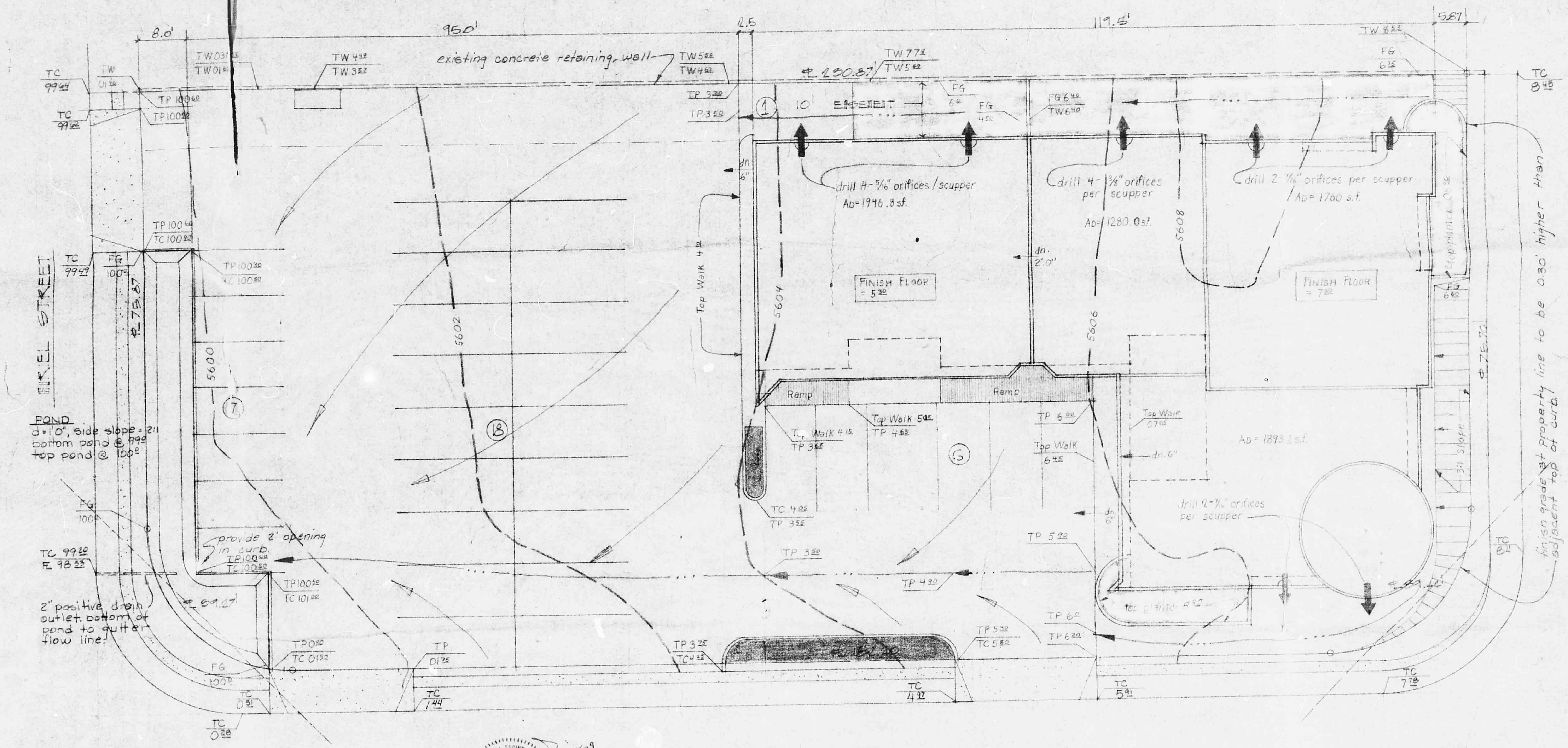


DRAINAGE PLAN

1"=10'

PREPARED BY: GODWIN ENGINEERING CORPORATION, SEPTEMBER 1979.

LEGEND

- —5608— Existing Contour
- Swale
- Sheet Flow Direction
- TP/01.36 Top Pavement Elevation
- TW/06.45 Top Wall Elevation
- TC/05.9 Top Curb Elevation
- Scupper Outlet Controll
- Self Ponding Landscaped Areas
- FG/8.20 Finish Grade Elevation
- AD Area of Roof Drained To Scupper(s).

DRAINAGE CALCULATIONS

1. Natural Site

Area = 23,153 s.f.

C = 0.40, i = 0.20'

Volume of Runoff

$V_{NAT} = ACi = 23{,}153(0.4)0.2 = 1{,}852$ cu. ft.

2. Developed Site

Area @ C = 0.90 = 18,958 s.f.

Area @ C = 0.40 = 4,195 s.f.

Composite C = 0.81

Volume of Runoff

$V_{DEV} = 23{,}153(0.81)0.20 = 3751$ cu. ft.

3. Pond Volume Required

$V = V_{DEV} - V_{NAT} = 3751 - 1852 = 1899$ cu. ft.

