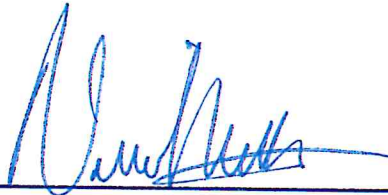


**STORMWATER MANAGEMENT  
REPORT  
FOR  
BLOCK 40.02, LOTS 8.03, 9.03,  
9.04, 10.01 & 10.03  
CITY OF SEA ISLE  
CAPE MAY COUNTY, NJ**

**EDA #10378**



**Vincent C. Orlando**

*6.26.24*

**Date**

**N.J.P.E. #32498**

### Stormwater Management Calculations

What's the Catch, LLC - Block 40.02, Lots 8.03, 9.03, 9.04, 10.01 & 10.03  
City of Sea Isle, Cape May County, NJ

The 6,143 SF property, located on Landis Ave is currently an existing restaurant. It is the intent of the Applicant to construct a new mixed-use building with restaurants on the first floor and a total of six (6) dwelling units on the 2nd and 3rd floors above. A stormwater trench with one 12" perforated PVC pipe surrounded by stone has been proposed to mitigate runoff. The design is to encompass the entire lot area minus any waterway area.

#### Pre-Development Runoff Calculation

$$Q = ciA$$

$$c = 0.30 \text{ (existing coverage)}$$

$$i = 7.70 \text{ in/hr (Tc = 6 Min.)}$$

$$A = 6,143 \text{ SF} = 0.141 \text{ Ac.}$$

$$Q = (0.30)(7.70 \text{ in/hr})(0.141 \text{ Ac.})$$

$$Q = 0.326 \text{ CFS}$$

$$V = (Q) T/t$$

$$T/t = 2.5(T/c) \text{ where (T/c) is 6 minutes}$$

$$V = (0.326 \text{ CFS})(15 \text{ min.})(60 \text{ sec./min})$$

$$V = 293.4 \text{ CF}$$

#### Post-Development Runoff Calculation

$$Q = ciA$$

$$c = 0.99 \text{ (proposed coverage)}$$

$$i = 7.70 \text{ in/hr (Tc = 6 Min.)}$$

$$A = 6,143 \text{ SF} = 0.141 \text{ Ac.}$$

$$Q = (0.99)(7.70 \text{ in/hr})(0.141 \text{ Ac.})$$

$$Q = 1.075 \text{ CFS}$$

$$V = (Q) T/t$$

$$T/t = 2.5(T/c) \text{ where (T/c) is 6 minutes}$$

$$V = (1.075 \text{ CFS})(15 \text{ min.})(60 \text{ sec./min})$$

$$V = 967.5 \text{ CF}$$

#### Volume Calculation

$$\text{(Post-Development Runoff)} - \text{(Pre-Development Runoff)}$$

$$967.5 \text{ CF} - 293.4 \text{ CF} = 674.1 \text{ CF}$$

$$30\% \text{ Volume} = 203 \text{ CF}$$

#### Storage Calculation

One 12" Pipes @ 74 LF

$$3.14 \times (.5)^2 \times 74 = 58 \text{ CF}$$

2.5' x 2.58' Stone Trench

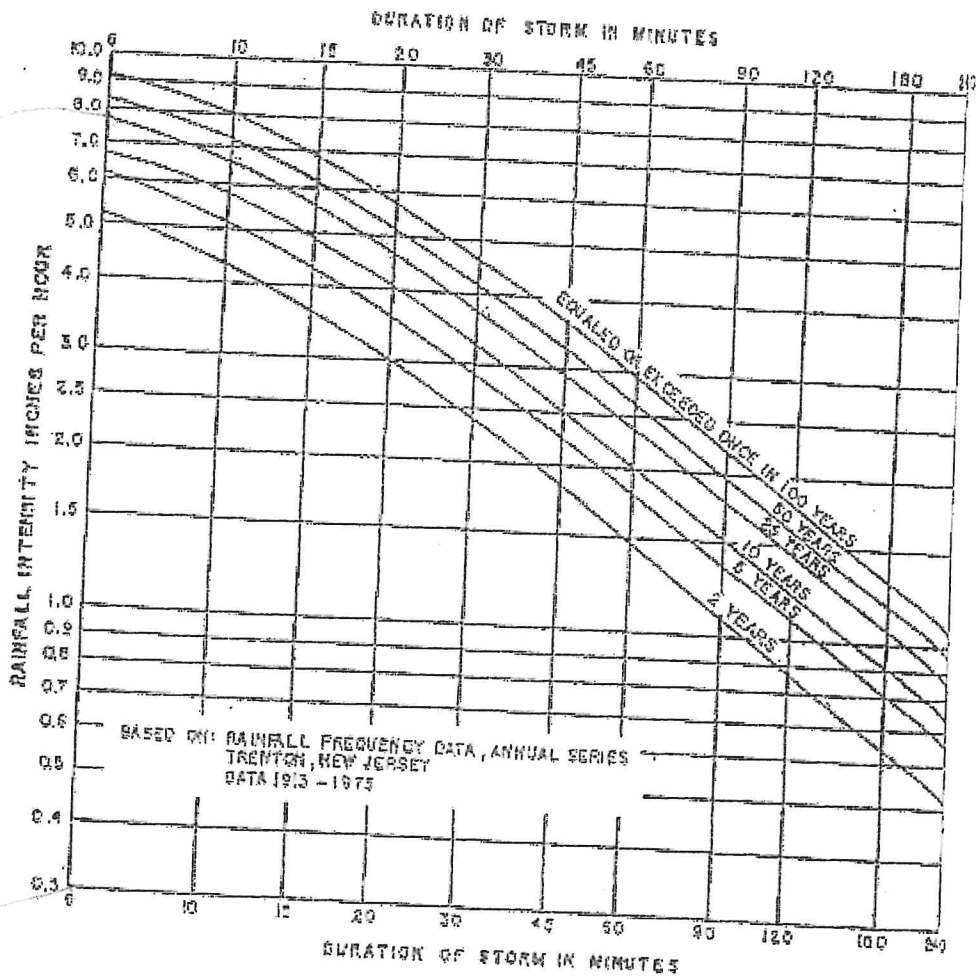
$$[(2.5' \times 2.58' \times 75') - 58] (0.35) = 149 \text{ CF}$$

$$\text{Total} = 207 \text{ CF} > 203 \text{ CF Required}$$

