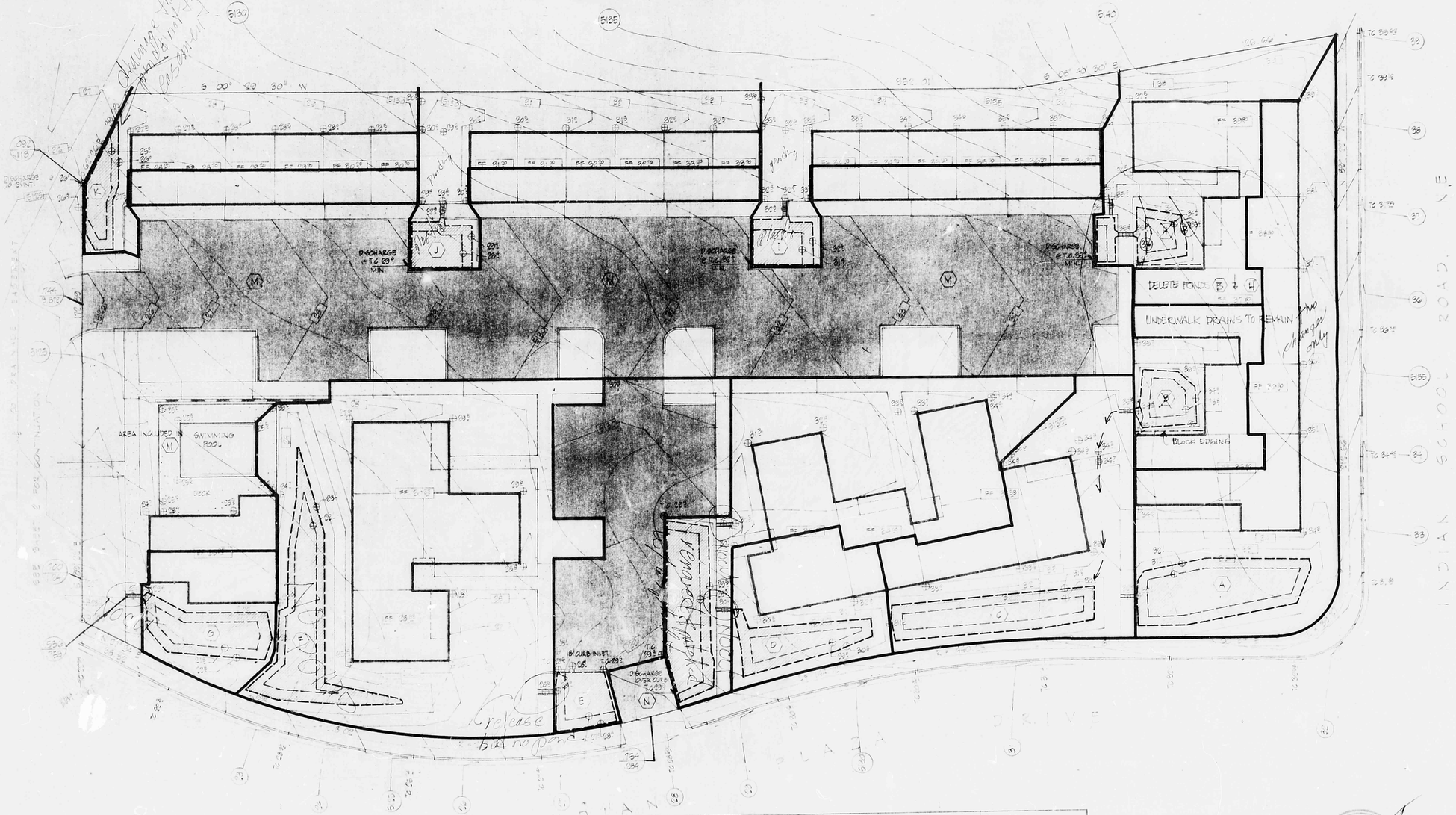
HYDROLOGY

H16/D8
FOUR PLANS

H16/D8
4 Plans


RETAINING WALL IN PLACE
SCALE 1" = 80'
FIGURES FROM PREVIOUS REPORT
INTERSTATE HIGHWAY
INDIAN SCHOOL ROAD NE
INDIAN PLAZA DRIVE NE
DRAINAGE SURFACE
BUILD BERM ADJ TO WALK @ 81.8
CONCRETE VALLEY GUTTER
DISCHARGE OF STREET
EXISTING MH
EXISTING DROP INLET (REF CITY DRAWING 66-28-12)
AREA OF OPENING 18" x 26" (3.54 SQ FT)
$Q_{FULL\ RCP} = a\left(\frac{1.486}{n}\right) r^{.67} s^{.50} = 3.14\,(99.06)(.620)(.019) = 62.41$ CFS x Coefficient of Discharge for 30'L x 2'D RCP w/Square cornered entrance
$C_d = .76$
$62.41 \times .76 =$ 46.81 CFS AVAILABLE PIPE CAPACITY
WHERE: a = 3.14
n = .018 (AVG LONG ROUGHNESS)
r = D/4 = .5' (PIPE RUNNING FULL)
s = .0017 FT/FT
REVISED DRAINAGE PLAN
LOS CEDROS APARTMENTS
SHEET 1 OF 2


