Preliminary Hydrology Study

FOR

The Wren

APN 670-110-043

Cathedral City, Ca. 92234

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INTRODUCTION

Preliminary Hydrology Study

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Site Description:

The Wren (APN 670-110-043) site is located at the northeast corner of Date Palm Drive and Rosemount Avenue in the City of Cathedral City, Ca. The existing site is vacant and approximately 10.48 acres. No offsite flows enter the site. Date Palm Drive is an existing full width (44' c/l to curb and 16' landscape area) and all flows within Date Palm Drive are isolated within the existing street section. A small amount of flow was added to Date Plan Drive due to the proposed widening of pavement by 4' and decreasing the right of way by 4'. Total right of way dimension of 63' from construction centerline remains. Rosemount Avenue along the south has a small portion of existing improvements (approximately 180' along the easterly frontage of said project. All flows from the intersection of Date Palm and Rosemount Avenue traverse easterly to the existing street improvements to the east.

The Wren proposed site shall be comprised of 12 Apartment buildings (204 units), clubhouse with pool, asphalt parking, landscaping, curbs, gutters and 5 storm drain systems (67.94% impervious surface) over 10.48 acres. All flows within the project are directed to the proposed project retention basin located along the easterly property line of the project site.

This study shall calculate the stormwater runoff volumes for the pre-and post-development conditions for 100yr-1hr, 3hr, 6hr and 24hr storm events. The 100yr-1hr event shall be used for all catch basin and storm drain sizing. (See Shortcut Synthetic Hydrograph Calculations and Hydrology Maps within this report

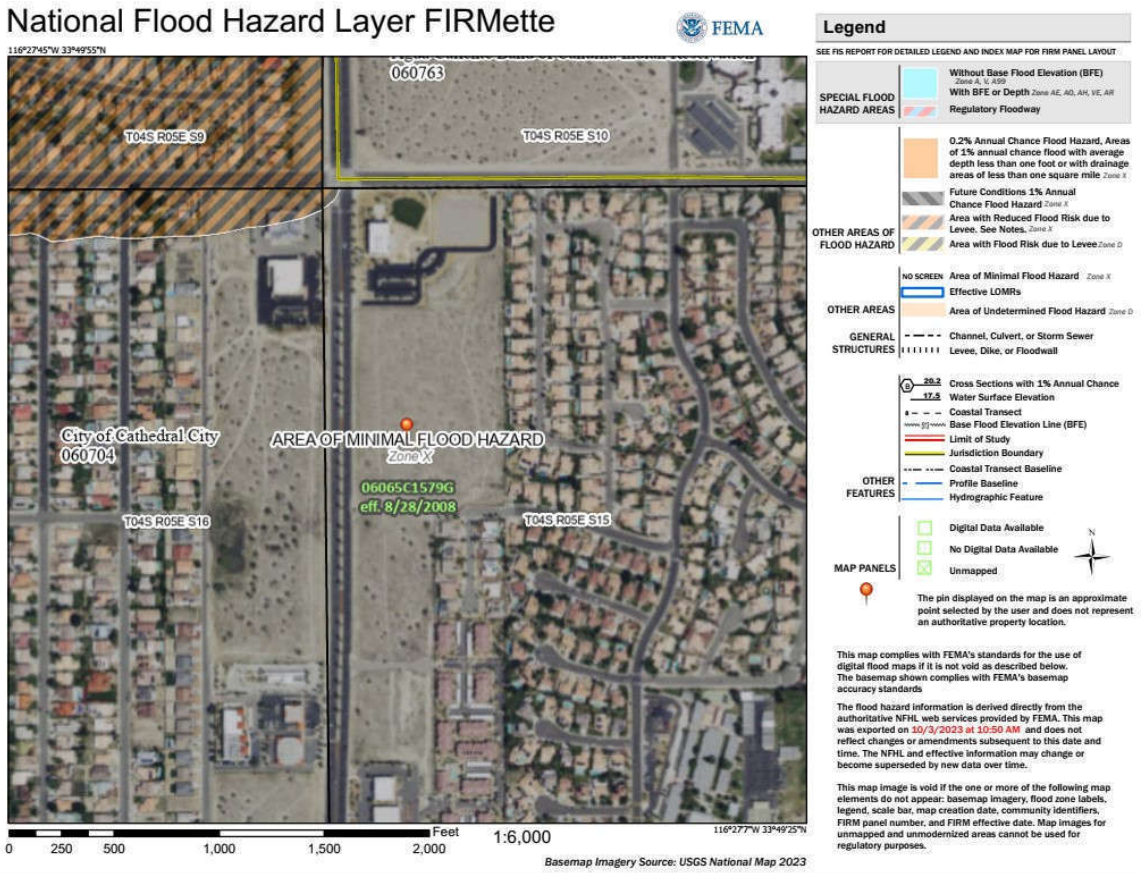
This project shall be required to retain volume from 100yr -3hr storm event for the Post development condition per the City of Cathedral City Public Works Department. Emergency overflow is provided per the southerly driveway approach (inverted section) located at the southeast corner of the property. Lastly, the project retention basin been calculated for both the WQMP BMP Design Volume Worksheet and Infiltration Basin Design. The project has ample volume per each WQMP Worksheet calculation.

Purpose of this study:

The purpose of this study is to determine the 100yr-1hr, 3hr, 6hr & 24hr runoff accumulated by the proposed project (see attached Hydrology Map). This study will analyze 100yr-3hr runoff for the proposed development for peak runoff and volume containment within the proposed lot retention basin. The report shall utilize the Shortcut Synthetic Unit Hydrograph to calculate maximum flows and volumes to the retention basin. An infiltration rate of 2"/hr shall be utilized for the retention basin storm capacity. Please note infiltration rates of 14.40 in/hr and 17.01 in/hr were measured per the Sladden Engineering Infiltration Report. Therefore, the City Ordinance maximum of 2"/hr shall be used in subsequent calculations. The City of Cathedral City's Stormwater Ordinance requires the drawdown time of a retention basin to be 36 hours. Drawdown of the project retention basin for the 100yr-3hr storm event is 17.68 hours.

Flood Rate Map

The project area is covered by FIRM Panel Number 06065C1595G and 06065C01615G, revised August 28, 2008, which indicates the project area lies within Zone X, indicating *"areas determined to be outside the 0.2%"*. (See Map Below)



Existing Project Flows

Existing offsite flows from Date Palm Drive (Off1) and Rosemount Ave. (Off2) do not impact or pass through the development. The existing flow created from the vacant land (E1) drains historically northwest to southeast as noted on the Pre-Development Hydrology Map. Existing Tributary areas E1, Off1 and Off2 shall be calculated and noted on said Pre-Development Hydrology Map.

PROPOSED FLOOD CONTROL REQUIREMENTS

The drainage of this project site falls under the jurisdiction of the City of Cathedral City. Per the Master Drainage Plan for the City of Cathedral City, the peak volume for the 100yr-3hr storm is required to be retained on-site and street and associated storm drain systems are required to be sized to convey the 100-year 1-hour peak flow. Flows and volumes for T1, T1, T3, T4, T5, T6, T7, Off1 and New Off2 shall be calculated,

Sources:

The majority soil type for this project is MaB per Web Soils Survey. This coincides with soil type “A” per RCFD&WCD.

Rainfall data for the above storm events was derived by NOAA ATLAS 14 and are as follows:

100yr-1hr : 1.93 "

100yr-3hr : 2.70"

100yr-6hr : 3.49"

100yr-24hr : 5.26"

Analysis:

In keeping with the recently accepted parameters of the City of Cathedral City, we find that per the RCFC&WCD manual the runoff index for this project will be 32, per WebSoil Survey the soil type will be “A”. The development type is residential which leads us to use Plate E-6.2 when using an AMCII to acquire pervious Loss Rate for Residential/Commercial of 0.74.

Storm runoff volumes for the 100-year event were obtained utilizing the Synthetic Unit Hydrograph Shortcut Method, as described in the RCFC&WCD *Hydrology Manual*. The Short-Cut method is useful for evaluating those areas less than 100-200 acres with a lag time of less than 7 to 8 minutes. Peak flow storm rates were analyzed using the RCFCD Rational Method.

Total Vacant Area of Tributary draining to the southeast corner of the property is 10.48 acres. Offsite drainage (OFF1) from Date Palm Drive comprises 1.18 acres. Off2 from Rosemount Drive comprises 0.42 acres and E1 comprises 10.48 acres.

Total Proposed Area of Tributary draining to the proposed retention basin is 10.48 acres. Offsite drainage (OFF1) from Date Palm Drive comprises 1.18 acres. New Off2 draining to Rosemount Drive comprises 0.21acres. All proposed tributaries and the associated flows and volumes are noted below.

Low Loss Rates: 90%

HYDRAULIC CALCULATIONS

Please see highlighted values in Synthetic Unit Hydrograph (SUH).

Project Pre-development Flows (10.48 ac. -IMP%=5.0)

Pre-development

E1 – 10.48 acres – 5.0% imp.

Storm Event	Storm Volume	Max. Q
100yr-1hr	46544 cf	35.61 cfs
100yr-3hr	36112 cf	20.61 cfs
100yr-6hr	34343 cf	17.31 cfs
100yr-24hr	20687 cf	1.18 cfs

Off1 (Date Palm Drive) – 1.18 acres – 90% imp.

Storm Event	Storm Volume	Max. Q
100yr-1hr	7665 cf	4.68 cfs
100yr-3hr	9758 cf	2.99 cfs
100yr-6hr	11369 cf	2.62 cfs
100yr-24hr	12156 cf	0.71 cfs

Off2 (Rosemount Ave.) - 0.42 acres – 25.0% imp

Storm Event	Storm Volume	Max. Q
100yr-1hr	2068 cf	1.48 cfs
100yr-3hr	1745 cf	0.88 cfs
100yr-6hr	1693 cf	0.75 cfs
100yr-24hr	1000 cf	0.09 cfs

Therefore, total adjacent volume within Date Palm Drive = 12156 cf
Therefore, total volume existing to Rosemount Ave. = 46544+2068 = 48612 cf

Project Post-development Retention Basin Calculations (10.48 ac. - IMP%=67.94) – for Critical 100yr-3hr storm event

Total Dev. Site – 10.48 acres – 67.94 imp% - Retention Basin Total Cap. at 5.0' depth=65260 cf

Storm Event	Storm Volume (cf)	Max. Q (cfs)	Vol. in Basin (cf)	Depth
100yr-3hr	70268	25.04	65009	4.98'

Please note that the based on the critical 100yr–3hr storm event and 2"/hr infiltration rate a maximum peak 39.66 cfs and 66256 cf shall flow into the Proposed Retention Basin. Please note the Proposed Retention Basin has a total capacity of 61872 cf at the 355.0 ft elevation (overflow point at southeasterly drive access to the retention basin. Total storm volume in the retention basin is 61382 cf (depth of 4.96') and therefore, the proposed retention basin shall contain 100% of the 100yr-3hr storm event as required by the City of Cathedral City Public Works Department. The lowest adjacent pad elevation is 357.0 feet. Therefore freeboard = 2.1'.

Please note Retention Basin Drawdown time is 17.68 hrs (per spreadsheet calculation for Overall Post Development

Project Critical Post Development

Results from the 100yr – 1hr Short Cut Synthetic Unit Hydrograph analyses shall be used in the hydraulic calculations to determine inlet and storm drain pipe sizing. The storm drain system is proposed to capture and convey storm flow to the Proposed Project Retention Basin (see Post Development Hydrology Map).

T1 – Total Area = 1.90 ac – Imp%=90.0

Storm Event	Storm Volume	Max. Q (cfs)
100yr-1hr	12341 cf	7.54 cfs
100yr-3hr	15713 cf	4.82 cfs
100yr-6hr	18306 cf	4.22 cfs
100yr-24hr	19573 cf	1.14 cfs

T2 – Total Area = 1.17 ac – Imp%=90.0

Storm Event	Storm Volume	Max. Q (cfs)
100yr-1hr	7600 cf	4.64 cfs
100yr-3hr	9676 cf	2.97 cfs
100yr-6hr	11272 cf	2.60 cfs
100yr-24hr	12053 cf	0.70 cfs

T3 – Total Area = 1.87 ac – Imp%=90.0

Storm Event	Storm Volume	Max. Q (cfs)
100yr-1hr	12147 cf	7.42 cfs
100yr-3hr	15465 cf	4.74 cfs
100yr-6hr	18016 cf	4.16 cfs
100yr-24hr	19264 cf	1.12 cfs

T4 – Total Area = 3.30 ac – Imp%=87.3

Storm Event	Storm Volume	Max. Q (cfs)
100yr-1hr	21220 cf	13.04 cfs
100yr-3hr	26644 cf	8.31 cfs
100yr-6hr	30537 cf	7.28 cfs
100yr-24hr	32055 cf	1.93 cfs

T5 – Total Area = 0.52 ac – Imp%=90.0

Storm Event	Storm Volume	Max. Q (cfs)
100yr-1hr	3378 cf	2.06 cfs
100yr-3hr	4300 cf	1.32 cfs
100yr-6hr	5010 cf	1.16 cfs
100yr-24hr	5357 cf	0.31 cfs

T6 (Retention Basin) – Total Area = 1.54 ac – Imp%=5.0

Storm Event	Storm Volume	Max. Q (cfs)
100yr-1hr	6838 cf	5.23 cfs
100yr-3hr	5306 cf	3.03 cfs
100yr-6hr	5046 cf	2.54 cfs
100yr-24hr	3039 cf	0.17 cfs

T7 – Total Area = 0.42 ac – Imp%=57.0

Storm Event	Storm Volume	Max. Q (cfs)
100yr-1hr	2393 cf	1.57 cfs
100yr-3hr	2497 cf	0.97 cfs
100yr-6hr	2416 cf	0.84 cfs
100yr-24hr	1999 cf	0.17 cfs

(New Off2) – Total Area = 0.21 ac – Imp%=55.50

Storm Event	Storm Volume	Max. Q (cfs)
100yr-1hr	1189 cf	0.78 cfs
100yr-3hr	1227 cf	0.48 cfs
100yr-6hr	1186 cf	0.42 cfs
100yr-24hr	962 cf	0.08 cfs

Pipe Sizing

Calculations for preliminary pipe sized have been calculated with a Manning's Formula and minimum slope of 0.50% to show maximum pipe capacity. Please see calculations below for the proposed 8", 24" and 30" proposed storm drain lines for the project.

Gravity flow pipe maximums with pipe flowing full, per Mannings equation, N=0.012 (HDPE, PVC, or ABS pipe)

Check flow pipe capacity:
Diam.= 8 (in.) Slope= 0.005
n Factor= 0.012
Formulas
Area=(PI)*((Diam/2)^2)= 0.34906585 (sf)
Flow (max.)=(Area)*(1.49/n)*((diam./4)^0.6666)*(slope)^0.5= 0.93 (cfs)

Check flow pipe capacity:
Diam.= 24 (in.) Slope= 0.005
n Factor= 0.012
Formulas
Area=(PI)*((Diam/2)^2)= 3.141592654 (sf)
Flow (max.)=(Area)*(1.49/n)*((diam./4)^0.6666)*(slope)^0.5= 17.38 (cfs)

Check flow pipe capacity:
Diam.= 30 (in.) Slope= 0.005
n Factor= 0.012
Formulas
Area=(PI)*((Diam/2)^2)= 4.908738521 (sf)
Flow (max.)=(Area)*(1.49/n)*((diam./4)^0.6666)*(slope)^0.5= 31.51 (cfs)

All flows within these pipe diameters are less than the capacities noted above.

Catch Basin Sizing

Catch basins 2 through 5 are all Riv. Co. Std. 300 Catch Basins. All have been sized per the Nomograph located in this report. Catch Basins 2, 3 and 5 are all 4' in width and have the depth at entrance less than the proposed top of curb. Catch Basin 4 is a 7' wide basin and also has maximum depth below the proposed top of curb. Catch Basin 1 is a Nyoplast 2' x 3' Steel bar/MAG Grate Inlet. With 50% clogging factor the maximum depth at inlet is 0.525' as noted on the provided Capacity Chart provided in this report.

WQMP Worksheet (10.48 ac.)

10.48 acre area

WQMP Worksheet for the Whitewater River Basin for this project at 67.94% impervious equals the requirement of 7228 cf containment. The project retention has a total capacity of 65230 cf. Therefore, all WQMP measures for "first flush" are 100% contained.

Conclusions:

If the designs contained within this report and the plans that are based upon its findings are followed, the design shall provide protection and 100% containment for the above 100yr-3hr storm event. Any emergency overflow shall flow southerly along the proposed retention basin driveway located at the southeast corner of the property and flow easterly within the existing 6" Curb & Gutter of Rosemount Ave.

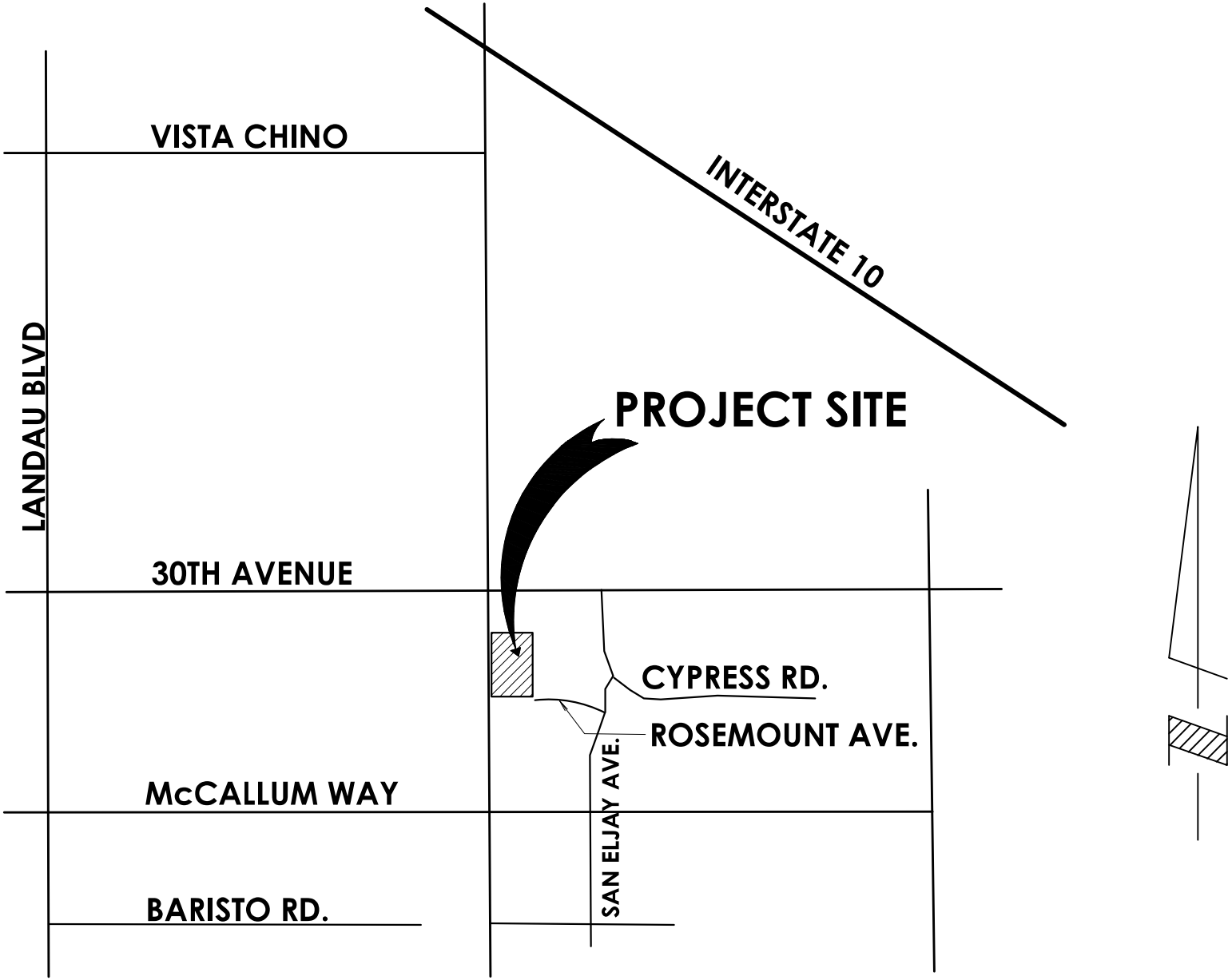
Lastly, flows to Date Palm Drive remain unchanged. Flows heading easterly on and along Rosemount Drive are

greatly reduced:

Existing Flows to Rosemount Ave. = E1 + Off2 = 46544+2068 = 48612 cf
Post Development Flows to Rosemount Ave. = T5 + New Off2 = 4015 +1227 = 5242 cf

Reduction of flow to Rosemount Ave = 43370 cf or 89.2% reduction.

LOCATION MAP



VICINITY MAP

NTS

NOAA ATLAS 14 PRECIPITATION TABLE

NOAA Atlas 14, Volume 6, Version 2
Location name: Cathedral City, California, USA*
Latitude: 33.8286°, Longitude: -116.4574°
Elevation: m/ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.075 (0.062-0.091)	0.116 (0.097-0.141)	0.179 (0.149-0.218)	0.238 (0.196-0.292)	0.329 (0.262-0.418)	0.411 (0.320-0.534)	0.506 (0.384-0.673)	0.617 (0.455-0.845)	0.796 (0.563-1.14)	1.03 (0.706-1.53)
10-min	0.107 (0.089-0.130)	0.167 (0.139-0.202)	0.257 (0.213-0.313)	0.341 (0.280-0.418)	0.472 (0.376-0.600)	0.590 (0.459-0.765)	0.725 (0.551-0.965)	0.885 (0.653-1.21)	1.14 (0.807-1.63)	1.48 (1.01-2.19)
15-min	0.129 (0.108-0.157)	0.202 (0.168-0.245)	0.311 (0.258-0.378)	0.412 (0.339-0.506)	0.571 (0.454-0.725)	0.713 (0.555-0.925)	0.877 (0.666-1.17)	1.07 (0.789-1.46)	1.38 (0.976-1.97)	1.79 (1.22-2.65)
30-min	0.200 (0.167-0.243)	0.312 (0.260-0.379)	0.481 (0.399-0.586)	0.638 (0.525-0.783)	0.884 (0.703-1.12)	1.10 (0.860-1.43)	1.36 (1.03-1.81)	1.66 (1.22-2.27)	2.14 (1.51-3.05)	2.78 (1.90-4.11)
60-min	0.285 (0.237-0.345)	0.443 (0.369-0.538)	0.683 (0.567-0.832)	0.906 (0.745-1.11)	1.26 (0.999-1.60)	1.57 (1.22-2.03)	1.93 (1.46-2.56)	2.35 (1.74-3.22)	3.04 (2.15-4.33)	3.94 (2.69-5.83)
2-hr	0.388 (0.323-0.470)	0.595 (0.495-0.722)	0.899 (0.746-1.09)	1.17 (0.966-1.44)	1.59 (1.27-2.02)	1.96 (1.52-2.54)	2.36 (1.79-3.14)	2.82 (2.08-3.87)	3.53 (2.50-5.04)	4.16 (2.84-6.16)
3-hr	0.462 (0.385-0.560)	0.705 (0.587-0.856)	1.06 (0.879-1.29)	1.38 (1.13-1.69)	1.85 (1.47-2.35)	2.26 (1.76-2.93)	2.70 (2.05-3.60)	3.21 (2.37-4.39)	3.96 (2.80-5.66)	4.63 (3.16-6.84)
6-hr	0.616 (0.513-0.747)	0.944 (0.785-1.14)	1.41 (1.17-1.72)	1.82 (1.50-2.24)	2.43 (1.93-3.09)	2.94 (2.29-3.81)	3.49 (2.65-4.65)	4.11 (3.03-5.62)	5.02 (3.55-7.16)	5.78 (3.95-8.55)
12-hr	0.751 (0.626-0.911)	1.18 (0.977-1.43)	1.77 (1.47-2.15)	2.28 (1.88-2.81)	3.04 (2.42-3.86)	3.66 (2.85-4.75)	4.33 (3.29-5.76)	5.07 (3.74-6.94)	6.14 (4.34-8.77)	7.04 (4.81-10.4)
24-hr	0.883 (0.781-1.02)	1.41 (1.25-1.63)	2.15 (1.89-2.48)	2.78 (2.43-3.24)	3.70 (3.13-4.45)	4.45 (3.69-5.47)	5.26 (4.26-6.62)	6.14 (4.85-7.94)	7.42 (5.63-9.99)	8.49 (6.22-11.8)
2-day	1.01 (0.895-1.17)	1.62 (1.44-1.88)	2.48 (2.19-2.87)	3.22 (2.82-3.76)	4.30 (3.64-5.18)	5.18 (4.30-6.37)	6.14 (4.98-7.72)	7.18 (5.67-9.28)	8.70 (6.59-11.7)	9.96 (7.30-13.9)
3-day	1.08 (0.953-1.24)	1.73 (1.53-2.00)	2.65 (2.34-3.06)	3.44 (3.01-4.02)	4.61 (3.90-5.55)	5.57 (4.63-6.85)	6.61 (5.36-8.32)	7.75 (6.12-10.0)	9.42 (7.14-12.7)	10.8 (7.93-15.0)
4-day	1.11 (0.986-1.28)	1.79 (1.58-2.06)	2.74 (2.42-3.17)	3.57 (3.12-4.16)	4.78 (4.05-5.76)	5.79 (4.81-7.12)	6.88 (5.58-8.66)	8.08 (6.38-10.4)	9.83 (7.45-13.2)	11.3 (8.28-15.7)
7-day	1.22 (1.08-1.40)	1.95 (1.72-2.25)	2.99 (2.64-3.46)	3.90 (3.41-4.55)	5.23 (4.43-6.30)	6.33 (5.26-7.78)	7.53 (6.11-9.48)	8.85 (6.98-11.4)	10.8 (8.17-14.5)	12.4 (9.09-17.2)
10-day	1.28 (1.14-1.48)	2.06 (1.82-2.38)	3.16 (2.78-3.66)	4.12 (3.60-4.80)	5.53 (4.69-6.66)	6.71 (5.57-8.24)	7.98 (6.47-10.0)	9.38 (7.40-12.1)	11.4 (8.67-15.4)	13.2 (9.65-18.3)
20-day	1.43 (1.26-1.65)	2.29 (2.02-2.64)	3.52 (3.10-4.07)	4.60 (4.02-5.36)	6.19 (5.24-7.46)	7.52 (6.24-9.24)	8.97 (7.28-11.3)	10.6 (8.34-13.7)	12.9 (9.80-17.4)	14.9 (10.9-20.7)
30-day	1.60 (1.42-1.85)	2.57 (2.27-2.96)	3.95 (3.48-4.57)	5.17 (4.52-6.03)	6.98 (5.91-8.40)	8.50 (7.05-10.4)	10.2 (8.23-12.8)	12.0 (9.46-15.5)	14.7 (11.1-19.8)	16.9 (12.4-23.6)
45-day	1.78 (1.58-2.05)	2.84 (2.51-3.28)	4.38 (3.86-5.06)	5.74 (5.02-6.69)	7.76 (6.58-9.35)	9.47 (7.86-11.6)	11.3 (9.20-14.3)	13.4 (10.6-17.3)	16.5 (12.5-22.2)	19.1 (14.0-26.5)
60-day	1.95 (1.72-2.24)	3.10 (2.74-3.57)	4.76 (4.20-5.51)	6.24 (5.46-7.28)	8.47 (7.17-10.2)	10.3 (8.59-12.7)	12.4 (10.1-15.6)	14.7 (11.6-19.0)	18.1 (13.7-24.4)	21.0 (15.4-29.2)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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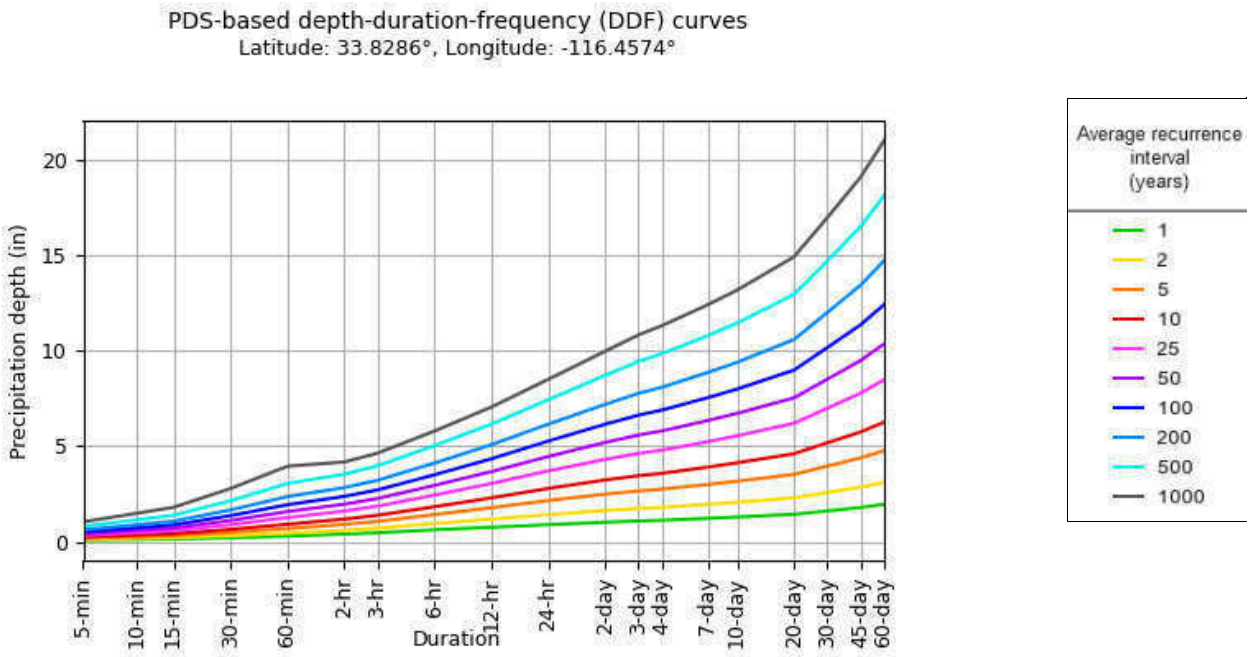
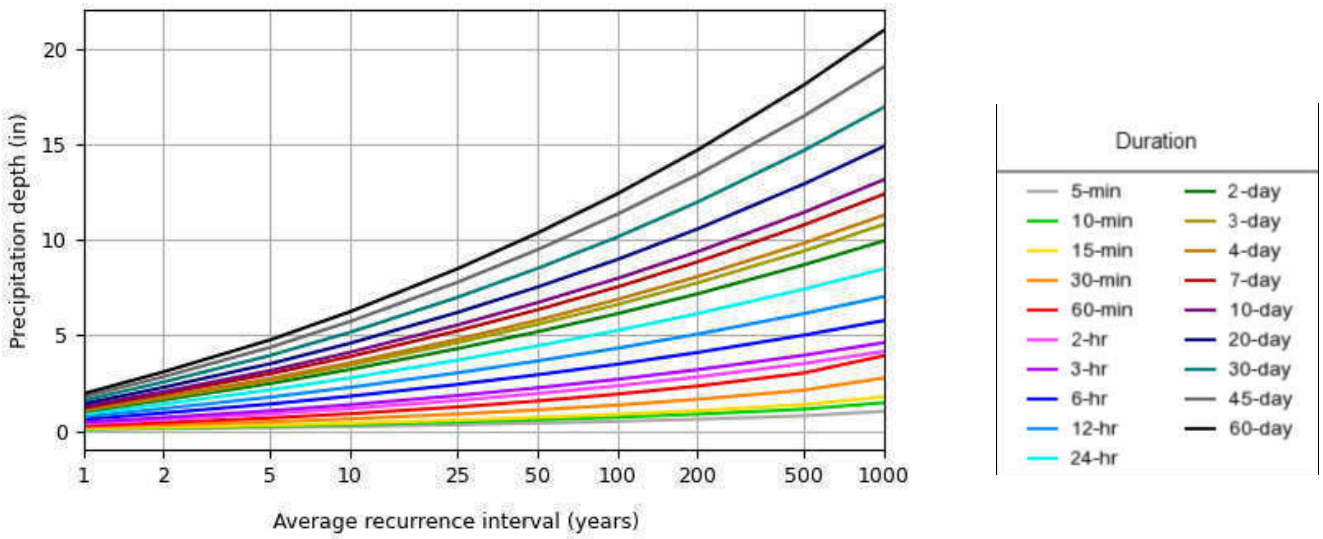
PF graphical





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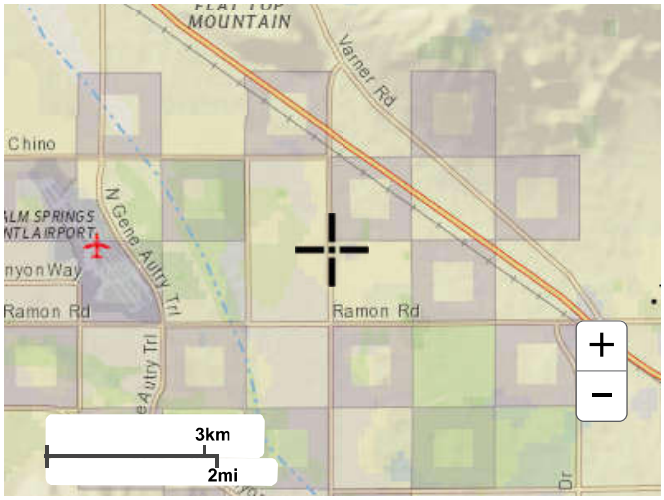
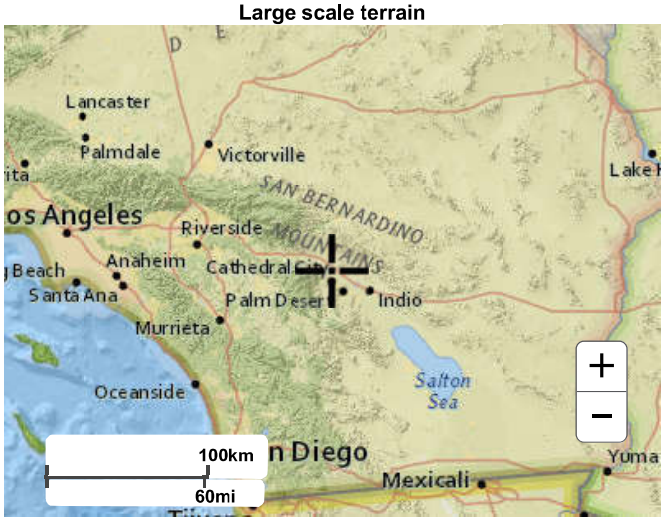
Maps & aerials

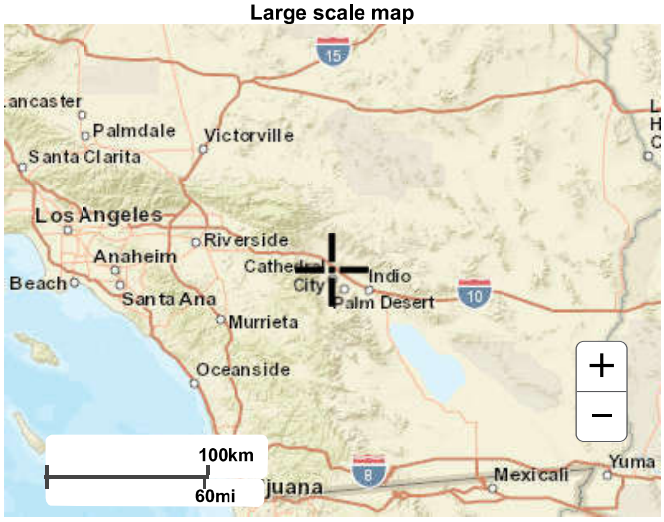
Small scale terrain



Large scale terrain



Large scale map



Large scale aerial

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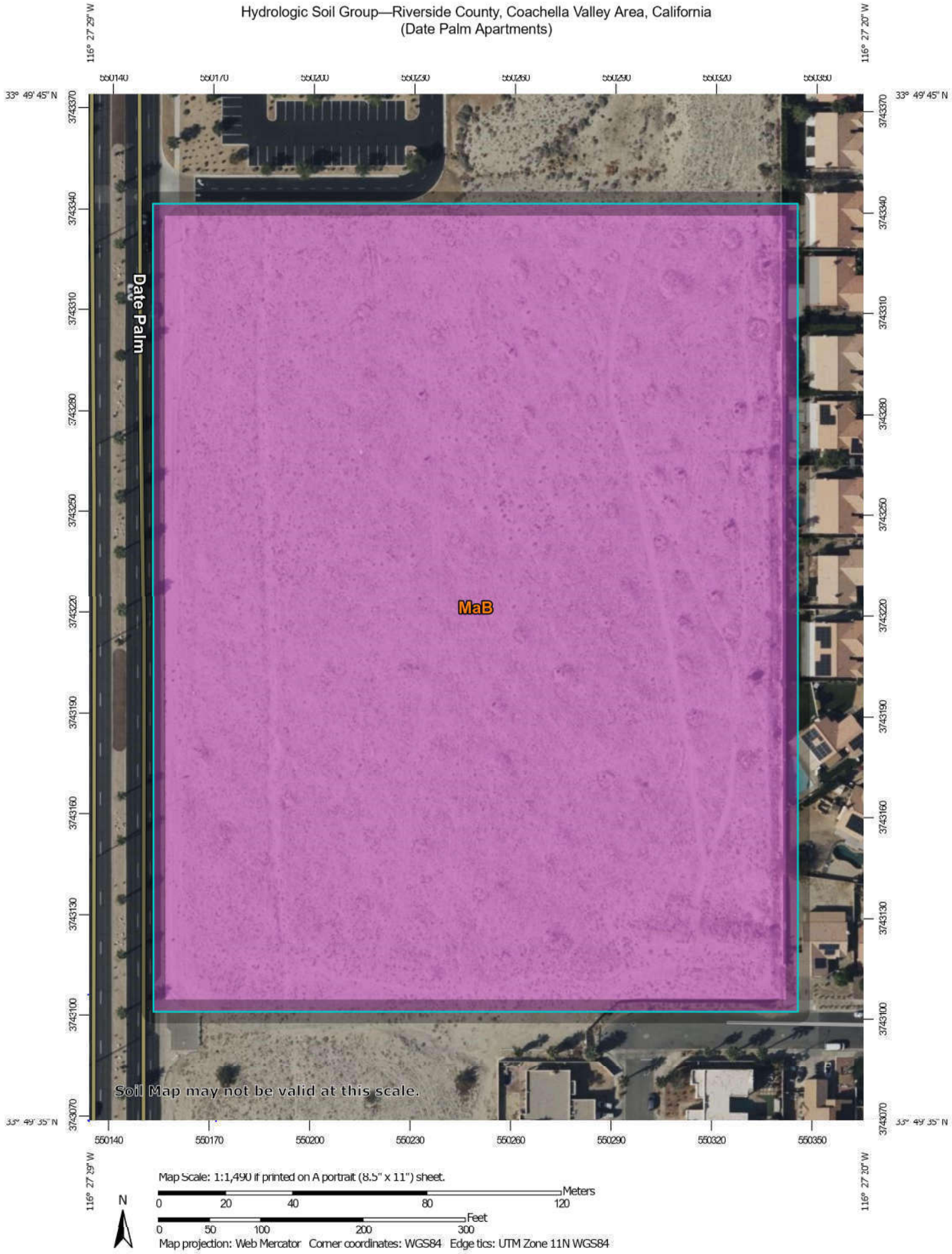
US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

WEB SOILS SURVEY

Hydrologic Soil Group—Riverside County, Coachella Valley Area, California
(Date Palm Apartments)



MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Riverside County, Coachella Valley Area, California
Survey Area Data: Version 14, Sep 1, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 15, 2022—May 28, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
MaB	Myoma fine sand, 0 to 5 percent slopes	A	11.5	100.0%
Totals for Area of Interest			**11.5**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

RCFC&WCD PLATES E-6.1, E-6.2 and E-6.3

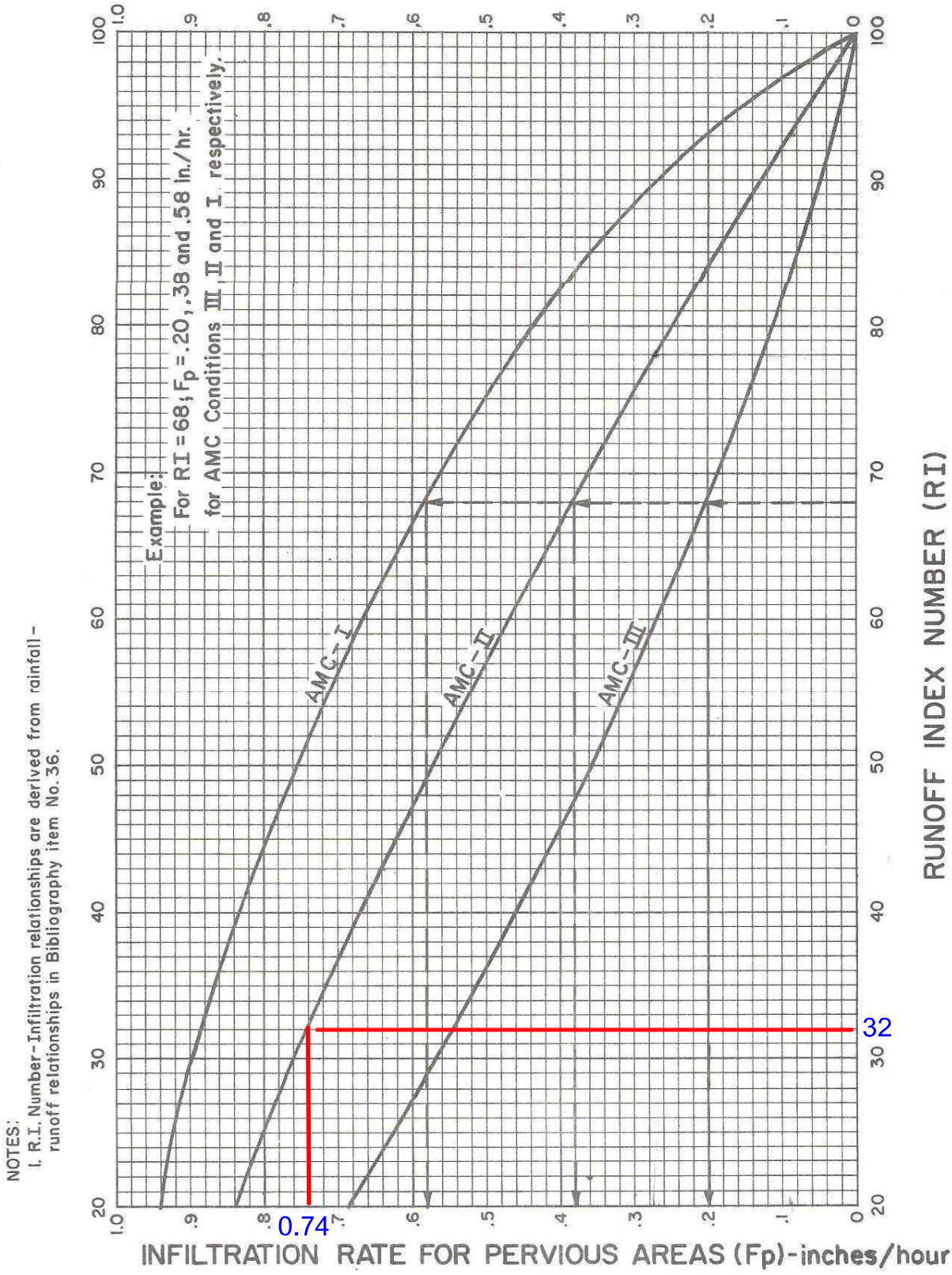
RUNOFF INDEX NUMBERS OF HYDROLOGIC SOIL-COVER COMPLEXES FOR PERVIOUS AREAS-AMC II

Cover Type (3)	Quality of Cover (2)	Soil Group A	B	C	D
NATURAL COVERS -					
Barren (Rockland, eroded and graded land)		78	86	91	93
Chaparrel, Broadleaf (Manzonita, ceanothus and scrub oak)	Poor	53	70	80	85
	Fair	40	63	75	81
	Good	31	57	71	78
Chaparrel, Narrowleaf (Chamise and redshank)	Poor	71	82	88	91
	Fair	55	72	81	86
Grass, Annual or Perennial	Poor	67	78	86	89
	Fair	50	69	79	84
	Good	38	61	74	80
Meadows or Cienegas (Areas with seasonally high water table, principal vegetation is sod forming grass)	Poor	63	77	85	88
	Fair	51	70	80	84
	Good	30	58	72	78
Open Brush (Soft wood shrubs - buckwheat, sage, etc.)	Poor	62	76	84	88
	Fair	46	66	77	83
	Good	41	63	75	81
Woodland (Coniferous or broadleaf trees predominate. Canopy density is at least 50 percent)	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	28	55	70	77
Woodland, Grass (Coniferous or broadleaf trees with canopy density from 20 to 50 percent)	Poor	57	73	82	86
	Fair	44	65	77	82
	Good	33	58	72	79
URBAN COVERS -					
Residential or Commercial Landscaping (Lawn, shrubs, etc.)	Good	32	56	69	75
Turf (Irrigated and mowed grass)	Poor	58	74	83	87
	Fair	44	65	77	82
	Good	33	58	72	79
AGRICULTURAL COVERS -					
Fallow (Land plowed but not tilled or seeded)		76	85	90	92

RCFC & WCD

HYDROLOGY MANUAL

RUNOFF INDEX NUMBERS FOR PERVIOUS AREAS



NOTES:
1. R.I. Number-Infiltration relationships are derived from rainfall-runoff relationships in Bibliography item No. 36.