#### Summary:

The difference in the 25 year design storm generates approximately 967.5 CF of stormwater runoff from all improvements, of which 203 CF (30%) is required to be stored. The infiltration system has been designed to store approximately 207 CF of runoff. If the quantity of runoff exceeds the capacity of the trench, runoff will flow out of the proposed inlet and towards existing drainage patterns on 40th Street.

FIGURE 7.2 RAINFALL INTENSITY CURVES



Note: Adapted from Figure 2.1-2 in the NJDEP Technical Manual for Stream Encroachment Permits.

$T_c = 6 \text{ min}$   
(assumed)

or other approved methods may be employed.

**TABLE 7.1 TYPICAL RUNOFF COEFFICIENTS (C VALUES) FOR 100-YEAR FREQUENCY STORM**

LAND-USE DESCRIPTION	HYDROLOGIC SOIL GROUP			
	A	B	C	D
Cultivated land: without conservation treatment with conservation treatment	0.49 0.27	0.67 0.43	0.81 0.61	0.88 0.67
Pasture or range land: poor condition good condition	0.38 NA	0.63 0.25	0.78 0.51	0.84 0.65
Meadow: good condition	NA	NA	0.44	0.61
Wood or forest land: thin stand, poor cover, no mulch good cover	NA NA	NA NA	0.59 0.45	0.79 0.59
Open spaces, lawns, parks, golf courses, cemeteries: good condition, grass cover on 75% or more of area fair condition, grass cover on 50-75% of area	NA NA	0.25 0.45	0.51 0.63	0.65 0.74
Commercial and business areas (85% impervious)	0.84	0.90	0.93	0.96
Industrial districts (72% impervious)	0.67	0.81	0.88	0.92
Residential: <u>Average lot size</u> <u>Average impervious</u> 1/8 acre                      65% 1/4 acre                      38% 1/3 acre                      30% 1/2 acre                      25% 1 acre                         20%	0.59 0.25 NA NA NA	0.76 0.55 0.49 0.45 0.41	0.86 0.70 0.67 0.65 0.63	0.90 0.80 0.78 0.76 0.74
Paved parking lots, roofs, driveways, etc.	0.99	0.99	0.99	0.99
Streets and roads: paved with curbs and storm sewers gravel dirt	0.99 0.57 0.49	0.99 0.76 0.69	0.99 0.84 0.80	0.99 0.88 0.84

NOTE: NA denotes information is not available; design engineers should rely on another authoritative source.

SOURCE: *Technical Manual for Land Use Regulation Program*, Department of Environmental Protection, Bureaus of Inland and Coastal Regulations, Stream Encroachment Permits (Trenton, New Jersey, revised September 1995), p. 12.



**PROJECT  
SITE**



**GENERAL LOCATION**  
(NJDEP GEOWEB MAP)

1" = 200'