NOTE: PREVIOUS REPORT AS APPROVED SHOWS 7.47 CFS AS MAXIMUM OUTFLOW AT THIS POINT
INSTALL 12" ø PIPE Q MAX = 5.82 CFS
INSTALL 2-4" ø PIPES Q MAX TOTAL = 1.29 CFS
INSTALL 4-4" ø PIPES Q MAX TOTAL = 1.09 CFS
MAXIMUM RATE OF DISCHARGE OVER SPILLS
SCALE 1" = 30'
DRAINAGE EASEMENT
TOP OF BERM
TOTAL CONTRIBUTARY ACREAGE
MAXIMUM DISCHARGE OVER SPILL
GRADE WITHIN DRAINAGE EASEMENT
CONSTRUCT BERM INSIDE S PROPERTY LINE TOP OF BERM SHALL BE .5' HIGHER THAN ANY ADJACENT GRADE TO THE SOUTH
NOTE: CITY PLANS PROPOSE
EXISTING 72" RCP
M.H.
EXISTING PROFILE + SECTION
12" BOTTOM POND B
14" MAX. ELEV. POND A
BERM ELEV. 14.5
15" BOTTOM PROPOSED POND A
BOTTOM OF SPILL
SECTION
VERTICAL 1" = 10'
HORIZONTAL 1" = 30
SPILL 3
SPILL 2
SPILL 1
1/4" = 1'-0"
D.P. CENTER 3'
4" THK CONC.
SECTION @ SPILLS 1 + 2
SECTION @ SPILL 3
REVISED DRAINAGE PLAN
LOS CEDROS APARTMENTS
SHEET 2 OF 2



GENERAL CALCULATIONS, TRACT A

- EXISTING

TOTAL AREA 1.8035 ac
NATURAL RUNOFF COEFFICIENT .40
LENGTH OF RUN 58 ft
AVG SLOPE 0.0
CHARACTER OF GROUND COVER GRASS
TIME OF CONCENTRATION 10 min
100 YEAR 24 HOUR PRECIP 2.8 in
RATE OF NAT RUNOFF
$\frac{1.8035 \times 1.40 \times 2.8}{12} = 0.272$ cfs
VOLUME OF NAT RUNOFF
$\frac{1.8035 \times 1.40 \times 2.8}{12} = 0.272$ ac-ft

DEVELOPED

	AREA	C	VOLUME
ROOF	0.3604	.90	0.3604
PAVEMENT	0.7614	.90	0.6854
OPEN	0.6817	.40	0.2726
			1.3184 ac-ft

REQUIRED TOTAL ON SITE RETENTION 0.9836 ac-ft

DRAINAGE AREA	AREA	VOLUME	ROOF AREA	ROOF VOL	PAVEMENT AREA	PAVEMENT VOL	OPEN AREA	OPEN VOL	DEV VOL
A	0.603	.772	0.528	.685	0.250	.190	0.801	.472	1.158
B	0.272	.087	0.108	.097	0.060	.046	0.104	.061	.204
C	1.055	.824	1.000	.900	0.044	.034	0.015	.040	.843
D	0.810	.633	0.800	.720	0.010	.008	0.001	.001	.729
E	0.920	.864	—	—	0.904	.687	0.016	.009	1.172
F	1.417	1.107	0.850	.765	0.568	.432	0.000	.000	1.197
G	0.571	.446	0.398	.358	0.173	.131	0.000	.000	.489
H	0.190	.148	0.050	.045	0.140	.106	0.000	.000	.151
I	0.481	.376	0.300	.270	0.181	.138	0.000	.000	.408
J	0.806	.629	0.500	.450	0.306	.233	0.000	.000	.683
K	0.021	.016	0.000	.000	—	—	0.021	.016	.016
L	0.882	.711	0.100	.090	0.069	.052	0.713	.569	.711
M	3.603	3.036	0.800	.720	0.000	.000	2.803	2.316	3.036
N	.073	.057	—	—	0.073	.057	—	—	.057
TOTAL	1.8035	1.3184 ac-ft	0.3604	.3242	0.7614	.5854	0.6817	.4088	1.3184