RCFC & WCD

HYDROLOGY MANUAL

INFILTRATION RATE FOR PERVIOUS AREAS VERSUS RUNOFF INDEX NUMBERS

ACTUAL IMPERVIOUS COVER

Land Use (1)	Range-Percent	Recommended Value For Average Conditions-Percent(2)
Natural or Agriculture	0 - 10	0
Single Family Residential: (3)		
40,000 S. F. (1 Acre) Lots	10 - 25	20
20,000 S. F. (½ Acre) Lots	30 - 45	40
7,200 - 10,000 S. F. Lots	45 - 55	50
Multiple Family Residential:		
Condominiums	45 - 70	65
Apartments	65 - 90	80
Mobile Home Park	60 - 85	75
Commercial, Downtown Business or Industrial	80 -100	90

Notes:

1. Land use should be based on ultimate development of the watershed. Long range master plans for the County and incorporated cities should be reviewed to insure reasonable land use assumptions.

2. Recommended values are based on average conditions which may not apply to a particular study area. The percentage impervious may vary greatly even on comparable sized lots due to differences in dwelling size, improvements, etc. Landscape practices should also be considered as it is common in some areas to use ornamental gravels underlain by impervious plastic materials in place of lawns and shrubs. A field investigation of a study area should always be made, and a review of aerial photos, where available may assist in estimating the percentage of impervious cover in developed areas.

3. For typical horse ranch subdivisions increase impervious area 5 percent over the values recommended in the table above.

RCFC & WCD
HYDROLOGY MANUAL

IMPERVIOUS COVER FOR DEVELOPED AREAS

Synthetic Unit Hydrograph Calculations
100yr - 1hr, 3hr, 6hr & 24hr

PRE-DEVELOPMENT

HYDROLOGY CALCULATIONS -

Using the RCFC&WCD Short Cut Unit Hydrograph Method
Area Designations **Date Palm Apartments**
Entire Existing Property

Drainage Area (ac.)	**10.4815**				
Unit time (minutes)	**5**	**5**	**5**	**15**	
100 Year Storm Duration (hrs)	1	3	6	24	
Total Precipitation (Plates D-4.4,E-5.2, 5.4, 5.6)(in.)	**1.93**	**2.70**	**3.49**	**5.26**	Or data from NOAA interactive website
Soils Group	A				
AMC index II Runoff Number (plate E-6.1)	32				
Plate E-6.2 Pervious Area Loss Rate (Fp)(in/hr)	0.74	(AMC II)			
Percentage of Impervious Cover (Ai)(%) (plate E-6.3)		**5**			
Weighted Average Loss Rate (F=Fp(1-.9Ai))(in./hr.)	0.71	(used for 1, 3, and 6 hour storm, the 24 hour storm uses variable maximum loss rate per plate E-1.1 (3 of 6))			
Low Loss Rate Percent (%)	90				
Retention Basin Percolation Rate (in/hr)	**2**	(also used for drywell percolation rate)			

Percolation is taken incrementally.
Basin volume is calculated using the "truncated pyramid" formula, a more conservative estimate than "averaged end areas" sometimes used

(Drywell can be "zeroed out" by reducing numbers to less than .001, but should not entered as zeros or program chokes.)
Drywell storage includes 40% of the 1' wide rock bed surrounding the drywell: formula (upper)*PI()*(diam/2)^2+(lower)*PI()*((diam/2)^2+0.4*((diam/2+(grav+0.4166))^2-(diam/2+0.4166)^2))
The drywell wall thickness is assumed at 5" (0.4166) and the gravel bed width is variable "grav"

Drywell design factors **Upper sec. (ft.)=** **0.0001** **Lower sec. (ft.)=** **0.0001** **Ring diam. (ft.) =** **0.0001** **Drywell lower max. (cf)=** **0.00** **Upper max.(cf)=** **0.00**
Gravel bed width around drwyell= **0** **Drywell total(cf)=** **0.00**

Ret. Basin design (area, depth) **Top =** **0.00001** s.f. **Bot. =** **0.0001** **s.f.** **Max. Depth (d)=** **0.0001** **Max. storage=** **0.00** (d/3)*(bottom+top+(bottom*top)^0.50)
Formulas **vol=(h/3)*(bottom+top+(bottom*top)^0.50)** **area=bottom+(h/d)*(top-bottom)** **h=(vol*3)/(bottom+top+(bottom*top)^0.5)** **(values must be non-zero or error occurs)**
Outside input from: **N/A**

1 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:05	3.7	0.8569	0.7067	N/A	0.1502	1.5877	476.30
0:10	4.8	1.1117	0.7067	N/A	0.4050	4.2802	1284.05
0:15	5.1	1.1812	0.7067	N/A	0.4745	5.0145	1504.35
0:20	4.9	1.1348	0.7067	N/A	0.4281	4.5249	1357.48
0:25	6.6	1.5286	0.7067	N/A	0.8219	8.6861	2605.83
0:30	7.3	1.6907	0.7067	N/A	0.9840	10.3995	3119.86
0:35	8.4	1.9454	0.7067	N/A	1.2387	13.0920	3927.61
0:40	9	2.0844	0.7067	N/A	1.3777	14.5607	4368.21
0:45	12.3	2.8487	0.7067	N/A	2.1420	22.6382	6791.47
0:50	17.6	4.0762	0.7067	N/A	**3.3695**	**35.6113**	**10683.39**
0:55	16.1	3.7288	0.7067	N/A	3.0221	31.9397	9581.90
1:00	4.2	0.9727	0.7067	N/A	0.2660	2.8115	843.46
	0	0.0000	0.7067	0.00	0.0000	0.0000	0.00
	0	0.0000	0.7067	0.00	0.0000	0.0000	0.00
1:15	0	0.0000	0.7067	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**46543.91**

3 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:05	1.3	0.42	0.71	0.38	0.0421	0.4452	133.55
0:10	1.3	0.42	0.71	0.38	0.0421	0.4452	133.55
0:15	1.1	0.36	0.71	0.32	0.0356	0.3767	113.00
0:20	1.5	0.49	0.71	0.44	0.0486	0.5136	154.09
0:25	1.5	0.49	0.71	0.44	0.0486	0.5136	154.09
0:30	1.8	0.58	0.71	0.52	0.0583	0.6164	184.91
0:35	1.5	0.49	0.71	0.44	0.0486	0.5136	154.09
0:40	1.8	0.58	0.71	0.52	0.0583	0.6164	184.91
0:45	1.8	0.58	0.71	0.52	0.0583	0.6164	184.91
0:50	1.5	0.49	0.71	0.44	0.0486	0.5136	154.09
0:55	1.6	0.52	0.71	0.47	0.0518	0.5479	164.37
1:00	1.8	0.58	0.71	0.52	0.0583	0.6164	184.91
1:05	2.2	0.71	0.71	0.64	0.0713	0.7533	226.00
1:10	2.2	0.71	0.71	0.64	0.0713	0.7533	226.00
1:15	2.2	0.71	0.71	0.64	0.0713	0.7533	226.00
1:20	2	0.65	0.71	0.58	0.0648	0.6849	205.46
1:25	2.6	0.84	0.71	N/A	0.1357	1.4342	430.26
1:30	2.7	0.87	0.71	N/A	0.1681	1.7766	532.99
1:35	2.4	0.78	0.71	0.70	0.0778	0.8218	246.55
1:40	2.7	0.87	0.71	N/A	0.1681	1.7766	532.99
1:45	3.3	1.07	0.71	N/A	0.3625	3.8312	1149.36
1:50	3.1	1.00	0.71	N/A	0.2977	3.1463	943.90
1:55	2.9	0.94	0.71	N/A	0.2329	2.4615	738.45
2:00	3	0.97	0.71	N/A	0.2653	2.8039	841.17
2:05	3.1	1.00	0.71	N/A	0.2977	3.1463	943.90
2:10	4.2	1.36	0.71	N/A	0.6541	6.9131	2073.92
2:15	5	1.62	0.71	N/A	0.9133	9.6525	2895.76
2:20	3.5	1.13	0.71	N/A	0.4273	4.5161	1354.82
2:25	6.8	2.20	0.71	N/A	1.4965	15.8163	4744.88
2:30	7.3	2.37	0.71	N/A	1.6585	17.5284	5258.53
2:35	8.2	2.66	0.71	N/A	**1.9501**	**20.6103**	**6183.09**
2:40	5.9	1.91	0.71	N/A	1.2049	12.7344	3820.32
2:45	2	0.65	0.71	0.58	0.0648	0.6849	205.46
2:50	1.8	0.58	0.71	0.52	0.0583	0.6164	184.91
2:55	1.8	0.58	0.71	0.52	0.0583	0.6164	184.91
3:00	0.6	0.19	0.71	0.17	0.0194	0.2055	61.64
	0	0.00	0.71	0.00	0.0000	0.0000	0.00
	0	0.00	0.71	0.00	0.0000	0.0000	0.00
3:15	0	0.00	0.71	0.00	0.0000	0.0000	0.00
	0	0.00	0.71	0.00	0.0000	0.0000	0.00
	0	0.00	0.71	0.00	0.0000	0.0000	0.00
3:30	0	0.00	0.71	0.00	0.0000	0.0000	0.00
	0	0.00	0.71	0.00	0.0000	0.0000	0.00
	0	0.00	0.71	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**36111.77**

6 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:05	0.5	0.21	0.71	0.19	0.0209	0.2213	66.39
0:10	0.6	0.25	0.71	0.23	0.0251	0.2656	79.67
0:15	0.6	0.25	0.71	0.23	0.0251	0.2656	79.67
0:20	0.6	0.25	0.71	0.23	0.0251	0.2656	79.67
0:25	0.6	0.25	0.71	0.23	0.0251	0.2656	79.67
0:30	0.7	0.29	0.71	0.26	0.0293	0.3098	92.95
0:35	0.7	0.29	0.71	0.26	0.0293	0.3098	92.95
0:40	0.7	0.29	0.71	0.26	0.0293	0.3098	92.95
0:45	0.7	0.29	0.71	0.26	0.0293	0.3098	92.95
0:50	0.7	0.29	0.71	0.26	0.0293	0.3098	92.95
0:55	0.7	0.29	0.71	0.26	0.0293	0.3098	92.95
1:00	0.8	0.34	0.71	0.30	0.0335	0.3541	106.23
1:05	0.8	0.34	0.71	0.30	0.0335	0.3541	106.23
1:10	0.8	0.34	0.71	0.30	0.0335	0.3541	106.23
1:15	0.8	0.34	0.71	0.30	0.0335	0.3541	106.23
1:20	0.8	0.34	0.71	0.30	0.0335	0.3541	106.23
1:25	0.8	0.34	0.71	0.30	0.0335	0.3541	106.23
1:30	0.8	0.34	0.71	0.30	0.0335	0.3541	106.23
1:35	0.8	0.34	0.71	0.30	0.0335	0.3541	106.23
1:40	0.8	0.34	0.71	0.30	0.0335	0.3541	106.23
1:45	0.8	0.34	0.71	0.30	0.0335	0.3541	106.23
1:50	0.8	0.34	0.71	0.30	0.0335	0.3541	106.23
1:55	0.8	0.34	0.71	0.30	0.0335	0.3541	106.23
2:00	0.9	0.38	0.71	0.34	0.0377	0.3984	119.51
2:05	0.8	0.34	0.71	0.30	0.0335	0.3541	106.23
2:10	0.9	0.38	0.71	0.34	0.0377	0.3984	119.51
2:15	0.9	0.38	0.71	0.34	0.0377	0.3984	119.51
2:20	0.9	0.38	0.71	0.34	0.0377	0.3984	119.51
2:25	0.9	0.38	0.71	0.34	0.0377	0.3984	119.51
2:30	0.9	0.38	0.71	0.34	0.0377	0.3984	119.51
2:35	0.9	0.38	0.71	0.34	0.0377	0.3984	119.51
2:40	0.9	0.38	0.71	0.34	0.0377	0.3984	119.51
2:45	1	0.42	0.71	0.38	0.0419	0.4426	132.79
2:50	1	0.42	0.71	0.38	0.0419	0.4426	132.79
2:55	1	0.42	0.71	0.38	0.0419	0.4426	132.79
3:00	1	0.42	0.71	0.38	0.0419	0.4426	132.79
3:05	1	0.42	0.71	0.38	0.0419	0.4426	132.79
3:10	1.1	0.46	0.71	0.41	0.0461	0.4869	146.07
3:15	1.1	0.46	0.71	0.41	0.0461	0.4869	146.07
3:20	1.1	0.46	0.71	0.41	0.0461	0.4869	146.07
3:25	1.2	0.50	0.71	0.45	0.0503	0.5311	159.34
3:30	1.3	0.54	0.71	0.49	0.0544	0.5754	172.62
3:35	1.4	0.59	0.71	0.53	0.0586	0.6197	185.90
3:40	1.4	0.59	0.71	0.53	0.0586	0.6197	185.90
3:45	1.5	0.63	0.71	0.57	0.0628	0.6639	199.18
3:50	1.5	0.63	0.71	0.57	0.0628	0.6639	199.18
3:55	1.6	0.67	0.71	0.60	0.0670	0.7082	212.46
4:00	1.6	0.67	0.71	0.60	0.0670	0.7082	212.46
4:05	1.7	0.71	0.71	0.64	0.0712	0.7525	225.74
4:10	1.8	0.75	0.71	0.68	0.0754	0.7967	239.02
4:15	1.9	0.80	0.71	N/A	0.0890	0.9408	282.25

4:20	2	0.84	0.71	N/A	0.1309	1.3835	415.04
4:25	2.1	0.88	0.71	N/A	0.1728	1.8261	547.83
4:30	2.1	0.88	0.71	N/A	0.1728	1.8261	547.83
4:35	2.2	0.92	0.71	N/A	0.2147	2.2687	680.61
4:40	2.3	0.96	0.71	N/A	0.2565	2.7113	813.40
4:45	2.4	1.01	0.71	N/A	0.2984	3.1540	946.19
4:50	2.4	1.01	0.71	N/A	0.2984	3.1540	946.19
4:55	2.5	1.05	0.71	N/A	0.3403	3.5966	1078.97
5:00	2.6	1.09	0.71	N/A	0.3822	4.0392	1211.76
5:05	3.1	1.30	0.71	N/A	0.5916	6.2523	1875.69
5:10	3.6	1.51	0.71	N/A	0.8010	8.4654	2539.63
5:15	3.9	1.63	0.71	N/A	0.9266	9.7933	2937.99
5:20	4.2	1.76	0.71	N/A	1.0523	11.1212	3336.35
5:25	4.7	1.97	0.71	N/A	1.2617	13.3343	4000.29
5:30	5.6	2.35	0.71	N/A	**1.6386**	**17.3179**	**5195.37**
5:35	1.9	0.80	0.71	N/A	0.0890	0.9408	282.25
5:40	0.9	0.38	0.71	0.34	0.0377	0.3984	119.51
5:45	0.6	0.25	0.71	0.23	0.0251	0.2656	79.67
5:50	0.5	0.21	0.71	0.19	0.0209	0.2213	66.39
5:55	0.3	0.13	0.71	0.11	0.0126	0.1328	39.84
6:00	0.2	0.08	0.71	0.08	0.0084	0.0885	26.56
	0	0.00	0.71	0.00	0.0000	0.0000	0.00
	0	0.00	0.71	0.00	0.0000	0.0000	0.00
6:15	0	0.00	0.71	0.00	0.0000	0.0000	0.00
	0	0.00	0.71	0.00	0.0000	0.0000	0.00
	0	0.00	0.71	0.00	0.0000	0.0000	0.00
6:30	0	0.00	0.71	0.00	0.0000	0.0000	0.00
	0	0.00	0.71	0.00	0.0000	0.0000	0.00
	0	0.00	0.71	0.00	0.0000	0.0000	0.00
6:45	0	0.00	0.71	0.00	0.0000	0.0000	0.00
	0	0.00	0.71	0.00	0.0000	0.0000	0.00
	0	0.00	0.71	0.00	0.0000	0.0000	0.00
7:00	0	0.00	0.71	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**34343.37**

24 Hour Storm in 15 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:15	0.2	0.04	1.24	0.04	0.0042	0.0445	40.03
0:30	0.3	0.06	1.23	0.06	0.0063	0.0667	60.04
0:45	0.3	0.06	1.21	0.06	0.0063	0.0667	60.04
1:00	0.4	0.08	1.20	0.08	0.0084	0.0889	80.05
1:15	0.3	0.06	1.18	0.06	0.0063	0.0667	60.04
1:30	0.3	0.06	1.17	0.06	0.0063	0.0667	60.04
1:45	0.3	0.06	1.16	0.06	0.0063	0.0667	60.04
2:00	0.4	0.08	1.14	0.08	0.0084	0.0889	80.05
2:15	0.4	0.08	1.13	0.08	0.0084	0.0889	80.05
2:30	0.4	0.08	1.11	0.08	0.0084	0.0889	80.05
2:45	0.5	0.11	1.10	0.09	0.0105	0.1112	100.07
3:00	0.5	0.11	1.09	0.09	0.0105	0.1112	100.07
3:15	0.5	0.11	1.07	0.09	0.0105	0.1112	100.07
3:30	0.5	0.11	1.06	0.09	0.0105	0.1112	100.07
3:45	0.5	0.11	1.05	0.09	0.0105	0.1112	100.07
4:00	0.6	0.13	1.03	0.11	0.0126	0.1334	120.08
4:15	0.6	0.13	1.02	0.11	0.0126	0.1334	120.08
4:30	0.7	0.15	1.01	0.13	0.0147	0.1557	140.09
4:45	0.7	0.15	0.99	0.13	0.0147	0.1557	140.09
5:00	0.8	0.17	0.98	0.15	0.0168	0.1779	160.11
5:15	0.6	0.13	0.97	0.11	0.0126	0.1334	120.08
5:30	0.7	0.15	0.96	0.13	0.0147	0.1557	140.09
5:45	0.8	0.17	0.94	0.15	0.0168	0.1779	160.11
6:00	0.8	0.17	0.93	0.15	0.0168	0.1779	160.11
6:15	0.9	0.19	0.92	0.17	0.0189	0.2001	180.12
6:30	0.9	0.19	0.91	0.17	0.0189	0.2001	180.12
6:45	1	0.21	0.89	0.19	0.0210	0.2224	200.13
7:00	1	0.21	0.88	0.19	0.0210	0.2224	200.13
7:15	1	0.21	0.87	0.19	0.0210	0.2224	200.13
7:30	1.1	0.23	0.86	0.21	0.0231	0.2446	220.14
7:45	1.2	0.25	0.85	0.23	0.0252	0.2668	240.16
8:00	1.3	0.27	0.83	0.25	0.0274	0.2891	260.17
8:15	1.5	0.32	0.82	0.28	0.0316	0.3336	300.20
8:30	1.5	0.32	0.81	0.28	0.0316	0.3336	300.20
8:45	1.6	0.34	0.80	0.30	0.0337	0.3558	320.21
9:00	1.7	0.36	0.79	0.32	0.0358	0.3780	340.22
9:15	1.9	0.40	0.78	0.36	0.0400	0.4225	380.25
9:30	2	0.42	0.77	0.38	0.0421	0.4447	400.26
9:45	2.1	0.44	0.76	0.40	0.0442	0.4670	420.28
10:00	2.2	0.46	0.74	0.42	0.0463	0.4892	440.29
10:15	1.5	0.32	0.73	0.28	0.0316	0.3336	300.20
10:30	1.5	0.32	0.72	0.28	0.0316	0.3336	300.20
10:45	2	0.42	0.71	0.38	0.0421	0.4447	400.26
11:00	2	0.42	0.70	0.38	0.0421	0.4447	400.26
11:15	1.9	0.40	0.69	0.36	0.0400	0.4225	380.25
11:30	1.9	0.40	0.68	0.36	0.0400	0.4225	380.25
11:45	1.7	0.36	0.67	0.32	0.0358	0.3780	340.22
12:00	1.8	0.38	0.66	0.34	0.0379	0.4003	360.24
12:15	2.5	0.53	0.65	0.47	0.0526	0.5559	500.33
12:30	2.6	0.55	0.64	0.49	0.0547	0.5782	520.34
12:45	2.8	0.59	0.63	0.53	0.0589	0.6226	560.37

13:00	2.9	0.61	0.62	0.55	0.0610	0.6449	580.38
13:15	3.4	0.72	0.61	N/A	0.1023	1.0812	973.04
13:30	3.4	0.72	0.60	N/A	**0.1116**	**1.1795**	**1061.52**
13:45	2.3	0.48	0.59	0.44	0.0484	0.5114	460.30
14:00	2.3	0.48	0.59	0.44	0.0484	0.5114	460.30
14:15	2.7	0.57	0.58	0.51	0.0568	0.6004	540.36
14:30	2.6	0.55	0.57	0.49	0.0547	0.5782	520.34
14:45	2.6	0.55	0.56	0.49	0.0547	0.5782	520.34
15:00	2.5	0.53	0.55	0.47	0.0526	0.5559	500.33
15:15	2.4	0.50	0.54	0.45	0.0505	0.5337	480.32
15:30	2.3	0.48	0.53	0.44	0.0484	0.5114	460.30
15:45	1.9	0.40	0.53	0.36	0.0400	0.4225	380.25
16:00	1.9	0.40	0.52	0.36	0.0400	0.4225	380.25
16:15	0.4	0.08	0.51	0.08	0.0084	0.0889	80.05
16:30	0.4	0.08	0.50	0.08	0.0084	0.0889	80.05
16:45	0.3	0.06	0.49	0.06	0.0063	0.0667	60.04
17:00	0.3	0.06	0.49	0.06	0.0063	0.0667	60.04
17:15	0.5	0.11	0.48	0.09	0.0105	0.1112	100.07
17:30	0.5	0.11	0.47	0.09	0.0105	0.1112	100.07
17:45	0.5	0.11	0.47	0.09	0.0105	0.1112	100.07
18:00	0.4	0.08	0.46	0.08	0.0084	0.0889	80.05
18:15	0.4	0.08	0.45	0.08	0.0084	0.0889	80.05
18:30	0.4	0.08	0.45	0.08	0.0084	0.0889	80.05
18:45	0.3	0.06	0.44	0.06	0.0063	0.0667	60.04
19:00	0.2	0.04	0.43	0.04	0.0042	0.0445	40.03
19:15	0.3	0.06	0.43	0.06	0.0063	0.0667	60.04
19:30	0.4	0.08	0.42	0.08	0.0084	0.0889	80.05
19:45	0.3	0.06	0.41	0.06	0.0063	0.0667	60.04
20:00	0.2	0.04	0.41	0.04	0.0042	0.0445	40.03
20:15	0.3	0.06	0.40	0.06	0.0063	0.0667	60.04
20:30	0.3	0.06	0.40	0.06	0.0063	0.0667	60.04
20:45	0.3	0.06	0.39	0.06	0.0063	0.0667	60.04
21:00	0.2	0.04	0.39	0.04	0.0042	0.0445	40.03
21:15	0.3	0.06	0.38	0.06	0.0063	0.0667	60.04
21:30	0.2	0.04	0.38	0.04	0.0042	0.0445	40.03
21:45	0.3	0.06	0.38	0.06	0.0063	0.0667	60.04
22:00	0.2	0.04	0.37	0.04	0.0042	0.0445	40.03
22:15	0.3	0.06	0.37	0.06	0.0063	0.0667	60.04
22:30	0.2	0.04	0.37	0.04	0.0042	0.0445	40.03
22:45	0.2	0.04	0.36	0.04	0.0042	0.0445	40.03
23:00	0.2	0.04	0.36	0.04	0.0042	0.0445	40.03
23:15	0.2	0.04	0.36	0.04	0.0042	0.0445	40.03
23:30	0.2	0.04	0.36	0.04	0.0042	0.0445	40.03
23:45	0.2	0.04	0.35	0.04	0.0042	0.0445	40.03
24:00	0.2	0.04	0.35	0.04	0.0042	0.0445	40.03
	0	0.00	0.35	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**20686.82**

HYDROLOGY CALCULATIONS -

Using the RCFC&WCD Short Cut Unit Hydrograph Method

Area Designations	**Date Palm Apartments**					
	OFF1					
Drainage Area (ac.)	**1.1800**					
Unit time (minutes)	**5**	**5**	**5**	**15**		
100 Year Storm Duration (hrs)	1	3	6	24		
Total Precipitation (Plates D-4.4,E-5.2, 5.4, 5.6)(in.)	**1.93**	**2.70**	**3.49**	**5.26**		Or data from NOAA interactive website
Soils Group	A					
AMC index II Runoff Number (plate E-6.1)	32					
Plate E-6.2 Pervious Area Loss Rate (Fp)(in/hr)	0.74	(AMC II)				
Percentage of Impervious Cover (Ai)(%) (plate E-6.3)		**90**				
Weighted Average Loss Rate (F=Fp(1-.9Ai))(in./hr.)	0.14	(used for 1, 3, and 6 hour storm, the 24 hour storm uses variable maximum loss rate per plate E-1.1 (3 of 6))				
Low Loss Rate Percent (%)	90					
Retention Basin Percolation Rate (in/hr)	**2**	(also used for drywell percolation rate)				

Percolation is taken incrementally.
Basin volume is calculated using the "truncated pyramid" formula, a more conservative estimate than "averaged end areas" sometimes used

(Drywell can be "zeroed out" by reducing numbers to less than .001, but should not entered as zeros or program chokes.)
Drywell storage includes 40% of the 1' wide rock bed surrounding the drywell: formula (upper)*PI()*(diam/2)^2+(lower)*PI()*((diam/2)^2+0.4*((diam/2+(grav+0.4166))^2-(diam/2+0.4166)^2))
The drywell wall thickness is assumed at 5" (0.4166) and the gravel bed width is variable "grav"

Drywell design factors **Upper sec. (ft.)=** **0.0001** **Lower sec. (ft.)=** **0.0001** **Ring diam. (ft.) =** **0.0001** **Drywell lower max. (cf)=** **0.00** **Upper max.(cf)=** **0.00**
Gravel bed width around drwyell= **0** **Drywell total(cf)=** **0.00**

Ret. Basin design (area, depth) **Top =** **0.0001** s.f. **Bot. =** **0.0001** **s.f.** **Max. Depth (d)=** **0.0001** **Max. storage=** **0.00** (d/3)*(bottom+top+(bottom*top)^0.50)
Formulas **vol=(h/3)*(bottom+top+(bottom*top)^0.50)** **area=bottom+(h/d)*(top-bottom)** **h=(vol*3)/(bottom+top+(bottom*top)^0.5)** **(values must be non-zero or error occurs)**
Outside input from: **N/A**

1 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:05	3.7	0.8569	0.1406	N/A	0.7163	0.8523	255.69
0:10	4.8	1.1117	0.1406	N/A	0.9711	1.1554	346.63
0:15	5.1	1.1812	0.1406	N/A	1.0406	1.2381	371.43
0:20	4.9	1.1348	0.1406	N/A	0.9942	1.1830	354.89
0:25	6.6	1.5286	0.1406	N/A	1.3880	1.6514	495.43
0:30	7.3	1.6907	0.1406	N/A	1.5501	1.8443	553.30
0:35	8.4	1.9454	0.1406	N/A	1.8048	2.1475	644.24
0:40	9	2.0844	0.1406	N/A	1.9438	2.3128	693.84
0:45	12.3	2.8487	0.1406	N/A	2.7081	3.2222	966.65
0:50	17.6	4.0762	0.1406	N/A	**3.9356**	**4.6827**	**1404.80**
0:55	16.1	3.7288	0.1406	N/A	3.5882	4.2693	1280.79
1:00	4.2	0.9727	0.1406	N/A	0.8321	0.9901	297.03
	0	0.0000	0.1406	0.00	0.0000	0.0000	0.00
	0	0.0000	0.1406	0.00	0.0000	0.0000	0.00
1:15	0	0.0000	0.1406	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**7664.72**

3 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:05	1.3	0.42	0.14	N/A	0.2806	0.3339	100.16
0:10	1.3	0.42	0.14	N/A	0.2806	0.3339	100.16
0:15	1.1	0.36	0.14	N/A	0.2158	0.2568	77.03
0:20	1.5	0.49	0.14	N/A	0.3454	0.4110	123.29
0:25	1.5	0.49	0.14	N/A	0.3454	0.4110	123.29
0:30	1.8	0.58	0.14	N/A	0.4426	0.5266	157.99
0:35	1.5	0.49	0.14	N/A	0.3454	0.4110	123.29
0:40	1.8	0.58	0.14	N/A	0.4426	0.5266	157.99
0:45	1.8	0.58	0.14	N/A	0.4426	0.5266	157.99
0:50	1.5	0.49	0.14	N/A	0.3454	0.4110	123.29
0:55	1.6	0.52	0.14	N/A	0.3778	0.4495	134.86
1:00	1.8	0.58	0.14	N/A	0.4426	0.5266	157.99
1:05	2.2	0.71	0.14	N/A	0.5722	0.6808	204.25
1:10	2.2	0.71	0.14	N/A	0.5722	0.6808	204.25
1:15	2.2	0.71	0.14	N/A	0.5722	0.6808	204.25
1:20	2	0.65	0.14	N/A	0.5074	0.6037	181.12
1:25	2.6	0.84	0.14	N/A	0.7018	0.8350	250.51
1:30	2.7	0.87	0.14	N/A	0.7342	0.8736	262.07
1:35	2.4	0.78	0.14	N/A	0.6370	0.7579	227.38
1:40	2.7	0.87	0.14	N/A	0.7342	0.8736	262.07
1:45	3.3	1.07	0.14	N/A	0.9286	1.1049	331.46
1:50	3.1	1.00	0.14	N/A	0.8638	1.0278	308.33
1:55	2.9	0.94	0.14	N/A	0.7990	0.9507	285.20
2:00	3	0.97	0.14	N/A	0.8314	0.9892	296.77
2:05	3.1	1.00	0.14	N/A	0.8638	1.0278	308.33
2:10	4.2	1.36	0.14	N/A	1.2202	1.4518	435.55
2:15	5	1.62	0.14	N/A	1.4794	1.7602	528.07
2:20	3.5	1.13	0.14	N/A	0.9934	1.1820	354.59
2:25	6.8	2.20	0.14	N/A	2.0626	2.4542	736.25
2:30	7.3	2.37	0.14	N/A	2.2246	2.6469	794.07
2:35	8.2	2.66	0.14	N/A	**2.5162**	**2.9939**	**898.16**
2:40	5.9	1.91	0.14	N/A	1.7710	2.1072	632.16
2:45	2	0.65	0.14	N/A	0.5074	0.6037	181.12
2:50	1.8	0.58	0.14	N/A	0.4426	0.5266	157.99
2:55	1.8	0.58	0.14	N/A	0.4426	0.5266	157.99
3:00	0.6	0.19	0.14	N/A	0.0538	0.0640	19.20
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
3:15	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
3:30	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**9758.44**

6 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Loss Rate Value Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:05	0.5	0.21	0.14	N/A	0.0688	0.0819	24.56
0:10	0.6	0.25	0.14	N/A	0.1107	0.1317	39.51
0:15	0.6	0.25	0.14	N/A	0.1107	0.1317	39.51
0:20	0.6	0.25	0.14	N/A	0.1107	0.1317	39.51
0:25	0.6	0.25	0.14	N/A	0.1107	0.1317	39.51
0:30	0.7	0.29	0.14	N/A	0.1526	0.1815	54.46
0:35	0.7	0.29	0.14	N/A	0.1526	0.1815	54.46
0:40	0.7	0.29	0.14	N/A	0.1526	0.1815	54.46
0:45	0.7	0.29	0.14	N/A	0.1526	0.1815	54.46
0:50	0.7	0.29	0.14	N/A	0.1526	0.1815	54.46
0:55	0.7	0.29	0.14	N/A	0.1526	0.1815	54.46
1:00	0.8	0.34	0.14	N/A	0.1944	0.2314	69.41
1:05	0.8	0.34	0.14	N/A	0.1944	0.2314	69.41
1:10	0.8	0.34	0.14	N/A	0.1944	0.2314	69.41
1:15	0.8	0.34	0.14	N/A	0.1944	0.2314	69.41
1:20	0.8	0.34	0.14	N/A	0.1944	0.2314	69.41
1:25	0.8	0.34	0.14	N/A	0.1944	0.2314	69.41
1:30	0.8	0.34	0.14	N/A	0.1944	0.2314	69.41
1:35	0.8	0.34	0.14	N/A	0.1944	0.2314	69.41
1:40	0.8	0.34	0.14	N/A	0.1944	0.2314	69.41
1:45	0.8	0.34	0.14	N/A	0.1944	0.2314	69.41
1:50	0.8	0.34	0.14	N/A	0.1944	0.2314	69.41
1:55	0.8	0.34	0.14	N/A	0.1944	0.2314	69.41
2:00	0.9	0.38	0.14	N/A	0.2363	0.2812	84.35
2:05	0.8	0.34	0.14	N/A	0.1944	0.2314	69.41
2:10	0.9	0.38	0.14	N/A	0.2363	0.2812	84.35
2:15	0.9	0.38	0.14	N/A	0.2363	0.2812	84.35
2:20	0.9	0.38	0.14	N/A	0.2363	0.2812	84.35
2:25	0.9	0.38	0.14	N/A	0.2363	0.2812	84.35
2:30	0.9	0.38	0.14	N/A	0.2363	0.2812	84.35
2:35	0.9	0.38	0.14	N/A	0.2363	0.2812	84.35
2:40	0.9	0.38	0.14	N/A	0.2363	0.2812	84.35
2:45	1	0.42	0.14	N/A	0.2782	0.3310	99.30
2:50	1	0.42	0.14	N/A	0.2782	0.3310	99.30
2:55	1	0.42	0.14	N/A	0.2782	0.3310	99.30
3:00	1	0.42	0.14	N/A	0.2782	0.3310	99.30
3:05	1	0.42	0.14	N/A	0.2782	0.3310	99.30
3:10	1.1	0.46	0.14	N/A	0.3201	0.3808	114.25
3:15	1.1	0.46	0.14	N/A	0.3201	0.3808	114.25
3:20	1.1	0.46	0.14	N/A	0.3201	0.3808	114.25
3:25	1.2	0.50	0.14	N/A	0.3620	0.4307	129.20
3:30	1.3	0.54	0.14	N/A	0.4038	0.4805	144.15
3:35	1.4	0.59	0.14	N/A	0.4457	0.5303	159.10
3:40	1.4	0.59	0.14	N/A	0.4457	0.5303	159.10
3:45	1.5	0.63	0.14	N/A	0.4876	0.5802	174.05
3:50	1.5	0.63	0.14	N/A	0.4876	0.5802	174.05
3:55	1.6	0.67	0.14	N/A	0.5295	0.6300	189.00
4:00	1.6	0.67	0.14	N/A	0.5295	0.6300	189.00
4:05	1.7	0.71	0.14	N/A	0.5714	0.6798	203.95
4:10	1.8	0.75	0.14	N/A	0.6132	0.7297	218.90
4:15	1.9	0.80	0.14	N/A	0.6551	0.7795	233.85

4:20	2	0.84	0.14	N/A	0.6970	0.8293	248.79
4:25	2.1	0.88	0.14	N/A	0.7389	0.8791	263.74
4:30	2.1	0.88	0.14	N/A	0.7389	0.8791	263.74
4:35	2.2	0.92	0.14	N/A	0.7808	0.9290	278.69
4:40	2.3	0.96	0.14	N/A	0.8226	0.9788	293.64
4:45	2.4	1.01	0.14	N/A	0.8645	1.0286	308.59
4:50	2.4	1.01	0.14	N/A	0.8645	1.0286	308.59
4:55	2.5	1.05	0.14	N/A	0.9064	1.0785	323.54
5:00	2.6	1.09	0.14	N/A	0.9483	1.1283	338.49
5:05	3.1	1.30	0.14	N/A	1.1577	1.3774	413.23
5:10	3.6	1.51	0.14	N/A	1.3671	1.6266	487.98
5:15	3.9	1.63	0.14	N/A	1.4927	1.7761	532.83
5:20	4.2	1.76	0.14	N/A	1.6184	1.9256	577.67
5:25	4.7	1.97	0.14	N/A	1.8278	2.1747	652.42
5:30	5.6	2.35	0.14	N/A	**2.2047**	**2.6232**	**786.96**
5:35	1.9	0.80	0.14	N/A	0.6551	0.7795	233.85
5:40	0.9	0.38	0.14	N/A	0.2363	0.2812	84.35
5:45	0.6	0.25	0.14	N/A	0.1107	0.1317	39.51
5:50	0.5	0.21	0.14	N/A	0.0688	0.0819	24.56
5:55	0.3	0.13	0.14	0.11	0.0126	0.0149	4.48
6:00	0.2	0.08	0.14	0.08	0.0084	0.0100	2.99
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
6:15	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
6:30	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
6:45	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
7:00	0	0.00	0.14	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**11368.69**

