HYDROLOGY

G18/D23
1 PLAN

G18/D23

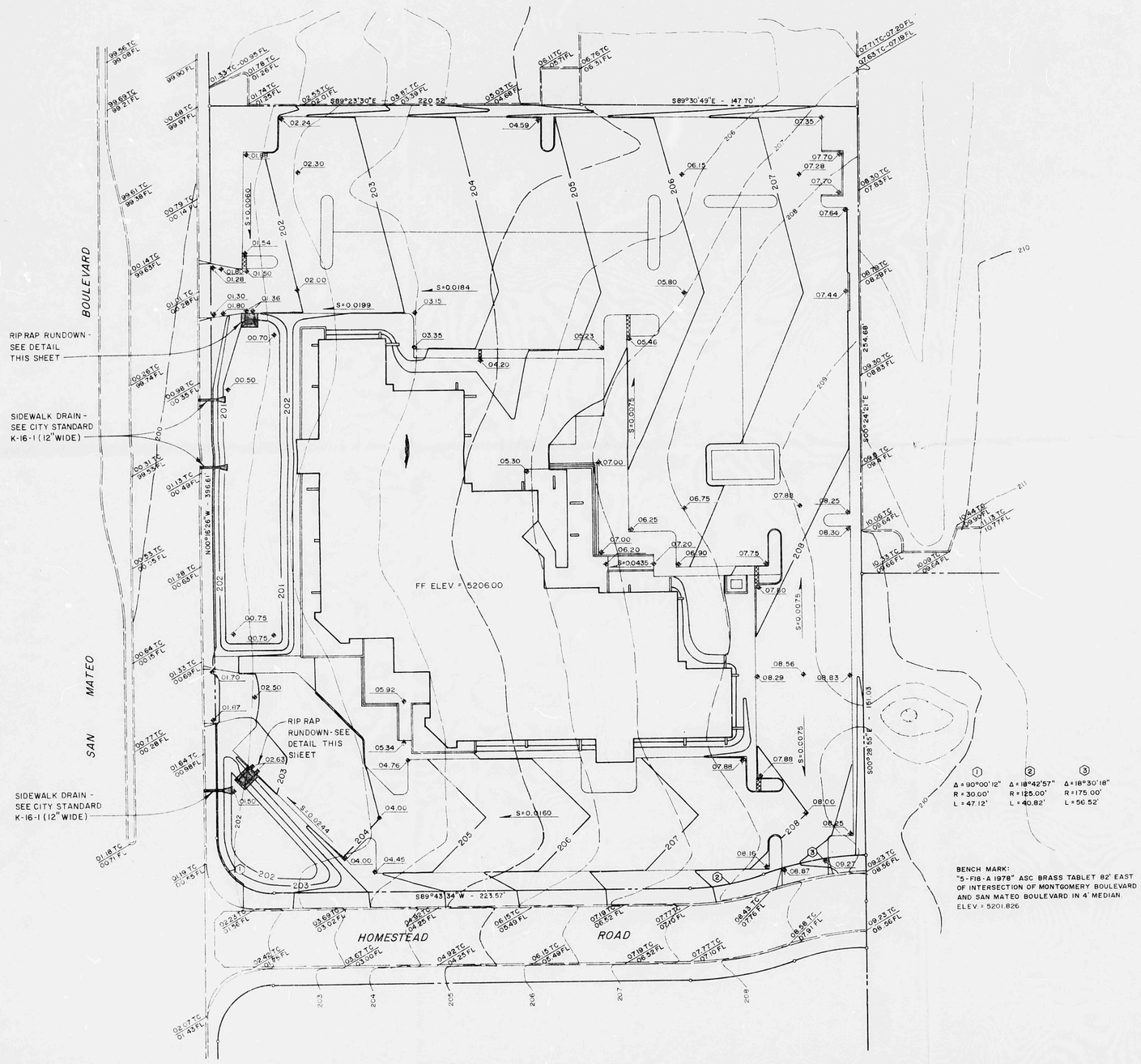
1 PLAN

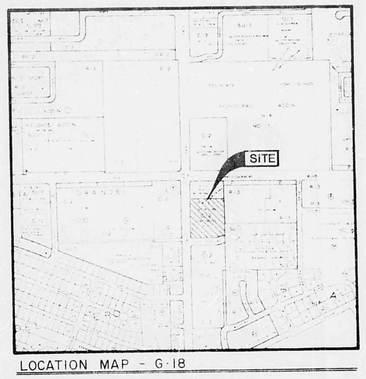
TREMONT

TRACT 1A

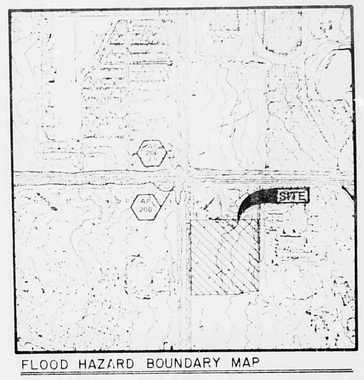
FILED NOVEMBER 3, 1983 - PLAT C22-103

SCALE: 1" = 30'

