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DRAINAGE CALCULATIONS

25 Jan River Drive
Upper Saddle River

Block 810 Lot 1

Date: 3/11/21
REV 4/26/21

PROJECT DESCRIPTION

Applicant proposes to construct a new swimming pool and pool patio

DRAINAGE DESIGN

Seepage pits will be utilized to collect and control runoff

Seepage Pit Design Criteria
Time of Concentration: Tc = 10 Min.
Design Storm: 10-Year - 60 Min storm
i = 2"/hr.

Use Rational Method - Q=CiA

EXISTING COVERAGE

Structures	5,426 SF
A/C UNIT	45 SF
Driveway	2,714 SF
Walks	483 SF
Walls	222 SF

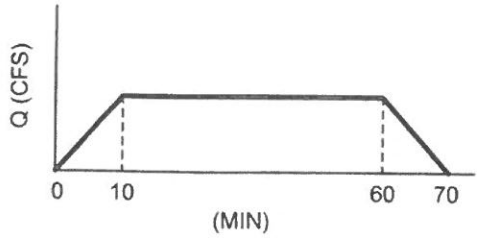
Total = 8,890 / 43560 SF/Acre
= 0.20 Acres

PROPOSED COVERAGE

Structures	5,426 SF
Walks	483 SF
Driveway	2,714 SF
Patio/Pads	1,281 SF
Pool	935 SF
AC Unit	45 SF
Pool Equip.	12 SF
Walls	312

Total = 11,208 / 43560 SF/Acre
= 0.26 Acres

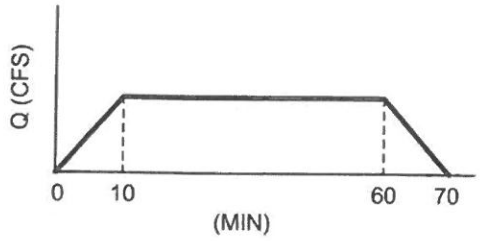
EXISTING RUNOFF



Q = CiA = (0.95) x (2.0) x 0.20
= 0.38 CFS

Volume = (Min)(Sec/Min)(Cfs)
= (60)(60) * 0.38
Volume = 1,368 CF

PROPOSED RUNOFF



Q = CiA = (0.95) x (2.0) x 0.26
= 0.49 CFS

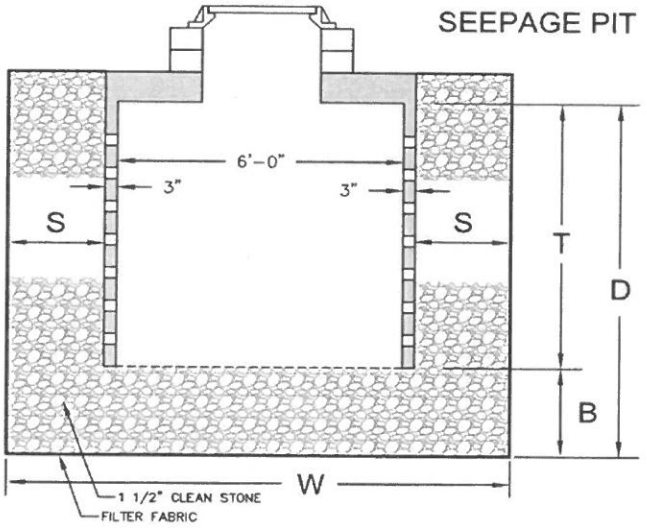
Volume = (Min)(Sec/Min)(Cfs)
= (60)(60) * 0.49
Volume = 1,764 CF

STORAGE REQUIRED

Proposed Runoff Volume = 1,764 CF

***Design seepage pits based on proposed lot coverage only.

STORAGE REQUIRED = 1,764



T = Tank height	= 5.58
S = Stone thickness	= 3
B = Stone depth below t	= 2
D = T + B	= 7.6
W = 6'-6" + (2)*S	= 12.5

Pit Volume = $[\pi(6^2)/4] \times T =$ 158
Tank Volume = $[\pi(6.5^2)/4] \times T =$ 185

Stone Volume = (W x W x D) - Tank Vol.
= 1,184
- Tank = 185
Stone Volume = 999

Stone Voids = Stone Vol. x 40%
= 400
Total Pit Volume = Pit Vol. + Stone Voids
= 557

1000- gallon seepage pits required = 4

2230 > 1,764