24 Hour Storm in 15 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:15	0.2	0.04	0.25	0.04	0.0042	0.0050	4.51
0:30	0.3	0.06	0.24	0.06	0.0063	0.0075	6.76
0:45	0.3	0.06	0.24	0.06	0.0063	0.0075	6.76
1:00	0.4	0.08	0.24	0.08	0.0084	0.0100	9.01
1:15	0.3	0.06	0.24	0.06	0.0063	0.0075	6.76
1:30	0.3	0.06	0.23	0.06	0.0063	0.0075	6.76
1:45	0.3	0.06	0.23	0.06	0.0063	0.0075	6.76
2:00	0.4	0.08	0.23	0.08	0.0084	0.0100	9.01
2:15	0.4	0.08	0.22	0.08	0.0084	0.0100	9.01
2:30	0.4	0.08	0.22	0.08	0.0084	0.0100	9.01
2:45	0.5	0.11	0.22	0.09	0.0105	0.0125	11.27
3:00	0.5	0.11	0.22	0.09	0.0105	0.0125	11.27
3:15	0.5	0.11	0.21	0.09	0.0105	0.0125	11.27
3:30	0.5	0.11	0.21	0.09	0.0105	0.0125	11.27
3:45	0.5	0.11	0.21	0.09	0.0105	0.0125	11.27
4:00	0.6	0.13	0.21	0.11	0.0126	0.0150	13.52
4:15	0.6	0.13	0.20	0.11	0.0126	0.0150	13.52
4:30	0.7	0.15	0.20	0.13	0.0147	0.0175	15.77
4:45	0.7	0.15	0.20	0.13	0.0147	0.0175	15.77
5:00	0.8	0.17	0.20	0.15	0.0168	0.0200	18.02
5:15	0.6	0.13	0.19	0.11	0.0126	0.0150	13.52
5:30	0.7	0.15	0.19	0.13	0.0147	0.0175	15.77
5:45	0.8	0.17	0.19	0.15	0.0168	0.0200	18.02
6:00	0.8	0.17	0.19	0.15	0.0168	0.0200	18.02
6:15	0.9	0.19	0.18	0.17	0.0189	0.0225	20.28
6:30	0.9	0.19	0.18	0.17	0.0189	0.0225	20.28
6:45	1	0.21	0.18	N/A	0.0326	0.0387	34.86
7:00	1	0.21	0.18	N/A	0.0350	0.0416	37.44
7:15	1	0.21	0.17	N/A	0.0373	0.0444	40.00
7:30	1.1	0.23	0.17	N/A	0.0608	0.0723	65.06
7:45	1.2	0.25	0.17	N/A	0.0841	0.1001	90.11
8:00	1.3	0.27	0.17	N/A	0.1075	0.1279	115.13
8:15	1.5	0.32	0.16	N/A	0.1519	0.1807	162.66
8:30	1.5	0.32	0.16	N/A	0.1542	0.1835	165.11
8:45	1.6	0.34	0.16	N/A	0.1775	0.2112	190.07
9:00	1.7	0.36	0.16	N/A	0.2008	0.2389	215.01
9:15	1.9	0.40	0.15	N/A	0.2451	0.2916	262.45
9:30	2	0.42	0.15	N/A	0.2683	0.3193	287.35
9:45	2.1	0.44	0.15	N/A	0.2916	0.3469	312.22
10:00	2.2	0.46	0.15	N/A	0.3148	0.3745	337.07
10:15	1.5	0.32	0.15	N/A	0.1696	0.2018	181.65
10:30	1.5	0.32	0.14	N/A	0.1718	0.2044	183.92
10:45	2	0.42	0.14	N/A	0.2791	0.3320	298.82
11:00	2	0.42	0.14	N/A	0.2811	0.3345	301.05
11:15	1.9	0.40	0.14	N/A	0.2621	0.3119	280.72
11:30	1.9	0.40	0.14	N/A	0.2642	0.3143	282.90
11:45	1.7	0.36	0.13	N/A	0.2241	0.2667	239.99
12:00	1.8	0.38	0.13	N/A	0.2471	0.2941	264.65
12:15	2.5	0.53	0.13	N/A	0.3964	0.4716	424.48
12:30	2.6	0.55	0.13	N/A	0.4194	0.4990	449.09
12:45	2.8	0.59	0.13	N/A	0.4634	0.5513	496.21

13:00	2.9	0.61	0.12	N/A	0.4863	0.5786	520.77
13:15	3.4	0.72	0.12	N/A	0.5934	0.7060	635.43
13:30	3.4	0.72	0.12	N/A	**0.5952**	0.7082	**637.41**
13:45	2.3	0.48	0.12	N/A	0.3656	0.4350	391.53
14:00	2.3	0.48	0.12	N/A	0.3674	0.4372	393.46
14:15	2.7	0.57	0.11	N/A	0.4534	0.5394	485.49
14:30	2.6	0.55	0.11	N/A	0.4341	0.5165	464.83
14:45	2.6	0.55	0.11	N/A	0.4358	0.5185	466.68
15:00	2.5	0.53	0.11	N/A	0.4165	0.4955	445.98
15:15	2.4	0.50	0.11	N/A	0.3971	0.4725	425.24
15:30	2.3	0.48	0.11	N/A	0.3777	0.4494	404.48
15:45	1.9	0.40	0.10	N/A	0.2952	0.3512	316.09
16:00	1.9	0.40	0.10	N/A	0.2968	0.3531	317.80
16:15	0.4	0.08	0.10	0.08	0.0084	0.0100	9.01
16:30	0.4	0.08	0.10	0.08	0.0084	0.0100	9.01
16:45	0.3	0.06	0.10	0.06	0.0063	0.0075	6.76
17:00	0.3	0.06	0.10	0.06	0.0063	0.0075	6.76
17:15	0.5	0.11	0.10	0.09	0.0105	0.0125	11.27
17:30	0.5	0.11	0.09	N/A	0.0112	0.0133	12.00
17:45	0.5	0.11	0.09	N/A	0.0126	0.0150	13.50
18:00	0.4	0.08	0.09	0.08	0.0084	0.0100	9.01
18:15	0.4	0.08	0.09	0.08	0.0084	0.0100	9.01
18:30	0.4	0.08	0.09	0.08	0.0084	0.0100	9.01
18:45	0.3	0.06	0.09	0.06	0.0063	0.0075	6.76
19:00	0.2	0.04	0.09	0.04	0.0042	0.0050	4.51
19:15	0.3	0.06	0.08	0.06	0.0063	0.0075	6.76
19:30	0.4	0.08	0.08	0.08	0.0084	0.0100	9.01
19:45	0.3	0.06	0.08	0.06	0.0063	0.0075	6.76
20:00	0.2	0.04	0.08	0.04	0.0042	0.0050	4.51
20:15	0.3	0.06	0.08	0.06	0.0063	0.0075	6.76
20:30	0.3	0.06	0.08	0.06	0.0063	0.0075	6.76
20:45	0.3	0.06	0.08	0.06	0.0063	0.0075	6.76
21:00	0.2	0.04	0.08	0.04	0.0042	0.0050	4.51
21:15	0.3	0.06	0.08	0.06	0.0063	0.0075	6.76
21:30	0.2	0.04	0.08	0.04	0.0042	0.0050	4.51
21:45	0.3	0.06	0.07	0.06	0.0063	0.0075	6.76
22:00	0.2	0.04	0.07	0.04	0.0042	0.0050	4.51
22:15	0.3	0.06	0.07	0.06	0.0063	0.0075	6.76
22:30	0.2	0.04	0.07	0.04	0.0042	0.0050	4.51
22:45	0.2	0.04	0.07	0.04	0.0042	0.0050	4.51
23:00	0.2	0.04	0.07	0.04	0.0042	0.0050	4.51
23:15	0.2	0.04	0.07	0.04	0.0042	0.0050	4.51
23:30	0.2	0.04	0.07	0.04	0.0042	0.0050	4.51
23:45	0.2	0.04	0.07	0.04	0.0042	0.0050	4.51
24:00	0.2	0.04	0.07	0.04	0.0042	0.0050	4.51
	0	0.00	0.07	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**12155.64**

HYDROLOGY CALCULATIONS -

Using the RCFC&WCD Short Cut Unit Hydrograph Method
Area Designations **Date Palm Apartments**
OFF2

Drainage Area (ac.)	**0.4200**				
Unit time (minutes)	**5**	**5**	**5**	**15**	
100 Year Storm Duration (hrs)	1	3	6	24	
Total Precipitation (Plates D-4.4,E-5.2, 5.4, 5.6)(in.)	**1.93**	**2.70**	**3.49**	**5.26**	Or data from NOAA interactive website
Soils Group	A				
AMC index II Runoff Number (plate E-6.1)	32				
Plate E-6.2 Pervious Area Loss Rate (Fp)(in/hr)	0.74	(AMC II)			
Percentage of Impervious Cover (Ai)(%) (plate E-6.3)		**25**			
Weighted Average Loss Rate (F=Fp(1-.9Ai))(in./hr.)	0.57	(used for 1, 3, and 6 hour storm, the 24 hour storm uses variable maximum loss rate per plate E-1.1 (3 of 6))			
Low Loss Rate Percent (%)	90				
Retention Basin Percolation Rate (in/hr)	**2**	(also used for drywell percolation rate)			

Percolation is taken incrementally.
Basin volume is calculated using the "truncated pyramid" formula, a more conservative estimate than "averaged end areas" sometimes used

(Drywell can be "zeroed out" by reducing numbers to less than .001, but should not entered as zeros or program chokes.)
Drywell storage includes 40% of the 1' wide rock bed surrounding the drywell: formula (upper)*PI()*(diam/2)^2+(lower)*PI()*((diam/2)^2+0.4*((diam/2+(grav+0.4166))^2-(diam/2+0.4166)^2))
The drywell wall thickness is assumed at 5" (0.4166) and the gravel bed width is variable "grav"

Drywell design factors **Upper sec. (ft.)=** **0.0001** **Lower sec. (ft.)=** **0.0001** **Ring diam. (ft.) =** **0.0001** **Drywell lower max. (cf)=** **0.00** **Upper max.(cf)=** **0.00**
Gravel bed width around drwyell= **0** **Drywell total(cf)=** **0.00**

Ret. Basin design (area, depth) **Top =** **0.0001** s.f. **Bot. =** **0.0001** **s.f.** **Max. Depth (d)=** **0.0001** **Max. storage=** **0.00** (d/3)*(bottom+top+(bottom*top)^0.50)
Formulas **vol=(h/3)*(bottom+top+(bottom*top)^0.50)** **area=bottom+(h/d)*(top-bottom)** **h=(vol*3)/(bottom+top+(bottom*top)^0.5)** **(values must be non-zero or error occurs)**
Outside input from: **N/A**

1 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:05	3.7	0.8569	0.5735	N/A	0.2834	0.1200	36.01
0:10	4.8	1.1117	0.5735	N/A	0.5382	0.2279	68.38
0:15	5.1	1.1812	0.5735	N/A	0.6077	0.2573	77.20
0:20	4.9	1.1348	0.5735	N/A	0.5613	0.2377	71.32
0:25	6.6	1.5286	0.5735	N/A	0.9551	0.4045	121.34
0:30	7.3	1.6907	0.5735	N/A	1.1172	0.4731	141.94
0:35	8.4	1.9454	0.5735	N/A	1.3719	0.5810	174.30
0:40	9	2.0844	0.5735	N/A	1.5109	0.6399	191.96
0:45	12.3	2.8487	0.5735	N/A	2.2752	0.9635	289.06
0:50	17.6	4.0762	0.5735	N/A	**3.5027**	**1.4834**	**445.01**
0:55	16.1	3.7288	0.5735	N/A	3.1553	1.3363	400.88
1:00	4.2	0.9727	0.5735	N/A	0.3992	0.1691	50.72
	0	0.0000	0.5735	0.00	0.0000	0.0000	0.00
	0	0.0000	0.5735	0.00	0.0000	0.0000	0.00
1:15	0	0.0000	0.5735	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**2068.12**

3 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:05	1.3	0.42	0.57	0.38	0.0421	0.0178	5.35
0:10	1.3	0.42	0.57	0.38	0.0421	0.0178	5.35
0:15	1.1	0.36	0.57	0.32	0.0356	0.0151	4.53
0:20	1.5	0.49	0.57	0.44	0.0486	0.0206	6.17
0:25	1.5	0.49	0.57	0.44	0.0486	0.0206	6.17
0:30	1.8	0.58	0.57	0.52	0.0583	0.0247	7.41
0:35	1.5	0.49	0.57	0.44	0.0486	0.0206	6.17
0:40	1.8	0.58	0.57	0.52	0.0583	0.0247	7.41
0:45	1.8	0.58	0.57	0.52	0.0583	0.0247	7.41
0:50	1.5	0.49	0.57	0.44	0.0486	0.0206	6.17
0:55	1.6	0.52	0.57	0.47	0.0518	0.0220	6.59
1:00	1.8	0.58	0.57	0.52	0.0583	0.0247	7.41
1:05	2.2	0.71	0.57	N/A	0.1393	0.0590	17.70
1:10	2.2	0.71	0.57	N/A	0.1393	0.0590	17.70
1:15	2.2	0.71	0.57	N/A	0.1393	0.0590	17.70
1:20	2	0.65	0.57	N/A	0.0745	0.0316	9.47
1:25	2.6	0.84	0.57	N/A	0.2689	0.1139	34.16
1:30	2.7	0.87	0.57	N/A	0.3013	0.1276	38.28
1:35	2.4	0.78	0.57	N/A	0.2041	0.0864	25.93
1:40	2.7	0.87	0.57	N/A	0.3013	0.1276	38.28
1:45	3.3	1.07	0.57	N/A	0.4957	0.2099	62.98
1:50	3.1	1.00	0.57	N/A	0.4309	0.1825	54.75
1:55	2.9	0.94	0.57	N/A	0.3661	0.1550	46.51
2:00	3	0.97	0.57	N/A	0.3985	0.1688	50.63
2:05	3.1	1.00	0.57	N/A	0.4309	0.1825	54.75
2:10	4.2	1.36	0.57	N/A	0.7873	0.3334	100.03
2:15	5	1.62	0.57	N/A	1.0465	0.4432	132.96
2:20	3.5	1.13	0.57	N/A	0.5605	0.2374	71.21
2:25	6.8	2.20	0.57	N/A	1.6297	0.6902	207.05
2:30	7.3	2.37	0.57	N/A	1.7917	0.7588	227.64
2:35	8.2	2.66	0.57	N/A	**2.0833**	**0.8823**	**264.68**
2:40	5.9	1.91	0.57	N/A	1.3381	0.5667	170.01
2:45	2	0.65	0.57	N/A	0.0745	0.0316	9.47
2:50	1.8	0.58	0.57	0.52	0.0583	0.0247	7.41
2:55	1.8	0.58	0.57	0.52	0.0583	0.0247	7.41
3:00	0.6	0.19	0.57	0.17	0.0194	0.0082	2.47
	0	0.00	0.57	0.00	0.0000	0.0000	0.00
	0	0.00	0.57	0.00	0.0000	0.0000	0.00
3:15	0	0.00	0.57	0.00	0.0000	0.0000	0.00
	0	0.00	0.57	0.00	0.0000	0.0000	0.00
	0	0.00	0.57	0.00	0.0000	0.0000	0.00
3:30	0	0.00	0.57	0.00	0.0000	0.0000	0.00
	0	0.00	0.57	0.00	0.0000	0.0000	0.00
	0	0.00	0.57	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**1745.31**

6 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:05	0.5	0.21	0.57	0.19	0.0209	0.0089	2.66
0:10	0.6	0.25	0.57	0.23	0.0251	0.0106	3.19
0:15	0.6	0.25	0.57	0.23	0.0251	0.0106	3.19
0:20	0.6	0.25	0.57	0.23	0.0251	0.0106	3.19
0:25	0.6	0.25	0.57	0.23	0.0251	0.0106	3.19
0:30	0.7	0.29	0.57	0.26	0.0293	0.0124	3.72
0:35	0.7	0.29	0.57	0.26	0.0293	0.0124	3.72
0:40	0.7	0.29	0.57	0.26	0.0293	0.0124	3.72
0:45	0.7	0.29	0.57	0.26	0.0293	0.0124	3.72
0:50	0.7	0.29	0.57	0.26	0.0293	0.0124	3.72
0:55	0.7	0.29	0.57	0.26	0.0293	0.0124	3.72
1:00	0.8	0.34	0.57	0.30	0.0335	0.0142	4.26
1:05	0.8	0.34	0.57	0.30	0.0335	0.0142	4.26
1:10	0.8	0.34	0.57	0.30	0.0335	0.0142	4.26
1:15	0.8	0.34	0.57	0.30	0.0335	0.0142	4.26
1:20	0.8	0.34	0.57	0.30	0.0335	0.0142	4.26
1:25	0.8	0.34	0.57	0.30	0.0335	0.0142	4.26
1:30	0.8	0.34	0.57	0.30	0.0335	0.0142	4.26
1:35	0.8	0.34	0.57	0.30	0.0335	0.0142	4.26
1:40	0.8	0.34	0.57	0.30	0.0335	0.0142	4.26
1:45	0.8	0.34	0.57	0.30	0.0335	0.0142	4.26
1:50	0.8	0.34	0.57	0.30	0.0335	0.0142	4.26
1:55	0.8	0.34	0.57	0.30	0.0335	0.0142	4.26
2:00	0.9	0.38	0.57	0.34	0.0377	0.0160	4.79
2:05	0.8	0.34	0.57	0.30	0.0335	0.0142	4.26
2:10	0.9	0.38	0.57	0.34	0.0377	0.0160	4.79
2:15	0.9	0.38	0.57	0.34	0.0377	0.0160	4.79
2:20	0.9	0.38	0.57	0.34	0.0377	0.0160	4.79
2:25	0.9	0.38	0.57	0.34	0.0377	0.0160	4.79
2:30	0.9	0.38	0.57	0.34	0.0377	0.0160	4.79
2:35	0.9	0.38	0.57	0.34	0.0377	0.0160	4.79
2:40	0.9	0.38	0.57	0.34	0.0377	0.0160	4.79
2:45	1	0.42	0.57	0.38	0.0419	0.0177	5.32
2:50	1	0.42	0.57	0.38	0.0419	0.0177	5.32
2:55	1	0.42	0.57	0.38	0.0419	0.0177	5.32
3:00	1	0.42	0.57	0.38	0.0419	0.0177	5.32
3:05	1	0.42	0.57	0.38	0.0419	0.0177	5.32
3:10	1.1	0.46	0.57	0.41	0.0461	0.0195	5.85
3:15	1.1	0.46	0.57	0.41	0.0461	0.0195	5.85
3:20	1.1	0.46	0.57	0.41	0.0461	0.0195	5.85
3:25	1.2	0.50	0.57	0.45	0.0503	0.0213	6.39
3:30	1.3	0.54	0.57	0.49	0.0544	0.0231	6.92
3:35	1.4	0.59	0.57	0.53	0.0586	0.0248	7.45
3:40	1.4	0.59	0.57	0.53	0.0586	0.0248	7.45
3:45	1.5	0.63	0.57	0.57	0.0628	0.0266	7.98
3:50	1.5	0.63	0.57	0.57	0.0628	0.0266	7.98
3:55	1.6	0.67	0.57	N/A	0.0966	0.0409	12.27
4:00	1.6	0.67	0.57	N/A	0.0966	0.0409	12.27
4:05	1.7	0.71	0.57	N/A	0.1385	0.0586	17.59
4:10	1.8	0.75	0.57	N/A	0.1803	0.0764	22.91
4:15	1.9	0.80	0.57	N/A	0.2222	0.0941	28.23

4:20	2	0.84	0.57	N/A	0.2641	0.1118	33.55
4:25	2.1	0.88	0.57	N/A	0.3060	0.1296	38.87
4:30	2.1	0.88	0.57	N/A	0.3060	0.1296	38.87
4:35	2.2	0.92	0.57	N/A	0.3479	0.1473	44.20
4:40	2.3	0.96	0.57	N/A	0.3897	0.1651	49.52
4:45	2.4	1.01	0.57	N/A	0.4316	0.1828	54.84
4:50	2.4	1.01	0.57	N/A	0.4316	0.1828	54.84
4:55	2.5	1.05	0.57	N/A	0.4735	0.2005	60.16
5:00	2.6	1.09	0.57	N/A	0.5154	0.2183	65.48
5:05	3.1	1.30	0.57	N/A	0.7248	0.3069	92.08
5:10	3.6	1.51	0.57	N/A	0.9342	0.3956	118.69
5:15	3.9	1.63	0.57	N/A	1.0598	0.4488	134.65
5:20	4.2	1.76	0.57	N/A	1.1855	0.5020	150.61
5:25	4.7	1.97	0.57	N/A	1.3949	0.5907	177.22
5:30	5.6	2.35	0.57	N/A	**1.7718**	**0.7503**	**225.10**
5:35	1.9	0.80	0.57	N/A	0.2222	0.0941	28.23
5:40	0.9	0.38	0.57	0.34	0.0377	0.0160	4.79
5:45	0.6	0.25	0.57	0.23	0.0251	0.0106	3.19
5:50	0.5	0.21	0.57	0.19	0.0209	0.0089	2.66
5:55	0.3	0.13	0.57	0.11	0.0126	0.0053	1.60
6:00	0.2	0.08	0.57	0.08	0.0084	0.0035	1.06
	0	0.00	0.57	0.00	0.0000	0.0000	0.00
	0	0.00	0.57	0.00	0.0000	0.0000	0.00
6:15	0	0.00	0.57	0.00	0.0000	0.0000	0.00
	0	0.00	0.57	0.00	0.0000	0.0000	0.00
	0	0.00	0.57	0.00	0.0000	0.0000	0.00
6:30	0	0.00	0.57	0.00	0.0000	0.0000	0.00
	0	0.00	0.57	0.00	0.0000	0.0000	0.00
	0	0.00	0.57	0.00	0.0000	0.0000	0.00
6:45	0	0.00	0.57	0.00	0.0000	0.0000	0.00
	0	0.00	0.57	0.00	0.0000	0.0000	0.00
	0	0.00	0.57	0.00	0.0000	0.0000	0.00
7:00	0	0.00	0.57	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**1693.25**

24 Hour Storm in 15 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:15	0.2	0.04	1.01	0.04	0.0042	0.0018	1.60
0:30	0.3	0.06	1.00	0.06	0.0063	0.0027	2.41
0:45	0.3	0.06	0.98	0.06	0.0063	0.0027	2.41
1:00	0.4	0.08	0.97	0.08	0.0084	0.0036	3.21
1:15	0.3	0.06	0.96	0.06	0.0063	0.0027	2.41
1:30	0.3	0.06	0.95	0.06	0.0063	0.0027	2.41
1:45	0.3	0.06	0.94	0.06	0.0063	0.0027	2.41
2:00	0.4	0.08	0.93	0.08	0.0084	0.0036	3.21
2:15	0.4	0.08	0.92	0.08	0.0084	0.0036	3.21
2:30	0.4	0.08	0.90	0.08	0.0084	0.0036	3.21
2:45	0.5	0.11	0.89	0.09	0.0105	0.0045	4.01
3:00	0.5	0.11	0.88	0.09	0.0105	0.0045	4.01
3:15	0.5	0.11	0.87	0.09	0.0105	0.0045	4.01
3:30	0.5	0.11	0.86	0.09	0.0105	0.0045	4.01
3:45	0.5	0.11	0.85	0.09	0.0105	0.0045	4.01
4:00	0.6	0.13	0.84	0.11	0.0126	0.0053	4.81
4:15	0.6	0.13	0.83	0.11	0.0126	0.0053	4.81
4:30	0.7	0.15	0.82	0.13	0.0147	0.0062	5.61
4:45	0.7	0.15	0.81	0.13	0.0147	0.0062	5.61
5:00	0.8	0.17	0.80	0.15	0.0168	0.0071	6.42
5:15	0.6	0.13	0.79	0.11	0.0126	0.0053	4.81
5:30	0.7	0.15	0.78	0.13	0.0147	0.0062	5.61
5:45	0.8	0.17	0.77	0.15	0.0168	0.0071	6.42
6:00	0.8	0.17	0.76	0.15	0.0168	0.0071	6.42
6:15	0.9	0.19	0.75	0.17	0.0189	0.0080	7.22
6:30	0.9	0.19	0.74	0.17	0.0189	0.0080	7.22
6:45	1	0.21	0.73	0.19	0.0210	0.0089	8.02
7:00	1	0.21	0.72	0.19	0.0210	0.0089	8.02
7:15	1	0.21	0.71	0.19	0.0210	0.0089	8.02
7:30	1.1	0.23	0.70	0.21	0.0231	0.0098	8.82
7:45	1.2	0.25	0.69	0.23	0.0252	0.0107	9.62
8:00	1.3	0.27	0.68	0.25	0.0274	0.0116	10.43
8:15	1.5	0.32	0.67	0.28	0.0316	0.0134	12.03
8:30	1.5	0.32	0.66	0.28	0.0316	0.0134	12.03
8:45	1.6	0.34	0.65	0.30	0.0337	0.0143	12.83
9:00	1.7	0.36	0.64	0.32	0.0358	0.0151	13.63
9:15	1.9	0.40	0.63	0.36	0.0400	0.0169	15.24
9:30	2	0.42	0.62	0.38	0.0421	0.0178	16.04
9:45	2.1	0.44	0.61	0.40	0.0442	0.0187	16.84
10:00	2.2	0.46	0.60	0.42	0.0463	0.0196	17.64
10:15	1.5	0.32	0.60	0.28	0.0316	0.0134	12.03
10:30	1.5	0.32	0.59	0.28	0.0316	0.0134	12.03
10:45	2	0.42	0.58	0.38	0.0421	0.0178	16.04
11:00	2	0.42	0.57	0.38	0.0421	0.0178	16.04
11:15	1.9	0.40	0.56	0.36	0.0400	0.0169	15.24
11:30	1.9	0.40	0.55	0.36	0.0400	0.0169	15.24
11:45	1.7	0.36	0.54	0.32	0.0358	0.0151	13.63
12:00	1.8	0.38	0.54	0.34	0.0379	0.0160	14.43
12:15	2.5	0.53	0.53	0.47	0.0526	0.0223	20.05
12:30	2.6	0.55	0.52	0.49	0.0547	0.0232	20.85
12:45	2.8	0.59	0.51	N/A	0.0762	0.0323	29.05

13:00	2.9	0.61	0.51	N/A	0.1050	0.0445	40.02
13:15	3.4	0.72	0.50	N/A	0.2178	0.0923	83.03
13:30	3.4	0.72	0.49	N/A	**0.2254**	0.0955	**85.91**
13:45	2.3	0.48	0.48	0.44	0.0484	0.0205	18.44
14:00	2.3	0.48	0.48	0.44	0.0484	0.0205	18.44
14:15	2.7	0.57	0.47	N/A	0.1002	0.0424	38.18
14:30	2.6	0.55	0.46	N/A	0.0863	0.0365	32.88
14:45	2.6	0.55	0.45	N/A	0.0933	0.0395	35.57
15:00	2.5	0.53	0.45	N/A	0.0792	0.0336	30.20
15:15	2.4	0.50	0.44	N/A	0.0650	0.0275	24.78
15:30	2.3	0.48	0.43	N/A	0.0507	0.0215	19.33
15:45	1.9	0.40	0.43	0.36	0.0400	0.0169	15.24
16:00	1.9	0.40	0.42	0.36	0.0400	0.0169	15.24
16:15	0.4	0.08	0.41	0.08	0.0084	0.0036	3.21
16:30	0.4	0.08	0.41	0.08	0.0084	0.0036	3.21
16:45	0.3	0.06	0.40	0.06	0.0063	0.0027	2.41
17:00	0.3	0.06	0.40	0.06	0.0063	0.0027	2.41
17:15	0.5	0.11	0.39	0.09	0.0105	0.0045	4.01
17:30	0.5	0.11	0.38	0.09	0.0105	0.0045	4.01
17:45	0.5	0.11	0.38	0.09	0.0105	0.0045	4.01
18:00	0.4	0.08	0.37	0.08	0.0084	0.0036	3.21
18:15	0.4	0.08	0.37	0.08	0.0084	0.0036	3.21
18:30	0.4	0.08	0.36	0.08	0.0084	0.0036	3.21
18:45	0.3	0.06	0.36	0.06	0.0063	0.0027	2.41
19:00	0.2	0.04	0.35	0.04	0.0042	0.0018	1.60
19:15	0.3	0.06	0.35	0.06	0.0063	0.0027	2.41
19:30	0.4	0.08	0.34	0.08	0.0084	0.0036	3.21
19:45	0.3	0.06	0.34	0.06	0.0063	0.0027	2.41
20:00	0.2	0.04	0.33	0.04	0.0042	0.0018	1.60
20:15	0.3	0.06	0.33	0.06	0.0063	0.0027	2.41
20:30	0.3	0.06	0.32	0.06	0.0063	0.0027	2.41
20:45	0.3	0.06	0.32	0.06	0.0063	0.0027	2.41
21:00	0.2	0.04	0.32	0.04	0.0042	0.0018	1.60
21:15	0.3	0.06	0.31	0.06	0.0063	0.0027	2.41
21:30	0.2	0.04	0.31	0.04	0.0042	0.0018	1.60
21:45	0.3	0.06	0.31	0.06	0.0063	0.0027	2.41
22:00	0.2	0.04	0.30	0.04	0.0042	0.0018	1.60
22:15	0.3	0.06	0.30	0.06	0.0063	0.0027	2.41
22:30	0.2	0.04	0.30	0.04	0.0042	0.0018	1.60
22:45	0.2	0.04	0.29	0.04	0.0042	0.0018	1.60
23:00	0.2	0.04	0.29	0.04	0.0042	0.0018	1.60
23:15	0.2	0.04	0.29	0.04	0.0042	0.0018	1.60
23:30	0.2	0.04	0.29	0.04	0.0042	0.0018	1.60
23:45	0.2	0.04	0.29	0.04	0.0042	0.0018	1.60
24:00	0.2	0.04	0.29	0.04	0.0042	0.0018	1.60
	0	0.00	0.29	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**999.56**

POST-DEVELOPMENT

POST-DEVELOPMENT w/ RETENTION BASIN

HYDROLOGY CALCULATIONS -

Using the RCFC&WCD Short Cut Unit Hydrograph Method
Area Designations **The Wren - Entire Site Post Condition**

Drainage Area (ac.)	**10.4815**				
Unit time (minutes)	**5**	**5**	**5**	**15**	
100 Year Storm Duration (hrs)	1	3	6	24	
Total Precipitation (Plates D-4.4,E-5.2, 5.4, 5.6)(in.)	**1.93**	**2.70**	**3.49**	**5.26**	Or data from NOAA interactive website
Soils Group	A				
AMC index II Runoff Number (plate E-6.1)	32				
Plate E-6.2 Pervious Area Loss Rate (Fp)(in/hr)	0.74 (AMC II)				
Percentage of Impervious Cover (Ai)(%) (plate E-6.3)		**67.94**		310162 sf impervious	
Weighted Average Loss Rate (F=Fp(1-.9Ai))(in./hr.)	0.29 (used for 1, 3, and 6 hour storm, the 24 hour storm uses variable maximum loss rate per plate E-1.1 (3 of 6))				
Low Loss Rate Percent (%)	90				
Retention Basin Percolation Rate (in/hr)	**2** (also used for drywell percolation rate)				

Percolation is taken incrementally.
Basin volume is calculated using the "truncated pyramid" formula, a more conservative estimate than "averaged end areas" sometimes used

(Drywell can be "zeroed out" by reducing numbers to less than .001, but should not entered as zeros or program chokes.)
Drywell storage includes 40% of the 1' wide rock bed surrounding the drywell: formula (upper)*PI()*(diam/2)^2+(lower)*PI()*((diam/2)^2+0.4*((diam/2+(grav+0.4166))^2-(diam/2+0.4166)^2))
The drywell wall thickness is assumed at 5" (0.4166) and the gravel bed width is variable "grav"

Drywell design factors **Upper sec. (ft.)=** **0.0001** **Lower sec. (ft.)=** **0.0001** **Ring diam. (ft.) =** **0.0001** **Drywell lower max. (cf)=** **0.00** **Upper max.(cf)=** **0.00**
Gravel bed width around drwyell= **0** **Drywell total(cf)=** **0.00**

Ret. Basin design (area, depth) **Top =** **25510** s.f. **Bot. =** **3800** **s.f.** **Max. Depth (d)=** **5** **Max. storage=** **65259.52** (d/3)*(bottom+top+(bottom*top)^0.50)
Formulas **vol=(h/3)*(bottom+top+(bottom*top)^0.50)** **area=bottom+(h/d)*(top-bottom)** **h=(vol*3)/(bottom+top+(bottom*top)^0.5)** **(values must be non-zero or error occurs)**
Outside input from: **N/A**

1 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)	Outside Input (cf)	Drywell Retention Area (sf)	Drywell Period Perc. (c	Drywell Storage Vol. (cf)	Drywell Storage Depth (ft)	Overflow To Basin (cf)	Retention Area (sf)	Basin Period Perc. (cf)	Basin Storage Vol. (cf)	Basin Storage Depth (ft)	Overflow Vol. (cf)	Overflow Rate (cfs)
0:05	3.7	0.8569	0.2875	N/A	0.5694	6.0179	1805.37	0.00	0.00	0.00	0.00	0.00	1805.37	3800.00	52.78	1752.59	0.13	0.00	0.00
0:10	4.8	1.1117	0.2875	N/A	0.8242	8.7104	2613.13	0.00	0.00	0.00	0.00	0.00	2613.13	4383.04	60.88	4304.84	0.33	0.00	0.00
0:15	5.1	1.1812	0.2875	N/A	0.8936	9.4447	2833.42	0.00	0.00	0.00	0.00	0.00	2833.42	5232.10	72.67	7065.60	0.54	0.00	0.00
0:20	4.9	1.1348	0.2875	N/A	0.8473	8.9552	2686.56	0.00	0.00	0.00	0.00	0.00	2686.56	6150.53	85.42	9666.73	0.74	0.00	0.00
0:25	6.6	1.5286	0.2875	N/A	1.2410	13.1164	3934.91	0.00	0.00	0.00	0.00	0.00	3934.91	7015.85	97.44	13504.20	1.03	0.00	0.00
0:30	7.3	1.6907	0.2875	N/A	1.4032	14.8298	4448.93	0.00	0.00	0.00	0.00	0.00	4448.93	8292.47	115.17	17837.96	1.37	0.00	0.00
0:35	8.4	1.9454	0.2875	N/A	1.6579	17.5223	5256.69	0.00	0.00	0.00	0.00	0.00	5256.69	9734.19	135.20	22959.45	1.76	0.00	0.00
0:40	9	2.0844	0.2875	N/A	1.7969	18.9909	5697.28	0.00	0.00	0.00	0.00	0.00	5697.28	11437.96	158.86	28497.88	2.18	0.00	0.00
0:45	12.3	2.8487	0.2875	N/A	2.5612	27.0685	8120.55	0.00	0.00	0.00	0.00	0.00	8120.55	13280.44	184.45	36433.98	2.79	0.00	0.00
0:50	17.6	4.0762	0.2875	N/A	**3.7886**	**40.0415**	**12012.46**	0.00	0.00	0.00	0.00	0.00	12012.46	15920.56	221.12	48225.32	3.69	0.00	0.00
0:55	16.1	3.7288	0.2875	N/A	3.4412	36.3699	10910.98	0.00	0.00	0.00	0.00	0.00	10910.98	19843.20	275.60	58860.70	4.51	0.00	0.00
1:00	4.2	0.9727	0.2875	N/A	0.6852	7.2418	2172.53	0.00	0.00	0.00	0.00	0.00	2172.53	23381.29	324.74	**60708.49**	**4.65**	0.00	0.00
	0	0.0000	0.2875	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23996.00	333.28	60375.21	4.63	0.00	0.00
	0	0.0000	0.2875	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23885.13	331.74	60043.48	4.60	0.00	0.00
1:15	0	0.0000	0.2875	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23774.77	330.21	59713.27	4.58	0.00	0.00
					Total volume (cf)		**62492.82**								**Total Overflow (cf)**			**0.00**	

Drawdown time = **271.15** cf/5min x **12.00** per/hr = **3253.80** cf/hr. Therefore, 60708.49 cf. / 3253.8 cf/hr = 18.6577209 hours for total drawdown plus storm event = **19.25 hrs total drawdown**

3 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)	Outside Input (cf)	Drywell Retention Area (sf)	Drywell Period Perc. (c	Drywell Storage Vol. (cf)	Drywell Storage Depth (ft)	Overflow To Basin (cf)	Retention Area (sf)	Basin Period Perc. (cf)	Basin Storage Vol. (cf)	Basin Storage Depth (ft	Overflow Vol. (cf)	Overflow Rate (cfs)	
0:05	1.3	0.42	0.29	N/A	0.1337	1.4128	423.85	0.00	0.00	0.00	0.00	0.00	423.85	3800.00	52.78	371.08	0.03	0.00	0.00	
0:10	1.3	0.42	0.29	N/A	0.1337	1.4128	423.85	0.00	0.00	0.00	0.00	0.00	423.85	3923.45	54.49	740.44	0.06	0.00	0.00	
0:15	1.1	0.36	0.29	N/A	0.0689	0.7280	218.40	0.00	0.00	0.00	0.00	0.00	218.40	4046.32	56.20	902.64	0.07	0.00	0.00	
0:20	1.5	0.49	0.29	N/A	0.1985	2.0977	629.31	0.00	0.00	0.00	0.00	0.00	629.31	4100.28	56.95	1475.00	0.11	0.00	0.00	
0:25	1.5	0.49	0.29	N/A	0.1985	2.0977	629.31	0.00	0.00	0.00	0.00	0.00	629.31	4290.69	59.59	2044.72	0.16	0.00	0.00	
0:30	1.8	0.58	0.29	N/A	0.2957	3.1250	937.50	0.00	0.00	0.00	0.00	0.00	937.50	4480.22	62.23	2919.99	0.22	0.00	0.00	
0:35	1.5	0.49	0.29	N/A	0.1985	2.0977	629.31	0.00	0.00	0.00	0.00	0.00	629.31	4771.40	66.27	3483.04	0.27	0.00	0.00	
0:40	1.8	0.58	0.29	N/A	0.2957	3.1250	937.50	0.00	0.00	0.00	0.00	0.00	937.50	4958.71	68.87	4351.67	0.33	0.00	0.00	
0:45	1.8	0.58	0.29	N/A	0.2957	3.1250	937.50	0.00	0.00	0.00	0.00	0.00	937.50	5247.68	72.88	5216.28	0.40	0.00	0.00	
0:50	1.5	0.49	0.29	N/A	0.1985	2.0977	629.31	0.00	0.00	0.00	0.00	0.00	629.31	5535.31	76.88	5768.71	0.44	0.00	0.00	
0:55	1.6	0.52	0.29	N/A	0.2309	2.4401	732.04	0.00	0.00	0.00	0.00	0.00	732.04	5719.09	79.43	6421.32	0.49	0.00	0.00	
1:00	1.8	0.58	0.29	N/A	0.2957	3.1250	937.50	0.00	0.00	0.00	0.00	0.00	937.50	5936.19	82.45	7276.38	0.56	0.00	0.00	
1:05	2.2	0.71	0.29	N/A	0.4253	4.4947	1348.42	0.00	0.00	0.00	0.00	0.00	1348.42	6220.65	86.40	8538.40	0.65	0.00	0.00	
1:10	2.2	0.71	0.29	N/A	0.4253	4.4947	1348.42	0.00	0.00	0.00	0.00	0.00	1348.42	6640.48	92.23	9794.58	0.75	0.00	0.00	
1:15	2.2	0.71	0.29	N/A	0.4253	4.4947	1348.42	0.00	0.00	0.00	0.00	0.00	1348.42	7058.38	98.03	11044.97	0.85	0.00	0.00	
1:20	2	0.65	0.29	N/A	0.3605	3.8099	1142.96	0.00	0.00	0.00	0.00	0.00	1142.96	7474.35	103.81	12084.11	0.93	0.00	0.00	
1:25	2.6	0.84	0.29	N/A	0.5549	5.8644	1759.33	0.00	0.00	0.00	0.00	0.00	1759.33	7820.04	108.61	13734.84	1.05	0.00	0.00	
1:30	2.7	0.87	0.29	N/A	0.5873	6.2069	1862.06	0.00	0.00	0.00	0.00	0.00	1862.06	8369.19	116.24	15480.66	1.19	0.00	0.00	
1:35	2.4	0.78	0.29	N/A	0.4901	5.1796	1553.87	0.00	0.00	0.00	0.00	0.00	1553.87	8949.98	124.31	16910.23	1.30	0.00	0.00	
1:40	2.7	0.87	0.29	N/A	0.5873	6.2069	1862.06	0.00	0.00	0.00	0.00	0.00	1862.06	9425.56	130.91	18641.38	1.43	0.00	0.00	
1:45	3.3	1.07	0.29	N/A	0.7817	8.2615	2478.44	0.00	0.00	0.00	0.00	0.00	2478.44	10001.46	138.91	20980.91	1.61	0.00	0.00	
1:50	3.1	1.00	0.29	N/A	0.7169	7.5766	2272.98	0.00	0.00	0.00	0.00	0.00	2272.98	10779.76	149.72	23104.17	1.77	0.00	0.00	
1:55	2.9	0.94	0.29	N/A	0.6521	6.8917	2067.52	0.00	0.00	0.00	0.00	0.00	2067.52	11486.10	159.53	25012.16	1.92	0.00	0.00	
2:00	3	0.97	0.29	N/A	0.6845	7.2342	2170.25	0.00	0.00	0.00	0.00	0.00	2170.25	12120.84	168.34	27014.06	2.07	0.00	0.00	
2:05	3.1	1.00	0.29	N/A	0.7169	7.5766	2272.98	0.00	0.00	0.00	0.00	0.00	2272.98	12786.82	177.59	29109.45	2.23	0.00	0.00	
2:10	4.2	1.36	0.29	N/A	1.0733	11.3433	3403.00	0.00	0.00	0.00	0.00	0.00	3403.00	13483.89	187.28	32325.17	2.48	0.00	0.00	
2:15	5	1.62	0.29	N/A	1.3325	14.0828	4224.83	0.00	0.00	0.00	0.00	0.00	4224.83	14553.67	202.13	36347.87	2.78	0.00	0.00	
2:20	3.5	1.13	0.29	N/A	0.8465	8.9463	2683.90	0.00	0.00	0.00	0.00	0.00	2683.90	15891.91	220.72	38811.04	2.97	0.00	0.00	
2:25	6.8	2.20	0.29	N/A	1.9157	20.2465	6073.96	0.00	0.00	0.00	0.00	0.00	6073.96	16711.34	232.10	44652.90	3.42	0.00	0.00	
2:30	7.3	2.37	0.29	N/A	2.0777	21.9587	6587.60	0.00	0.00	0.00	0.00	0.00	6587.60	18654.76	259.09	50981.41	3.91	0.00	0.00	
2:35	8.2	2.66	0.29	N/A	**2.3693**	**25.0406**	**7512.17**	0.00	0.00	0.00	0.00	0.00	7512.17	20760.08	288.33	58205.24	4.46	0.00	0.00	
2:40	5.9	1.91	0.29	N/A	1.6241	17.1647	5149.40	0.00	0.00	0.00	0.00	0.00	5149.40	23163.24	321.71	63032.92	4.83	0.00	0.00	
2:45	2	0.65	0.29	N/A	0.3605	3.8099	1142.96	0.00	0.00	0.00	0.00	0.00	1142.96	24769.28	344.02	63831.86	4.89	0.00	0.00	
2:50	1.8	0.58	0.29	N/A	0.2957	3.1250	937.50	0.00	0.00	0.00	0.00	0.00	937.50	25035.06	347.71	64421.65	4.94	0.00	0.00	
2:55	1.8	0.58	0.29	N/A	0.2957	3.1250	937.50	0.00	0.00	0.00	0.00	0.00	937.50	25231.27	350.43	**65008.72**	**4.98**	0.00	0.00	**ok MAX DEPTH=5.0'**
3:00	0.6	0.19	0.29	0.17	0.0194	0.2055	61.64	0.00	0.00	0.00	0.00	0.00	61.64	25426.57	353.15	64717.21	4.96	0.00	0.00	
	0	0.00	0.29	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25329.59	351.80	64365.41	4.93	0.00	0.00	
	0	0.00	0.29	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25212.56	350.17	64015.24	4.90	0.00	0.00	
3:15	0	0.00	0.29	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25096.06	348.56	63666.68	4.88	0.00	0.00	
	0	0.00	0.29	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24980.11	346.95	63319.73	4.85	0.00	0.00	
	0	0.00	0.29	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24864.69	345.34	62974.39	4.82	0.00	0.00	
3:30	0	0.00	0.29	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24749.80	343.75	62630.64	4.80	0.00	0.00	
	0	0.00	0.29	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24635.45	342.16	62288.48	4.77	0.00	0.00	
	0	0.00	0.29	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24521.62	340.58	61947.91	4.75	0.00	0.00	
					Total volume (cf)		**70267.54**									**Total Overflow (cf)**		**0.00**		