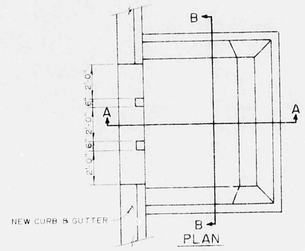




LOCATION MAP - G-18

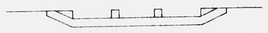


FLOOD HAZARD BOUNDARY MAP



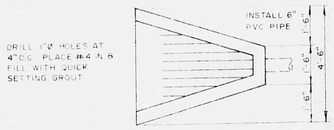
PLAN

SECTION A

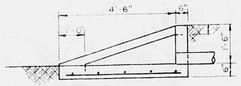


SECTION B

RIP RAP RUNDOWN

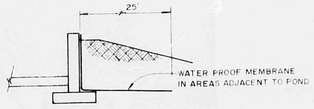


PLAN



SECTION

PIPE INLET



TYPICAL BERM AT EXTERIOR WALL

DRAINAGE PLAN

The study site is located northeast of the intersection of San Mateo Blvd. and Homestead Road N.E. containing approximately 3.37 acres. The site is presently undeveloped with a sparse native grass cover and slopes from east to west at just over two percent. Flows from the site discharge directly to San Mateo and are transported north to Montgomery. Montgomery, west of San Mateo, is designated as a 100-year frequency flood hazard area. Proposed development of the site includes a three-story office building with associated parking areas and landscaping. Ponding will be incorporated into the landscaping.

Off-site flows have minimal impact on the proposed development. Immediately northeast of the site is a development which includes an apartment complex and associated parking. The site contains approximately 6.2 acres with a peak discharge rate of 25.4 cfs. These flows are accumulated at the northeast corner of the proposed development and are transported as surface flows to San Mateo. A portion of this flow is deflected onto the site for a short distance as shown in the existing contours. This condition will not be changed by the proposed development. Immediately southeast of the site is an undeveloped area which generates flows that are transported to San Mateo via Homestead. The area immediately adjacent to the site will also be diverted to Homestead by means of a swale constructed as a part of the proposed development. Other adjacent areas north, west and south of the site are prevented from contributing flows to the site by existing grades.

On-site flows will be temporarily detained in ponds located along the west boundary of the site.

Existing and proposed conditions are shown below:

Existing Conditions:

Area = 3.37 Acres
Slope = 8.05/350 = 0.023 ft/ft
Soil Types TgB & EmB - Hydrologic Group = B

$$TC = 0.0078 \frac{(350)^{.77}}{(0.023)^{.385}} = 3.03 \text{ min. use 10 min.}$$

Assumed CN = 72 (Rangeland - poor to fair cond.) Plate 22.2 C-2
C= 0.34 0% Impervious Plate 22.2 C-1
Total Rainfall = 2.4 in. Plate 22.2 D-1
I= 2.2 (tc=10 min.) Plate 22.2 D-2
i= 2.2 (2.4) = 5.28 in/hr.
Q= 0.34 (5.28) (3.37) = 6.05 cfs.
Direct Runoff = 0.5 inches. Plate 22.2 C-4
Vol. = $\frac{.5}{12}$ (3.37) (43560) = 6116 cu. ft.

Proposed Conditions:

Sub-Basin "A" (Southern Portion)
Total Area = 0.92 Ac.
Imp. Area = 0.735 Ac. - % Imp = 0.80

Sub-Basin "B" (Northern Portion)
Total Area = 2.45 Ac.
Imp. Area = 1.97 Ac. - % Imp = 0.80
C = 0.75 Plate 22.2 C-1
Q = 0.75 (5.28) (3.37) = 13.34 cfs.

Composite Curve Number = 93 Plate 22.2 C-3
Direct Runoff = 1.7 inches Plate 22.2 C-4
Vol. = 1.7/15 (6116) = 20,794 cu. ft.

Ponding required to maintain existing flows.

Determine Ponding Vol. req. for reduction in flow rate to 7% of existing.

Q out = 4.54 cfs. = 1361 cu. ft./5 min.

TIME	RAINFALL	VOL. IN.	VOL. OUT	VOL. IN POND	VOL. REQ.
5	.137	1257	227	1030	
10	.170	1560	454	1106	
15	.375	3441	681	2760	
20	.458	4202	907	3295	
25	.170	1560	1134	426	8617 cu.ft.
30	.130	1193	1361	-168	

Vol. Req. In Southern Pond = 2352 cu. ft. 27%
Vol. Req. In Northern Pond = 6265 cu. ft. 73%

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