POND DATA	SURFACE AREA	BOTTOM AREA	DEPTH	VOLUME	SURF ELEV	DISCHARGE VOLUME	RATE	NO
A	1409	760	1.0	1076	5180.1	.77	.042	2
B	600	0.15	1.0	221	5184.2	.16	.010	2
C	1130	880	1.0	711	5181.7	516	.022	2
D	704	0.15	1.0	480	5180.5	.248	.208	2
E	484	247	1.0	360	5184.5	1.19	.006	1
F	1006	774	1.0	1370	5182.1	.1025	.128	2
G	370	204	1.0	302	5182.8	.35	.158	PEAK BYPASS
H	471	45	1.0	1.00	5184.7	.515	.000	M
I	518	318	1.0	444	5183.3	.106	.078	M
J	518	318	1.0	—	5183.3	.106	.078	M
K	380	0.17	1.0	0.06	5182.3	.82	.18	PEAK BYPASS
L	1304	984	1.0	1.00	5183.3	.20	.18	N
M	NO POND					.10	4.300	PEAK BYPASS
N	NO POND					.515	.044	
				4680		5.980 ac-ft	5.681 cfs	

7042 ft³ (> 6936 REQD)

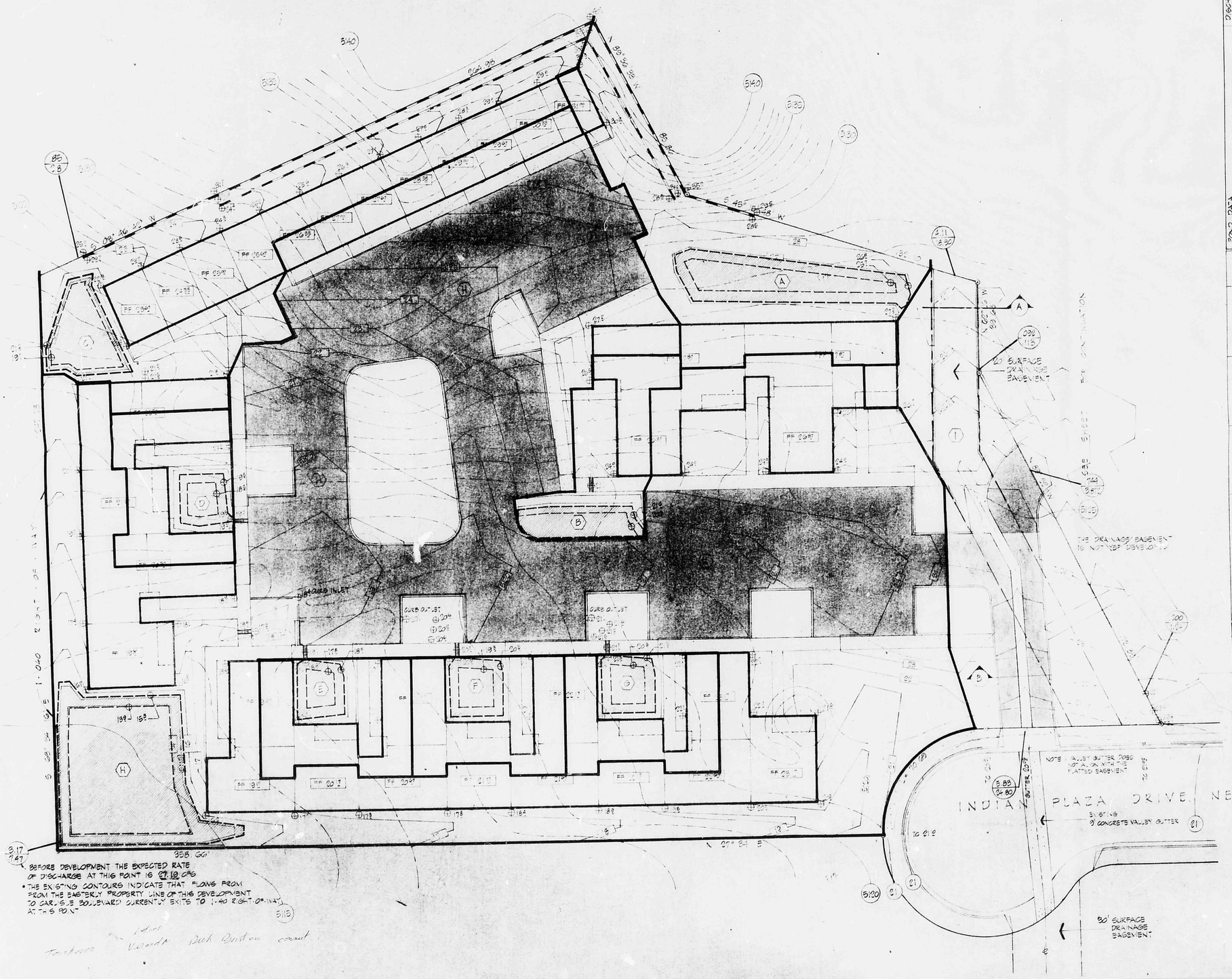
Changes in red
Only changes approved
APPROVED FOR DRAINAGE
4-2-80
Bruce J. Mantyla for Fred J. Sparks
SIGNATURE
ADVISE INSPECTOR OF ANY CHANGES
WITHIN CONSTRUCTION INSPECTOR