Drawdown time = 332.49 cf/5min x 12.0000 per/hr = 3989.88 cf/hr. Therefore, 58553.00 cf. / 3989.88 cf/hr = 14.6753787 hours for total drawdown plus storm event = **17.68 hrs total drawdown**

6 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)	Outside Input (cf)	Drywell Retention Area (sf)	Drywell Period Perc. (c	Drywell Storage Vol. (cf)	Drywell Storage Depth (ft)	Overflow To Basin (cf)	Retention Area (sf)	Basin Period Perc. (cf)	Basin Storage Vol. (cf)	Basin Storage Depth (ft	Overflow Vol. (cf)	Overflow Rate (cfs)
0:05	0.5	0.21	0.29	0.19	0.0209	0.2213	66.39	0.00	0.00	0.00	0.00	0.00	66.39	3800.00	52.78	13.62	0.00	0.00	0.00
0:10	0.6	0.25	0.29	0.23	0.0251	0.2656	79.67	0.00	0.00	0.00	0.00	0.00	79.67	3804.53	52.84	40.45	0.00	0.00	0.00
0:15	0.6	0.25	0.29	0.23	0.0251	0.2656	79.67	0.00	0.00	0.00	0.00	0.00	79.67	3813.46	52.96	67.15	0.01	0.00	0.00
0:20	0.6	0.25	0.29	0.23	0.0251	0.2656	79.67	0.00	0.00	0.00	0.00	0.00	79.67	3822.34	53.09	93.74	0.01	0.00	0.00
0:25	0.6	0.25	0.29	0.23	0.0251	0.2656	79.67	0.00	0.00	0.00	0.00	0.00	79.67	3831.18	53.21	120.20	0.01	0.00	0.00
0:30	0.7	0.29	0.29	0.26	0.0293	0.3098	92.95	0.00	0.00	0.00	0.00	0.00	92.95	3839.99	53.33	159.82	0.01	0.00	0.00
0:35	0.7	0.29	0.29	0.26	0.0293	0.3098	92.95	0.00	0.00	0.00	0.00	0.00	92.95	3853.17	53.52	199.25	0.02	0.00	0.00
0:40	0.7	0.29	0.29	0.26	0.0293	0.3098	92.95	0.00	0.00	0.00	0.00	0.00	92.95	3866.29	53.70	238.50	0.02	0.00	0.00
0:45	0.7	0.29	0.29	0.26	0.0293	0.3098	92.95	0.00	0.00	0.00	0.00	0.00	92.95	3879.34	53.88	277.58	0.02	0.00	0.00
0:50	0.7	0.29	0.29	0.26	0.0293	0.3098	92.95	0.00	0.00	0.00	0.00	0.00	92.95	3892.34	54.06	316.47	0.02	0.00	0.00
0:55	0.7	0.29	0.29	0.26	0.0293	0.3098	92.95	0.00	0.00	0.00	0.00	0.00	92.95	3905.28	54.24	355.18	0.03	0.00	0.00
1:00	0.8	0.34	0.29	N/A	0.0475	0.5022	150.67	0.00	0.00	0.00	0.00	0.00	150.67	3918.16	54.42	451.43	0.03	0.00	0.00
1:05	0.8	0.34	0.29	N/A	0.0475	0.5022	150.67	0.00	0.00	0.00	0.00	0.00	150.67	3950.18	54.86	547.24	0.04	0.00	0.00
1:10	0.8	0.34	0.29	N/A	0.0475	0.5022	150.67	0.00	0.00	0.00	0.00	0.00	150.67	3982.05	55.31	642.60	0.05	0.00	0.00
1:15	0.8	0.34	0.29	N/A	0.0475	0.5022	150.67	0.00	0.00	0.00	0.00	0.00	150.67	4013.78	55.75	737.52	0.06	0.00	0.00
1:20	0.8	0.34	0.29	N/A	0.0475	0.5022	150.67	0.00	0.00	0.00	0.00	0.00	150.67	4045.35	56.19	832.01	0.06	0.00	0.00
1:25	0.8	0.34	0.29	N/A	0.0475	0.5022	150.67	0.00	0.00	0.00	0.00	0.00	150.67	4076.79	56.62	926.06	0.07	0.00	0.00
1:30	0.8	0.34	0.29	N/A	0.0475	0.5022	150.67	0.00	0.00	0.00	0.00	0.00	150.67	4108.07	57.06	1019.67	0.08	0.00	0.00
1:35	0.8	0.34	0.29	N/A	0.0475	0.5022	150.67	0.00	0.00	0.00	0.00	0.00	150.67	4139.22	57.49	1112.85	0.09	0.00	0.00
1:40	0.8	0.34	0.29	N/A	0.0475	0.5022	150.67	0.00	0.00	0.00	0.00	0.00	150.67	4170.22	57.92	1205.61	0.09	0.00	0.00
1:45	0.8	0.34	0.29	N/A	0.0475	0.5022	150.67	0.00	0.00	0.00	0.00	0.00	150.67	4201.07	58.35	1297.93	0.10	0.00	0.00
1:50	0.8	0.34	0.29	N/A	0.0475	0.5022	150.67	0.00	0.00	0.00	0.00	0.00	150.67	4231.78	58.77	1389.82	0.11	0.00	0.00
1:55	0.8	0.34	0.29	N/A	0.0475	0.5022	150.67	0.00	0.00	0.00	0.00	0.00	150.67	4262.36	59.20	1481.29	0.11	0.00	0.00
2:00	0.9	0.38	0.29	N/A	0.0894	0.9449	283.46	0.00	0.00	0.00	0.00	0.00	283.46	4292.79	59.62	1705.13	0.13	0.00	0.00
2:05	0.8	0.34	0.29	N/A	0.0475	0.5022	150.67	0.00	0.00	0.00	0.00	0.00	150.67	4367.25	60.66	1795.14	0.14	0.00	0.00
2:10	0.9	0.38	0.29	N/A	0.0894	0.9449	283.46	0.00	0.00	0.00	0.00	0.00	283.46	4397.19	61.07	2017.53	0.15	0.00	0.00
2:15	0.9	0.38	0.29	N/A	0.0894	0.9449	283.46	0.00	0.00	0.00	0.00	0.00	283.46	4471.18	62.10	2238.89	0.17	0.00	0.00
2:20	0.9	0.38	0.29	N/A	0.0894	0.9449	283.46	0.00	0.00	0.00	0.00	0.00	283.46	4544.81	63.12	2459.22	0.19	0.00	0.00
2:25	0.9	0.38	0.29	N/A	0.0894	0.9449	283.46	0.00	0.00	0.00	0.00	0.00	283.46	4618.11	64.14	2678.54	0.21	0.00	0.00
2:30	0.9	0.38	0.29	N/A	0.0894	0.9449	283.46	0.00	0.00	0.00	0.00	0.00	283.46	4691.07	65.15	2896.84	0.22	0.00	0.00
2:35	0.9	0.38	0.29	N/A	0.0894	0.9449	283.46	0.00	0.00	0.00	0.00	0.00	283.46	4763.70	66.16	3114.14	0.24	0.00	0.00
2:40	0.9	0.38	0.29	N/A	0.0894	0.9449	283.46	0.00	0.00	0.00	0.00	0.00	283.46	4835.99	67.17	3330.43	0.26	0.00	0.00
2:45	1	0.42	0.29	N/A	0.1313	1.3875	416.24	0.00	0.00	0.00	0.00	0.00	416.24	4907.94	68.17	3678.51	0.28	0.00	0.00
2:50	1	0.42	0.29	N/A	0.1313	1.3875	416.24	0.00	0.00	0.00	0.00	0.00	416.24	5023.74	69.77	4024.98	0.31	0.00	0.00
2:55	1	0.42	0.29	N/A	0.1313	1.3875	416.24	0.00	0.00	0.00	0.00	0.00	416.24	5139.00	71.37	4369.85	0.33	0.00	0.00
3:00	1	0.42	0.29	N/A	0.1313	1.3875	416.24	0.00	0.00	0.00	0.00	0.00	416.24	5253.73	72.97	4713.13	0.36	0.00	0.00
3:05	1	0.42	0.29	N/A	0.1313	1.3875	416.24	0.00	0.00	0.00	0.00	0.00	416.24	5367.92	74.55	5054.82	0.39	0.00	0.00
3:10	1.1	0.46	0.29	N/A	0.1732	1.8301	549.03	0.00	0.00	0.00	0.00	0.00	549.03	5481.59	76.13	5527.71	0.42	0.00	0.00
3:15	1.1	0.46	0.29	N/A	0.1732	1.8301	549.03	0.00	0.00	0.00	0.00	0.00	549.03	5638.91	78.32	5998.43	0.46	0.00	0.00
3:20	1.1	0.46	0.29	N/A	0.1732	1.8301	549.03	0.00	0.00	0.00	0.00	0.00	549.03	5795.51	80.49	6466.97	0.50	0.00	0.00
3:25	1.2	0.50	0.29	N/A	0.2150	2.2727	681.82	0.00	0.00	0.00	0.00	0.00	681.82	5951.38	82.66	7066.13	0.54	0.00	0.00
3:30	1.3	0.54	0.29	N/A	0.2569	2.7154	814.61	0.00	0.00	0.00	0.00	0.00	814.61	6150.70	85.43	7795.31	0.60	0.00	0.00
3:35	1.4	0.59	0.29	N/A	0.2988	3.1580	947.39	0.00	0.00	0.00	0.00	0.00	947.39	6393.28	88.80	8653.90	0.66	0.00	0.00
3:40	1.4	0.59	0.29	N/A	0.2988	3.1580	947.39	0.00	0.00	0.00	0.00	0.00	947.39	6678.91	92.76	9508.53	0.73	0.00	0.00
3:45	1.5	0.63	0.29	N/A	0.3407	3.6006	1080.18	0.00	0.00	0.00	0.00	0.00	1080.18	6963.22	96.71	10492.00	0.80	0.00	0.00
3:50	1.5	0.63	0.29	N/A	0.3407	3.6006	1080.18	0.00	0.00	0.00	0.00	0.00	1080.18	7290.39	101.26	11470.92	0.88	0.00	0.00
3:55	1.6	0.67	0.29	N/A	0.3826	4.0432	1212.97	0.00	0.00	0.00	0.00	0.00	1212.97	7616.05	105.78	12578.11	0.96	0.00	0.00
4:00	1.6	0.67	0.29	N/A	0.3826	4.0432	1212.97	0.00	0.00	0.00	0.00	0.00	1212.97	7984.38	110.89	13680.18	1.05	0.00	0.00
4:05	1.7	0.71	0.29	N/A	0.4244	4.4858	1345.75	0.00	0.00	0.00	0.00	0.00	1345.75	8351.01	115.99	14909.95	1.14	0.00	0.00
4:10	1.8	0.75	0.29	N/A	0.4663	4.9285	1478.54	0.00	0.00	0.00	0.00	0.00	1478.54	8760.12	121.67	16266.82	1.25	0.00	0.00
4:15	1.9	0.80	0.29	N/A	0.5082	5.3711	1611.33	0.00	0.00	0.00	0.00	0.00	1611.33	9211.51	127.94	17750.21	1.36	0.00	0.00

4:20	2	0.84	0.29	N/A	0.5501	5.8137	1744.11	0.00	0.00	0.00	0.00	0.00	1744.11	9704.99	134.79	19359.53	1.48	0.00	0.00
4:25	2.1	0.88	0.29	N/A	0.5920	6.2563	1876.90	0.00	0.00	0.00	0.00	0.00	1876.90	10240.37	142.23	21094.21	1.62	0.00	0.00
4:30	2.1	0.88	0.29	N/A	0.5920	6.2563	1876.90	0.00	0.00	0.00	0.00	0.00	1876.90	10817.45	150.24	22820.87	1.75	0.00	0.00
4:35	2.2	0.92	0.29	N/A	0.6338	6.6990	2009.69	0.00	0.00	0.00	0.00	0.00	2009.69	11391.86	158.22	24672.33	1.89	0.00	0.00
4:40	2.3	0.96	0.29	N/A	0.6757	7.1416	2142.47	0.00	0.00	0.00	0.00	0.00	2142.47	12007.79	166.77	26648.03	2.04	0.00	0.00
4:45	2.4	1.01	0.29	N/A	0.7176	7.5842	2275.26	0.00	0.00	0.00	0.00	0.00	2275.26	12665.05	175.90	28747.39	2.20	0.00	0.00
4:50	2.4	1.01	0.29	N/A	0.7176	7.5842	2275.26	0.00	0.00	0.00	0.00	0.00	2275.26	13363.45	185.60	30837.05	2.36	0.00	0.00
4:55	2.5	1.05	0.29	N/A	0.7595	8.0268	2408.05	0.00	0.00	0.00	0.00	0.00	2408.05	14058.62	195.26	33049.84	2.53	0.00	0.00
5:00	2.6	1.09	0.29	N/A	0.8014	8.4695	2540.84	0.00	0.00	0.00	0.00	0.00	2540.84	14794.75	205.48	35385.19	2.71	0.00	0.00
5:05	3.1	1.30	0.29	N/A	1.0108	10.6826	3204.77	0.00	0.00	0.00	0.00	0.00	3204.77	15571.66	216.27	38373.69	2.94	0.00	0.00
5:10	3.6	1.51	0.29	N/A	1.2202	12.8957	3868.70	0.00	0.00	0.00	0.00	0.00	3868.70	16565.84	230.08	42012.31	3.22	0.00	0.00
5:15	3.9	1.63	0.29	N/A	1.3458	14.2236	4267.07	0.00	0.00	0.00	0.00	0.00	4267.07	17776.31	246.89	46032.49	3.53	0.00	0.00
5:20	4.2	1.76	0.29	N/A	1.4714	15.5514	4665.43	0.00	0.00	0.00	0.00	0.00	4665.43	19113.71	265.47	50432.44	3.86	0.00	0.00
5:25	4.7	1.97	0.29	N/A	1.6808	17.7645	5329.36	0.00	0.00	0.00	0.00	0.00	5329.36	20577.45	285.80	55476.01	4.25	0.00	0.00
5:30	5.6	2.35	0.29	N/A	**2.0578**	**21.7481**	**6524.44**	0.00	0.00	0.00	0.00	0.00	6524.44	22255.30	309.10	61691.35	4.73	0.00	0.00
5:35	1.9	0.80	0.29	N/A	0.5082	5.3711	1611.33	0.00	0.00	0.00	0.00	0.00	1611.33	24322.97	337.82	**62964.86**	**4.82**	0.00	0.00
5:40	0.9	0.38	0.29	N/A	0.0894	0.9449	283.46	0.00	0.00	0.00	0.00	0.00	283.46	24746.63	343.70	62904.61	4.82	0.00	0.00
5:45	0.6	0.25	0.29	0.23	0.0251	0.2656	79.67	0.00	0.00	0.00	0.00	0.00	79.67	24726.59	343.42	62640.86	4.80	0.00	0.00
5:50	0.5	0.21	0.29	0.19	0.0209	0.2213	66.39	0.00	0.00	0.00	0.00	0.00	66.39	24638.85	342.21	62365.05	4.78	0.00	0.00
5:55	0.3	0.13	0.29	0.11	0.0126	0.1328	39.84	0.00	0.00	0.00	0.00	0.00	39.84	24547.09	340.93	62063.95	4.76	0.00	0.00
6:00	0.2	0.08	0.29	0.08	0.0084	0.0885	26.56	0.00	0.00	0.00	0.00	0.00	26.56	24446.93	339.54	61750.97	4.73	0.00	0.00
	0	0.00	0.29	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24342.80	338.09	61412.87	4.71	0.00	0.00
	0	0.00	0.29	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24230.33	336.53	61076.34	4.68	0.00	0.00
6:15	0	0.00	0.29	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24118.38	334.98	60741.36	4.65	0.00	0.00
	0	0.00	0.29	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24006.94	333.43	60407.93	4.63	0.00	0.00
	0	0.00	0.29	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23896.02	331.89	60076.04	4.60	0.00	0.00
6:30	0	0.00	0.29	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23785.61	330.36	59745.69	4.58	0.00	0.00
	0	0.00	0.29	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23675.71	328.83	59416.86	4.55	0.00	0.00
	0	0.00	0.29	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23566.31	327.31	59089.55	4.53	0.00	0.00
6:45	0	0.00	0.29	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23457.43	325.80	58763.75	4.50	0.00	0.00
	0	0.00	0.29	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23349.04	324.29	58439.46	4.48	0.00	0.00
	0	0.00	0.29	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23241.16	322.79	58116.67	4.45	0.00	0.00
7:00	0	0.00	0.29	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23133.78	321.30	57795.36	4.43	0.00	0.00
					Total volume (cf)		**70427.11**								**Total Overflow (cf)**			**0.00**	

Drawdown time = 263.80 cf/5min x 12 per/hr = 3165.6 cf/hr. Therefore, 62964.86 cf. / 3165.6 cf/hr = 19.8903393 hours for total drawdown plus storm event = **23.97 hrs total drawdown**

24 Hour Storm in 15 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)	Outside Input (cf)	Drywell Retention Area (sf)	Drywell Period Perc. (c	Drywell Storage Vol. (cf)	Drywell Storage Depth (ft)	Overflow To Basin (cf)	Retention Area (sf)	Basin Period Perc. (cf)	Basin Storage Vol. (cf)	Basin Storage Depth (ft	Overflow Vol. (cf)	Overflow Rate (cfs)
0:15	0.2	0.04	0.50	0.04	0.0042	0.0445	40.03	0.00	0.00	0.00	0.00	0.00	40.03	3800.00	40.03	0.00	0.00	0.00	0.00
0:30	0.3	0.06	0.50	0.06	0.0063	0.0667	60.04	0.00	0.00	0.00	0.00	0.00	60.04	3800.00	60.04	0.00	0.00	0.00	0.00
0:45	0.3	0.06	0.49	0.06	0.0063	0.0667	60.04	0.00	0.00	0.00	0.00	0.00	60.04	3800.00	60.04	0.00	0.00	0.00	0.00
1:00	0.4	0.08	0.49	0.08	0.0084	0.0889	80.05	0.00	0.00	0.00	0.00	0.00	80.05	3800.00	80.05	0.00	0.00	0.00	0.00
1:15	0.3	0.06	0.48	0.06	0.0063	0.0667	60.04	0.00	0.00	0.00	0.00	0.00	60.04	3800.00	60.04	0.00	0.00	0.00	0.00
1:30	0.3	0.06	0.48	0.06	0.0063	0.0667	60.04	0.00	0.00	0.00	0.00	0.00	60.04	3800.00	60.04	0.00	0.00	0.00	0.00
1:45	0.3	0.06	0.47	0.06	0.0063	0.0667	60.04	0.00	0.00	0.00	0.00	0.00	60.04	3800.00	60.04	0.00	0.00	0.00	0.00
2:00	0.4	0.08	0.46	0.08	0.0084	0.0889	80.05	0.00	0.00	0.00	0.00	0.00	80.05	3800.00	80.05	0.00	0.00	0.00	0.00
2:15	0.4	0.08	0.46	0.08	0.0084	0.0889	80.05	0.00	0.00	0.00	0.00	0.00	80.05	3800.00	80.05	0.00	0.00	0.00	0.00
2:30	0.4	0.08	0.45	0.08	0.0084	0.0889	80.05	0.00	0.00	0.00	0.00	0.00	80.05	3800.00	80.05	0.00	0.00	0.00	0.00
2:45	0.5	0.11	0.45	0.09	0.0105	0.1112	100.07	0.00	0.00	0.00	0.00	0.00	100.07	3800.00	100.07	0.00	0.00	0.00	0.00
3:00	0.5	0.11	0.44	0.09	0.0105	0.1112	100.07	0.00	0.00	0.00	0.00	0.00	100.07	3800.00	100.07	0.00	0.00	0.00	0.00
3:15	0.5	0.11	0.44	0.09	0.0105	0.1112	100.07	0.00	0.00	0.00	0.00	0.00	100.07	3800.00	100.07	0.00	0.00	0.00	0.00
3:30	0.5	0.11	0.43	0.09	0.0105	0.1112	100.07	0.00	0.00	0.00	0.00	0.00	100.07	3800.00	100.07	0.00	0.00	0.00	0.00
3:45	0.5	0.11	0.43	0.09	0.0105	0.1112	100.07	0.00	0.00	0.00	0.00	0.00	100.07	3800.00	100.07	0.00	0.00	0.00	0.00
4:00	0.6	0.13	0.42	0.11	0.0126	0.1334	120.08	0.00	0.00	0.00	0.00	0.00	120.08	3800.00	120.08	0.00	0.00	0.00	0.00
4:15	0.6	0.13	0.42	0.11	0.0126	0.1334	120.08	0.00	0.00	0.00	0.00	0.00	120.08	3800.00	120.08	0.00	0.00	0.00	0.00
4:30	0.7	0.15	0.41	0.13	0.0147	0.1557	140.09	0.00	0.00	0.00	0.00	0.00	140.09	3800.00	140.09	0.00	0.00	0.00	0.00
4:45	0.7	0.15	0.40	0.13	0.0147	0.1557	140.09	0.00	0.00	0.00	0.00	0.00	140.09	3800.00	140.09	0.00	0.00	0.00	0.00
5:00	0.8	0.17	0.40	0.15	0.0168	0.1779	160.11	0.00	0.00	0.00	0.00	0.00	160.11	3800.00	158.33	1.77	0.00	0.00	0.00
5:15	0.6	0.13	0.39	0.11	0.0126	0.1334	120.08	0.00	0.00	0.00	0.00	0.00	120.08	3800.59	158.36	0.00	0.00	0.00	0.00
5:30	0.7	0.15	0.39	0.13	0.0147	0.1557	140.09	0.00	0.00	0.00	0.00	0.00	140.09	3800.00	140.09	0.00	0.00	0.00	0.00
5:45	0.8	0.17	0.38	0.15	0.0168	0.1779	160.11	0.00	0.00	0.00	0.00	0.00	160.11	3800.00	158.33	1.77	0.00	0.00	0.00
6:00	0.8	0.17	0.38	0.15	0.0168	0.1779	160.11	0.00	0.00	0.00	0.00	0.00	160.11	3800.59	158.36	3.52	0.00	0.00	0.00
6:15	0.9	0.19	0.37	0.17	0.0189	0.2001	180.12	0.00	0.00	0.00	0.00	0.00	180.12	3801.17	158.38	25.26	0.00	0.00	0.00
6:30	0.9	0.19	0.37	0.17	0.0189	0.2001	180.12	0.00	0.00	0.00	0.00	0.00	180.12	3808.40	158.68	46.69	0.00	0.00	0.00
6:45	1	0.21	0.36	0.19	0.0210	0.2224	200.13	0.00	0.00	0.00	0.00	0.00	200.13	3815.53	158.98	87.84	0.01	0.00	0.00
7:00	1	0.21	0.36	0.19	0.0210	0.2224	200.13	0.00	0.00	0.00	0.00	0.00	200.13	3829.22	159.55	128.42	0.01	0.00	0.00
7:15	1	0.21	0.35	0.19	0.0210	0.2224	200.13	0.00	0.00	0.00	0.00	0.00	200.13	3842.72	160.11	168.44	0.01	0.00	0.00
7:30	1.1	0.23	0.35	0.21	0.0231	0.2446	220.14	0.00	0.00	0.00	0.00	0.00	220.14	3856.04	160.67	227.92	0.02	0.00	0.00
7:45	1.2	0.25	0.34	0.23	0.0252	0.2668	240.16	0.00	0.00	0.00	0.00	0.00	240.16	3875.82	161.49	306.58	0.02	0.00	0.00
8:00	1.3	0.27	0.34	0.25	0.0274	0.2891	260.17	0.00	0.00	0.00	0.00	0.00	260.17	3901.99	162.58	404.17	0.03	0.00	0.00
8:15	1.5	0.32	0.33	0.28	0.0316	0.3336	300.20	0.00	0.00	0.00	0.00	0.00	300.20	3934.46	163.94	540.43	0.04	0.00	0.00
8:30	1.5	0.32	0.33	0.28	0.0316	0.3336	300.20	0.00	0.00	0.00	0.00	0.00	300.20	3979.79	165.82	674.81	0.05	0.00	0.00
8:45	1.6	0.34	0.33	0.30	0.0337	0.3558	320.21	0.00	0.00	0.00	0.00	0.00	320.21	4024.49	167.69	827.33	0.06	0.00	0.00
9:00	1.7	0.36	0.32	N/A	0.0368	0.3893	350.36	0.00	0.00	0.00	0.00	0.00	350.36	4075.23	169.80	1007.89	0.08	0.00	0.00
9:15	1.9	0.40	0.32	N/A	0.0835	0.8822	793.94	0.00	0.00	0.00	0.00	0.00	793.94	4135.30	172.30	1629.53	0.12	0.00	0.00
9:30	2	0.42	0.31	N/A	0.1090	1.1522	1036.98	0.00	0.00	0.00	0.00	0.00	1036.98	4342.10	180.92	2485.59	0.19	0.00	0.00
9:45	2.1	0.44	0.31	N/A	0.1345	1.4218	1279.62	0.00	0.00	0.00	0.00	0.00	1279.62	4626.89	192.79	3572.43	0.27	0.00	0.00
10:00	2.2	0.46	0.30	N/A	0.1600	1.6909	1521.85	0.00	0.00	0.00	0.00	0.00	1521.85	4988.45	207.85	4886.43	0.37	0.00	0.00
10:15	1.5	0.32	0.30	0.28	0.0316	0.3336	300.20	0.00	0.00	0.00	0.00	0.00	300.20	5425.58	226.07	4960.56	0.38	0.00	0.00
10:30	1.5	0.32	0.29	0.28	0.0316	0.3336	300.20	0.00	0.00	0.00	0.00	0.00	300.20	5450.24	227.09	5033.66	0.39	0.00	0.00
10:45	2	0.42	0.29	N/A	0.1309	1.3838	1245.41	0.00	0.00	0.00	0.00	0.00	1245.41	5474.56	228.11	6050.97	0.46	0.00	0.00
11:00	2	0.42	0.29	N/A	0.1352	1.4287	1285.84	0.00	0.00	0.00	0.00	0.00	1285.84	5812.99	242.21	7094.60	0.54	0.00	0.00
11:15	1.9	0.40	0.28	N/A	0.1183	1.2508	1125.72	0.00	0.00	0.00	0.00	0.00	1125.72	6160.17	256.67	7963.64	0.61	0.00	0.00
11:30	1.9	0.40	0.28	N/A	0.1225	1.2948	1165.30	0.00	0.00	0.00	0.00	0.00	1165.30	6449.28	268.72	8860.22	0.68	0.00	0.00
11:45	1.7	0.36	0.27	N/A	0.0845	0.8935	804.18	0.00	0.00	0.00	0.00	0.00	804.18	6747.54	281.15	9383.25	0.72	0.00	0.00
12:00	1.8	0.38	0.27	N/A	0.1097	1.1589	1043.02	0.00	0.00	0.00	0.00	0.00	1043.02	6921.54	288.40	10137.87	0.78	0.00	0.00
12:15	2.5	0.53	0.27	N/A	0.2610	2.7580	2482.21	0.00	0.00	0.00	0.00	0.00	2482.21	7172.58	298.86	12321.22	0.94	0.00	0.00
12:30	2.6	0.55	0.26	N/A	0.2860	3.0224	2720.16	0.00	0.00	0.00	0.00	0.00	2720.16	7898.92	329.12	14712.26	1.13	0.00	0.00
12:45	2.8	0.59	0.26	N/A	0.3320	3.5087	3157.80	0.00	0.00	0.00	0.00	0.00	3157.80	8694.35	362.26	17507.79	1.34	0.00	0.00

13:00	2.9	0.61	0.25	N/A	0.3569	3.7721	3394.85	0.00	0.00	0.00	0.00	0.00	3394.85	9624.35	401.01	20501.63	1.57	0.00	0.00
13:15	3.4	0.72	0.25	N/A	0.4659	4.9244	4431.97	0.00	0.00	0.00	0.00	0.00	4431.97	10620.31	442.51	24491.08	1.88	0.00	0.00
13:30	3.4	0.72	0.25	N/A	**0.4697**	4.9644	**4467.96**	0.00	0.00	0.00	0.00	0.00	4467.96	11947.49	497.81	28461.23	2.18	0.00	0.00
13:45	2.3	0.48	0.24	N/A	0.2420	2.5578	2302.04	0.00	0.00	0.00	0.00	0.00	2302.04	13268.25	552.84	30210.43	2.31	0.00	0.00
14:00	2.3	0.48	0.24	N/A	0.2457	2.5968	2337.10	0.00	0.00	0.00	0.00	0.00	2337.10	13850.16	577.09	31970.44	2.45	0.00	0.00
14:15	2.7	0.57	0.23	N/A	0.3335	3.5247	3172.20	0.00	0.00	0.00	0.00	0.00	3172.20	14435.66	601.49	34541.15	2.65	0.00	0.00
14:30	2.6	0.55	0.23	N/A	0.3160	3.3402	3006.16	0.00	0.00	0.00	0.00	0.00	3006.16	15290.87	637.12	36910.20	2.83	0.00	0.00
14:45	2.6	0.55	0.23	N/A	0.3196	3.3775	3039.76	0.00	0.00	0.00	0.00	0.00	3039.76	16078.98	669.96	39280.00	3.01	0.00	0.00
15:00	2.5	0.53	0.22	N/A	0.3020	3.1919	2872.74	0.00	0.00	0.00	0.00	0.00	2872.74	16867.35	702.81	41449.94	3.18	0.00	0.00
15:15	2.4	0.50	0.22	N/A	0.2844	3.0058	2705.21	0.00	0.00	0.00	0.00	0.00	2705.21	17589.22	732.88	43422.26	3.33	0.00	0.00
15:30	2.3	0.48	0.22	N/A	0.2667	2.8191	2537.18	0.00	0.00	0.00	0.00	0.00	2537.18	18245.36	760.22	45199.21	3.46	0.00	0.00
15:45	1.9	0.40	0.21	N/A	0.1859	1.9647	1768.23	0.00	0.00	0.00	0.00	0.00	1768.23	18836.50	784.85	46182.59	3.54	0.00	0.00
16:00	1.9	0.40	0.21	N/A	0.1892	1.9992	1799.29	0.00	0.00	0.00	0.00	0.00	1799.29	19163.64	798.49	**47183.39**	3.62	0.00	0.00
16:15	0.4	0.08	0.21	0.08	0.0084	0.0889	80.05	0.00	0.00	0.00	0.00	0.00	80.05	19496.58	812.36	46451.09	3.56	0.00	0.00
16:30	0.4	0.08	0.20	0.08	0.0084	0.0889	80.05	0.00	0.00	0.00	0.00	0.00	80.05	19252.97	802.21	45728.93	3.50	0.00	0.00
16:45	0.3	0.06	0.20	0.06	0.0063	0.0667	60.04	0.00	0.00	0.00	0.00	0.00	60.04	19012.73	792.20	44996.78	3.45	0.00	0.00
17:00	0.3	0.06	0.20	0.06	0.0063	0.0667	60.04	0.00	0.00	0.00	0.00	0.00	60.04	18769.16	782.05	44274.77	3.39	0.00	0.00
17:15	0.5	0.11	0.20	0.09	0.0105	0.1112	100.07	0.00	0.00	0.00	0.00	0.00	100.07	18528.97	772.04	43602.79	3.34	0.00	0.00
17:30	0.5	0.11	0.19	0.09	0.0105	0.1112	100.07	0.00	0.00	0.00	0.00	0.00	100.07	18305.42	762.73	42940.13	3.29	0.00	0.00
17:45	0.5	0.11	0.19	0.09	0.0105	0.1112	100.07	0.00	0.00	0.00	0.00	0.00	100.07	18084.97	753.54	42286.66	3.24	0.00	0.00
18:00	0.4	0.08	0.19	0.08	0.0084	0.0889	80.05	0.00	0.00	0.00	0.00	0.00	80.05	17867.58	744.48	41622.23	3.19	0.00	0.00
18:15	0.4	0.08	0.18	0.08	0.0084	0.0889	80.05	0.00	0.00	0.00	0.00	0.00	80.05	17646.54	735.27	40967.01	3.14	0.00	0.00
18:30	0.4	0.08	0.18	0.08	0.0084	0.0889	80.05	0.00	0.00	0.00	0.00	0.00	80.05	17428.57	726.19	40320.87	3.09	0.00	0.00
18:45	0.3	0.06	0.18	0.06	0.0063	0.0667	60.04	0.00	0.00	0.00	0.00	0.00	60.04	17213.62	717.23	39663.68	3.04	0.00	0.00
19:00	0.2	0.04	0.18	0.04	0.0042	0.0445	40.03	0.00	0.00	0.00	0.00	0.00	40.03	16994.99	708.12	38995.58	2.99	0.00	0.00
19:15	0.3	0.06	0.17	0.06	0.0063	0.0667	60.04	0.00	0.00	0.00	0.00	0.00	60.04	16772.73	698.86	38356.75	2.94	0.00	0.00
19:30	0.4	0.08	0.17	0.08	0.0084	0.0889	80.05	0.00	0.00	0.00	0.00	0.00	80.05	16560.21	690.01	37746.80	2.89	0.00	0.00
19:45	0.3	0.06	0.17	0.06	0.0063	0.0667	60.04	0.00	0.00	0.00	0.00	0.00	60.04	16357.30	681.55	37125.28	2.84	0.00	0.00
20:00	0.2	0.04	0.17	0.04	0.0042	0.0445	40.03	0.00	0.00	0.00	0.00	0.00	40.03	16150.53	672.94	36492.37	2.80	0.00	0.00
20:15	0.3	0.06	0.16	0.06	0.0063	0.0667	60.04	0.00	0.00	0.00	0.00	0.00	60.04	15939.98	664.17	35888.25	2.75	0.00	0.00
20:30	0.3	0.06	0.16	0.06	0.0063	0.0667	60.04	0.00	0.00	0.00	0.00	0.00	60.04	15739.01	655.79	35292.49	2.70	0.00	0.00
20:45	0.3	0.06	0.16	0.06	0.0063	0.0667	60.04	0.00	0.00	0.00	0.00	0.00	60.04	15540.82	647.53	34705.00	2.66	0.00	0.00
21:00	0.2	0.04	0.16	0.04	0.0042	0.0445	40.03	0.00	0.00	0.00	0.00	0.00	40.03	15345.37	639.39	34105.63	2.61	0.00	0.00
21:15	0.3	0.06	0.16	0.06	0.0063	0.0667	60.04	0.00	0.00	0.00	0.00	0.00	60.04	15145.98	631.08	33534.59	2.57	0.00	0.00
21:30	0.2	0.04	0.15	0.04	0.0042	0.0445	40.03	0.00	0.00	0.00	0.00	0.00	40.03	14956.01	623.17	32951.45	2.52	0.00	0.00
21:45	0.3	0.06	0.15	0.06	0.0063	0.0667	60.04	0.00	0.00	0.00	0.00	0.00	60.04	14762.02	615.08	32396.41	2.48	0.00	0.00
22:00	0.2	0.04	0.15	0.04	0.0042	0.0445	40.03	0.00	0.00	0.00	0.00	0.00	40.03	14577.37	607.39	31829.04	2.44	0.00	0.00
22:15	0.3	0.06	0.15	0.06	0.0063	0.0667	60.04	0.00	0.00	0.00	0.00	0.00	60.04	14388.62	599.53	31289.55	2.40	0.00	0.00
22:30	0.2	0.04	0.15	0.04	0.0042	0.0445	40.03	0.00	0.00	0.00	0.00	0.00	40.03	14209.15	592.05	30737.53	2.36	0.00	0.00
22:45	0.2	0.04	0.15	0.04	0.0042	0.0445	40.03	0.00	0.00	0.00	0.00	0.00	40.03	14025.51	584.40	30193.16	2.31	0.00	0.00
23:00	0.2	0.04	0.15	0.04	0.0042	0.0445	40.03	0.00	0.00	0.00	0.00	0.00	40.03	13844.41	576.85	29656.34	2.27	0.00	0.00
23:15	0.2	0.04	0.15	0.04	0.0042	0.0445	40.03	0.00	0.00	0.00	0.00	0.00	40.03	13665.83	569.41	29126.96	2.23	0.00	0.00
23:30	0.2	0.04	0.14	0.04	0.0042	0.0445	40.03	0.00	0.00	0.00	0.00	0.00	40.03	13489.72	562.07	28604.91	2.19	0.00	0.00
23:45	0.2	0.04	0.14	0.04	0.0042	0.0445	40.03	0.00	0.00	0.00	0.00	0.00	40.03	13316.05	554.84	28090.10	2.15	0.00	0.00
24:00	0.2	0.04	0.14	0.04	0.0042	0.0445	40.03	0.00	0.00	0.00	0.00	0.00	40.03	13144.78	547.70	27582.43	2.11	0.00	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12975.90	540.66	27041.77	2.07	0.00	0.00
					Total volume (cf)		**65392.04**									**Total Overflow (cf)**		**0.00**	

Drawdown time = 635.42 cf/5min x 12 per/hr = 7625.04 cf/hr. Therefore, 47183.39 cf. / 7625.04 cf/hr = **6.19** hours for total drawdown plus storm event = **29.15 hrs total drawdown**

POST DEVELOPMENT T1 – T7

HYDROLOGY CALCULATIONS -

Using the RCFC&WCD Short Cut Unit Hydrograph Method

Area Designations	**The Wren**				
	T1				
Drainage Area (ac.)	**1.9000**				
Unit time (minutes)	**5**	**5**	**5**	**15**	
100 Year Storm Duration (hrs)	1	3	6	24	
Total Precipitation (Plates D-4.4,E-5.2, 5.4, 5.6)(in.)	**1.93**	**2.70**	**3.49**	**5.26**	Or data from NOAA interactive website
Soils Group	A				
AMC index II Runoff Number (plate E-6.1)	32				
Plate E-6.2 Pervious Area Loss Rate (Fp)(in/hr)	0.74	(AMC II)			
Percentage of Impervious Cover (Ai)(%) (plate E-6.3)		**90**			
Weighted Average Loss Rate (F=Fp(1-.9Ai))(in./hr.)	0.14	(used for 1, 3, and 6 hour storm, the 24 hour storm uses variable maximum loss rate per plate E-1.1 (3 of 6))			
Low Loss Rate Percent (%)	90				
Retention Basin Percolation Rate (in/hr)	**2**	(also used for drywell percolation rate)			

Percolation is taken incrementally.

