



HILLCREST AVE.

49th ST.

48th ST.

47th ST.

2.64"x1.43" C.M.P.A.  
FL. 7'1" Below  $\frac{1}{2}$

SCALE 1" = 100'

This Drainage Area also includes the 80' E. of the E. R. of Hillcrest Ave. N. to the Drainage Area Boundary Line.

D.A. #11 12.6 AC.  
Q<sub>2</sub> = 25.6 c.f.s.  
Q<sub>100</sub> = 56.6 c.f.s.

D.A. #6 10.0 AC.  
Q<sub>2</sub> = 20.3 c.f.s.  
Q<sub>100</sub> = 44.9 c.f.s.

D.A. #7 10.4 AC.  
Q<sub>2</sub> = 23.6 c.f.s.  
Q<sub>100</sub> = 52.5 c.f.s.

4' High x 5' Wide R.C.B.C.  
Q<sub>100</sub> = 100 c.f.s. @ 3' H.W.

18" @ 0.6% Q<sub>2</sub> = 8.3 c.f.s.  
V = 4.8 f.p.s. Use End Sec. w/ Rip-Rap  
Q<sub>100</sub> Bypass 10.1 c.f.s. thru Swale  
Use Drop Filling to Reduce Grade

15" @ 0.4% Q<sub>2</sub> = 4.1 c.f.s.  
V = 3.5 f.p.s. Use End Sec. w/ Rip-Rap  
Q<sub>100</sub> Bypass 4.9 c.f.s. thru Swale

8' Wide Ditch @ 1.0% Until  
Matches Exist. FL.  
Q<sub>10</sub> = 63.8 c.f.s. Wtr. Depth 1.2' V = 3.9 f.p.s.  
Q<sub>100</sub> = 100.0 c.f.s. Wtr. Depth 1.6' V = 4.3 f.p.s.

2 - 45" x 29" Pipes  
3.2' H.W. @ Q<sub>100</sub> = 31 c.f.s.  
V = 6.3 f.p.s. Use Rip-Rap

8' Wide Ditch @ 1.0%  
with Ditch Check  
Q<sub>10</sub> = 63.7 c.f.s. Wtr. Depth 1.2' V = 3.9 f.p.s.  
Q<sub>100</sub> = 31.0 c.f.s. Wtr. Depth 1.5' V = 4.3 f.p.s.

2 - 30" Pipes  
3.2' H.W. @ Q<sub>100</sub> = 63.5 c.f.s.  
V = 6.5 f.p.s. Use Rip-Rap

8' Wide Ditch @ 2.1%  
Q<sub>10</sub> = 28.7 c.f.s. Wtr. Depth 0.65' V = 4.0 f.p.s.  
Q<sub>100</sub> = 42.3 c.f.s. Wtr. Depth 0.8' V = 5.0 f.p.s.

Storm Water to be Spread  
Over Undeveloped Lots and  
Discharged in Sheet Flow  
Across Adjacent Property

Cross-hatched Area to Remain Undeveloped  
Until Concentrated Drainage Can Be  
Routed Across Adjacent Property

Note: Minimum Bldg. Pad Elev. on Lots  
Adjacent to Pond is 121.0

PRELIMINARY DRAINAGE PLAN

**KAPPELMAN'S  
BEL AIRE HEIGHTS**

DATE: 1-31-80

Reiss & Goodness Engineers

2160 W. 21st. St.

B.M. 1425.30 Spike in Pole at South 1/4 Cor.  
B.M. 1420.91 Top Iron Pipe Center Sec. 24  
Add 1300' to Contours for U.S.G.S. Datum.