HYDROLOGY

H16/D75

ONE PLAN

Drainage Calculations

Calculations are based on the following constants:

R = 100 yr - 6 hr Rainfall = 2.4" = 0.2'
C_{dev} = 0.9
C_{nat} = 0.4
C_{net} = C_{dev} - C_{nat} = 0.5
n= porosity clean gravel = 0.33

1) Ponding Volumes:

(a) Roof:
Area = A = 40 x 160 = 6400 S.F.
Vol = C_{net} x R x A = 640 C.F.
Roof volume requirement will be satisfied by providing 0.15' deep scupper outlet controls which will dissipate roof water over 24 hour period.

(b) Paved Areas:
Area = 60 x 167 = 10020 S.F.
Vol_w = C_{net} x R x A = 1002 C.F.
Paved Areas volume requirement will be satisfied using sub-surface pond filled with clean gravel.
Vol_g = Vol_w / n = 3006 C.F.
Trench 4' wide x 5' deep x 151' long will suffice

(c) Easement & Planting areas will have runoff factor ≤ natural

2) Scupper Outlet Control

Use 4 scuppers with 5 orifices each

Therefore:

A_r = 6400/20 = 320 S.F.
T = 24 x 60 x 60 = 86400 sec.
Y_1 = 0.15'
Y_2 = 0'
C_d = 0.62

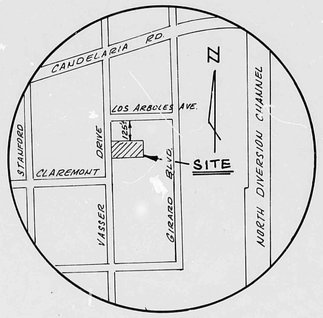
$$A_o = \frac{2A_r}{C_d\, T\, \sqrt{2g}} \left(\sqrt{Y_1} - \sqrt{Y_2}\right)$$

= .000577 S.F.

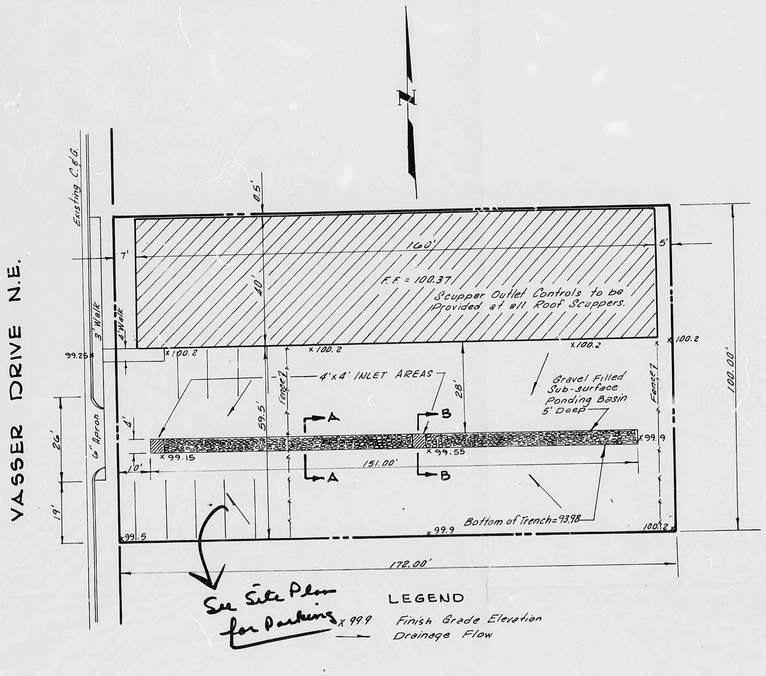
$$= \frac{\pi d^2}{4}$$

d = 0.027'

= 10/32" ø orifice

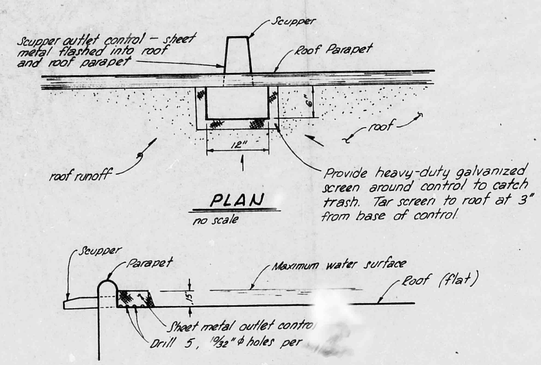


VICINITY MAP
N.T.S.

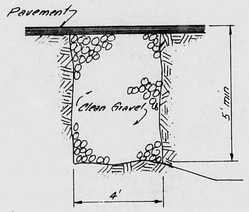


#116/D75

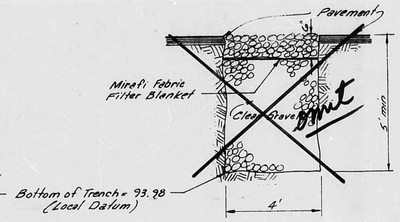
(1)



SCUPPER OUTLET CONTROL



SECTION "A"
N.T.S.



SEECTION "B"
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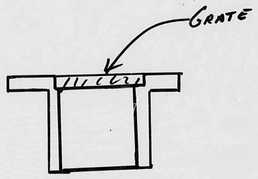

DRAINAGE PLAN

FOR

OFFICE & SHOP BUILDING

Located on

PARCEL 23A OF THE

REDIVISION OF PARCEL 23, TRACT C

OF COLE'S INDUSTRIAL SUBDIVISION

DATE:	MAY, 1977
SCALE:	1"=20'
DESIGNED:	K.N.
DRAWN:	R.O.P.
JOB NO.:	[redacted]