Basin volume is calculated using the "truncated pyramid" formula, a more conservative estimate than "averaged end areas" sometimes used

(Drywell can be "zeroed out" by reducing numbers to less than .001, but should not entered as zeros or program chokes.)

Drywell storage includes 40% of the 1' wide rock bed surrounding the drywell: formula (upper)*PI()*(diam/2)^2+(lower)*PI()*((diam/2)^2+0.4*((diam/2+(grav+0.4166))^2-(diam/2+0.4166)^2))

The drywell wall thickness is assumed at 5" (0.4166) and the gravel bed width is variable "grav"

Drywell design factors **Upper sec. (ft.)=** **0.0001** **Lower sec. (ft.)=** **0.0001** **Ring diam. (ft.) =** **0.0001** **Drywell lower max. (cf)=** **0.00** **Upper max.(cf)=** **0.00**

Gravel bed width around drwyell= **0** **Drywell total(cf)=** **0.00**

Ret. Basin design (area, depth) **Top =** **0.0001** s.f. **Bot. =** **0.0001** **s.f.** **Max. Depth (d)=** **0.0001** **Max. storage=** **0.00** (d/3)*(bottom+top+(bottom*top)^0.50)

Formulas **vol=(h/3)*(bottom+top+(bottom*top)^0.50)** **area=bottom+(h/d)*(top-bottom)** **h=(vol*3)/(bottom+top+(bottom*top)^0.5)** **(values must be non-zero or error occurs)**

Outside input from: **N/A**

1 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:05	3.7	0.8569	0.1406	N/A	0.7163	1.3723	411.70
0:10	4.8	1.1117	0.1406	N/A	0.9711	1.8604	558.13
0:15	5.1	1.1812	0.1406	N/A	1.0406	1.9935	598.06
0:20	4.9	1.1348	0.1406	N/A	0.9942	1.9048	571.44
0:25	6.6	1.5286	0.1406	N/A	1.3880	2.6591	797.73
0:30	7.3	1.6907	0.1406	N/A	1.5501	2.9697	890.91
0:35	8.4	1.9454	0.1406	N/A	1.8048	3.4578	1037.33
0:40	9	2.0844	0.1406	N/A	1.9438	3.7240	1117.20
0:45	12.3	2.8487	0.1406	N/A	2.7081	5.1882	1556.47
0:50	17.6	4.0762	0.1406	N/A	**3.9356**	**7.5399**	**2261.96**
0:55	16.1	3.7288	0.1406	N/A	3.5882	6.8743	2062.29
1:00	4.2	0.9727	0.1406	N/A	0.8321	1.5942	478.26
	0	0.0000	0.1406	0.00	0.0000	0.0000	0.00
	0	0.0000	0.1406	0.00	0.0000	0.0000	0.00
1:15	0	0.0000	0.1406	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**12341.49**

3 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:05	1.3	0.42	0.14	N/A	0.2806	0.5376	161.27
0:10	1.3	0.42	0.14	N/A	0.2806	0.5376	161.27
0:15	1.1	0.36	0.14	N/A	0.2158	0.4134	124.03
0:20	1.5	0.49	0.14	N/A	0.3454	0.6617	198.52
0:25	1.5	0.49	0.14	N/A	0.3454	0.6617	198.52
0:30	1.8	0.58	0.14	N/A	0.4426	0.8479	254.38
0:35	1.5	0.49	0.14	N/A	0.3454	0.6617	198.52
0:40	1.8	0.58	0.14	N/A	0.4426	0.8479	254.38
0:45	1.8	0.58	0.14	N/A	0.4426	0.8479	254.38
0:50	1.5	0.49	0.14	N/A	0.3454	0.6617	198.52
0:55	1.6	0.52	0.14	N/A	0.3778	0.7238	217.14
1:00	1.8	0.58	0.14	N/A	0.4426	0.8479	254.38
1:05	2.2	0.71	0.14	N/A	0.5722	1.0962	328.87
1:10	2.2	0.71	0.14	N/A	0.5722	1.0962	328.87
1:15	2.2	0.71	0.14	N/A	0.5722	1.0962	328.87
1:20	2	0.65	0.14	N/A	0.5074	0.9721	291.63
1:25	2.6	0.84	0.14	N/A	0.7018	1.3445	403.36
1:30	2.7	0.87	0.14	N/A	0.7342	1.4066	421.98
1:35	2.4	0.78	0.14	N/A	0.6370	1.2204	366.12
1:40	2.7	0.87	0.14	N/A	0.7342	1.4066	421.98
1:45	3.3	1.07	0.14	N/A	0.9286	1.7790	533.71
1:50	3.1	1.00	0.14	N/A	0.8638	1.6549	496.47
1:55	2.9	0.94	0.14	N/A	0.7990	1.5308	459.23
2:00	3	0.97	0.14	N/A	0.8314	1.5928	477.85
2:05	3.1	1.00	0.14	N/A	0.8638	1.6549	496.47
2:10	4.2	1.36	0.14	N/A	1.2202	2.3377	701.31
2:15	5	1.62	0.14	N/A	1.4794	2.8343	850.29
2:20	3.5	1.13	0.14	N/A	0.9934	1.9032	570.96
2:25	6.8	2.20	0.14	N/A	2.0626	3.9516	1185.48
2:30	7.3	2.37	0.14	N/A	2.2246	4.2620	1278.59
2:35	8.2	2.66	0.14	N/A	**2.5162**	**4.8206**	**1446.19**
2:40	5.9	1.91	0.14	N/A	1.7710	3.3929	1017.88
2:45	2	0.65	0.14	N/A	0.5074	0.9721	291.63
2:50	1.8	0.58	0.14	N/A	0.4426	0.8479	254.38
2:55	1.8	0.58	0.14	N/A	0.4426	0.8479	254.38
3:00	0.6	0.19	0.14	N/A	0.0538	0.1031	30.92
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
3:15	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
3:30	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**15712.75**

6 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:05	0.5	0.21	0.14	N/A	0.0688	0.1318	39.54
0:10	0.6	0.25	0.14	N/A	0.1107	0.2120	63.61
0:15	0.6	0.25	0.14	N/A	0.1107	0.2120	63.61
0:20	0.6	0.25	0.14	N/A	0.1107	0.2120	63.61
0:25	0.6	0.25	0.14	N/A	0.1107	0.2120	63.61
0:30	0.7	0.29	0.14	N/A	0.1526	0.2923	87.68
0:35	0.7	0.29	0.14	N/A	0.1526	0.2923	87.68
0:40	0.7	0.29	0.14	N/A	0.1526	0.2923	87.68
0:45	0.7	0.29	0.14	N/A	0.1526	0.2923	87.68
0:50	0.7	0.29	0.14	N/A	0.1526	0.2923	87.68
0:55	0.7	0.29	0.14	N/A	0.1526	0.2923	87.68
1:00	0.8	0.34	0.14	N/A	0.1944	0.3725	111.75
1:05	0.8	0.34	0.14	N/A	0.1944	0.3725	111.75
1:10	0.8	0.34	0.14	N/A	0.1944	0.3725	111.75
1:15	0.8	0.34	0.14	N/A	0.1944	0.3725	111.75
1:20	0.8	0.34	0.14	N/A	0.1944	0.3725	111.75
1:25	0.8	0.34	0.14	N/A	0.1944	0.3725	111.75
1:30	0.8	0.34	0.14	N/A	0.1944	0.3725	111.75
1:35	0.8	0.34	0.14	N/A	0.1944	0.3725	111.75
1:40	0.8	0.34	0.14	N/A	0.1944	0.3725	111.75
1:45	0.8	0.34	0.14	N/A	0.1944	0.3725	111.75
1:50	0.8	0.34	0.14	N/A	0.1944	0.3725	111.75
1:55	0.8	0.34	0.14	N/A	0.1944	0.3725	111.75
2:00	0.9	0.38	0.14	N/A	0.2363	0.4527	135.82
2:05	0.8	0.34	0.14	N/A	0.1944	0.3725	111.75
2:10	0.9	0.38	0.14	N/A	0.2363	0.4527	135.82
2:15	0.9	0.38	0.14	N/A	0.2363	0.4527	135.82
2:20	0.9	0.38	0.14	N/A	0.2363	0.4527	135.82
2:25	0.9	0.38	0.14	N/A	0.2363	0.4527	135.82
2:30	0.9	0.38	0.14	N/A	0.2363	0.4527	135.82
2:35	0.9	0.38	0.14	N/A	0.2363	0.4527	135.82
2:40	0.9	0.38	0.14	N/A	0.2363	0.4527	135.82
2:45	1	0.42	0.14	N/A	0.2782	0.5330	159.90
2:50	1	0.42	0.14	N/A	0.2782	0.5330	159.90
2:55	1	0.42	0.14	N/A	0.2782	0.5330	159.90
3:00	1	0.42	0.14	N/A	0.2782	0.5330	159.90
3:05	1	0.42	0.14	N/A	0.2782	0.5330	159.90
3:10	1.1	0.46	0.14	N/A	0.3201	0.6132	183.97
3:15	1.1	0.46	0.14	N/A	0.3201	0.6132	183.97
3:20	1.1	0.46	0.14	N/A	0.3201	0.6132	183.97
3:25	1.2	0.50	0.14	N/A	0.3620	0.6935	208.04
3:30	1.3	0.54	0.14	N/A	0.4038	0.7737	232.11
3:35	1.4	0.59	0.14	N/A	0.4457	0.8539	256.18
3:40	1.4	0.59	0.14	N/A	0.4457	0.8539	256.18
3:45	1.5	0.63	0.14	N/A	0.4876	0.9342	280.25
3:50	1.5	0.63	0.14	N/A	0.4876	0.9342	280.25
3:55	1.6	0.67	0.14	N/A	0.5295	1.0144	304.32
4:00	1.6	0.67	0.14	N/A	0.5295	1.0144	304.32
4:05	1.7	0.71	0.14	N/A	0.5714	1.0946	328.39
4:10	1.8	0.75	0.14	N/A	0.6132	1.1749	352.46
4:15	1.9	0.80	0.14	N/A	0.6551	1.2551	376.53

4:20	2	0.84	0.14	N/A	0.6970	1.3353	400.60
4:25	2.1	0.88	0.14	N/A	0.7389	1.4156	424.67
4:30	2.1	0.88	0.14	N/A	0.7389	1.4156	424.67
4:35	2.2	0.92	0.14	N/A	0.7808	1.4958	448.74
4:40	2.3	0.96	0.14	N/A	0.8226	1.5760	472.81
4:45	2.4	1.01	0.14	N/A	0.8645	1.6563	496.88
4:50	2.4	1.01	0.14	N/A	0.8645	1.6563	496.88
4:55	2.5	1.05	0.14	N/A	0.9064	1.7365	520.95
5:00	2.6	1.09	0.14	N/A	0.9483	1.8167	545.02
5:05	3.1	1.30	0.14	N/A	1.1577	2.2179	665.38
5:10	3.6	1.51	0.14	N/A	1.3671	2.6191	785.73
5:15	3.9	1.63	0.14	N/A	1.4927	2.8598	857.94
5:20	4.2	1.76	0.14	N/A	1.6184	3.1005	930.15
5:25	4.7	1.97	0.14	N/A	1.8278	3.5017	1050.51
5:30	5.6	2.35	0.14	N/A	**2.2047**	**4.2238**	**1267.14**
5:35	1.9	0.80	0.14	N/A	0.6551	1.2551	376.53
5:40	0.9	0.38	0.14	N/A	0.2363	0.4527	135.82
5:45	0.6	0.25	0.14	N/A	0.1107	0.2120	63.61
5:50	0.5	0.21	0.14	N/A	0.0688	0.1318	39.54
5:55	0.3	0.13	0.14	0.11	0.0126	0.0241	7.22
6:00	0.2	0.08	0.14	0.08	0.0084	0.0160	4.81
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
6:15	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
6:30	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
6:45	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
7:00	0	0.00	0.14	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**18305.52**

24 Hour Storm in 15 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:15	0.2	0.04	0.25	0.04	0.0042	0.0081	7.26
0:30	0.3	0.06	0.24	0.06	0.0063	0.0121	10.88
0:45	0.3	0.06	0.24	0.06	0.0063	0.0121	10.88
1:00	0.4	0.08	0.24	0.08	0.0084	0.0161	14.51
1:15	0.3	0.06	0.24	0.06	0.0063	0.0121	10.88
1:30	0.3	0.06	0.23	0.06	0.0063	0.0121	10.88
1:45	0.3	0.06	0.23	0.06	0.0063	0.0121	10.88
2:00	0.4	0.08	0.23	0.08	0.0084	0.0161	14.51
2:15	0.4	0.08	0.22	0.08	0.0084	0.0161	14.51
2:30	0.4	0.08	0.22	0.08	0.0084	0.0161	14.51
2:45	0.5	0.11	0.22	0.09	0.0105	0.0202	18.14
3:00	0.5	0.11	0.22	0.09	0.0105	0.0202	18.14
3:15	0.5	0.11	0.21	0.09	0.0105	0.0202	18.14
3:30	0.5	0.11	0.21	0.09	0.0105	0.0202	18.14
3:45	0.5	0.11	0.21	0.09	0.0105	0.0202	18.14
4:00	0.6	0.13	0.21	0.11	0.0126	0.0242	21.77
4:15	0.6	0.13	0.20	0.11	0.0126	0.0242	21.77
4:30	0.7	0.15	0.20	0.13	0.0147	0.0282	25.39
4:45	0.7	0.15	0.20	0.13	0.0147	0.0282	25.39
5:00	0.8	0.17	0.20	0.15	0.0168	0.0322	29.02
5:15	0.6	0.13	0.19	0.11	0.0126	0.0242	21.77
5:30	0.7	0.15	0.19	0.13	0.0147	0.0282	25.39
5:45	0.8	0.17	0.19	0.15	0.0168	0.0322	29.02
6:00	0.8	0.17	0.19	0.15	0.0168	0.0322	29.02
6:15	0.9	0.19	0.18	0.17	0.0189	0.0363	32.65
6:30	0.9	0.19	0.18	0.17	0.0189	0.0363	32.65
6:45	1	0.21	0.18	N/A	0.0326	0.0624	56.14
7:00	1	0.21	0.18	N/A	0.0350	0.0670	60.28
7:15	1	0.21	0.17	N/A	0.0373	0.0716	64.40
7:30	1.1	0.23	0.17	N/A	0.0608	0.1164	104.76
7:45	1.2	0.25	0.17	N/A	0.0841	0.1612	145.09
8:00	1.3	0.27	0.17	N/A	0.1075	0.2060	185.38
8:15	1.5	0.32	0.16	N/A	0.1519	0.2910	261.91
8:30	1.5	0.32	0.16	N/A	0.1542	0.2954	265.86
8:45	1.6	0.34	0.16	N/A	0.1775	0.3401	306.05
9:00	1.7	0.36	0.16	N/A	0.2008	0.3847	346.20
9:15	1.9	0.40	0.15	N/A	0.2451	0.4696	422.60
9:30	2	0.42	0.15	N/A	0.2683	0.5141	462.68
9:45	2.1	0.44	0.15	N/A	0.2916	0.5586	502.72
10:00	2.2	0.46	0.15	N/A	0.3148	0.6030	542.73
10:15	1.5	0.32	0.15	N/A	0.1696	0.3250	292.48
10:30	1.5	0.32	0.14	N/A	0.1718	0.3290	296.14
10:45	2	0.42	0.14	N/A	0.2791	0.5346	481.15
11:00	2	0.42	0.14	N/A	0.2811	0.5386	484.74
11:15	1.9	0.40	0.14	N/A	0.2621	0.5022	452.01
11:30	1.9	0.40	0.14	N/A	0.2642	0.5061	455.51
11:45	1.7	0.36	0.13	N/A	0.2241	0.4294	386.43
12:00	1.8	0.38	0.13	N/A	0.2471	0.4735	426.14
12:15	2.5	0.53	0.13	N/A	0.3964	0.7594	683.48
12:30	2.6	0.55	0.13	N/A	0.4194	0.8035	723.11
12:45	2.8	0.59	0.13	N/A	0.4634	0.8878	798.98

13:00	2.9	0.61	0.12	N/A	0.4863	0.9317	838.53
13:15	3.4	0.72	0.12	N/A	0.5934	1.1368	1023.15
13:30	3.4	0.72	0.12	N/A	**0.5952**	**1.1404**	**1026.34**
13:45	2.3	0.48	0.12	N/A	0.3656	0.7005	630.43
14:00	2.3	0.48	0.12	N/A	0.3674	0.7039	633.54
14:15	2.7	0.57	0.11	N/A	0.4534	0.8686	781.72
14:30	2.6	0.55	0.11	N/A	0.4341	0.8316	748.46
14:45	2.6	0.55	0.11	N/A	0.4358	0.8349	751.44
15:00	2.5	0.53	0.11	N/A	0.4165	0.7979	718.10
15:15	2.4	0.50	0.11	N/A	0.3971	0.7608	684.71
15:30	2.3	0.48	0.11	N/A	0.3777	0.7236	651.27
15:45	1.9	0.40	0.10	N/A	0.2952	0.5655	508.96
16:00	1.9	0.40	0.10	N/A	0.2968	0.5686	511.71
16:15	0.4	0.08	0.10	0.08	0.0084	0.0161	14.51
16:30	0.4	0.08	0.10	0.08	0.0084	0.0161	14.51
16:45	0.3	0.06	0.10	0.06	0.0063	0.0121	10.88
17:00	0.3	0.06	0.10	0.06	0.0063	0.0121	10.88
17:15	0.5	0.11	0.10	0.09	0.0105	0.0202	18.14
17:30	0.5	0.11	0.09	N/A	0.0112	0.0215	19.33
17:45	0.5	0.11	0.09	N/A	0.0126	0.0242	21.74
18:00	0.4	0.08	0.09	0.08	0.0084	0.0161	14.51
18:15	0.4	0.08	0.09	0.08	0.0084	0.0161	14.51
18:30	0.4	0.08	0.09	0.08	0.0084	0.0161	14.51
18:45	0.3	0.06	0.09	0.06	0.0063	0.0121	10.88
19:00	0.2	0.04	0.09	0.04	0.0042	0.0081	7.26
19:15	0.3	0.06	0.08	0.06	0.0063	0.0121	10.88
19:30	0.4	0.08	0.08	0.08	0.0084	0.0161	14.51
19:45	0.3	0.06	0.08	0.06	0.0063	0.0121	10.88
20:00	0.2	0.04	0.08	0.04	0.0042	0.0081	7.26
20:15	0.3	0.06	0.08	0.06	0.0063	0.0121	10.88
20:30	0.3	0.06	0.08	0.06	0.0063	0.0121	10.88
20:45	0.3	0.06	0.08	0.06	0.0063	0.0121	10.88
21:00	0.2	0.04	0.08	0.04	0.0042	0.0081	7.26
21:15	0.3	0.06	0.08	0.06	0.0063	0.0121	10.88
21:30	0.2	0.04	0.08	0.04	0.0042	0.0081	7.26
21:45	0.3	0.06	0.07	0.06	0.0063	0.0121	10.88
22:00	0.2	0.04	0.07	0.04	0.0042	0.0081	7.26
22:15	0.3	0.06	0.07	0.06	0.0063	0.0121	10.88
22:30	0.2	0.04	0.07	0.04	0.0042	0.0081	7.26
22:45	0.2	0.04	0.07	0.04	0.0042	0.0081	7.26
23:00	0.2	0.04	0.07	0.04	0.0042	0.0081	7.26
23:15	0.2	0.04	0.07	0.04	0.0042	0.0081	7.26
23:30	0.2	0.04	0.07	0.04	0.0042	0.0081	7.26
23:45	0.2	0.04	0.07	0.04	0.0042	0.0081	7.26
24:00	0.2	0.04	0.07	0.04	0.0042	0.0081	7.26
	0	0.00	0.07	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**19572.64**

HYDROLOGY CALCULATIONS -

Using the RCFC&WCD Short Cut Unit Hydrograph Method

Area Designations	**The Wren**				
	T2				
Drainage Area (ac.)	**1.1700**				
Unit time (minutes)	**5**	**5**	**5**	**15**	
100 Year Storm Duration (hrs)	1	3	6	24	
Total Precipitation (Plates D-4.4,E-5.2, 5.4, 5.6)(in.)	**1.93**	**2.70**	**3.49**	**5.26**	Or data from NOAA interactive website
Soils Group	A				
AMC index II Runoff Number (plate E-6.1)	32				
Plate E-6.2 Pervious Area Loss Rate (Fp)(in/hr)	0.74	(AMC II)			
Percentage of Impervious Cover (Ai)(%) (plate E-6.3)		**90**			
Weighted Average Loss Rate (F=Fp(1-.9Ai))(in./hr.)	0.14	(used for 1, 3, and 6 hour storm, the 24 hour storm uses variable maximum loss rate per plate E-1.1 (3 of 6))			
Low Loss Rate Percent (%)	90				
Retention Basin Percolation Rate (in/hr)	**2**	(also used for drywell percolation rate)			

Percolation is taken incrementally.

Basin volume is calculated using the "truncated pyramid" formula, a more conservative estimate than "averaged end areas" sometimes used

(Drywell can be "zeroed out" by reducing numbers to less than .001, but should not entered as zeros or program chokes.)

Drywell storage includes 40% of the 1' wide rock bed surrounding the drywell: formula (upper)*PI()*(diam/2)^2+(lower)*PI()*((diam/2)^2+0.4*((diam/2+(grav+0.4166))^2-(diam/2+0.4166)^2))

The drywell wall thickness is assumed at 5" (0.4166) and the gravel bed width is variable "grav"

Drywell design factors **Upper sec. (ft.)=** **0.0001** **Lower sec. (ft.)=** **0.0001** **Ring diam. (ft.) =** **0.0001** **Drywell lower max. (cf)=** **0.00** **Upper max.(cf)=** **0.00**

Gravel bed width around drwyell= **0** **Drywell total(cf)=** **0.00**

Ret. Basin design (area, depth) **Top =** **0.0001** s.f. **Bot. =** **0.0001** **s.f.** **Max. Depth (d)=** **0.0001** **Max. storage=** **0.00** (d/3)*(bottom+top+(bottom*top)^0.50)

Formulas **vol=(h/3)*(bottom+top+(bottom*top)^0.50)** **area=bottom+(h/d)*(top-bottom)** **h=(vol*3)/(bottom+top+(bottom*top)^0.5)** **(values must be non-zero or error occurs)**

Outside input from: **N/A**

1 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:05	3.7	0.8569	0.1406	N/A	0.7163	0.8451	253.52
0:10	4.8	1.1117	0.1406	N/A	0.9711	1.1456	343.69
0:15	5.1	1.1812	0.1406	N/A	1.0406	1.2276	368.28
0:20	4.9	1.1348	0.1406	N/A	0.9942	1.1730	351.89
0:25	6.6	1.5286	0.1406	N/A	1.3880	1.6374	491.23
0:30	7.3	1.6907	0.1406	N/A	1.5501	1.8287	548.61
0:35	8.4	1.9454	0.1406	N/A	1.8048	2.1293	638.78
0:40	9	2.0844	0.1406	N/A	1.9438	2.2932	687.96
0:45	12.3	2.8487	0.1406	N/A	2.7081	3.1949	958.46
0:50	17.6	4.0762	0.1406	N/A	**3.9356**	**4.6430**	**1392.89**
0:55	16.1	3.7288	0.1406	N/A	3.5882	4.2331	1269.94
1:00	4.2	0.9727	0.1406	N/A	0.8321	0.9817	294.51
	0	0.0000	0.1406	0.00	0.0000	0.0000	0.00
	0	0.0000	0.1406	0.00	0.0000	0.0000	0.00
1:15	0	0.0000	0.1406	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**7599.76**

3 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:05	1.3	0.42	0.14	N/A	0.2806	0.3310	99.31
0:10	1.3	0.42	0.14	N/A	0.2806	0.3310	99.31
0:15	1.1	0.36	0.14	N/A	0.2158	0.2546	76.38
0:20	1.5	0.49	0.14	N/A	0.3454	0.4075	122.25
0:25	1.5	0.49	0.14	N/A	0.3454	0.4075	122.25
0:30	1.8	0.58	0.14	N/A	0.4426	0.5222	156.65
0:35	1.5	0.49	0.14	N/A	0.3454	0.4075	122.25
0:40	1.8	0.58	0.14	N/A	0.4426	0.5222	156.65
0:45	1.8	0.58	0.14	N/A	0.4426	0.5222	156.65
0:50	1.5	0.49	0.14	N/A	0.3454	0.4075	122.25
0:55	1.6	0.52	0.14	N/A	0.3778	0.4457	133.71
1:00	1.8	0.58	0.14	N/A	0.4426	0.5222	156.65
1:05	2.2	0.71	0.14	N/A	0.5722	0.6751	202.52
1:10	2.2	0.71	0.14	N/A	0.5722	0.6751	202.52
1:15	2.2	0.71	0.14	N/A	0.5722	0.6751	202.52
1:20	2	0.65	0.14	N/A	0.5074	0.5986	179.58
1:25	2.6	0.84	0.14	N/A	0.7018	0.8279	248.38
1:30	2.7	0.87	0.14	N/A	0.7342	0.8662	259.85
1:35	2.4	0.78	0.14	N/A	0.6370	0.7515	225.45
1:40	2.7	0.87	0.14	N/A	0.7342	0.8662	259.85
1:45	3.3	1.07	0.14	N/A	0.9286	1.0955	328.65
1:50	3.1	1.00	0.14	N/A	0.8638	1.0191	305.72
1:55	2.9	0.94	0.14	N/A	0.7990	0.9426	282.79
2:00	3	0.97	0.14	N/A	0.8314	0.9808	294.25
2:05	3.1	1.00	0.14	N/A	0.8638	1.0191	305.72
2:10	4.2	1.36	0.14	N/A	1.2202	1.4395	431.86
2:15	5	1.62	0.14	N/A	1.4794	1.7453	523.60
2:20	3.5	1.13	0.14	N/A	0.9934	1.1720	351.59
2:25	6.8	2.20	0.14	N/A	2.0626	2.4334	730.01
2:30	7.3	2.37	0.14	N/A	2.2246	2.6245	787.34
2:35	8.2	2.66	0.14	N/A	**2.5162**	**2.9685**	**890.55**
2:40	5.9	1.91	0.14	N/A	1.7710	2.0893	626.80
2:45	2	0.65	0.14	N/A	0.5074	0.5986	179.58
2:50	1.8	0.58	0.14	N/A	0.4426	0.5222	156.65
2:55	1.8	0.58	0.14	N/A	0.4426	0.5222	156.65
3:00	0.6	0.19	0.14	N/A	0.0538	0.0635	19.04
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
3:15	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
3:30	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**9675.74**

6 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Loss Rate Value Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:05	0.5	0.21	0.14	N/A	0.0688	0.0812	24.35
0:10	0.6	0.25	0.14	N/A	0.1107	0.1306	39.17
0:15	0.6	0.25	0.14	N/A	0.1107	0.1306	39.17
0:20	0.6	0.25	0.14	N/A	0.1107	0.1306	39.17
0:25	0.6	0.25	0.14	N/A	0.1107	0.1306	39.17
0:30	0.7	0.29	0.14	N/A	0.1526	0.1800	53.99
0:35	0.7	0.29	0.14	N/A	0.1526	0.1800	53.99
0:40	0.7	0.29	0.14	N/A	0.1526	0.1800	53.99
0:45	0.7	0.29	0.14	N/A	0.1526	0.1800	53.99
0:50	0.7	0.29	0.14	N/A	0.1526	0.1800	53.99
0:55	0.7	0.29	0.14	N/A	0.1526	0.1800	53.99
1:00	0.8	0.34	0.14	N/A	0.1944	0.2294	68.82
1:05	0.8	0.34	0.14	N/A	0.1944	0.2294	68.82
1:10	0.8	0.34	0.14	N/A	0.1944	0.2294	68.82
1:15	0.8	0.34	0.14	N/A	0.1944	0.2294	68.82
1:20	0.8	0.34	0.14	N/A	0.1944	0.2294	68.82
1:25	0.8	0.34	0.14	N/A	0.1944	0.2294	68.82
1:30	0.8	0.34	0.14	N/A	0.1944	0.2294	68.82
1:35	0.8	0.34	0.14	N/A	0.1944	0.2294	68.82
1:40	0.8	0.34	0.14	N/A	0.1944	0.2294	68.82
1:45	0.8	0.34	0.14	N/A	0.1944	0.2294	68.82
1:50	0.8	0.34	0.14	N/A	0.1944	0.2294	68.82
1:55	0.8	0.34	0.14	N/A	0.1944	0.2294	68.82
2:00	0.9	0.38	0.14	N/A	0.2363	0.2788	83.64
2:05	0.8	0.34	0.14	N/A	0.1944	0.2294	68.82
2:10	0.9	0.38	0.14	N/A	0.2363	0.2788	83.64
2:15	0.9	0.38	0.14	N/A	0.2363	0.2788	83.64
2:20	0.9	0.38	0.14	N/A	0.2363	0.2788	83.64
2:25	0.9	0.38	0.14	N/A	0.2363	0.2788	83.64
2:30	0.9	0.38	0.14	N/A	0.2363	0.2788	83.64
2:35	0.9	0.38	0.14	N/A	0.2363	0.2788	83.64
2:40	0.9	0.38	0.14	N/A	0.2363	0.2788	83.64
2:45	1	0.42	0.14	N/A	0.2782	0.3282	98.46
2:50	1	0.42	0.14	N/A	0.2782	0.3282	98.46
2:55	1	0.42	0.14	N/A	0.2782	0.3282	98.46
3:00	1	0.42	0.14	N/A	0.2782	0.3282	98.46
3:05	1	0.42	0.14	N/A	0.2782	0.3282	98.46
3:10	1.1	0.46	0.14	N/A	0.3201	0.3776	113.28
3:15	1.1	0.46	0.14	N/A	0.3201	0.3776	113.28
3:20	1.1	0.46	0.14	N/A	0.3201	0.3776	113.28
3:25	1.2	0.50	0.14	N/A	0.3620	0.4270	128.11
3:30	1.3	0.54	0.14	N/A	0.4038	0.4764	142.93
3:35	1.4	0.59	0.14	N/A	0.4457	0.5258	157.75
3:40	1.4	0.59	0.14	N/A	0.4457	0.5258	157.75
3:45	1.5	0.63	0.14	N/A	0.4876	0.5752	172.57
3:50	1.5	0.63	0.14	N/A	0.4876	0.5752	172.57
3:55	1.6	0.67	0.14	N/A	0.5295	0.6247	187.40
4:00	1.6	0.67	0.14	N/A	0.5295	0.6247	187.40
4:05	1.7	0.71	0.14	N/A	0.5714	0.6741	202.22
4:10	1.8	0.75	0.14	N/A	0.6132	0.7235	217.04
4:15	1.9	0.80	0.14	N/A	0.6551	0.7729	231.86

4:20	2	0.84	0.14	N/A	0.6970	0.8223	246.69
4:25	2.1	0.88	0.14	N/A	0.7389	0.8717	261.51
4:30	2.1	0.88	0.14	N/A	0.7389	0.8717	261.51
4:35	2.2	0.92	0.14	N/A	0.7808	0.9211	276.33
4:40	2.3	0.96	0.14	N/A	0.8226	0.9705	291.15
4:45	2.4	1.01	0.14	N/A	0.8645	1.0199	305.98
4:50	2.4	1.01	0.14	N/A	0.8645	1.0199	305.98
4:55	2.5	1.05	0.14	N/A	0.9064	1.0693	320.80
5:00	2.6	1.09	0.14	N/A	0.9483	1.1187	335.62
5:05	3.1	1.30	0.14	N/A	1.1577	1.3658	409.73
5:10	3.6	1.51	0.14	N/A	1.3671	1.6128	483.84
5:15	3.9	1.63	0.14	N/A	1.4927	1.7610	528.31
5:20	4.2	1.76	0.14	N/A	1.6184	1.9093	572.78
5:25	4.7	1.97	0.14	N/A	1.8278	2.1563	646.89
5:30	5.6	2.35	0.14	N/A	**2.2047**	**2.6010**	**780.29**
5:35	1.9	0.80	0.14	N/A	0.6551	0.7729	231.86
5:40	0.9	0.38	0.14	N/A	0.2363	0.2788	83.64
5:45	0.6	0.25	0.14	N/A	0.1107	0.1306	39.17
5:50	0.5	0.21	0.14	N/A	0.0688	0.0812	24.35
5:55	0.3	0.13	0.14	0.11	0.0126	0.0148	4.45
6:00	0.2	0.08	0.14	0.08	0.0084	0.0099	2.96
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
6:15	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
6:30	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
6:45	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
7:00	0	0.00	0.14	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**11272.35**

24 Hour Storm in 15 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:15	0.2	0.04	0.25	0.04	0.0042	0.0050	4.47
0:30	0.3	0.06	0.24	0.06	0.0063	0.0074	6.70
0:45	0.3	0.06	0.24	0.06	0.0063	0.0074	6.70
1:00	0.4	0.08	0.24	0.08	0.0084	0.0099	8.94
1:15	0.3	0.06	0.24	0.06	0.0063	0.0074	6.70
1:30	0.3	0.06	0.23	0.06	0.0063	0.0074	6.70
1:45	0.3	0.06	0.23	0.06	0.0063	0.0074	6.70
2:00	0.4	0.08	0.23	0.08	0.0084	0.0099	8.94
2:15	0.4	0.08	0.22	0.08	0.0084	0.0099	8.94
2:30	0.4	0.08	0.22	0.08	0.0084	0.0099	8.94
2:45	0.5	0.11	0.22	0.09	0.0105	0.0124	11.17
3:00	0.5	0.11	0.22	0.09	0.0105	0.0124	11.17
3:15	0.5	0.11	0.21	0.09	0.0105	0.0124	11.17
3:30	0.5	0.11	0.21	0.09	0.0105	0.0124	11.17
3:45	0.5	0.11	0.21	0.09	0.0105	0.0124	11.17
4:00	0.6	0.13	0.21	0.11	0.0126	0.0149	13.40
4:15	0.6	0.13	0.20	0.11	0.0126	0.0149	13.40
4:30	0.7	0.15	0.20	0.13	0.0147	0.0174	15.64
4:45	0.7	0.15	0.20	0.13	0.0147	0.0174	15.64
5:00	0.8	0.17	0.20	0.15	0.0168	0.0199	17.87
5:15	0.6	0.13	0.19	0.11	0.0126	0.0149	13.40
5:30	0.7	0.15	0.19	0.13	0.0147	0.0174	15.64
5:45	0.8	0.17	0.19	0.15	0.0168	0.0199	17.87
6:00	0.8	0.17	0.19	0.15	0.0168	0.0199	17.87
6:15	0.9	0.19	0.18	0.17	0.0189	0.0223	20.11
6:30	0.9	0.19	0.18	0.17	0.0189	0.0223	20.11
6:45	1	0.21	0.18	N/A	0.0326	0.0384	34.57
7:00	1	0.21	0.18	N/A	0.0350	0.0412	37.12
7:15	1	0.21	0.17	N/A	0.0373	0.0441	39.66
7:30	1.1	0.23	0.17	N/A	0.0608	0.0717	64.51
7:45	1.2	0.25	0.17	N/A	0.0841	0.0993	89.34
8:00	1.3	0.27	0.17	N/A	0.1075	0.1268	114.15
8:15	1.5	0.32	0.16	N/A	0.1519	0.1792	161.28
8:30	1.5	0.32	0.16	N/A	0.1542	0.1819	163.71
8:45	1.6	0.34	0.16	N/A	0.1775	0.2094	188.46
9:00	1.7	0.36	0.16	N/A	0.2008	0.2369	213.19
9:15	1.9	0.40	0.15	N/A	0.2451	0.2891	260.23
9:30	2	0.42	0.15	N/A	0.2683	0.3166	284.91
9:45	2.1	0.44	0.15	N/A	0.2916	0.3440	309.57
10:00	2.2	0.46	0.15	N/A	0.3148	0.3713	334.21
10:15	1.5	0.32	0.15	N/A	0.1696	0.2001	180.11
10:30	1.5	0.32	0.14	N/A	0.1718	0.2026	182.36
10:45	2	0.42	0.14	N/A	0.2791	0.3292	296.29
11:00	2	0.42	0.14	N/A	0.2811	0.3317	298.50
11:15	1.9	0.40	0.14	N/A	0.2621	0.3093	278.34
11:30	1.9	0.40	0.14	N/A	0.2642	0.3117	280.50
11:45	1.7	0.36	0.13	N/A	0.2241	0.2644	237.96
12:00	1.8	0.38	0.13	N/A	0.2471	0.2916	262.41
12:15	2.5	0.53	0.13	N/A	0.3964	0.4676	420.88
12:30	2.6	0.55	0.13	N/A	0.4194	0.4948	445.28
12:45	2.8	0.59	0.13	N/A	0.4634	0.5467	492.00

13:00	2.9	0.61	0.12	N/A	0.4863	0.5737	516.36
13:15	3.4	0.72	0.12	N/A	0.5934	0.7001	630.05
13:30	3.4	0.72	0.12	N/A	**0.5952**	0.7022	**632.01**
13:45	2.3	0.48	0.12	N/A	0.3656	0.4313	388.21
14:00	2.3	0.48	0.12	N/A	0.3674	0.4335	390.13
14:15	2.7	0.57	0.11	N/A	0.4534	0.5349	481.37
14:30	2.6	0.55	0.11	N/A	0.4341	0.5121	460.89
14:45	2.6	0.55	0.11	N/A	0.4358	0.5141	462.73
15:00	2.5	0.53	0.11	N/A	0.4165	0.4913	442.20
15:15	2.4	0.50	0.11	N/A	0.3971	0.4685	421.64
15:30	2.3	0.48	0.11	N/A	0.3777	0.4456	401.05
15:45	1.9	0.40	0.10	N/A	0.2952	0.3482	313.41
16:00	1.9	0.40	0.10	N/A	0.2968	0.3501	315.11
16:15	0.4	0.08	0.10	0.08	0.0084	0.0099	8.94
16:30	0.4	0.08	0.10	0.08	0.0084	0.0099	8.94
16:45	0.3	0.06	0.10	0.06	0.0063	0.0074	6.70
17:00	0.3	0.06	0.10	0.06	0.0063	0.0074	6.70
17:15	0.5	0.11	0.10	0.09	0.0105	0.0124	11.17
17:30	0.5	0.11	0.09	N/A	0.0112	0.0132	11.90
17:45	0.5	0.11	0.09	N/A	0.0126	0.0149	13.39
18:00	0.4	0.08	0.09	0.08	0.0084	0.0099	8.94
18:15	0.4	0.08	0.09	0.08	0.0084	0.0099	8.94
18:30	0.4	0.08	0.09	0.08	0.0084	0.0099	8.94
18:45	0.3	0.06	0.09	0.06	0.0063	0.0074	6.70
19:00	0.2	0.04	0.09	0.04	0.0042	0.0050	4.47
19:15	0.3	0.06	0.08	0.06	0.0063	0.0074	6.70
19:30	0.4	0.08	0.08	0.08	0.0084	0.0099	8.94
19:45	0.3	0.06	0.08	0.06	0.0063	0.0074	6.70
20:00	0.2	0.04	0.08	0.04	0.0042	0.0050	4.47
20:15	0.3	0.06	0.08	0.06	0.0063	0.0074	6.70
20:30	0.3	0.06	0.08	0.06	0.0063	0.0074	6.70
20:45	0.3	0.06	0.08	0.06	0.0063	0.0074	6.70
21:00	0.2	0.04	0.08	0.04	0.0042	0.0050	4.47
21:15	0.3	0.06	0.08	0.06	0.0063	0.0074	6.70
21:30	0.2	0.04	0.08	0.04	0.0042	0.0050	4.47
21:45	0.3	0.06	0.07	0.06	0.0063	0.0074	6.70
22:00	0.2	0.04	0.07	0.04	0.0042	0.0050	4.47
22:15	0.3	0.06	0.07	0.06	0.0063	0.0074	6.70
22:30	0.2	0.04	0.07	0.04	0.0042	0.0050	4.47
22:45	0.2	0.04	0.07	0.04	0.0042	0.0050	4.47
23:00	0.2	0.04	0.07	0.04	0.0042	0.0050	4.47
23:15	0.2	0.04	0.07	0.04	0.0042	0.0050	4.47
23:30	0.2	0.04	0.07	0.04	0.0042	0.0050	4.47
23:45	0.2	0.04	0.07	0.04	0.0042	0.0050	4.47
24:00	0.2	0.04	0.07	0.04	0.0042	0.0050	4.47
	0	0.00	0.07	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**12052.63**