PONDING REQUIREMENTS

1. Self-Ponding Landscaped Areas (shaded areas) Area 190 s.f.

Volume Captured = 190 (0.40)(0.20) = 15 cu. ft.

Note: All Final Grades at Landscaped Areas Are To Be Depressed A Minimum of 0.20' (From Top of Planters) Over Their Entire Areas. Terrace as Necessary.

2. Roof Top Retention

Roof Area = 6880 s.f.

Volume Retained = 6880 (0.20) = 1376 cu. ft.

Scupper Outlet Controlls To Discharge Roof Top Drainage Over A 24hr Period. (See Detail)

Orifice Equation

Ar = Area of Roof / Total no. of Orifice Holes.

Cd = Coeficient of Discharge = 0.6

t = Time To Drain = 24 hrs = 86,400 sec.

y_1 = Depth of Head At Time One = 0.20', $y_2 = 0$

Ao = Area of Single Orifice

$A_o = (2A_r / C_d\, t\sqrt{2g})(\sqrt{y_1} - \sqrt{y_2})$

3. Retention Pond

Volume Required = 1899 - 15 - 1376 = 508 cu. ft.

Depth = 1.0' Side Slopes = 2:1

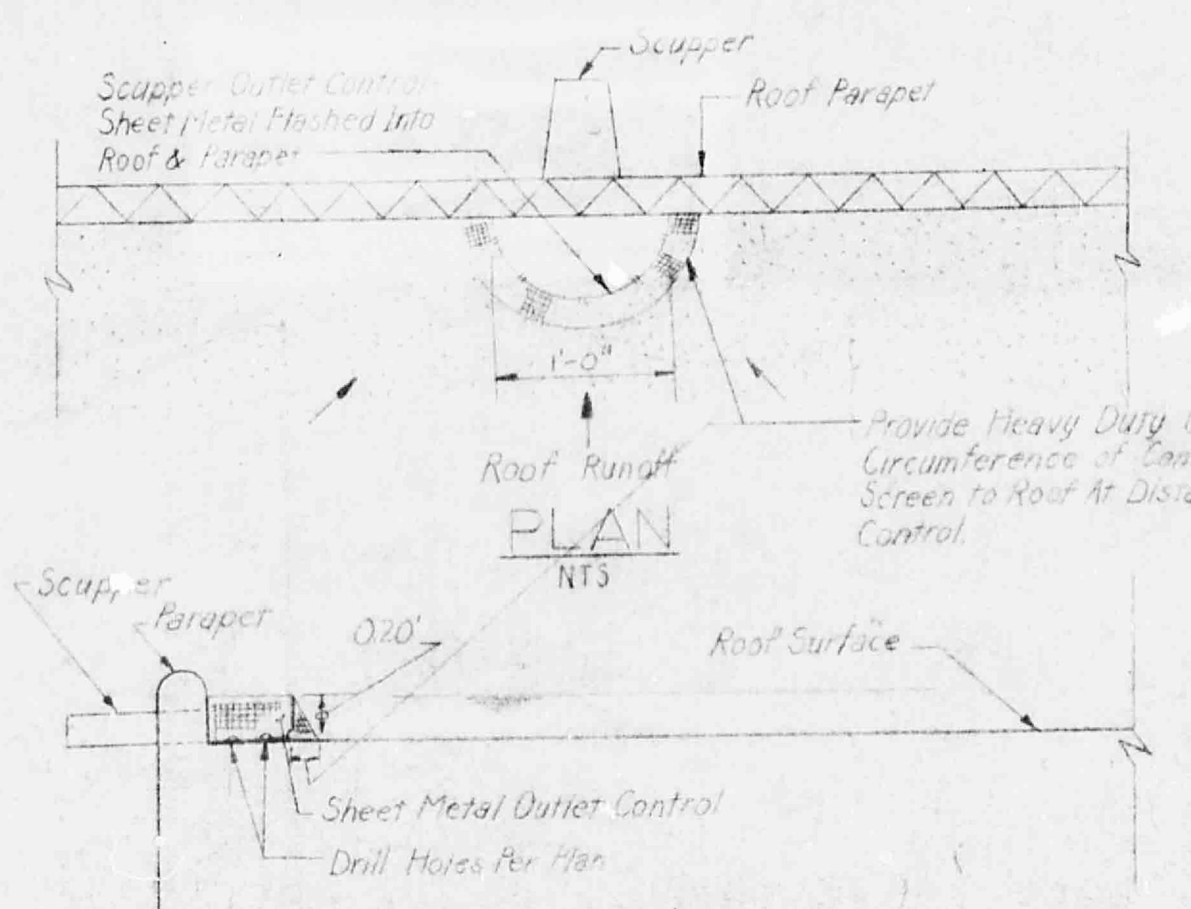
Top Elevation = 100.0

Bott. Elevation = 99.0

Top Area = 678 s.f.

Bott. Area = 351 s.f.

Volume = 514 cu. ft.



SCUPPER OUTLET CONTROL

Revised 5 Dec 79

miles brittelle, ara, architect

790807

sheet 1 of 12