HYDROLOGY

F14/D12

BURGER KING

F14-D12

1 PLAN

SOAKAGE PIT CALCULATIONS

K 4 2638 L

LOCATION: Albuquerque N.M.

A. Total area of site: 30,207 s.f.

B. Total impervious area: 24,165 s.f.

C. Precipitation rate from Dept. of Commerce Technical Paper No. 40 for 25 year design frequency of 6 hours duration = 3 inches

D. Soakage pit specifications: 7' walls, 6' base, 48" fully perforated aluminum corrugated pipe, with 2"± washed gravel and filter material surrounding perimeter of pit.

1. STORM RUN-OFF CALCULATION

24,165 (s.f.) x 0.25' (3") (prec.) = 6041.3 c.f.

x 100 % (roughness coefficient) = 6041.3 c.f.

2. PERCOLATION RATE

1 inches in 5 ~~seconds~~ min.

0.083' ÷ 5 x 60 = 0.996 c.f. of exfiltration per s.f. of pit surface.

3. EFFECTIVE AREA OF PIT WALLS

2' (below 48" pipe) + 2.0' (half diameter of pipe) = 4.0'

4' + 4' + 6' (base) = 14 s.f. per l.f. of pit

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A # 2638 L

4. VOLUMETRIC CAPACITY OF PIPE AND PIT

7' (walls) x 6' (base) = 42 c.f. - 12.57 (48" pipe) = 29.43.

29.43 x 0.476 (voids for 2" gravel) = 14.01 c.f.

14.01 + 12.57 = 26.58 c.f. capacity per l.f. of pit and pipe.

5. EXFILTRATION RATE OF PITWALLS

14 s.f. (from effective area) x 0.996 (from perc. rate) = 13.94 c.f. per hour

6. TOTAL CAPACITY PER LINEAR FOOT

29.43 c.f. (volumetric capacity) + 13.94 c.f. (exfiltration rate)

= 43.37 c.f. per l.f.

7. LINEAR FEET OF SOAKAGE PIT REQUIRED

6041.3 c.f. (from run off calc.) ÷ 43.37 c.f. per l.f. (from total capacity per l.f.) = 139.3 l.f.

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