HYDROLOGY CALCULATIONS -

Using the RCFC&WCD Short Cut Unit Hydrograph Method
Area Designations **The Wren**
T3

Drainage Area (ac.)	**1.8700**				
Unit time (minutes)	**5**	**5**	**5**	**15**	
100 Year Storm Duration (hrs)	1	3	6	24	
Total Precipitation (Plates D-4.4,E-5.2, 5.4, 5.6)(in.)	**1.93**	**2.70**	**3.49**	**5.26**	Or data from NOAA interactive website
Soils Group	A				
AMC index II Runoff Number (plate E-6.1)	32				
Plate E-6.2 Pervious Area Loss Rate (Fp)(in/hr)	0.74	(AMC II)			
Percentage of Impervious Cover (Ai)(%) (plate E-6.3)		**90**			
Weighted Average Loss Rate (F=Fp(1-.9Ai))(in./hr.)	0.14	(used for 1, 3, and 6 hour storm, the 24 hour storm uses variable maximum loss rate per plate E-1.1 (3 of 6))			
Low Loss Rate Percent (%)	90				
Retention Basin Percolation Rate (in/hr)	**2**	(also used for drywell percolation rate)			

Percolation is taken incrementally.
Basin volume is calculated using the "truncated pyramid" formula, a more conservative estimate than "averaged end areas" sometimes used

(Drywell can be "zeroed out" by reducing numbers to less than .001, but should not entered as zeros or program chokes.)
Drywell storage includes 40% of the 1' wide rock bed surrounding the drywell: formula (upper)*PI()*(diam/2)^2+(lower)*PI()*((diam/2)^2+0.4*((diam/2+(grav+0.4166))^2-(diam/2+0.4166)^2))
The drywell wall thickness is assumed at 5" (0.4166) and the gravel bed width is variable "grav"

Drywell design factors **Upper sec. (ft.)=** **0.0001** **Lower sec. (ft.)=** **0.0001** **Ring diam. (ft.) =** **0.0001** **Drywell lower max. (cf)=** **0.00** **Upper max.(cf)=** **0.00**
Gravel bed width around drwyell= **0** **Drywell total(cf)=** **0.00**

Ret. Basin design (area, depth) **Top =** **0.0001** s.f. **Bot. =** **0.0001** **s.f.** **Max. Depth (d)=** **0.0001** **Max. storage=** **0.00** (d/3)*(bottom+top+(bottom*top)^0.50)
Formulas **vol=(h/3)*(bottom+top+(bottom*top)^0.50)** **area=bottom+(h/d)*(top-bottom)** **h=(vol*3)/(bottom+top+(bottom*top)^0.5)** **(values must be non-zero or error occurs)**
Outside input from: **N/A**

1 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:05	3.7	0.8569	0.1406	N/A	0.7163	1.3507	405.20
0:10	4.8	1.1117	0.1406	N/A	0.9711	1.8311	549.32
0:15	5.1	1.1812	0.1406	N/A	1.0406	1.9621	588.62
0:20	4.9	1.1348	0.1406	N/A	0.9942	1.8747	562.42
0:25	6.6	1.5286	0.1406	N/A	1.3880	2.6171	785.13
0:30	7.3	1.6907	0.1406	N/A	1.5501	2.9228	876.84
0:35	8.4	1.9454	0.1406	N/A	1.8048	3.4032	1020.95
0:40	9	2.0844	0.1406	N/A	1.9438	3.6652	1099.56
0:45	12.3	2.8487	0.1406	N/A	2.7081	5.1063	1531.89
0:50	17.6	4.0762	0.1406	N/A	**3.9356**	**7.4208**	**2226.25**
0:55	16.1	3.7288	0.1406	N/A	3.5882	6.7658	2029.73
1:00	4.2	0.9727	0.1406	N/A	0.8321	1.5690	470.71
	0	0.0000	0.1406	0.00	0.0000	0.0000	0.00
	0	0.0000	0.1406	0.00	0.0000	0.0000	0.00
1:15	0	0.0000	0.1406	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**12146.63**

3 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:05	1.3	0.42	0.14	N/A	0.2806	0.5291	158.73
0:10	1.3	0.42	0.14	N/A	0.2806	0.5291	158.73
0:15	1.1	0.36	0.14	N/A	0.2158	0.4069	122.07
0:20	1.5	0.49	0.14	N/A	0.3454	0.6513	195.38
0:25	1.5	0.49	0.14	N/A	0.3454	0.6513	195.38
0:30	1.8	0.58	0.14	N/A	0.4426	0.8346	250.37
0:35	1.5	0.49	0.14	N/A	0.3454	0.6513	195.38
0:40	1.8	0.58	0.14	N/A	0.4426	0.8346	250.37
0:45	1.8	0.58	0.14	N/A	0.4426	0.8346	250.37
0:50	1.5	0.49	0.14	N/A	0.3454	0.6513	195.38
0:55	1.6	0.52	0.14	N/A	0.3778	0.7124	213.71
1:00	1.8	0.58	0.14	N/A	0.4426	0.8346	250.37
1:05	2.2	0.71	0.14	N/A	0.5722	1.0789	323.68
1:10	2.2	0.71	0.14	N/A	0.5722	1.0789	323.68
1:15	2.2	0.71	0.14	N/A	0.5722	1.0789	323.68
1:20	2	0.65	0.14	N/A	0.5074	0.9567	287.02
1:25	2.6	0.84	0.14	N/A	0.7018	1.3233	396.99
1:30	2.7	0.87	0.14	N/A	0.7342	1.3844	415.32
1:35	2.4	0.78	0.14	N/A	0.6370	1.2011	360.33
1:40	2.7	0.87	0.14	N/A	0.7342	1.3844	415.32
1:45	3.3	1.07	0.14	N/A	0.9286	1.7510	525.29
1:50	3.1	1.00	0.14	N/A	0.8638	1.6288	488.63
1:55	2.9	0.94	0.14	N/A	0.7990	1.5066	451.97
2:00	3	0.97	0.14	N/A	0.8314	1.5677	470.30
2:05	3.1	1.00	0.14	N/A	0.8638	1.6288	488.63
2:10	4.2	1.36	0.14	N/A	1.2202	2.3008	690.24
2:15	5	1.62	0.14	N/A	1.4794	2.7895	836.86
2:20	3.5	1.13	0.14	N/A	0.9934	1.8731	561.94
2:25	6.8	2.20	0.14	N/A	2.0626	3.8892	1166.76
2:30	7.3	2.37	0.14	N/A	2.2246	4.1947	1258.40
2:35	8.2	2.66	0.14	N/A	**2.5162**	**4.7445**	**1423.35**
2:40	5.9	1.91	0.14	N/A	1.7710	3.3394	1001.81
2:45	2	0.65	0.14	N/A	0.5074	0.9567	287.02
2:50	1.8	0.58	0.14	N/A	0.4426	0.8346	250.37
2:55	1.8	0.58	0.14	N/A	0.4426	0.8346	250.37
3:00	0.6	0.19	0.14	N/A	0.0538	0.1014	30.43
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
3:15	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
3:30	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**15464.65**

6 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:05	0.5	0.21	0.14	N/A	0.0688	0.1297	38.92
0:10	0.6	0.25	0.14	N/A	0.1107	0.2087	62.61
0:15	0.6	0.25	0.14	N/A	0.1107	0.2087	62.61
0:20	0.6	0.25	0.14	N/A	0.1107	0.2087	62.61
0:25	0.6	0.25	0.14	N/A	0.1107	0.2087	62.61
0:30	0.7	0.29	0.14	N/A	0.1526	0.2877	86.30
0:35	0.7	0.29	0.14	N/A	0.1526	0.2877	86.30
0:40	0.7	0.29	0.14	N/A	0.1526	0.2877	86.30
0:45	0.7	0.29	0.14	N/A	0.1526	0.2877	86.30
0:50	0.7	0.29	0.14	N/A	0.1526	0.2877	86.30
0:55	0.7	0.29	0.14	N/A	0.1526	0.2877	86.30
1:00	0.8	0.34	0.14	N/A	0.1944	0.3666	109.99
1:05	0.8	0.34	0.14	N/A	0.1944	0.3666	109.99
1:10	0.8	0.34	0.14	N/A	0.1944	0.3666	109.99
1:15	0.8	0.34	0.14	N/A	0.1944	0.3666	109.99
1:20	0.8	0.34	0.14	N/A	0.1944	0.3666	109.99
1:25	0.8	0.34	0.14	N/A	0.1944	0.3666	109.99
1:30	0.8	0.34	0.14	N/A	0.1944	0.3666	109.99
1:35	0.8	0.34	0.14	N/A	0.1944	0.3666	109.99
1:40	0.8	0.34	0.14	N/A	0.1944	0.3666	109.99
1:45	0.8	0.34	0.14	N/A	0.1944	0.3666	109.99
1:50	0.8	0.34	0.14	N/A	0.1944	0.3666	109.99
1:55	0.8	0.34	0.14	N/A	0.1944	0.3666	109.99
2:00	0.9	0.38	0.14	N/A	0.2363	0.4456	133.68
2:05	0.8	0.34	0.14	N/A	0.1944	0.3666	109.99
2:10	0.9	0.38	0.14	N/A	0.2363	0.4456	133.68
2:15	0.9	0.38	0.14	N/A	0.2363	0.4456	133.68
2:20	0.9	0.38	0.14	N/A	0.2363	0.4456	133.68
2:25	0.9	0.38	0.14	N/A	0.2363	0.4456	133.68
2:30	0.9	0.38	0.14	N/A	0.2363	0.4456	133.68
2:35	0.9	0.38	0.14	N/A	0.2363	0.4456	133.68
2:40	0.9	0.38	0.14	N/A	0.2363	0.4456	133.68
2:45	1	0.42	0.14	N/A	0.2782	0.5246	157.37
2:50	1	0.42	0.14	N/A	0.2782	0.5246	157.37
2:55	1	0.42	0.14	N/A	0.2782	0.5246	157.37
3:00	1	0.42	0.14	N/A	0.2782	0.5246	157.37
3:05	1	0.42	0.14	N/A	0.2782	0.5246	157.37
3:10	1.1	0.46	0.14	N/A	0.3201	0.6035	181.06
3:15	1.1	0.46	0.14	N/A	0.3201	0.6035	181.06
3:20	1.1	0.46	0.14	N/A	0.3201	0.6035	181.06
3:25	1.2	0.50	0.14	N/A	0.3620	0.6825	204.75
3:30	1.3	0.54	0.14	N/A	0.4038	0.7615	228.44
3:35	1.4	0.59	0.14	N/A	0.4457	0.8404	252.13
3:40	1.4	0.59	0.14	N/A	0.4457	0.8404	252.13
3:45	1.5	0.63	0.14	N/A	0.4876	0.9194	275.82
3:50	1.5	0.63	0.14	N/A	0.4876	0.9194	275.82
3:55	1.6	0.67	0.14	N/A	0.5295	0.9984	299.51
4:00	1.6	0.67	0.14	N/A	0.5295	0.9984	299.51
4:05	1.7	0.71	0.14	N/A	0.5714	1.0773	323.20
4:10	1.8	0.75	0.14	N/A	0.6132	1.1563	346.89
4:15	1.9	0.80	0.14	N/A	0.6551	1.2353	370.59

4:20	2	0.84	0.14	N/A	0.6970	1.3143	394.28
4:25	2.1	0.88	0.14	N/A	0.7389	1.3932	417.97
4:30	2.1	0.88	0.14	N/A	0.7389	1.3932	417.97
4:35	2.2	0.92	0.14	N/A	0.7808	1.4722	441.66
4:40	2.3	0.96	0.14	N/A	0.8226	1.5512	465.35
4:45	2.4	1.01	0.14	N/A	0.8645	1.6301	489.04
4:50	2.4	1.01	0.14	N/A	0.8645	1.6301	489.04
4:55	2.5	1.05	0.14	N/A	0.9064	1.7091	512.73
5:00	2.6	1.09	0.14	N/A	0.9483	1.7881	536.42
5:05	3.1	1.30	0.14	N/A	1.1577	2.1829	654.87
5:10	3.6	1.51	0.14	N/A	1.3671	2.5777	773.32
5:15	3.9	1.63	0.14	N/A	1.4927	2.8146	844.39
5:20	4.2	1.76	0.14	N/A	1.6184	3.0516	915.47
5:25	4.7	1.97	0.14	N/A	1.8278	3.4464	1033.92
5:30	5.6	2.35	0.14	N/A	**2.2047**	**4.1571**	**1247.13**
5:35	1.9	0.80	0.14	N/A	0.6551	1.2353	370.59
5:40	0.9	0.38	0.14	N/A	0.2363	0.4456	133.68
5:45	0.6	0.25	0.14	N/A	0.1107	0.2087	62.61
5:50	0.5	0.21	0.14	N/A	0.0688	0.1297	38.92
5:55	0.3	0.13	0.14	0.11	0.0126	0.0237	7.11
6:00	0.2	0.08	0.14	0.08	0.0084	0.0158	4.74
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
6:15	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
6:30	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
6:45	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
7:00	0	0.00	0.14	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**18016.49**

24 Hour Storm in 15 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:15	0.2	0.04	0.25	0.04	0.0042	0.0079	7.14
0:30	0.3	0.06	0.24	0.06	0.0063	0.0119	10.71
0:45	0.3	0.06	0.24	0.06	0.0063	0.0119	10.71
1:00	0.4	0.08	0.24	0.08	0.0084	0.0159	14.28
1:15	0.3	0.06	0.24	0.06	0.0063	0.0119	10.71
1:30	0.3	0.06	0.23	0.06	0.0063	0.0119	10.71
1:45	0.3	0.06	0.23	0.06	0.0063	0.0119	10.71
2:00	0.4	0.08	0.23	0.08	0.0084	0.0159	14.28
2:15	0.4	0.08	0.22	0.08	0.0084	0.0159	14.28
2:30	0.4	0.08	0.22	0.08	0.0084	0.0159	14.28
2:45	0.5	0.11	0.22	0.09	0.0105	0.0198	17.85
3:00	0.5	0.11	0.22	0.09	0.0105	0.0198	17.85
3:15	0.5	0.11	0.21	0.09	0.0105	0.0198	17.85
3:30	0.5	0.11	0.21	0.09	0.0105	0.0198	17.85
3:45	0.5	0.11	0.21	0.09	0.0105	0.0198	17.85
4:00	0.6	0.13	0.21	0.11	0.0126	0.0238	21.42
4:15	0.6	0.13	0.20	0.11	0.0126	0.0238	21.42
4:30	0.7	0.15	0.20	0.13	0.0147	0.0278	24.99
4:45	0.7	0.15	0.20	0.13	0.0147	0.0278	24.99
5:00	0.8	0.17	0.20	0.15	0.0168	0.0317	28.56
5:15	0.6	0.13	0.19	0.11	0.0126	0.0238	21.42
5:30	0.7	0.15	0.19	0.13	0.0147	0.0278	24.99
5:45	0.8	0.17	0.19	0.15	0.0168	0.0317	28.56
6:00	0.8	0.17	0.19	0.15	0.0168	0.0317	28.56
6:15	0.9	0.19	0.18	0.17	0.0189	0.0357	32.13
6:30	0.9	0.19	0.18	0.17	0.0189	0.0357	32.13
6:45	1	0.21	0.18	N/A	0.0326	0.0614	55.25
7:00	1	0.21	0.18	N/A	0.0350	0.0659	59.33
7:15	1	0.21	0.17	N/A	0.0373	0.0704	63.38
7:30	1.1	0.23	0.17	N/A	0.0608	0.1146	103.11
7:45	1.2	0.25	0.17	N/A	0.0841	0.1587	142.79
8:00	1.3	0.27	0.17	N/A	0.1075	0.2027	182.45
8:15	1.5	0.32	0.16	N/A	0.1519	0.2864	257.78
8:30	1.5	0.32	0.16	N/A	0.1542	0.2907	261.66
8:45	1.6	0.34	0.16	N/A	0.1775	0.3347	301.21
9:00	1.7	0.36	0.16	N/A	0.2008	0.3786	340.73
9:15	1.9	0.40	0.15	N/A	0.2451	0.4621	415.92
9:30	2	0.42	0.15	N/A	0.2683	0.5060	455.37
9:45	2.1	0.44	0.15	N/A	0.2916	0.5498	494.79
10:00	2.2	0.46	0.15	N/A	0.3148	0.5935	534.17
10:15	1.5	0.32	0.15	N/A	0.1696	0.3198	287.86
10:30	1.5	0.32	0.14	N/A	0.1718	0.3239	291.47
10:45	2	0.42	0.14	N/A	0.2791	0.5262	473.56
11:00	2	0.42	0.14	N/A	0.2811	0.5301	477.08
11:15	1.9	0.40	0.14	N/A	0.2621	0.4943	444.87
11:30	1.9	0.40	0.14	N/A	0.2642	0.4981	448.32
11:45	1.7	0.36	0.13	N/A	0.2241	0.4226	380.33
12:00	1.8	0.38	0.13	N/A	0.2471	0.4660	419.41
12:15	2.5	0.53	0.13	N/A	0.3964	0.7474	672.69
12:30	2.6	0.55	0.13	N/A	0.4194	0.7908	711.69
12:45	2.8	0.59	0.13	N/A	0.4634	0.8737	786.36

13:00	2.9	0.61	0.12	N/A	0.4863	0.9170	825.29
13:15	3.4	0.72	0.12	N/A	0.5934	1.1189	1007.00
13:30	3.4	0.72	0.12	N/A	**0.5952**	1.1224	**1010.14**
13:45	2.3	0.48	0.12	N/A	0.3656	0.6894	620.48
14:00	2.3	0.48	0.12	N/A	0.3674	0.6928	623.54
14:15	2.7	0.57	0.11	N/A	0.4534	0.8549	769.37
14:30	2.6	0.55	0.11	N/A	0.4341	0.8185	736.64
14:45	2.6	0.55	0.11	N/A	0.4358	0.8217	739.57
15:00	2.5	0.53	0.11	N/A	0.4165	0.7853	706.76
15:15	2.4	0.50	0.11	N/A	0.3971	0.7488	673.90
15:30	2.3	0.48	0.11	N/A	0.3777	0.7122	640.99
15:45	1.9	0.40	0.10	N/A	0.2952	0.5566	500.92
16:00	1.9	0.40	0.10	N/A	0.2968	0.5596	503.63
16:15	0.4	0.08	0.10	0.08	0.0084	0.0159	14.28
16:30	0.4	0.08	0.10	0.08	0.0084	0.0159	14.28
16:45	0.3	0.06	0.10	0.06	0.0063	0.0119	10.71
17:00	0.3	0.06	0.10	0.06	0.0063	0.0119	10.71
17:15	0.5	0.11	0.10	0.09	0.0105	0.0198	17.85
17:30	0.5	0.11	0.09	N/A	0.0112	0.0211	19.02
17:45	0.5	0.11	0.09	N/A	0.0126	0.0238	21.39
18:00	0.4	0.08	0.09	0.08	0.0084	0.0159	14.28
18:15	0.4	0.08	0.09	0.08	0.0084	0.0159	14.28
18:30	0.4	0.08	0.09	0.08	0.0084	0.0159	14.28
18:45	0.3	0.06	0.09	0.06	0.0063	0.0119	10.71
19:00	0.2	0.04	0.09	0.04	0.0042	0.0079	7.14
19:15	0.3	0.06	0.08	0.06	0.0063	0.0119	10.71
19:30	0.4	0.08	0.08	0.08	0.0084	0.0159	14.28
19:45	0.3	0.06	0.08	0.06	0.0063	0.0119	10.71
20:00	0.2	0.04	0.08	0.04	0.0042	0.0079	7.14
20:15	0.3	0.06	0.08	0.06	0.0063	0.0119	10.71
20:30	0.3	0.06	0.08	0.06	0.0063	0.0119	10.71
20:45	0.3	0.06	0.08	0.06	0.0063	0.0119	10.71
21:00	0.2	0.04	0.08	0.04	0.0042	0.0079	7.14
21:15	0.3	0.06	0.08	0.06	0.0063	0.0119	10.71
21:30	0.2	0.04	0.08	0.04	0.0042	0.0079	7.14
21:45	0.3	0.06	0.07	0.06	0.0063	0.0119	10.71
22:00	0.2	0.04	0.07	0.04	0.0042	0.0079	7.14
22:15	0.3	0.06	0.07	0.06	0.0063	0.0119	10.71
22:30	0.2	0.04	0.07	0.04	0.0042	0.0079	7.14
22:45	0.2	0.04	0.07	0.04	0.0042	0.0079	7.14
23:00	0.2	0.04	0.07	0.04	0.0042	0.0079	7.14
23:15	0.2	0.04	0.07	0.04	0.0042	0.0079	7.14
23:30	0.2	0.04	0.07	0.04	0.0042	0.0079	7.14
23:45	0.2	0.04	0.07	0.04	0.0042	0.0079	7.14
24:00	0.2	0.04	0.07	0.04	0.0042	0.0079	7.14
	0	0.00	0.07	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**19263.60**

HYDROLOGY CALCULATIONS -

Using the RCFC&WCD Short Cut Unit Hydrograph Method
Area Designations **The Wren**
T4

Drainage Area (ac.)	**3.3000**				
Unit time (minutes)	**5**	**5**	**5**	**15**	
100 Year Storm Duration (hrs)	1	3	6	24	
Total Precipitation (Plates D-4.4,E-5.2, 5.4, 5.6)(in.)	**1.93**	**2.70**	**3.49**	**5.26**	Or data from NOAA interactive website
Soils Group	A				
AMC index II Runoff Number (plate E-6.1)	32				
Plate E-6.2 Pervious Area Loss Rate (Fp)(in/hr)	0.74	(AMC II)			
Percentage of Impervious Cover (Ai)(%) (plate E-6.3)		**87.3**			
Weighted Average Loss Rate (F=Fp(1-.9Ai))(in./hr.)	0.16	(used for 1, 3, and 6 hour storm, the 24 hour storm uses variable maximum loss rate per plate E-1.1 (3 of 6))			
Low Loss Rate Percent (%)	90				
Retention Basin Percolation Rate (in/hr)	**2**	(also used for drywell percolation rate)			

Percolation is taken incrementally.
Basin volume is calculated using the "truncated pyramid" formula, a more conservative estimate than "averaged end areas" sometimes used

(Drywell can be "zeroed out" by reducing numbers to less than .001, but should not entered as zeros or program chokes.)
Drywell storage includes 40% of the 1' wide rock bed surrounding the drywell: formula (upper)*PI()*(diam/2)^2+(lower)*PI()*((diam/2)^2+0.4*((diam/2+(grav+0.4166))^2-(diam/2+0.4166)^2))
The drywell wall thickness is assumed at 5" (0.4166) and the gravel bed width is variable "grav"

Drywell design factors **Upper sec. (ft.)=** **0.0001** **Lower sec. (ft.)=** **0.0001** **Ring diam. (ft.) =** **0.0001** **Drywell lower max. (cf)=** **0.00** **Upper max.(cf)=** **0.00**
Gravel bed width around drwyell= **0** **Drywell total(cf)=** **0.00**

Ret. Basin design (area, depth) **Top =** **0.0001** s.f. **Bot. =** **0.0001** **s.f.** **Max. Depth (d)=** **0.0001** **Max. storage=** **0.00** (d/3)*(bottom+top+(bottom*top)^0.50)
Formulas **vol=(h/3)*(bottom+top+(bottom*top)^0.50)** **area=bottom+(h/d)*(top-bottom)** **h=(vol*3)/(bottom+top+(bottom*top)^0.5)** **(values must be non-zero or error occurs)**
Outside input from: **N/A**

1 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:05	3.7	0.8569	0.1586	N/A	0.6983	2.3237	697.12
0:10	4.8	1.1117	0.1586	N/A	0.9531	3.1714	951.43
0:15	5.1	1.1812	0.1586	N/A	1.0226	3.4026	1020.79
0:20	4.9	1.1348	0.1586	N/A	0.9763	3.2485	974.55
0:25	6.6	1.5286	0.1586	N/A	1.3700	4.5586	1367.58
0:30	7.3	1.6907	0.1586	N/A	1.5321	5.0981	1529.42
0:35	8.4	1.9454	0.1586	N/A	1.7869	5.9458	1783.73
0:40	9	2.0844	0.1586	N/A	1.9258	6.4082	1922.45
0:45	12.3	2.8487	0.1586	N/A	2.6901	8.9513	2685.39
0:50	17.6	4.0762	0.1586	N/A	**3.9176**	**13.0357**	**3910.72**
0:55	16.1	3.7288	0.1586	N/A	3.5702	11.8798	3563.93
1:00	4.2	0.9727	0.1586	N/A	0.8141	2.7090	812.71
	0	0.0000	0.1586	0.00	0.0000	0.0000	0.00
	0	0.0000	0.1586	0.00	0.0000	0.0000	0.00
1:15	0	0.0000	0.1586	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**21219.82**

3 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:05	1.3	0.42	0.16	N/A	0.2626	0.8739	262.16
0:10	1.3	0.42	0.16	N/A	0.2626	0.8739	262.16
0:15	1.1	0.36	0.16	N/A	0.1978	0.6582	197.47
0:20	1.5	0.49	0.16	N/A	0.3274	1.0895	326.85
0:25	1.5	0.49	0.16	N/A	0.3274	1.0895	326.85
0:30	1.8	0.58	0.16	N/A	0.4246	1.4129	423.87
0:35	1.5	0.49	0.16	N/A	0.3274	1.0895	326.85
0:40	1.8	0.58	0.16	N/A	0.4246	1.4129	423.87
0:45	1.8	0.58	0.16	N/A	0.4246	1.4129	423.87
0:50	1.5	0.49	0.16	N/A	0.3274	1.0895	326.85
0:55	1.6	0.52	0.16	N/A	0.3598	1.1973	359.19
1:00	1.8	0.58	0.16	N/A	0.4246	1.4129	423.87
1:05	2.2	0.71	0.16	N/A	0.5542	1.8442	553.25
1:10	2.2	0.71	0.16	N/A	0.5542	1.8442	553.25
1:15	2.2	0.71	0.16	N/A	0.5542	1.8442	553.25
1:20	2	0.65	0.16	N/A	0.4894	1.6285	488.56
1:25	2.6	0.84	0.16	N/A	0.6838	2.2754	682.62
1:30	2.7	0.87	0.16	N/A	0.7162	2.3832	714.96
1:35	2.4	0.78	0.16	N/A	0.6190	2.0598	617.93
1:40	2.7	0.87	0.16	N/A	0.7162	2.3832	714.96
1:45	3.3	1.07	0.16	N/A	0.9106	3.0301	909.02
1:50	3.1	1.00	0.16	N/A	0.8458	2.8145	844.34
1:55	2.9	0.94	0.16	N/A	0.7810	2.5988	779.65
2:00	3	0.97	0.16	N/A	0.8134	2.7066	811.99
2:05	3.1	1.00	0.16	N/A	0.8458	2.8145	844.34
2:10	4.2	1.36	0.16	N/A	1.2022	4.0004	1200.11
2:15	5	1.62	0.16	N/A	1.4614	4.8629	1458.86
2:20	3.5	1.13	0.16	N/A	0.9754	3.2457	973.71
2:25	6.8	2.20	0.16	N/A	2.0446	6.8035	2041.04
2:30	7.3	2.37	0.16	N/A	2.2066	7.3425	2202.76
2:35	8.2	2.66	0.16	N/A	**2.4982**	**8.3128**	**2493.85**
2:40	5.9	1.91	0.16	N/A	1.7530	5.8332	1749.95
2:45	2	0.65	0.16	N/A	0.4894	1.6285	488.56
2:50	1.8	0.58	0.16	N/A	0.4246	1.4129	423.87
2:55	1.8	0.58	0.16	N/A	0.4246	1.4129	423.87
3:00	0.6	0.19	0.16	N/A	0.0358	0.1192	35.76
	0	0.00	0.16	0.00	0.0000	0.0000	0.00
	0	0.00	0.16	0.00	0.0000	0.0000	0.00
3:15	0	0.00	0.16	0.00	0.0000	0.0000	0.00
	0	0.00	0.16	0.00	0.0000	0.0000	0.00
	0	0.00	0.16	0.00	0.0000	0.0000	0.00
3:30	0	0.00	0.16	0.00	0.0000	0.0000	0.00
	0	0.00	0.16	0.00	0.0000	0.0000	0.00
	0	0.00	0.16	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**26644.34**

6 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:05	0.5	0.21	0.16	N/A	0.0508	0.1691	50.73
0:10	0.6	0.25	0.16	N/A	0.0927	0.3085	92.54
0:15	0.6	0.25	0.16	N/A	0.0927	0.3085	92.54
0:20	0.6	0.25	0.16	N/A	0.0927	0.3085	92.54
0:25	0.6	0.25	0.16	N/A	0.0927	0.3085	92.54
0:30	0.7	0.29	0.16	N/A	0.1346	0.4478	134.34
0:35	0.7	0.29	0.16	N/A	0.1346	0.4478	134.34
0:40	0.7	0.29	0.16	N/A	0.1346	0.4478	134.34
0:45	0.7	0.29	0.16	N/A	0.1346	0.4478	134.34
0:50	0.7	0.29	0.16	N/A	0.1346	0.4478	134.34
0:55	0.7	0.29	0.16	N/A	0.1346	0.4478	134.34
1:00	0.8	0.34	0.16	N/A	0.1765	0.5872	176.15
1:05	0.8	0.34	0.16	N/A	0.1765	0.5872	176.15
1:10	0.8	0.34	0.16	N/A	0.1765	0.5872	176.15
1:15	0.8	0.34	0.16	N/A	0.1765	0.5872	176.15
1:20	0.8	0.34	0.16	N/A	0.1765	0.5872	176.15
1:25	0.8	0.34	0.16	N/A	0.1765	0.5872	176.15
1:30	0.8	0.34	0.16	N/A	0.1765	0.5872	176.15
1:35	0.8	0.34	0.16	N/A	0.1765	0.5872	176.15
1:40	0.8	0.34	0.16	N/A	0.1765	0.5872	176.15
1:45	0.8	0.34	0.16	N/A	0.1765	0.5872	176.15
1:50	0.8	0.34	0.16	N/A	0.1765	0.5872	176.15
1:55	0.8	0.34	0.16	N/A	0.1765	0.5872	176.15
2:00	0.9	0.38	0.16	N/A	0.2183	0.7265	217.96
2:05	0.8	0.34	0.16	N/A	0.1765	0.5872	176.15
2:10	0.9	0.38	0.16	N/A	0.2183	0.7265	217.96
2:15	0.9	0.38	0.16	N/A	0.2183	0.7265	217.96
2:20	0.9	0.38	0.16	N/A	0.2183	0.7265	217.96
2:25	0.9	0.38	0.16	N/A	0.2183	0.7265	217.96
2:30	0.9	0.38	0.16	N/A	0.2183	0.7265	217.96
2:35	0.9	0.38	0.16	N/A	0.2183	0.7265	217.96
2:40	0.9	0.38	0.16	N/A	0.2183	0.7265	217.96
2:45	1	0.42	0.16	N/A	0.2602	0.8659	259.76
2:50	1	0.42	0.16	N/A	0.2602	0.8659	259.76
2:55	1	0.42	0.16	N/A	0.2602	0.8659	259.76
3:00	1	0.42	0.16	N/A	0.2602	0.8659	259.76
3:05	1	0.42	0.16	N/A	0.2602	0.8659	259.76
3:10	1.1	0.46	0.16	N/A	0.3021	1.0052	301.57
3:15	1.1	0.46	0.16	N/A	0.3021	1.0052	301.57
3:20	1.1	0.46	0.16	N/A	0.3021	1.0052	301.57
3:25	1.2	0.50	0.16	N/A	0.3440	1.1446	343.38
3:30	1.3	0.54	0.16	N/A	0.3859	1.2839	385.18
3:35	1.4	0.59	0.16	N/A	0.4277	1.4233	426.99
3:40	1.4	0.59	0.16	N/A	0.4277	1.4233	426.99
3:45	1.5	0.63	0.16	N/A	0.4696	1.5627	468.80
3:50	1.5	0.63	0.16	N/A	0.4696	1.5627	468.80
3:55	1.6	0.67	0.16	N/A	0.5115	1.7020	510.60
4:00	1.6	0.67	0.16	N/A	0.5115	1.7020	510.60
4:05	1.7	0.71	0.16	N/A	0.5534	1.8414	552.41
4:10	1.8	0.75	0.16	N/A	0.5953	1.9807	594.22
4:15	1.9	0.80	0.16	N/A	0.6371	2.1201	636.02

4:20	2	0.84	0.16	N/A	0.6790	2.2594	677.83
4:25	2.1	0.88	0.16	N/A	0.7209	2.3988	719.64
4:30	2.1	0.88	0.16	N/A	0.7209	2.3988	719.64
4:35	2.2	0.92	0.16	N/A	0.7628	2.5381	761.44
4:40	2.3	0.96	0.16	N/A	0.8047	2.6775	803.25
4:45	2.4	1.01	0.16	N/A	0.8465	2.8169	845.06
4:50	2.4	1.01	0.16	N/A	0.8465	2.8169	845.06
4:55	2.5	1.05	0.16	N/A	0.8884	2.9562	886.86
5:00	2.6	1.09	0.16	N/A	0.9303	3.0956	928.67
5:05	3.1	1.30	0.16	N/A	1.1397	3.7923	1137.70
5:10	3.6	1.51	0.16	N/A	1.3491	4.4891	1346.74
5:15	3.9	1.63	0.16	N/A	1.4747	4.9072	1472.16
5:20	4.2	1.76	0.16	N/A	1.6004	5.3253	1597.58
5:25	4.7	1.97	0.16	N/A	1.8098	6.0220	1806.61
5:30	5.6	2.35	0.16	N/A	**2.1867**	**7.2762**	**2182.87**
5:35	1.9	0.80	0.16	N/A	0.6371	2.1201	636.02
5:40	0.9	0.38	0.16	N/A	0.2183	0.7265	217.96
5:45	0.6	0.25	0.16	N/A	0.0927	0.3085	92.54
5:50	0.5	0.21	0.16	N/A	0.0508	0.1691	50.73
5:55	0.3	0.13	0.16	0.11	0.0126	0.0418	12.54
6:00	0.2	0.08	0.16	0.08	0.0084	0.0279	8.36
	0	0.00	0.16	0.00	0.0000	0.0000	0.00
	0	0.00	0.16	0.00	0.0000	0.0000	0.00
6:15	0	0.00	0.16	0.00	0.0000	0.0000	0.00
	0	0.00	0.16	0.00	0.0000	0.0000	0.00
	0	0.00	0.16	0.00	0.0000	0.0000	0.00
6:30	0	0.00	0.16	0.00	0.0000	0.0000	0.00
	0	0.00	0.16	0.00	0.0000	0.0000	0.00
	0	0.00	0.16	0.00	0.0000	0.0000	0.00
6:45	0	0.00	0.16	0.00	0.0000	0.0000	0.00
	0	0.00	0.16	0.00	0.0000	0.0000	0.00
	0	0.00	0.16	0.00	0.0000	0.0000	0.00
7:00	0	0.00	0.16	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**30537.27**

24 Hour Storm in 15 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:15	0.2	0.04	0.28	0.04	0.0042	0.0140	12.60
0:30	0.3	0.06	0.28	0.06	0.0063	0.0210	18.90
0:45	0.3	0.06	0.27	0.06	0.0063	0.0210	18.90
1:00	0.4	0.08	0.27	0.08	0.0084	0.0280	25.20
1:15	0.3	0.06	0.27	0.06	0.0063	0.0210	18.90
1:30	0.3	0.06	0.26	0.06	0.0063	0.0210	18.90
1:45	0.3	0.06	0.26	0.06	0.0063	0.0210	18.90
2:00	0.4	0.08	0.26	0.08	0.0084	0.0280	25.20
2:15	0.4	0.08	0.25	0.08	0.0084	0.0280	25.20
2:30	0.4	0.08	0.25	0.08	0.0084	0.0280	25.20
2:45	0.5	0.11	0.25	0.09	0.0105	0.0350	31.50
3:00	0.5	0.11	0.24	0.09	0.0105	0.0350	31.50
3:15	0.5	0.11	0.24	0.09	0.0105	0.0350	31.50
3:30	0.5	0.11	0.24	0.09	0.0105	0.0350	31.50
3:45	0.5	0.11	0.23	0.09	0.0105	0.0350	31.50
4:00	0.6	0.13	0.23	0.11	0.0126	0.0420	37.81
4:15	0.6	0.13	0.23	0.11	0.0126	0.0420	37.81
4:30	0.7	0.15	0.23	0.13	0.0147	0.0490	44.11
4:45	0.7	0.15	0.22	0.13	0.0147	0.0490	44.11
5:00	0.8	0.17	0.22	0.15	0.0168	0.0560	50.41
5:15	0.6	0.13	0.22	0.11	0.0126	0.0420	37.81
5:30	0.7	0.15	0.21	0.13	0.0147	0.0490	44.11
5:45	0.8	0.17	0.21	0.15	0.0168	0.0560	50.41
6:00	0.8	0.17	0.21	0.15	0.0168	0.0560	50.41
6:15	0.9	0.19	0.21	0.17	0.0189	0.0630	56.71
6:30	0.9	0.19	0.20	0.17	0.0189	0.0630	56.71
6:45	1	0.21	0.20	0.19	0.0210	0.0700	63.01
7:00	1	0.21	0.20	0.19	0.0210	0.0700	63.01
7:15	1	0.21	0.20	0.19	0.0210	0.0700	63.01
7:30	1.1	0.23	0.19	N/A	0.0389	0.1295	116.58
7:45	1.2	0.25	0.19	N/A	0.0626	0.2084	187.52
8:00	1.3	0.27	0.19	N/A	0.0863	0.2871	258.39
8:15	1.5	0.32	0.18	N/A	0.1310	0.4358	392.20
8:30	1.5	0.32	0.18	N/A	0.1335	0.4444	399.93
8:45	1.6	0.34	0.18	N/A	0.1571	0.5229	470.60
9:00	1.7	0.36	0.18	N/A	0.1807	0.6013	541.20
9:15	1.9	0.40	0.17	N/A	0.2253	0.7497	674.74
9:30	2	0.42	0.17	N/A	0.2488	0.8280	745.20
9:45	2.1	0.44	0.17	N/A	0.2723	0.9062	815.59
10:00	2.2	0.46	0.17	N/A	0.2958	0.9843	885.91
10:15	1.5	0.32	0.16	N/A	0.1510	0.5023	452.09
10:30	1.5	0.32	0.16	N/A	0.1534	0.5103	459.25
10:45	2	0.42	0.16	N/A	0.2609	0.8682	781.40
11:00	2	0.42	0.16	N/A	0.2633	0.8760	788.42
11:15	1.9	0.40	0.16	N/A	0.2445	0.8137	732.36
11:30	1.9	0.40	0.15	N/A	0.2468	0.8214	739.23
11:45	1.7	0.36	0.15	N/A	0.2070	0.6889	620.01
12:00	1.8	0.38	0.15	N/A	0.2303	0.7664	689.74
12:15	2.5	0.53	0.15	N/A	0.3798	1.2638	1137.45
12:30	2.6	0.55	0.14	N/A	0.4030	1.3411	1207.03
12:45	2.8	0.59	0.14	N/A	0.4473	1.4884	1339.54

13:00	2.9	0.61	0.14	N/A	0.4705	1.5655	1408.96
13:15	3.4	0.72	0.14	N/A	0.5778	1.9226	1730.34
13:30	3.4	0.72	0.14	N/A	**0.5799**	1.9295	**1736.59**
13:45	2.3	0.48	0.13	N/A	0.3505	1.1663	1049.65
14:00	2.3	0.48	0.13	N/A	0.3525	1.1730	1055.74
14:15	2.7	0.57	0.13	N/A	0.4387	1.4598	1313.78
14:30	2.6	0.55	0.13	N/A	0.4196	1.3963	1256.69
14:45	2.6	0.55	0.13	N/A	0.4216	1.4028	1262.53
15:00	2.5	0.53	0.12	N/A	0.4025	1.3392	1205.27
15:15	2.4	0.50	0.12	N/A	0.3833	1.2755	1147.92
15:30	2.3	0.48	0.12	N/A	0.3641	1.2116	1090.48
15:45	1.9	0.40	0.12	N/A	0.2818	0.9377	843.93
16:00	1.9	0.40	0.12	N/A	0.2836	0.9437	849.32
16:15	0.4	0.08	0.11	0.08	0.0084	0.0280	25.20
16:30	0.4	0.08	0.11	0.08	0.0084	0.0280	25.20
16:45	0.3	0.06	0.11	0.06	0.0063	0.0210	18.90
17:00	0.3	0.06	0.11	0.06	0.0063	0.0210	18.90
17:15	0.5	0.11	0.11	0.09	0.0105	0.0350	31.50
17:30	0.5	0.11	0.11	0.09	0.0105	0.0350	31.50
17:45	0.5	0.11	0.10	0.09	0.0105	0.0350	31.50
18:00	0.4	0.08	0.10	0.08	0.0084	0.0280	25.20
18:15	0.4	0.08	0.10	0.08	0.0084	0.0280	25.20
18:30	0.4	0.08	0.10	0.08	0.0084	0.0280	25.20
18:45	0.3	0.06	0.10	0.06	0.0063	0.0210	18.90
19:00	0.2	0.04	0.10	0.04	0.0042	0.0140	12.60
19:15	0.3	0.06	0.10	0.06	0.0063	0.0210	18.90
19:30	0.4	0.08	0.09	0.08	0.0084	0.0280	25.20
19:45	0.3	0.06	0.09	0.06	0.0063	0.0210	18.90
20:00	0.2	0.04	0.09	0.04	0.0042	0.0140	12.60
20:15	0.3	0.06	0.09	0.06	0.0063	0.0210	18.90
20:30	0.3	0.06	0.09	0.06	0.0063	0.0210	18.90
20:45	0.3	0.06	0.09	0.06	0.0063	0.0210	18.90
21:00	0.2	0.04	0.09	0.04	0.0042	0.0140	12.60
21:15	0.3	0.06	0.09	0.06	0.0063	0.0210	18.90
21:30	0.2	0.04	0.09	0.04	0.0042	0.0140	12.60
21:45	0.3	0.06	0.08	0.06	0.0063	0.0210	18.90
22:00	0.2	0.04	0.08	0.04	0.0042	0.0140	12.60
22:15	0.3	0.06	0.08	0.06	0.0063	0.0210	18.90
22:30	0.2	0.04	0.08	0.04	0.0042	0.0140	12.60
22:45	0.2	0.04	0.08	0.04	0.0042	0.0140	12.60
23:00	0.2	0.04	0.08	0.04	0.0042	0.0140	12.60
23:15	0.2	0.04	0.08	0.04	0.0042	0.0140	12.60
23:30	0.2	0.04	0.08	0.04	0.0042	0.0140	12.60
23:45	0.2	0.04	0.08	0.04	0.0042	0.0140	12.60
24:00	0.2	0.04	0.08	0.04	0.0042	0.0140	12.60
	0	0.00	0.08	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**32055.31**

HYDROLOGY CALCULATIONS -

Using the RCFC&WCD Short Cut Unit Hydrograph Method

Area Designations	**The Wren**				
	T5				
Drainage Area (ac.)	**0.5200**				
Unit time (minutes)	**5**	**5**	**5**	**15**	
100 Year Storm Duration (hrs)	1	3	6	24	
Total Precipitation (Plates D-4.4,E-5.2, 5.4, 5.6)(in.)	**1.93**	**2.70**	**3.49**	**5.26**	Or data from NOAA interactive website
Soils Group	A				
AMC index II Runoff Number (plate E-6.1)	32				
Plate E-6.2 Pervious Area Loss Rate (Fp)(in/hr)	0.74	(AMC II)			
Percentage of Impervious Cover (Ai)(%) (plate E-6.3)		**90**			
Weighted Average Loss Rate (F=Fp(1-.9Ai))(in./hr.)	0.14	(used for 1, 3, and 6 hour storm, the 24 hour storm uses variable maximum loss rate per plate E-1.1 (3 of 6))			
Low Loss Rate Percent (%)	90				
Retention Basin Percolation Rate (in/hr)	**2**	(also used for drywell percolation rate)			

Percolation is taken incrementally.