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

ENCHANTMENT ENGINEERING
1017 ELBANK BOULEVARD, NE
294-8893

INTERNAL DRAINAGE PLAN

LOS CEDROS APARTMENTS
ALBUQUERQUE, NEW MEXICO



DRAINAGE AREA	AREA	RUNOFF COEFF.	C×A	30-YR RAIN	30-YR RUNOFF	100-YR RAIN	100-YR RUNOFF
A	8003	0.11	0.88	0.80	0.70	1.00	0.88
B	3315	0.85	2.82	0.80	2.26	1.00	2.82
C	10920	0.85	9.28	0.80	7.42	1.00	9.28
D	9391	0.85	7.98	0.80	6.38	1.00	7.98
E	8682	0.85	7.38	0.80	5.90	1.00	7.38
F	2392	0.85	2.03	0.80	1.62	1.00	2.03
G	8382	0.85	7.12	0.80	5.70	1.00	7.12
H	6003	0.85	5.10	0.80	4.08	1.00	5.10
I	8915	0.85	7.58	0.80	6.06	1.00	7.58
TOTAL	121,730		50.29		39.02		50.29

DRAINAGE AREA	TIME OF CONC.	RAIN INTENSITY	RUNOFF	TIME OF CONC.	RAIN INTENSITY	RUNOFF
A	5.0	5.00	3.54	5.0	6.70	4.73
B	5.0	5.00	11.30	5.0	6.70	15.12
C	5.0	5.00	46.38	5.0	6.70	62.07
D	5.0	5.00	39.90	5.0	6.70	53.40
E	5.0	5.00	36.90	5.0	6.70	49.39
F	5.0	5.00	10.15	5.0	6.70	13.58
G	5.0	5.00	35.60	5.0	6.70	47.65
H	5.0	5.00	25.50	5.0	6.70	34.13
I	5.0	5.00	37.90	5.0	6.70	50.72
TOTAL			251.50			336.67

POND DATA	SURFACE AREA	BOTTOM AREA	DEPTH	VOLUME	SURF. ELEV.	DISCHARGE VOLUME	DISCHARGE RATE	DISCHARGE INTO
A	1896	880	1.1	994	5102.8	—	—	NONE
B	702	455	0.7	413	5101.5	—	—	NONE
C	1056	702	1.5	1329	5101.8	46	.028	(H)
D	740	468	1.0	595	5101.8	212	.131	(H)
E	472	181	1.0	315	5101.8	190	.117	(H)
F	600	272	1.0	435	5101.8	80	.049	(H)
G	600	272	1.0	435	5101.8	80	.049	(H)
H	1896	880	1.1	1303	5153.8	1,548	1.000	FROM BASIN
TOTAL	8,362	3,831		5,319		1,957	.919	FROM BASIN
				3,901		3,505	1.919	

GENERAL CALCULATIONS, TRACT B

EXISTING

TOTAL AREA 121,730 SF
NATURAL RUNOFF COEFFICIENT .40
LENGTH OF RUN 400 FT
AVG SLOPE 2.0 %
CHARACTER OF GROUND COVER - SPARSE
TIME OF CONCENTRATION 18.5 MIN
INTENSITY 4.01 IN/HR
100 YEAR, 6-HOUR PRECIP 2.4 IN

RATE OF NAT RUNOFF

$$\frac{121{,}730 \times .40 \times 4.01}{43{,}560} = 2.40 \text{ CFS}$$

VOLUME OF NAT RUNOFF

$$\frac{121{,}730 \times .40 \times 2.4}{12} = 9740 \text{ CF}$$

DEVELOPED

	AREA	C	VOLUME
ROOF	31,920	.90	3546
PAVEMENT	40,280	.90	7406
OPEN	49,510	.20	3305
			14,257 CF

REQ. 25% TOTAL ON-SITE RETENTION 3,564 CF