

COMPREHENSIVE ENGINEERING
 4650 Plainfield Avenue, NE
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BUIST PUD 3585 RIVER HILL

PROJECT #21370

February 10, 2023

PROPERTY AREA : 7,510 SF 0.17 ACRES (EXCLUDING ROW)

VOLUMETRIC RUNOFF COEFFICIENT Rv

	Area (sf)	Area (acres)	'C' factor	Imp. Area (sf)
New Pitched Roof	2,400	0.06	0.965	2,316
SIDEWALK	190	0.004	0.980	186
Total Site Area	2,590	0.06		2,502
Weighted Site 'Rv' factor =			0.97	

WATER QUALITY VOLUME, V_{wq}

FIRST FLUSH 1" OVER THE SITE

$V_{wq} = ARv(1)(3630)$

A = AREA ARCES 2,590 SF 0.06 ACRES

Rv = 0.97

V_{wq} = 208 CF

Allowable Discharge

Permeability Rate (K)	2 in/hr
Adjusted Perm. Rate (50% decrease)	1.0 in/hr
Effective Infiltration Area	176 sft
Infiltration out =	0.004 cft/sec
Total Qout =	0.004 cft/sec

50.3
 125.65
 175.95

CHANNEL PROTECTION, V_{cip}

$V_{cip} = V_{post} - V_{pre}$

2 year, 24 hour storm = 2.59 IN

VOLUME V = CiA CF

V_{post} = 637 CF

V_{pre} = 162 CF

V_{cip} = 475 CF

MAXIMUM DRAINAGE TIME:

$DRAINAGE TIME = 12V/AI$

DESIGN VOLUME V = 475 CF

INFILTRATION AREA = A 176 SF

INFILTRATION RATE = I 1.0 IN/HR LEACHING BASIN 4' DIA, 5' DEEP

DRAINAGE TIME = 32.41 HRS OTTAWA CO.

72 HRS >= 32.41 HRS OK

AVAILABLE RETENTION STORAGE:

LB VOLUME DIA. =4'			
AREA =	12.6 SF/FT		
DEPTH =	5 FT		
VOLUME =	63.0 CF		
LB#2 AGGREGATE VOLUME			
AREA =	37.7 SF		
DEPTH =	5.0 FT		
VOLUME=	188.5 CF	40% VOID SPACE =	75.4 CF
6" DIA STORM PIPE			
L=	168 FT		
AREA=	0.196 SF		
VOLUME=	32.93 CF		
TOTAL STORAGE VOLUME=			171 CF