Basin volume is calculated using the "truncated pyramid" formula, a more conservative estimate than "averaged end areas" sometimes used

(Drywell can be "zeroed out" by reducing numbers to less than .001, but should not entered as zeros or program chokes.)

Drywell storage includes 40% of the 1' wide rock bed surrounding the drywell: formula (upper)*PI()*(diam/2)^2+(lower)*PI()*((diam/2)^2+0.4*((diam/2+(grav+0.4166))^2-(diam/2+0.4166)^2))

The drywell wall thickness is assumed at 5" (0.4166) and the gravel bed width is variable "grav"

Drywell design factors **Upper sec. (ft.)=** **0.0001** **Lower sec. (ft.)=** **0.0001** **Ring diam. (ft.) =** **0.0001** **Drywell lower max. (cf)=** **0.00** **Upper max.(cf)=** **0.00**

Gravel bed width around drwyell= **0** **Drywell total(cf)=** **0.00**

Ret. Basin design (area, depth) **Top =** **0.0001** s.f. **Bot. =** **0.0001** **s.f.** **Max. Depth (d)=** **0.0001** **Max. storage=** **0.00** (d/3)*(bottom+top+(bottom*top)^0.50)

Formulas **vol=(h/3)*(bottom+top+(bottom*top)^0.50)** **area=bottom+(h/d)*(top-bottom)** **h=(vol*3)/(bottom+top+(bottom*top)^0.5)** **(values must be non-zero or error occurs)**

Outside input from: **N/A**

1 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:05	3.7	0.8569	0.1406	N/A	0.7163	0.3756	112.68
0:10	4.8	1.1117	0.1406	N/A	0.9711	0.5092	152.75
0:15	5.1	1.1812	0.1406	N/A	1.0406	0.5456	163.68
0:20	4.9	1.1348	0.1406	N/A	0.9942	0.5213	156.39
0:25	6.6	1.5286	0.1406	N/A	1.3880	0.7278	218.33
0:30	7.3	1.6907	0.1406	N/A	1.5501	0.8128	243.83
0:35	8.4	1.9454	0.1406	N/A	1.8048	0.9463	283.90
0:40	9	2.0844	0.1406	N/A	1.9438	1.0192	305.76
0:45	12.3	2.8487	0.1406	N/A	2.7081	1.4199	425.98
0:50	17.6	4.0762	0.1406	N/A	**3.9356**	**2.0635**	**619.06**
0:55	16.1	3.7288	0.1406	N/A	3.5882	1.8814	564.42
1:00	4.2	0.9727	0.1406	N/A	0.8321	0.4363	130.89
	0	0.0000	0.1406	0.00	0.0000	0.0000	0.00
	0	0.0000	0.1406	0.00	0.0000	0.0000	0.00
1:15	0	0.0000	0.1406	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**3377.67**

3 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:05	1.3	0.42	0.14	N/A	0.2806	0.1471	44.14
0:10	1.3	0.42	0.14	N/A	0.2806	0.1471	44.14
0:15	1.1	0.36	0.14	N/A	0.2158	0.1132	33.95
0:20	1.5	0.49	0.14	N/A	0.3454	0.1811	54.33
0:25	1.5	0.49	0.14	N/A	0.3454	0.1811	54.33
0:30	1.8	0.58	0.14	N/A	0.4426	0.2321	69.62
0:35	1.5	0.49	0.14	N/A	0.3454	0.1811	54.33
0:40	1.8	0.58	0.14	N/A	0.4426	0.2321	69.62
0:45	1.8	0.58	0.14	N/A	0.4426	0.2321	69.62
0:50	1.5	0.49	0.14	N/A	0.3454	0.1811	54.33
0:55	1.6	0.52	0.14	N/A	0.3778	0.1981	59.43
1:00	1.8	0.58	0.14	N/A	0.4426	0.2321	69.62
1:05	2.2	0.71	0.14	N/A	0.5722	0.3000	90.01
1:10	2.2	0.71	0.14	N/A	0.5722	0.3000	90.01
1:15	2.2	0.71	0.14	N/A	0.5722	0.3000	90.01
1:20	2	0.65	0.14	N/A	0.5074	0.2660	79.81
1:25	2.6	0.84	0.14	N/A	0.7018	0.3680	110.39
1:30	2.7	0.87	0.14	N/A	0.7342	0.3850	115.49
1:35	2.4	0.78	0.14	N/A	0.6370	0.3340	100.20
1:40	2.7	0.87	0.14	N/A	0.7342	0.3850	115.49
1:45	3.3	1.07	0.14	N/A	0.9286	0.4869	146.07
1:50	3.1	1.00	0.14	N/A	0.8638	0.4529	135.88
1:55	2.9	0.94	0.14	N/A	0.7990	0.4189	125.68
2:00	3	0.97	0.14	N/A	0.8314	0.4359	130.78
2:05	3.1	1.00	0.14	N/A	0.8638	0.4529	135.88
2:10	4.2	1.36	0.14	N/A	1.2202	0.6398	191.94
2:15	5	1.62	0.14	N/A	1.4794	0.7757	232.71
2:20	3.5	1.13	0.14	N/A	0.9934	0.5209	156.26
2:25	6.8	2.20	0.14	N/A	2.0626	1.0815	324.45
2:30	7.3	2.37	0.14	N/A	2.2246	1.1664	349.93
2:35	8.2	2.66	0.14	N/A	**2.5162**	**1.3193**	**395.80**
2:40	5.9	1.91	0.14	N/A	1.7710	0.9286	278.58
2:45	2	0.65	0.14	N/A	0.5074	0.2660	79.81
2:50	1.8	0.58	0.14	N/A	0.4426	0.2321	69.62
2:55	1.8	0.58	0.14	N/A	0.4426	0.2321	69.62
3:00	0.6	0.19	0.14	N/A	0.0538	0.0282	8.46
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
3:15	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
3:30	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**4300.33**

6 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:05	0.5	0.21	0.14	N/A	0.0688	0.0361	10.82
0:10	0.6	0.25	0.14	N/A	0.1107	0.0580	17.41
0:15	0.6	0.25	0.14	N/A	0.1107	0.0580	17.41
0:20	0.6	0.25	0.14	N/A	0.1107	0.0580	17.41
0:25	0.6	0.25	0.14	N/A	0.1107	0.0580	17.41
0:30	0.7	0.29	0.14	N/A	0.1526	0.0800	24.00
0:35	0.7	0.29	0.14	N/A	0.1526	0.0800	24.00
0:40	0.7	0.29	0.14	N/A	0.1526	0.0800	24.00
0:45	0.7	0.29	0.14	N/A	0.1526	0.0800	24.00
0:50	0.7	0.29	0.14	N/A	0.1526	0.0800	24.00
0:55	0.7	0.29	0.14	N/A	0.1526	0.0800	24.00
1:00	0.8	0.34	0.14	N/A	0.1944	0.1020	30.59
1:05	0.8	0.34	0.14	N/A	0.1944	0.1020	30.59
1:10	0.8	0.34	0.14	N/A	0.1944	0.1020	30.59
1:15	0.8	0.34	0.14	N/A	0.1944	0.1020	30.59
1:20	0.8	0.34	0.14	N/A	0.1944	0.1020	30.59
1:25	0.8	0.34	0.14	N/A	0.1944	0.1020	30.59
1:30	0.8	0.34	0.14	N/A	0.1944	0.1020	30.59
1:35	0.8	0.34	0.14	N/A	0.1944	0.1020	30.59
1:40	0.8	0.34	0.14	N/A	0.1944	0.1020	30.59
1:45	0.8	0.34	0.14	N/A	0.1944	0.1020	30.59
1:50	0.8	0.34	0.14	N/A	0.1944	0.1020	30.59
1:55	0.8	0.34	0.14	N/A	0.1944	0.1020	30.59
2:00	0.9	0.38	0.14	N/A	0.2363	0.1239	37.17
2:05	0.8	0.34	0.14	N/A	0.1944	0.1020	30.59
2:10	0.9	0.38	0.14	N/A	0.2363	0.1239	37.17
2:15	0.9	0.38	0.14	N/A	0.2363	0.1239	37.17
2:20	0.9	0.38	0.14	N/A	0.2363	0.1239	37.17
2:25	0.9	0.38	0.14	N/A	0.2363	0.1239	37.17
2:30	0.9	0.38	0.14	N/A	0.2363	0.1239	37.17
2:35	0.9	0.38	0.14	N/A	0.2363	0.1239	37.17
2:40	0.9	0.38	0.14	N/A	0.2363	0.1239	37.17
2:45	1	0.42	0.14	N/A	0.2782	0.1459	43.76
2:50	1	0.42	0.14	N/A	0.2782	0.1459	43.76
2:55	1	0.42	0.14	N/A	0.2782	0.1459	43.76
3:00	1	0.42	0.14	N/A	0.2782	0.1459	43.76
3:05	1	0.42	0.14	N/A	0.2782	0.1459	43.76
3:10	1.1	0.46	0.14	N/A	0.3201	0.1678	50.35
3:15	1.1	0.46	0.14	N/A	0.3201	0.1678	50.35
3:20	1.1	0.46	0.14	N/A	0.3201	0.1678	50.35
3:25	1.2	0.50	0.14	N/A	0.3620	0.1898	56.94
3:30	1.3	0.54	0.14	N/A	0.4038	0.2117	63.52
3:35	1.4	0.59	0.14	N/A	0.4457	0.2337	70.11
3:40	1.4	0.59	0.14	N/A	0.4457	0.2337	70.11
3:45	1.5	0.63	0.14	N/A	0.4876	0.2557	76.70
3:50	1.5	0.63	0.14	N/A	0.4876	0.2557	76.70
3:55	1.6	0.67	0.14	N/A	0.5295	0.2776	83.29
4:00	1.6	0.67	0.14	N/A	0.5295	0.2776	83.29
4:05	1.7	0.71	0.14	N/A	0.5714	0.2996	89.87
4:10	1.8	0.75	0.14	N/A	0.6132	0.3215	96.46
4:15	1.9	0.80	0.14	N/A	0.6551	0.3435	103.05

4:20	2	0.84	0.14	N/A	0.6970	0.3655	109.64
4:25	2.1	0.88	0.14	N/A	0.7389	0.3874	116.23
4:30	2.1	0.88	0.14	N/A	0.7389	0.3874	116.23
4:35	2.2	0.92	0.14	N/A	0.7808	0.4094	122.81
4:40	2.3	0.96	0.14	N/A	0.8226	0.4313	129.40
4:45	2.4	1.01	0.14	N/A	0.8645	0.4533	135.99
4:50	2.4	1.01	0.14	N/A	0.8645	0.4533	135.99
4:55	2.5	1.05	0.14	N/A	0.9064	0.4753	142.58
5:00	2.6	1.09	0.14	N/A	0.9483	0.4972	149.16
5:05	3.1	1.30	0.14	N/A	1.1577	0.6070	182.10
5:10	3.6	1.51	0.14	N/A	1.3671	0.7168	215.04
5:15	3.9	1.63	0.14	N/A	1.4927	0.7827	234.80
5:20	4.2	1.76	0.14	N/A	1.6184	0.8486	254.57
5:25	4.7	1.97	0.14	N/A	1.8278	0.9584	287.51
5:30	5.6	2.35	0.14	N/A	**2.2047**	**1.1560**	**346.80**
5:35	1.9	0.80	0.14	N/A	0.6551	0.3435	103.05
5:40	0.9	0.38	0.14	N/A	0.2363	0.1239	37.17
5:45	0.6	0.25	0.14	N/A	0.1107	0.0580	17.41
5:50	0.5	0.21	0.14	N/A	0.0688	0.0361	10.82
5:55	0.3	0.13	0.14	0.11	0.0126	0.0066	1.98
6:00	0.2	0.08	0.14	0.08	0.0084	0.0044	1.32
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
6:15	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
6:30	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
6:45	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
7:00	0	0.00	0.14	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**5009.93**

24 Hour Storm in 15 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:15	0.2	0.04	0.25	0.04	0.0042	0.0022	1.99
0:30	0.3	0.06	0.24	0.06	0.0063	0.0033	2.98
0:45	0.3	0.06	0.24	0.06	0.0063	0.0033	2.98
1:00	0.4	0.08	0.24	0.08	0.0084	0.0044	3.97
1:15	0.3	0.06	0.24	0.06	0.0063	0.0033	2.98
1:30	0.3	0.06	0.23	0.06	0.0063	0.0033	2.98
1:45	0.3	0.06	0.23	0.06	0.0063	0.0033	2.98
2:00	0.4	0.08	0.23	0.08	0.0084	0.0044	3.97
2:15	0.4	0.08	0.22	0.08	0.0084	0.0044	3.97
2:30	0.4	0.08	0.22	0.08	0.0084	0.0044	3.97
2:45	0.5	0.11	0.22	0.09	0.0105	0.0055	4.96
3:00	0.5	0.11	0.22	0.09	0.0105	0.0055	4.96
3:15	0.5	0.11	0.21	0.09	0.0105	0.0055	4.96
3:30	0.5	0.11	0.21	0.09	0.0105	0.0055	4.96
3:45	0.5	0.11	0.21	0.09	0.0105	0.0055	4.96
4:00	0.6	0.13	0.21	0.11	0.0126	0.0066	5.96
4:15	0.6	0.13	0.20	0.11	0.0126	0.0066	5.96
4:30	0.7	0.15	0.20	0.13	0.0147	0.0077	6.95
4:45	0.7	0.15	0.20	0.13	0.0147	0.0077	6.95
5:00	0.8	0.17	0.20	0.15	0.0168	0.0088	7.94
5:15	0.6	0.13	0.19	0.11	0.0126	0.0066	5.96
5:30	0.7	0.15	0.19	0.13	0.0147	0.0077	6.95
5:45	0.8	0.17	0.19	0.15	0.0168	0.0088	7.94
6:00	0.8	0.17	0.19	0.15	0.0168	0.0088	7.94
6:15	0.9	0.19	0.18	0.17	0.0189	0.0099	8.94
6:30	0.9	0.19	0.18	0.17	0.0189	0.0099	8.94
6:45	1	0.21	0.18	N/A	0.0326	0.0171	15.36
7:00	1	0.21	0.18	N/A	0.0350	0.0183	16.50
7:15	1	0.21	0.17	N/A	0.0373	0.0196	17.63
7:30	1.1	0.23	0.17	N/A	0.0608	0.0319	28.67
7:45	1.2	0.25	0.17	N/A	0.0841	0.0441	39.71
8:00	1.3	0.27	0.17	N/A	0.1075	0.0564	50.73
8:15	1.5	0.32	0.16	N/A	0.1519	0.0796	71.68
8:30	1.5	0.32	0.16	N/A	0.1542	0.0808	72.76
8:45	1.6	0.34	0.16	N/A	0.1775	0.0931	83.76
9:00	1.7	0.36	0.16	N/A	0.2008	0.1053	94.75
9:15	1.9	0.40	0.15	N/A	0.2451	0.1285	115.66
9:30	2	0.42	0.15	N/A	0.2683	0.1407	126.63
9:45	2.1	0.44	0.15	N/A	0.2916	0.1529	137.59
10:00	2.2	0.46	0.15	N/A	0.3148	0.1650	148.54
10:15	1.5	0.32	0.15	N/A	0.1696	0.0889	80.05
10:30	1.5	0.32	0.14	N/A	0.1718	0.0901	81.05
10:45	2	0.42	0.14	N/A	0.2791	0.1463	131.68
11:00	2	0.42	0.14	N/A	0.2811	0.1474	132.67
11:15	1.9	0.40	0.14	N/A	0.2621	0.1375	123.71
11:30	1.9	0.40	0.14	N/A	0.2642	0.1385	124.67
11:45	1.7	0.36	0.13	N/A	0.2241	0.1175	105.76
12:00	1.8	0.38	0.13	N/A	0.2471	0.1296	116.63
12:15	2.5	0.53	0.13	N/A	0.3964	0.2078	187.06
12:30	2.6	0.55	0.13	N/A	0.4194	0.2199	197.90
12:45	2.8	0.59	0.13	N/A	0.4634	0.2430	218.67

13:00	2.9	0.61	0.12	N/A	0.4863	0.2550	229.49
13:15	3.4	0.72	0.12	N/A	0.5934	0.3111	280.02
13:30	3.4	0.72	0.12	N/A	**0.5952**	0.3121	**280.89**
13:45	2.3	0.48	0.12	N/A	0.3656	0.1917	172.54
14:00	2.3	0.48	0.12	N/A	0.3674	0.1927	173.39
14:15	2.7	0.57	0.11	N/A	0.4534	0.2377	213.94
14:30	2.6	0.55	0.11	N/A	0.4341	0.2276	204.84
14:45	2.6	0.55	0.11	N/A	0.4358	0.2285	205.66
15:00	2.5	0.53	0.11	N/A	0.4165	0.2184	196.53
15:15	2.4	0.50	0.11	N/A	0.3971	0.2082	187.39
15:30	2.3	0.48	0.11	N/A	0.3777	0.1980	178.24
15:45	1.9	0.40	0.10	N/A	0.2952	0.1548	139.29
16:00	1.9	0.40	0.10	N/A	0.2968	0.1556	140.05
16:15	0.4	0.08	0.10	0.08	0.0084	0.0044	3.97
16:30	0.4	0.08	0.10	0.08	0.0084	0.0044	3.97
16:45	0.3	0.06	0.10	0.06	0.0063	0.0033	2.98
17:00	0.3	0.06	0.10	0.06	0.0063	0.0033	2.98
17:15	0.5	0.11	0.10	0.09	0.0105	0.0055	4.96
17:30	0.5	0.11	0.09	N/A	0.0112	0.0059	5.29
17:45	0.5	0.11	0.09	N/A	0.0126	0.0066	5.95
18:00	0.4	0.08	0.09	0.08	0.0084	0.0044	3.97
18:15	0.4	0.08	0.09	0.08	0.0084	0.0044	3.97
18:30	0.4	0.08	0.09	0.08	0.0084	0.0044	3.97
18:45	0.3	0.06	0.09	0.06	0.0063	0.0033	2.98
19:00	0.2	0.04	0.09	0.04	0.0042	0.0022	1.99
19:15	0.3	0.06	0.08	0.06	0.0063	0.0033	2.98
19:30	0.4	0.08	0.08	0.08	0.0084	0.0044	3.97
19:45	0.3	0.06	0.08	0.06	0.0063	0.0033	2.98
20:00	0.2	0.04	0.08	0.04	0.0042	0.0022	1.99
20:15	0.3	0.06	0.08	0.06	0.0063	0.0033	2.98
20:30	0.3	0.06	0.08	0.06	0.0063	0.0033	2.98
20:45	0.3	0.06	0.08	0.06	0.0063	0.0033	2.98
21:00	0.2	0.04	0.08	0.04	0.0042	0.0022	1.99
21:15	0.3	0.06	0.08	0.06	0.0063	0.0033	2.98
21:30	0.2	0.04	0.08	0.04	0.0042	0.0022	1.99
21:45	0.3	0.06	0.07	0.06	0.0063	0.0033	2.98
22:00	0.2	0.04	0.07	0.04	0.0042	0.0022	1.99
22:15	0.3	0.06	0.07	0.06	0.0063	0.0033	2.98
22:30	0.2	0.04	0.07	0.04	0.0042	0.0022	1.99
22:45	0.2	0.04	0.07	0.04	0.0042	0.0022	1.99
23:00	0.2	0.04	0.07	0.04	0.0042	0.0022	1.99
23:15	0.2	0.04	0.07	0.04	0.0042	0.0022	1.99
23:30	0.2	0.04	0.07	0.04	0.0042	0.0022	1.99
23:45	0.2	0.04	0.07	0.04	0.0042	0.0022	1.99
24:00	0.2	0.04	0.07	0.04	0.0042	0.0022	1.99
	0	0.00	0.07	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**5356.72**

HYDROLOGY CALCULATIONS -

Using the RCFC&WCD Short Cut Unit Hydrograph Method
Area Designations **The Wren**
T6

Drainage Area (ac.)	**1.5400**				
Unit time (minutes)	**5**	**5**	**5**	**15**	
100 Year Storm Duration (hrs)	1	3	6	24	
Total Precipitation (Plates D-4.4,E-5.2, 5.4, 5.6)(in.)	**1.93**	**2.70**	**3.49**	**5.26**	Or data from NOAA interactive website
Soils Group	A				
AMC index II Runoff Number (plate E-6.1)	32				
Plate E-6.2 Pervious Area Loss Rate (Fp)(in/hr)	0.74	(AMC II)			
Percentage of Impervious Cover (Ai)(%) (plate E-6.3)		**5**			
Weighted Average Loss Rate (F=Fp(1-.9Ai))(in./hr.)	0.71	(used for 1, 3, and 6 hour storm, the 24 hour storm uses variable maximum loss rate per plate E-1.1 (3 of 6))			
Low Loss Rate Percent (%)	90				
Retention Basin Percolation Rate (in/hr)	**2**	(also used for drywell percolation rate)			

Percolation is taken incrementally.
Basin volume is calculated using the "truncated pyramid" formula, a more conservative estimate than "averaged end areas" sometimes used

(Drywell can be "zeroed out" by reducing numbers to less than .001, but should not entered as zeros or program chokes.)
Drywell storage includes 40% of the 1' wide rock bed surrounding the drywell: formula (upper)*PI()*(diam/2)^2+(lower)*PI()*((diam/2)^2+0.4*((diam/2+(grav+0.4166))^2-(diam/2+0.4166)^2))
The drywell wall thickness is assumed at 5" (0.4166) and the gravel bed width is variable "grav"

Drywell design factors **Upper sec. (ft.)=** **0.0001** **Lower sec. (ft.)=** **0.0001** **Ring diam. (ft.) =** **0.0001** **Drywell lower max. (cf)=** **0.00** **Upper max.(cf)=** **0.00**
Gravel bed width around drwyell= **0** **Drywell total(cf)=** **0.00**

Ret. Basin design (area, depth) **Top =** **25510** s.f. **Bot. =** **3800** **s.f.** **Max. Depth (d)=** **5** **Max. storage=** **65259.52** (d/3)*(bottom+top+(bottom*top)^0.50)
Formulas **vol=(h/3)*(bottom+top+(bottom*top)^0.50)** **area=bottom+(h/d)*(top-bottom)** **h=(vol*3)/(bottom+top+(bottom*top)^0.5)** **(values must be non-zero or error occurs)**
Outside input from: **N/A**

1 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Max.	Loss Rate Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)	Outside Input (cf)		Drywell Retention Area (sf)	Drywell Period Perc. (c	Drywell Storage Vol. (cf)	Drywell Storage Depth (ft)	Overflow To Basin (cf)	Retention Area (sf)	Basin Period Perc. (cf)	Basin Storage Vol. (cf)	Basin Storage Depth (ft)	Overflow Vol. (cf)	Overflow Rate (cfs)
0:05	3.7	0.8569	0.7067	N/A	0.1502	0.2333	69.98		0.00	0.00	0.00	0.00	0.00	69.98	3800.00	52.78	17.20	0.00	0.00	0.00
0:10	4.8	1.1117	0.7067	N/A	0.4050	0.6289	188.66		0.00	0.00	0.00	0.00	0.00	188.66	3805.72	52.86	153.00	0.01	0.00	0.00
0:15	5.1	1.1812	0.7067	N/A	0.4745	0.7368	221.03		0.00	0.00	0.00	0.00	0.00	221.03	3850.90	53.48	320.55	0.02	0.00	0.00
0:20	4.9	1.1348	0.7067	N/A	0.4281	0.6648	199.45		0.00	0.00	0.00	0.00	0.00	199.45	3906.64	54.26	465.74	0.04	0.00	0.00
0:25	6.6	1.5286	0.7067	N/A	0.8219	1.2762	382.86		0.00	0.00	0.00	0.00	0.00	382.86	3954.94	54.93	793.67	0.06	0.00	0.00
0:30	7.3	1.6907	0.7067	N/A	0.9840	1.5280	458.39		0.00	0.00	0.00	0.00	0.00	458.39	4064.03	56.44	1195.61	0.09	0.00	0.00
0:35	8.4	1.9454	0.7067	N/A	1.2387	1.9236	577.07		0.00	0.00	0.00	0.00	0.00	577.07	4197.75	58.30	1714.38	0.13	0.00	0.00
0:40	9	2.0844	0.7067	N/A	1.3777	2.1393	641.80		0.00	0.00	0.00	0.00	0.00	641.80	4370.33	60.70	2295.48	0.18	0.00	0.00
0:45	12.3	2.8487	0.7067	N/A	2.1420	3.3261	997.84		0.00	0.00	0.00	0.00	0.00	997.84	4563.64	63.38	3229.94	0.25	0.00	0.00
0:50	17.6	4.0762	0.7067	N/A	**3.3695**	**5.2322**	**1569.66**		0.00	0.00	0.00	0.00	0.00	1569.66	4874.51	67.70	4731.90	0.36	0.00	0.00
0:55	16.1	3.7288	0.7067	N/A	3.0221	4.6928	1407.83		0.00	0.00	0.00	0.00	0.00	1407.83	5374.17	74.64	6065.09	0.46	0.00	0.00
1:00	4.2	0.9727	0.7067	N/A	0.2660	0.4131	123.93		0.00	0.00	0.00	0.00	0.00	123.93	5817.68	80.80	**6108.21**	**0.47**	0.00	0.00
	0	0.0000	0.7067	0.00	0.0000	0.0000	0.00		0.00	0.00	0.00	0.00	0.00	0.00	5832.03	81.00	6027.21	0.46	0.00	0.00
	0	0.0000	0.7067	0.00	0.0000	0.0000	0.00		0.00	0.00	0.00	0.00	0.00	0.00	5805.08	80.63	5946.58	0.46	0.00	0.00
1:15	0	0.0000	0.7067	0.00	0.0000	0.0000	0.00		0.00	0.00	0.00	0.00	0.00	0.00	5778.26	80.25	5866.33	0.45	0.00	0.00
					Total volume (cf)		**6838.49**									**Total Overflow (cf)**			**0.00**	

3 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)	Outside Input (cf)	Drywell Retention Area (sf)	Drywell Period Perc. (c	Drywell Storage Vol. (cf)	Drywell Storage Depth (ft)	Overflow To Basin (cf)	Retention Area (sf)	Basin Period Perc. (cf)	Basin Storage Vol. (cf)	Basin Storage Depth (ft	Overflow Vol. (cf)	Overflow Rate (cfs)
0:05	1.3	0.42	0.71	0.38	0.0421	0.0654	19.62	0.00	0.00	0.00	0.00	0.00	19.62	3800.00	19.62	0.00	0.00	0.00	0.00
0:10	1.3	0.42	0.71	0.38	0.0421	0.0654	19.62	0.00	0.00	0.00	0.00	0.00	19.62	3800.00	19.62	0.00	0.00	0.00	0.00
0:15	1.1	0.36	0.71	0.32	0.0356	0.0553	16.60	0.00	0.00	0.00	0.00	0.00	16.60	3800.00	16.60	0.00	0.00	0.00	0.00
0:20	1.5	0.49	0.71	0.44	0.0486	0.0755	22.64	0.00	0.00	0.00	0.00	0.00	22.64	3800.00	22.64	0.00	0.00	0.00	0.00
0:25	1.5	0.49	0.71	0.44	0.0486	0.0755	22.64	0.00	0.00	0.00	0.00	0.00	22.64	3800.00	22.64	0.00	0.00	0.00	0.00
0:30	1.8	0.58	0.71	0.52	0.0583	0.0906	27.17	0.00	0.00	0.00	0.00	0.00	27.17	3800.00	27.17	0.00	0.00	0.00	0.00
0:35	1.5	0.49	0.71	0.44	0.0486	0.0755	22.64	0.00	0.00	0.00	0.00	0.00	22.64	3800.00	22.64	0.00	0.00	0.00	0.00
0:40	1.8	0.58	0.71	0.52	0.0583	0.0906	27.17	0.00	0.00	0.00	0.00	0.00	27.17	3800.00	27.17	0.00	0.00	0.00	0.00
0:45	1.8	0.58	0.71	0.52	0.0583	0.0906	27.17	0.00	0.00	0.00	0.00	0.00	27.17	3800.00	27.17	0.00	0.00	0.00	0.00
0:50	1.5	0.49	0.71	0.44	0.0486	0.0755	22.64	0.00	0.00	0.00	0.00	0.00	22.64	3800.00	22.64	0.00	0.00	0.00	0.00
0:55	1.6	0.52	0.71	0.47	0.0518	0.0805	24.15	0.00	0.00	0.00	0.00	0.00	24.15	3800.00	24.15	0.00	0.00	0.00	0.00
1:00	1.8	0.58	0.71	0.52	0.0583	0.0906	27.17	0.00	0.00	0.00	0.00	0.00	27.17	3800.00	27.17	0.00	0.00	0.00	0.00
1:05	2.2	0.71	0.71	0.64	0.0713	0.1107	33.21	0.00	0.00	0.00	0.00	0.00	33.21	3800.00	33.21	0.00	0.00	0.00	0.00
1:10	2.2	0.71	0.71	0.64	0.0713	0.1107	33.21	0.00	0.00	0.00	0.00	0.00	33.21	3800.00	33.21	0.00	0.00	0.00	0.00
1:15	2.2	0.71	0.71	0.64	0.0713	0.1107	33.21	0.00	0.00	0.00	0.00	0.00	33.21	3800.00	33.21	0.00	0.00	0.00	0.00
1:20	2	0.65	0.71	0.58	0.0648	0.1006	30.19	0.00	0.00	0.00	0.00	0.00	30.19	3800.00	30.19	0.00	0.00	0.00	0.00
1:25	2.6	0.84	0.71	N/A	0.1357	0.2107	63.22	0.00	0.00	0.00	0.00	0.00	63.22	3800.00	52.78	10.44	0.00	0.00	0.00
1:30	2.7	0.87	0.71	N/A	0.1681	0.2610	78.31	0.00	0.00	0.00	0.00	0.00	78.31	3803.47	52.83	35.92	0.00	0.00	0.00
1:35	2.4	0.78	0.71	0.70	0.0778	0.1207	36.22	0.00	0.00	0.00	0.00	0.00	36.22	3811.95	52.94	19.20	0.00	0.00	0.00
1:40	2.7	0.87	0.71	N/A	0.1681	0.2610	78.31	0.00	0.00	0.00	0.00	0.00	78.31	3806.39	52.87	44.65	0.00	0.00	0.00
1:45	3.3	1.07	0.71	N/A	0.3625	0.5629	168.87	0.00	0.00	0.00	0.00	0.00	168.87	3814.85	52.98	160.53	0.01	0.00	0.00
1:50	3.1	1.00	0.71	N/A	0.2977	0.4623	138.68	0.00	0.00	0.00	0.00	0.00	138.68	3853.40	53.52	245.70	0.02	0.00	0.00
1:55	2.9	0.94	0.71	N/A	0.2329	0.3617	108.50	0.00	0.00	0.00	0.00	0.00	108.50	3881.74	53.91	300.28	0.02	0.00	0.00
2:00	3	0.97	0.71	N/A	0.2653	0.4120	123.59	0.00	0.00	0.00	0.00	0.00	123.59	3899.89	54.17	369.70	0.03	0.00	0.00
2:05	3.1	1.00	0.71	N/A	0.2977	0.4623	138.68	0.00	0.00	0.00	0.00	0.00	138.68	3922.99	54.49	453.90	0.03	0.00	0.00
2:10	4.2	1.36	0.71	N/A	0.6541	1.0157	304.71	0.00	0.00	0.00	0.00	0.00	304.71	3951.00	54.88	703.74	0.05	0.00	0.00
2:15	5	1.62	0.71	N/A	0.9133	1.4182	425.46	0.00	0.00	0.00	0.00	0.00	425.46	4034.11	56.03	1073.17	0.08	0.00	0.00
2:20	3.5	1.13	0.71	N/A	0.4273	0.6635	199.06	0.00	0.00	0.00	0.00	0.00	199.06	4157.01	57.74	1214.49	0.09	0.00	0.00
2:25	6.8	2.20	0.71	N/A	1.4965	2.3238	697.14	0.00	0.00	0.00	0.00	0.00	697.14	4204.03	58.39	1853.25	0.14	0.00	0.00
2:30	7.3	2.37	0.71	N/A	1.6585	2.5754	772.61	0.00	0.00	0.00	0.00	0.00	772.61	4416.52	61.34	2564.52	0.20	0.00	0.00
2:35	8.2	2.66	0.71	N/A	**1.9501**	**3.0282**	**908.45**	0.00	0.00	0.00	0.00	0.00	908.45	4653.14	64.63	3408.35	0.26	0.00	0.00
2:40	5.9	1.91	0.71	N/A	1.2049	1.8710	561.30	0.00	0.00	0.00	0.00	0.00	561.30	4933.86	68.53	**3901.12**	**0.30**	0.00	0.00
2:45	2	0.65	0.71	0.58	0.0648	0.1006	30.19	0.00	0.00	0.00	0.00	0.00	30.19	5097.79	70.80	3860.51	0.30	0.00	0.00
2:50	1.8	0.58	0.71	0.52	0.0583	0.0906	27.17	0.00	0.00	0.00	0.00	0.00	27.17	5084.28	70.62	3817.06	0.29	0.00	0.00
2:55	1.8	0.58	0.71	0.52	0.0583	0.0906	27.17	0.00	0.00	0.00	0.00	0.00	27.17	5069.83	70.41	3773.81	0.29	0.00	0.00
3:00	0.6	0.19	0.71	0.17	0.0194	0.0302	9.06	0.00	0.00	0.00	0.00	0.00	9.06	5055.44	70.21	3712.66	0.28	0.00	0.00
	0	0.00	0.71	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5035.10	69.93	3642.72	0.28	0.00	0.00
	0	0.00	0.71	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5011.83	69.61	3573.12	0.27	0.00	0.00
3:15	0	0.00	0.71	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4988.67	69.29	3503.83	0.27	0.00	0.00
	0	0.00	0.71	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4965.62	68.97	3434.86	0.26	0.00	0.00
	0	0.00	0.71	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4942.68	68.65	3366.21	0.26	0.00	0.00
3:30	0	0.00	0.71	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4919.84	68.33	3297.88	0.25	0.00	0.00
	0	0.00	0.71	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4897.11	68.02	3229.87	0.25	0.00	0.00
	0	0.00	0.71	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4874.49	67.70	3162.17	0.24	0.00	0.00
					Total volume (cf)		**5305.74**									**Total Overflow (cf)**		**0.00**	

6 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)	Outside Input (cf)	Drywell Retention Area (sf)	Drywell Period Perc. (c	Drywell Storage Vol. (cf)	Drywell Storage Depth (ft)	Overflow To Basin (cf)	Retention Area (sf)	Basin Period Perc. (cf)	Basin Storage Vol. (cf)	Basin Storage Depth (ft	Overflow Vol. (cf)	Overflow Rate (cfs)
0:05	0.5	0.21	0.71	0.19	0.0209	0.0325	9.75	0.00	0.00	0.00	0.00	0.00	9.75	3800.00	9.75	0.00	0.00	0.00	0.00
0:10	0.6	0.25	0.71	0.23	0.0251	0.0390	11.71	0.00	0.00	0.00	0.00	0.00	11.71	3800.00	11.71	0.00	0.00	0.00	0.00
0:15	0.6	0.25	0.71	0.23	0.0251	0.0390	11.71	0.00	0.00	0.00	0.00	0.00	11.71	3800.00	11.71	0.00	0.00	0.00	0.00
0:20	0.6	0.25	0.71	0.23	0.0251	0.0390	11.71	0.00	0.00	0.00	0.00	0.00	11.71	3800.00	11.71	0.00	0.00	0.00	0.00
0:25	0.6	0.25	0.71	0.23	0.0251	0.0390	11.71	0.00	0.00	0.00	0.00	0.00	11.71	3800.00	11.71	0.00	0.00	0.00	0.00
0:30	0.7	0.29	0.71	0.26	0.0293	0.0455	13.66	0.00	0.00	0.00	0.00	0.00	13.66	3800.00	13.66	0.00	0.00	0.00	0.00
0:35	0.7	0.29	0.71	0.26	0.0293	0.0455	13.66	0.00	0.00	0.00	0.00	0.00	13.66	3800.00	13.66	0.00	0.00	0.00	0.00
0:40	0.7	0.29	0.71	0.26	0.0293	0.0455	13.66	0.00	0.00	0.00	0.00	0.00	13.66	3800.00	13.66	0.00	0.00	0.00	0.00
0:45	0.7	0.29	0.71	0.26	0.0293	0.0455	13.66	0.00	0.00	0.00	0.00	0.00	13.66	3800.00	13.66	0.00	0.00	0.00	0.00
0:50	0.7	0.29	0.71	0.26	0.0293	0.0455	13.66	0.00	0.00	0.00	0.00	0.00	13.66	3800.00	13.66	0.00	0.00	0.00	0.00
0:55	0.7	0.29	0.71	0.26	0.0293	0.0455	13.66	0.00	0.00	0.00	0.00	0.00	13.66	3800.00	13.66	0.00	0.00	0.00	0.00
1:00	0.8	0.34	0.71	0.30	0.0335	0.0520	15.61	0.00	0.00	0.00	0.00	0.00	15.61	3800.00	15.61	0.00	0.00	0.00	0.00
1:05	0.8	0.34	0.71	0.30	0.0335	0.0520	15.61	0.00	0.00	0.00	0.00	0.00	15.61	3800.00	15.61	0.00	0.00	0.00	0.00
1:10	0.8	0.34	0.71	0.30	0.0335	0.0520	15.61	0.00	0.00	0.00	0.00	0.00	15.61	3800.00	15.61	0.00	0.00	0.00	0.00
1:15	0.8	0.34	0.71	0.30	0.0335	0.0520	15.61	0.00	0.00	0.00	0.00	0.00	15.61	3800.00	15.61	0.00	0.00	0.00	0.00
1:20	0.8	0.34	0.71	0.30	0.0335	0.0520	15.61	0.00	0.00	0.00	0.00	0.00	15.61	3800.00	15.61	0.00	0.00	0.00	0.00
1:25	0.8	0.34	0.71	0.30	0.0335	0.0520	15.61	0.00	0.00	0.00	0.00	0.00	15.61	3800.00	15.61	0.00	0.00	0.00	0.00
1:30	0.8	0.34	0.71	0.30	0.0335	0.0520	15.61	0.00	0.00	0.00	0.00	0.00	15.61	3800.00	15.61	0.00	0.00	0.00	0.00
1:35	0.8	0.34	0.71	0.30	0.0335	0.0520	15.61	0.00	0.00	0.00	0.00	0.00	15.61	3800.00	15.61	0.00	0.00	0.00	0.00
1:40	0.8	0.34	0.71	0.30	0.0335	0.0520	15.61	0.00	0.00	0.00	0.00	0.00	15.61	3800.00	15.61	0.00	0.00	0.00	0.00
1:45	0.8	0.34	0.71	0.30	0.0335	0.0520	15.61	0.00	0.00	0.00	0.00	0.00	15.61	3800.00	15.61	0.00	0.00	0.00	0.00
1:50	0.8	0.34	0.71	0.30	0.0335	0.0520	15.61	0.00	0.00	0.00	0.00	0.00	15.61	3800.00	15.61	0.00	0.00	0.00	0.00
1:55	0.8	0.34	0.71	0.30	0.0335	0.0520	15.61	0.00	0.00	0.00	0.00	0.00	15.61	3800.00	15.61	0.00	0.00	0.00	0.00
2:00	0.9	0.38	0.71	0.34	0.0377	0.0585	17.56	0.00	0.00	0.00	0.00	0.00	17.56	3800.00	17.56	0.00	0.00	0.00	0.00
2:05	0.8	0.34	0.71	0.30	0.0335	0.0520	15.61	0.00	0.00	0.00	0.00	0.00	15.61	3800.00	15.61	0.00	0.00	0.00	0.00
2:10	0.9	0.38	0.71	0.34	0.0377	0.0585	17.56	0.00	0.00	0.00	0.00	0.00	17.56	3800.00	17.56	0.00	0.00	0.00	0.00
2:15	0.9	0.38	0.71	0.34	0.0377	0.0585	17.56	0.00	0.00	0.00	0.00	0.00	17.56	3800.00	17.56	0.00	0.00	0.00	0.00
2:20	0.9	0.38	0.71	0.34	0.0377	0.0585	17.56	0.00	0.00	0.00	0.00	0.00	17.56	3800.00	17.56	0.00	0.00	0.00	0.00
2:25	0.9	0.38	0.71	0.34	0.0377	0.0585	17.56	0.00	0.00	0.00	0.00	0.00	17.56	3800.00	17.56	0.00	0.00	0.00	0.00
2:30	0.9	0.38	0.71	0.34	0.0377	0.0585	17.56	0.00	0.00	0.00	0.00	0.00	17.56	3800.00	17.56	0.00	0.00	0.00	0.00
2:35	0.9	0.38	0.71	0.34	0.0377	0.0585	17.56	0.00	0.00	0.00	0.00	0.00	17.56	3800.00	17.56	0.00	0.00	0.00	0.00
2:40	0.9	0.38	0.71	0.34	0.0377	0.0585	17.56	0.00	0.00	0.00	0.00	0.00	17.56	3800.00	17.56	0.00	0.00	0.00	0.00
2:45	1	0.42	0.71	0.38	0.0419	0.0650	19.51	0.00	0.00	0.00	0.00	0.00	19.51	3800.00	19.51	0.00	0.00	0.00	0.00
2:50	1	0.42	0.71	0.38	0.0419	0.0650	19.51	0.00	0.00	0.00	0.00	0.00	19.51	3800.00	19.51	0.00	0.00	0.00	0.00
2:55	1	0.42	0.71	0.38	0.0419	0.0650	19.51	0.00	0.00	0.00	0.00	0.00	19.51	3800.00	19.51	0.00	0.00	0.00	0.00
3:00	1	0.42	0.71	0.38	0.0419	0.0650	19.51	0.00	0.00	0.00	0.00	0.00	19.51	3800.00	19.51	0.00	0.00	0.00	0.00
3:05	1	0.42	0.71	0.38	0.0419	0.0650	19.51	0.00	0.00	0.00	0.00	0.00	19.51	3800.00	19.51	0.00	0.00	0.00	0.00
3:10	1.1	0.46	0.71	0.41	0.0461	0.0715	21.46	0.00	0.00	0.00	0.00	0.00	21.46	3800.00	21.46	0.00	0.00	0.00	0.00
3:15	1.1	0.46	0.71	0.41	0.0461	0.0715	21.46	0.00	0.00	0.00	0.00	0.00	21.46	3800.00	21.46	0.00	0.00	0.00	0.00
3:20	1.1	0.46	0.71	0.41	0.0461	0.0715	21.46	0.00	0.00	0.00	0.00	0.00	21.46	3800.00	21.46	0.00	0.00	0.00	0.00
3:25	1.2	0.50	0.71	0.45	0.0503	0.0780	23.41	0.00	0.00	0.00	0.00	0.00	23.41	3800.00	23.41	0.00	0.00	0.00	0.00
3:30	1.3	0.54	0.71	0.49	0.0544	0.0845	25.36	0.00	0.00	0.00	0.00	0.00	25.36	3800.00	25.36	0.00	0.00	0.00	0.00
3:35	1.4	0.59	0.71	0.53	0.0586	0.0910	27.31	0.00	0.00	0.00	0.00	0.00	27.31	3800.00	27.31	0.00	0.00	0.00	0.00
3:40	1.4	0.59	0.71	0.53	0.0586	0.0910	27.31	0.00	0.00	0.00	0.00	0.00	27.31	3800.00	27.31	0.00	0.00	0.00	0.00
3:45	1.5	0.63	0.71	0.57	0.0628	0.0975	29.26	0.00	0.00	0.00	0.00	0.00	29.26	3800.00	29.26	0.00	0.00	0.00	0.00
3:50	1.5	0.63	0.71	0.57	0.0628	0.0975	29.26	0.00	0.00	0.00	0.00	0.00	29.26	3800.00	29.26	0.00	0.00	0.00	0.00
3:55	1.6	0.67	0.71	0.60	0.0670	0.1041	31.22	0.00	0.00	0.00	0.00	0.00	31.22	3800.00	31.22	0.00	0.00	0.00	0.00
4:00	1.6	0.67	0.71	0.60	0.0670	0.1041	31.22	0.00	0.00	0.00	0.00	0.00	31.22	3800.00	31.22	0.00	0.00	0.00	0.00
4:05	1.7	0.71	0.71	0.64	0.0712	0.1106	33.17	0.00	0.00	0.00	0.00	0.00	33.17	3800.00	33.17	0.00	0.00	0.00	0.00
4:10	1.8	0.75	0.71	0.68	0.0754	0.1171	35.12	0.00	0.00	0.00	0.00	0.00	35.12	3800.00	35.12	0.00	0.00	0.00	0.00
4:15	1.9	0.80	0.71	N/A	0.0890	0.1382	41.47	0.00	0.00	0.00	0.00	0.00	41.47	3800.00	41.47	0.00	0.00	0.00	0.00

4:20	2	0.84	0.71	N/A	0.1309	0.2033	60.98	0.00	0.00	0.00	0.00	0.00	60.98	3800.00	52.78	8.20	0.00	0.00	0.00
4:25	2.1	0.88	0.71	N/A	0.1728	0.2683	80.49	0.00	0.00	0.00	0.00	0.00	80.49	3802.73	52.82	35.88	0.00	0.00	0.00
4:30	2.1	0.88	0.71	N/A	0.1728	0.2683	80.49	0.00	0.00	0.00	0.00	0.00	80.49	3811.93	52.94	63.42	0.00	0.00	0.00
4:35	2.2	0.92	0.71	N/A	0.2147	0.3333	100.00	0.00	0.00	0.00	0.00	0.00	100.00	3821.10	53.07	110.35	0.01	0.00	0.00
4:40	2.3	0.96	0.71	N/A	0.2565	0.3984	119.51	0.00	0.00	0.00	0.00	0.00	119.51	3836.71	53.29	176.57	0.01	0.00	0.00
4:45	2.4	1.01	0.71	N/A	0.2984	0.4634	139.02	0.00	0.00	0.00	0.00	0.00	139.02	3858.74	53.59	262.00	0.02	0.00	0.00
4:50	2.4	1.01	0.71	N/A	0.2984	0.4634	139.02	0.00	0.00	0.00	0.00	0.00	139.02	3887.16	53.99	347.03	0.03	0.00	0.00
4:55	2.5	1.05	0.71	N/A	0.3403	0.5284	158.53	0.00	0.00	0.00	0.00	0.00	158.53	3915.45	54.38	451.18	0.03	0.00	0.00
5:00	2.6	1.09	0.71	N/A	0.3822	0.5935	178.04	0.00	0.00	0.00	0.00	0.00	178.04	3950.09	54.86	574.35	0.04	0.00	0.00
5:05	3.1	1.30	0.71	N/A	0.5916	0.9186	275.59	0.00	0.00	0.00	0.00	0.00	275.59	3991.07	55.43	794.51	0.06	0.00	0.00
5:10	3.6	1.51	0.71	N/A	0.8010	1.2438	373.14	0.00	0.00	0.00	0.00	0.00	373.14	4064.31	56.45	1111.20	0.09	0.00	0.00
5:15	3.9	1.63	0.71	N/A	0.9266	1.4389	431.67	0.00	0.00	0.00	0.00	0.00	431.67	4169.66	57.91	1484.95	0.11	0.00	0.00
5:20	4.2	1.76	0.71	N/A	1.0523	1.6340	490.20	0.00	0.00	0.00	0.00	0.00	490.20	4294.00	59.64	1915.51	0.15	0.00	0.00
5:25	4.7	1.97	0.71	N/A	1.2617	1.9591	587.74	0.00	0.00	0.00	0.00	0.00	587.74	4437.23	61.63	2441.62	0.19	0.00	0.00
5:30	5.6	2.35	0.71	N/A	**1.6386**	**2.5444**	**763.33**	0.00	0.00	0.00	0.00	0.00	763.33	4612.26	64.06	3140.90	0.24	0.00	0.00
5:35	1.9	0.80	0.71	N/A	0.0890	0.1382	41.47	0.00	0.00	0.00	0.00	0.00	41.47	4844.89	67.29	**3115.08**	**0.24**	0.00	0.00
5:40	0.9	0.38	0.71	0.34	0.0377	0.0585	17.56	0.00	0.00	0.00	0.00	0.00	17.56	4836.30	67.17	3065.46	0.23	0.00	0.00
5:45	0.6	0.25	0.71	0.23	0.0251	0.0390	11.71	0.00	0.00	0.00	0.00	0.00	11.71	4819.79	66.94	3010.23	0.23	0.00	0.00
5:50	0.5	0.21	0.71	0.19	0.0209	0.0325	9.75	0.00	0.00	0.00	0.00	0.00	9.75	4801.42	66.69	2953.30	0.23	0.00	0.00
5:55	0.3	0.13	0.71	0.11	0.0126	0.0195	5.85	0.00	0.00	0.00	0.00	0.00	5.85	4782.48	66.42	2892.73	0.22	0.00	0.00
6:00	0.2	0.08	0.71	0.08	0.0084	0.0130	3.90	0.00	0.00	0.00	0.00	0.00	3.90	4762.33	66.14	2830.48	0.22	0.00	0.00
	0	0.00	0.71	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4741.62	65.86	2764.63	0.21	0.00	0.00
	0	0.00	0.71	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4719.71	65.55	2699.08	0.21	0.00	0.00
6:15	0	0.00	0.71	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4697.91	65.25	2633.83	0.20	0.00	0.00
	0	0.00	0.71	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4676.20	64.95	2568.88	0.20	0.00	0.00
	0	0.00	0.71	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4654.59	64.65	2504.23	0.19	0.00	0.00
6:30	0	0.00	0.71	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4633.09	64.35	2439.89	0.19	0.00	0.00
	0	0.00	0.71	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4611.68	64.05	2375.83	0.18	0.00	0.00
	0	0.00	0.71	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4590.37	63.76	2312.08	0.18	0.00	0.00
6:45	0	0.00	0.71	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4569.16	63.46	2248.62	0.17	0.00	0.00
	0	0.00	0.71	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4548.05	63.17	2185.45	0.17	0.00	0.00
	0	0.00	0.71	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4527.04	62.88	2122.58	0.16	0.00	0.00
7:00	0	0.00	0.71	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4506.12	62.59	2059.99	0.16	0.00	0.00
					Total volume (cf)		**5045.92**								**Total Overflow (cf)**			**0.00**	

24 Hour Storm in 15 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)	Outside Input (cf)	Drywell Retention Area (sf)	Drywell Period Perc. (c	Drywell Storage Vol. (cf)	Drywell Storage Depth (ft)	Overflow To Basin (cf)	Retention Area (sf)	Basin Period Perc. (cf)	Basin Storage Vol. (cf)	Basin Storage Depth (ft	Overflow Vol. (cf)	Overflow Rate (cfs)
0:15	0.2	0.04	1.24	0.04	0.0042	0.0065	5.88	0.00	0.00	0.00	0.00	0.00	5.88	3800.00	5.88	0.00	0.00	0.00	0.00
0:30	0.3	0.06	1.23	0.06	0.0063	0.0098	8.82	0.00	0.00	0.00	0.00	0.00	8.82	3800.00	8.82	0.00	0.00	0.00	0.00
0:45	0.3	0.06	1.21	0.06	0.0063	0.0098	8.82	0.00	0.00	0.00	0.00	0.00	8.82	3800.00	8.82	0.00	0.00	0.00	0.00
1:00	0.4	0.08	1.20	0.08	0.0084	0.0131	11.76	0.00	0.00	0.00	0.00	0.00	11.76	3800.00	11.76	0.00	0.00	0.00	0.00
1:15	0.3	0.06	1.18	0.06	0.0063	0.0098	8.82	0.00	0.00	0.00	0.00	0.00	8.82	3800.00	8.82	0.00	0.00	0.00	0.00
1:30	0.3	0.06	1.17	0.06	0.0063	0.0098	8.82	0.00	0.00	0.00	0.00	0.00	8.82	3800.00	8.82	0.00	0.00	0.00	0.00
1:45	0.3	0.06	1.16	0.06	0.0063	0.0098	8.82	0.00	0.00	0.00	0.00	0.00	8.82	3800.00	8.82	0.00	0.00	0.00	0.00
2:00	0.4	0.08	1.14	0.08	0.0084	0.0131	11.76	0.00	0.00	0.00	0.00	0.00	11.76	3800.00	11.76	0.00	0.00	0.00	0.00
2:15	0.4	0.08	1.13	0.08	0.0084	0.0131	11.76	0.00	0.00	0.00	0.00	0.00	11.76	3800.00	11.76	0.00	0.00	0.00	0.00
2:30	0.4	0.08	1.11	0.08	0.0084	0.0131	11.76	0.00	0.00	0.00	0.00	0.00	11.76	3800.00	11.76	0.00	0.00	0.00	0.00
2:45	0.5	0.11	1.10	0.09	0.0105	0.0163	14.70	0.00	0.00	0.00	0.00	0.00	14.70	3800.00	14.70	0.00	0.00	0.00	0.00
3:00	0.5	0.11	1.09	0.09	0.0105	0.0163	14.70	0.00	0.00	0.00	0.00	0.00	14.70	3800.00	14.70	0.00	0.00	0.00	0.00
3:15	0.5	0.11	1.07	0.09	0.0105	0.0163	14.70	0.00	0.00	0.00	0.00	0.00	14.70	3800.00	14.70	0.00	0.00	0.00	0.00
3:30	0.5	0.11	1.06	0.09	0.0105	0.0163	14.70	0.00	0.00	0.00	0.00	0.00	14.70	3800.00	14.70	0.00	0.00	0.00	0.00
3:45	0.5	0.11	1.05	0.09	0.0105	0.0163	14.70	0.00	0.00	0.00	0.00	0.00	14.70	3800.00	14.70	0.00	0.00	0.00	0.00
4:00	0.6	0.13	1.03	0.11	0.0126	0.0196	17.64	0.00	0.00	0.00	0.00	0.00	17.64	3800.00	17.64	0.00	0.00	0.00	0.00
4:15	0.6	0.13	1.02	0.11	0.0126	0.0196	17.64	0.00	0.00	0.00	0.00	0.00	17.64	3800.00	17.64	0.00	0.00	0.00	0.00
4:30	0.7	0.15	1.01	0.13	0.0147	0.0229	20.58	0.00	0.00	0.00	0.00	0.00	20.58	3800.00	20.58	0.00	0.00	0.00	0.00
4:45	0.7	0.15	0.99	0.13	0.0147	0.0229	20.58	0.00	0.00	0.00	0.00	0.00	20.58	3800.00	20.58	0.00	0.00	0.00	0.00
5:00	0.8	0.17	0.98	0.15	0.0168	0.0261	23.52	0.00	0.00	0.00	0.00	0.00	23.52	3800.00	23.52	0.00	0.00	0.00	0.00
5:15	0.6	0.13	0.97	0.11	0.0126	0.0196	17.64	0.00	0.00	0.00	0.00	0.00	17.64	3800.00	17.64	0.00	0.00	0.00	0.00
5:30	0.7	0.15	0.96	0.13	0.0147	0.0229	20.58	0.00	0.00	0.00	0.00	0.00	20.58	3800.00	20.58	0.00	0.00	0.00	0.00
5:45	0.8	0.17	0.94	0.15	0.0168	0.0261	23.52	0.00	0.00	0.00	0.00	0.00	23.52	3800.00	23.52	0.00	0.00	0.00	0.00
6:00	0.8	0.17	0.93	0.15	0.0168	0.0261	23.52	0.00	0.00	0.00	0.00	0.00	23.52	3800.00	23.52	0.00	0.00	0.00	0.00
6:15	0.9	0.19	0.92	0.17	0.0189	0.0294	26.46	0.00	0.00	0.00	0.00	0.00	26.46	3800.00	26.46	0.00	0.00	0.00	0.00
6:30	0.9	0.19	0.91	0.17	0.0189	0.0294	26.46	0.00	0.00	0.00	0.00	0.00	26.46	3800.00	26.46	0.00	0.00	0.00	0.00
6:45	1	0.21	0.89	0.19	0.0210	0.0327	29.40	0.00	0.00	0.00	0.00	0.00	29.40	3800.00	29.40	0.00	0.00	0.00	0.00
7:00	1	0.21	0.88	0.19	0.0210	0.0327	29.40	0.00	0.00	0.00	0.00	0.00	29.40	3800.00	29.40	0.00	0.00	0.00	0.00
7:15	1	0.21	0.87	0.19	0.0210	0.0327	29.40	0.00	0.00	0.00	0.00	0.00	29.40	3800.00	29.40	0.00	0.00	0.00	0.00
7:30	1.1	0.23	0.86	0.21	0.0231	0.0359	32.34	0.00	0.00	0.00	0.00	0.00	32.34	3800.00	32.34	0.00	0.00	0.00	0.00
7:45	1.2	0.25	0.85	0.23	0.0252	0.0392	35.29	0.00	0.00	0.00	0.00	0.00	35.29	3800.00	35.29	0.00	0.00	0.00	0.00
8:00	1.3	0.27	0.83	0.25	0.0274	0.0425	38.23	0.00	0.00	0.00	0.00	0.00	38.23	3800.00	38.23	0.00	0.00	0.00	0.00
8:15	1.5	0.32	0.82	0.28	0.0316	0.0490	44.11	0.00	0.00	0.00	0.00	0.00	44.11	3800.00	44.11	0.00	0.00	0.00	0.00
8:30	1.5	0.32	0.81	0.28	0.0316	0.0490	44.11	0.00	0.00	0.00	0.00	0.00	44.11	3800.00	44.11	0.00	0.00	0.00	0.00
8:45	1.6	0.34	0.80	0.30	0.0337	0.0523	47.05	0.00	0.00	0.00	0.00	0.00	47.05	3800.00	47.05	0.00	0.00	0.00	0.00
9:00	1.7	0.36	0.79	0.32	0.0358	0.0555	49.99	0.00	0.00	0.00	0.00	0.00	49.99	3800.00	49.99	0.00	0.00	0.00	0.00
9:15	1.9	0.40	0.78	0.36	0.0400	0.0621	55.87	0.00	0.00	0.00	0.00	0.00	55.87	3800.00	55.87	0.00	0.00	0.00	0.00
9:30	2	0.42	0.77	0.38	0.0421	0.0653	58.81	0.00	0.00	0.00	0.00	0.00	58.81	3800.00	58.81	0.00	0.00	0.00	0.00
9:45	2.1	0.44	0.76	0.40	0.0442	0.0686	61.75	0.00	0.00	0.00	0.00	0.00	61.75	3800.00	61.75	0.00	0.00	0.00	0.00
10:00	2.2	0.46	0.74	0.42	0.0463	0.0719	64.69	0.00	0.00	0.00	0.00	0.00	64.69	3800.00	64.69	0.00	0.00	0.00	0.00
10:15	1.5	0.32	0.73	0.28	0.0316	0.0490	44.11	0.00	0.00	0.00	0.00	0.00	44.11	3800.00	44.11	0.00	0.00	0.00	0.00
10:30	1.5	0.32	0.72	0.28	0.0316	0.0490	44.11	0.00	0.00	0.00	0.00	0.00	44.11	3800.00	44.11	0.00	0.00	0.00	0.00
10:45	2	0.42	0.71	0.38	0.0421	0.0653	58.81	0.00	0.00	0.00	0.00	0.00	58.81	3800.00	58.81	0.00	0.00	0.00	0.00
11:00	2	0.42	0.70	0.38	0.0421	0.0653	58.81	0.00	0.00	0.00	0.00	0.00	58.81	3800.00	58.81	0.00	0.00	0.00	0.00
11:15	1.9	0.40	0.69	0.36	0.0400	0.0621	55.87	0.00	0.00	0.00	0.00	0.00	55.87	3800.00	55.87	0.00	0.00	0.00	0.00
11:30	1.9	0.40	0.68	0.36	0.0400	0.0621	55.87	0.00	0.00	0.00	0.00	0.00	55.87	3800.00	55.87	0.00	0.00	0.00	0.00
11:45	1.7	0.36	0.67	0.32	0.0358	0.0555	49.99	0.00	0.00	0.00	0.00	0.00	49.99	3800.00	49.99	0.00	0.00	0.00	0.00
12:00	1.8	0.38	0.66	0.34	0.0379	0.0588	52.93	0.00	0.00	0.00	0.00	0.00	52.93	3800.00	52.93	0.00	0.00	0.00	0.00
12:15	2.5	0.53	0.65	0.47	0.0526	0.0817	73.51	0.00	0.00	0.00	0.00	0.00	73.51	3800.00	73.51	0.00	0.00	0.00	0.00
12:30	2.6	0.55	0.64	0.49	0.0547	0.0849	76.45	0.00	0.00	0.00	0.00	0.00	76.45	3800.00	76.45	0.00	0.00	0.00	0.00
12:45	2.8	0.59	0.63	0.53	0.0589	0.0915	82.33	0.00	0.00	0.00	0.00	0.00	82.33	3800.00	82.33	0.00	0.00	0.00	0.00

13:00	2.9	0.61	0.62	0.55	0.0610	0.0947	85.27	0.00	0.00	0.00	0.00	0.00	85.27	3800.00	85.27	0.00	0.00	0.00	0.00
13:15	3.4	0.72	0.61	N/A	0.1023	0.1588	142.96	0.00	0.00	0.00	0.00	0.00	142.96	3800.00	142.96	0.00	0.00	0.00	0.00
13:30	3.4	0.72	0.60	N/A	**0.1116**	0.1733	**155.96**	0.00	0.00	0.00	0.00	0.00	155.96	3800.00	155.96	0.00	0.00	0.00	0.00
13:45	2.3	0.48	0.59	0.44	0.0484	0.0751	67.63	0.00	0.00	0.00	0.00	0.00	67.63	3800.00	67.63	0.00	0.00	0.00	0.00
14:00	2.3	0.48	0.59	0.44	0.0484	0.0751	67.63	0.00	0.00	0.00	0.00	0.00	67.63	3800.00	67.63	0.00	0.00	0.00	0.00
14:15	2.7	0.57	0.58	0.51	0.0568	0.0882	79.39	0.00	0.00	0.00	0.00	0.00	79.39	3800.00	79.39	0.00	0.00	0.00	0.00
14:30	2.6	0.55	0.57	0.49	0.0547	0.0849	76.45	0.00	0.00	0.00	0.00	0.00	76.45	3800.00	76.45	0.00	0.00	0.00	0.00
14:45	2.6	0.55	0.56	0.49	0.0547	0.0849	76.45	0.00	0.00	0.00	0.00	0.00	76.45	3800.00	76.45	0.00	0.00	0.00	0.00
15:00	2.5	0.53	0.55	0.47	0.0526	0.0817	73.51	0.00	0.00	0.00	0.00	0.00	73.51	3800.00	73.51	0.00	0.00	0.00	0.00
15:15	2.4	0.50	0.54	0.45	0.0505	0.0784	70.57	0.00	0.00	0.00	0.00	0.00	70.57	3800.00	70.57	0.00	0.00	0.00	0.00
15:30	2.3	0.48	0.53	0.44	0.0484	0.0751	67.63	0.00	0.00	0.00	0.00	0.00	67.63	3800.00	67.63	0.00	0.00	0.00	0.00
15:45	1.9	0.40	0.53	0.36	0.0400	0.0621	55.87	0.00	0.00	0.00	0.00	0.00	55.87	3800.00	55.87	0.00	0.00	0.00	0.00
16:00	1.9	0.40	0.52	0.36	0.0400	0.0621	55.87	0.00	0.00	0.00	0.00	0.00	55.87	3800.00	55.87	0.00	0.00	0.00	0.00
16:15	0.4	0.08	0.51	0.08	0.0084	0.0131	11.76	0.00	0.00	0.00	0.00	0.00	11.76	3800.00	11.76	0.00	0.00	0.00	0.00
16:30	0.4	0.08	0.50	0.08	0.0084	0.0131	11.76	0.00	0.00	0.00	0.00	0.00	11.76	3800.00	11.76	0.00	0.00	0.00	0.00
16:45	0.3	0.06	0.49	0.06	0.0063	0.0098	8.82	0.00	0.00	0.00	0.00	0.00	8.82	3800.00	8.82	0.00	0.00	0.00	0.00
17:00	0.3	0.06	0.49	0.06	0.0063	0.0098	8.82	0.00	0.00	0.00	0.00	0.00	8.82	3800.00	8.82	0.00	0.00	0.00	0.00
17:15	0.5	0.11	0.48	0.09	0.0105	0.0163	14.70	0.00	0.00	0.00	0.00	0.00	14.70	3800.00	14.70	0.00	0.00	0.00	0.00
17:30	0.5	0.11	0.47	0.09	0.0105	0.0163	14.70	0.00	0.00	0.00	0.00	0.00	14.70	3800.00	14.70	0.00	0.00	0.00	0.00
17:45	0.5	0.11	0.47	0.09	0.0105	0.0163	14.70	0.00	0.00	0.00	0.00	0.00	14.70	3800.00	14.70	0.00	0.00	0.00	0.00
18:00	0.4	0.08	0.46	0.08	0.0084	0.0131	11.76	0.00	0.00	0.00	0.00	0.00	11.76	3800.00	11.76	0.00	0.00	0.00	0.00
18:15	0.4	0.08	0.45	0.08	0.0084	0.0131	11.76	0.00	0.00	0.00	0.00	0.00	11.76	3800.00	11.76	0.00	0.00	0.00	0.00
18:30	0.4	0.08	0.45	0.08	0.0084	0.0131	11.76	0.00	0.00	0.00	0.00	0.00	11.76	3800.00	11.76	0.00	0.00	0.00	0.00
18:45	0.3	0.06	0.44	0.06	0.0063	0.0098	8.82	0.00	0.00	0.00	0.00	0.00	8.82	3800.00	8.82	0.00	0.00	0.00	0.00
19:00	0.2	0.04	0.43	0.04	0.0042	0.0065	5.88	0.00	0.00	0.00	0.00	0.00	5.88	3800.00	5.88	0.00	0.00	0.00	0.00
19:15	0.3	0.06	0.43	0.06	0.0063	0.0098	8.82	0.00	0.00	0.00	0.00	0.00	8.82	3800.00	8.82	0.00	0.00	0.00	0.00
19:30	0.4	0.08	0.42	0.08	0.0084	0.0131	11.76	0.00	0.00	0.00	0.00	0.00	11.76	3800.00	11.76	0.00	0.00	0.00	0.00
19:45	0.3	0.06	0.41	0.06	0.0063	0.0098	8.82	0.00	0.00	0.00	0.00	0.00	8.82	3800.00	8.82	0.00	0.00	0.00	0.00
20:00	0.2	0.04	0.41	0.04	0.0042	0.0065	5.88	0.00	0.00	0.00	0.00	0.00	5.88	3800.00	5.88	0.00	0.00	0.00	0.00
20:15	0.3	0.06	0.40	0.06	0.0063	0.0098	8.82	0.00	0.00	0.00	0.00	0.00	8.82	3800.00	8.82	0.00	0.00	0.00	0.00
20:30	0.3	0.06	0.40	0.06	0.0063	0.0098	8.82	0.00	0.00	0.00	0.00	0.00	8.82	3800.00	8.82	0.00	0.00	0.00	0.00
20:45	0.3	0.06	0.39	0.06	0.0063	0.0098	8.82	0.00	0.00	0.00	0.00	0.00	8.82	3800.00	8.82	0.00	0.00	0.00	0.00
21:00	0.2	0.04	0.39	0.04	0.0042	0.0065	5.88	0.00	0.00	0.00	0.00	0.00	5.88	3800.00	5.88	0.00	0.00	0.00	0.00
21:15	0.3	0.06	0.38	0.06	0.0063	0.0098	8.82	0.00	0.00	0.00	0.00	0.00	8.82	3800.00	8.82	0.00	0.00	0.00	0.00
21:30	0.2	0.04	0.38	0.04	0.0042	0.0065	5.88	0.00	0.00	0.00	0.00	0.00	5.88	3800.00	5.88	0.00	0.00	0.00	0.00
21:45	0.3	0.06	0.38	0.06	0.0063	0.0098	8.82	0.00	0.00	0.00	0.00	0.00	8.82	3800.00	8.82	0.00	0.00	0.00	0.00
22:00	0.2	0.04	0.37	0.04	0.0042	0.0065	5.88	0.00	0.00	0.00	0.00	0.00	5.88	3800.00	5.88	0.00	0.00	0.00	0.00
22:15	0.3	0.06	0.37	0.06	0.0063	0.0098	8.82	0.00	0.00	0.00	0.00	0.00	8.82	3800.00	8.82	0.00	0.00	0.00	0.00
22:30	0.2	0.04	0.37	0.04	0.0042	0.0065	5.88	0.00	0.00	0.00	0.00	0.00	5.88	3800.00	5.88	0.00	0.00	0.00	0.00
22:45	0.2	0.04	0.36	0.04	0.0042	0.0065	5.88	0.00	0.00	0.00	0.00	0.00	5.88	3800.00	5.88	0.00	0.00	0.00	0.00
23:00	0.2	0.04	0.36	0.04	0.0042	0.0065	5.88	0.00	0.00	0.00	0.00	0.00	5.88	3800.00	5.88	0.00	0.00	0.00	0.00
23:15	0.2	0.04	0.36	0.04	0.0042	0.0065	5.88	0.00	0.00	0.00	0.00	0.00	5.88	3800.00	5.88	0.00	0.00	0.00	0.00
23:30	0.2	0.04	0.36	0.04	0.0042	0.0065	5.88	0.00	0.00	0.00	0.00	0.00	5.88	3800.00	5.88	0.00	0.00	0.00	0.00
23:45	0.2	0.04	0.35	0.04	0.0042	0.0065	5.88	0.00	0.00	0.00	0.00	0.00	5.88	3800.00	5.88	0.00	0.00	0.00	0.00
24:00	0.2	0.04	0.35	0.04	0.0042	0.0065	5.88	0.00	0.00	0.00	0.00	0.00	5.88	3800.00	5.88	0.00	0.00	0.00	0.00
	0	0.00	0.35	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Total volume (cf)		**3039.42**								**Total Overflow (cf)**			**0.00**	

HYDROLOGY CALCULATIONS -

Using the RCFC&WCD Short Cut Unit Hydrograph Method
Area Designations **The Wren**
T7

Drainage Area (ac.)	**0.4200**				
Unit time (minutes)	**5**	**5**	**5**	**15**	
100 Year Storm Duration (hrs)	1	3	6	24	
Total Precipitation (Plates D-4.4,E-5.2, 5.4, 5.6)(in.)	**1.93**	**2.70**	**3.49**	**5.26**	Or data from NOAA interactive website
Soils Group	A				
AMC index II Runoff Number (plate E-6.1)	32				
Plate E-6.2 Pervious Area Loss Rate (Fp)(in/hr)	0.74	(AMC II)			
Percentage of Impervious Cover (Ai)(%) (plate E-6.3)		**57**			
Weighted Average Loss Rate (F=Fp(1-.9Ai))(in./hr.)	0.36	(used for 1, 3, and 6 hour storm, the 24 hour storm uses variable maximum loss rate per plate E-1.1 (3 of 6))			
Low Loss Rate Percent (%)	90				
Retention Basin Percolation Rate (in/hr)	**2**	(also used for drywell percolation rate)			

Percolation is taken incrementally.
Basin volume is calculated using the "truncated pyramid" formula, a more conservative estimate than "averaged end areas" sometimes used

(Drywell can be "zeroed out" by reducing numbers to less than .001, but should not entered as zeros or program chokes.)
Drywell storage includes 40% of the 1' wide rock bed surrounding the drywell: formula (upper)*PI()*(diam/2)^2+(lower)*PI()*((diam/2)^2+0.4*((diam/2+(grav+0.4166))^2-(diam/2+0.4166)^2))
The drywell wall thickness is assumed at 5" (0.4166) and the gravel bed width is variable "grav"

Drywell design factors **Upper sec. (ft.)=** **0.0001** **Lower sec. (ft.)=** **0.0001** **Ring diam. (ft.) =** **0.0001** **Drywell lower max. (cf)=** **0.00** **Upper max.(cf)=** **0.00**
Gravel bed width around drwyell= **0** **Drywell total(cf)=** **0.00**

Ret. Basin design (area, depth) **Top =** **24000** s.f. **Bot. =** **3700** **s.f.** **Max. Depth (d)=** **5** **Max. storage=** **61872.29** (d/3)*(bottom+top+(bottom*top)^0.50)
Formulas **vol=(h/3)*(bottom+top+(bottom*top)^0.50)** **area=bottom+(h/d)*(top-bottom)** **h=(vol*3)/(bottom+top+(bottom*top)^0.5)** **(values must be non-zero or error occurs)**
Outside input from: **N/A**

1 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Max.	Loss Rate Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)	Outside Input (cf)	Drywell Retention Area (sf)	Drywell Period Perc. (c	Drywell Storage Vol. (cf)	Drywell Storage Depth (ft)	Overflow To Basin (cf)	Retention Area (sf)	Basin Period Perc. (cf)	Basin Storage Vol. (cf)	Basin Storage Depth (ft	Overflow Vol. (cf)	Overflow Rate (cfs)
0:05	3.7	0.8569	0.3604	N/A	0.4965	0.2103	63.09	0.00	0.00	0.00	0.00	0.00	63.09	3700.00	51.39	11.70	0.00	0.00	0.00
0:10	4.8	1.1117	0.3604	N/A	0.7513	0.3182	95.45	0.00	0.00	0.00	0.00	0.00	95.45	3703.84	51.44	55.71	0.00	0.00	0.00
0:15	5.1	1.1812	0.3604	N/A	0.8208	0.3476	104.28	0.00	0.00	0.00	0.00	0.00	104.28	3718.28	51.64	108.34	0.01	0.00	0.00
0:20	4.9	1.1348	0.3604	N/A	0.7745	0.3280	98.40	0.00	0.00	0.00	0.00	0.00	98.40	3735.55	51.88	154.86	0.01	0.00	0.00
0:25	6.6	1.5286	0.3604	N/A	1.1682	0.4947	148.42	0.00	0.00	0.00	0.00	0.00	148.42	3750.81	52.09	251.18	0.02	0.00	0.00
0:30	7.3	1.6907	0.3604	N/A	1.3303	0.5634	169.01	0.00	0.00	0.00	0.00	0.00	169.01	3782.41	52.53	367.66	0.03	0.00	0.00
0:35	8.4	1.9454	0.3604	N/A	1.5851	0.6713	201.38	0.00	0.00	0.00	0.00	0.00	201.38	3820.63	53.06	515.98	0.04	0.00	0.00
0:40	9	2.0844	0.3604	N/A	1.7240	0.7301	219.04	0.00	0.00	0.00	0.00	0.00	219.04	3869.29	53.74	681.27	0.06	0.00	0.00
0:45	12.3	2.8487	0.3604	N/A	2.4883	1.0538	316.14	0.00	0.00	0.00	0.00	0.00	316.14	3923.52	54.49	942.92	0.08	0.00	0.00
0:50	17.6	4.0762	0.3604	N/A	**3.7158**	**1.5736**	**472.09**	0.00	0.00	0.00	0.00	0.00	472.09	4009.37	55.69	1359.32	0.11	0.00	0.00
0:55	16.1	3.7288	0.3604	N/A	3.3684	1.4265	427.95	0.00	0.00	0.00	0.00	0.00	427.95	4145.99	57.58	1729.69	0.14	0.00	0.00
1:00	4.2	0.9727	0.3604	N/A	0.6123	0.2593	77.80	0.00	0.00	0.00	0.00	0.00	77.80	4267.50	59.27	**1748.22**	**0.14**	0.00	0.00
	0	0.0000	0.3604	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4273.58	59.36	1688.87	0.14	0.00	0.00
	0	0.0000	0.3604	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4254.11	59.08	1629.78	0.13	0.00	0.00
1:15	0	0.0000	0.3604	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4234.72	58.82	1570.96	0.13	0.00	0.00

Total volume (cf) **2393.04** **Total Overflow (cf)** **0.00**

3 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)	Outside Input (cf)	Drywell Retention Area (sf)	Drywell Period Perc. (c	Drywell Storage Vol. (cf)	Drywell Storage Depth (ft)	Overflow To Basin (cf)	Retention Area (sf)	Basin Period Perc. (cf)	Basin Storage Vol. (cf)	Basin Storage Depth (ft	Overflow Vol. (cf)	Overflow Rate (cfs)
0:05	1.3	0.42	0.36	N/A	0.0608	0.0258	7.73	0.00	0.00	0.00	0.00	0.00	7.73	3700.00	7.73	0.00	0.00	0.00	0.00
0:10	1.3	0.42	0.36	N/A	0.0608	0.0258	7.73	0.00	0.00	0.00	0.00	0.00	7.73	3700.00	7.73	0.00	0.00	0.00	0.00
0:15	1.1	0.36	0.36	0.32	0.0356	0.0151	4.53	0.00	0.00	0.00	0.00	0.00	4.53	3700.00	4.53	0.00	0.00	0.00	0.00
0:20	1.5	0.49	0.36	N/A	0.1256	0.0532	15.96	0.00	0.00	0.00	0.00	0.00	15.96	3700.00	15.96	0.00	0.00	0.00	0.00
0:25	1.5	0.49	0.36	N/A	0.1256	0.0532	15.96	0.00	0.00	0.00	0.00	0.00	15.96	3700.00	15.96	0.00	0.00	0.00	0.00
0:30	1.8	0.58	0.36	N/A	0.2228	0.0944	28.31	0.00	0.00	0.00	0.00	0.00	28.31	3700.00	28.31	0.00	0.00	0.00	0.00
0:35	1.5	0.49	0.36	N/A	0.1256	0.0532	15.96	0.00	0.00	0.00	0.00	0.00	15.96	3700.00	15.96	0.00	0.00	0.00	0.00
0:40	1.8	0.58	0.36	N/A	0.2228	0.0944	28.31	0.00	0.00	0.00	0.00	0.00	28.31	3700.00	28.31	0.00	0.00	0.00	0.00
0:45	1.8	0.58	0.36	N/A	0.2228	0.0944	28.31	0.00	0.00	0.00	0.00	0.00	28.31	3700.00	28.31	0.00	0.00	0.00	0.00
0:50	1.5	0.49	0.36	N/A	0.1256	0.0532	15.96	0.00	0.00	0.00	0.00	0.00	15.96	3700.00	15.96	0.00	0.00	0.00	0.00
0:55	1.6	0.52	0.36	N/A	0.1580	0.0669	20.08	0.00	0.00	0.00	0.00	0.00	20.08	3700.00	20.08	0.00	0.00	0.00	0.00
1:00	1.8	0.58	0.36	N/A	0.2228	0.0944	28.31	0.00	0.00	0.00	0.00	0.00	28.31	3700.00	28.31	0.00	0.00	0.00	0.00
1:05	2.2	0.71	0.36	N/A	0.3524	0.1492	44.77	0.00	0.00	0.00	0.00	0.00	44.77	3700.00	44.77	0.00	0.00	0.00	0.00
1:10	2.2	0.71	0.36	N/A	0.3524	0.1492	44.77	0.00	0.00	0.00	0.00	0.00	44.77	3700.00	44.77	0.00	0.00	0.00	0.00
1:15	2.2	0.71	0.36	N/A	0.3524	0.1492	44.77	0.00	0.00	0.00	0.00	0.00	44.77	3700.00	44.77	0.00	0.00	0.00	0.00
1:20	2	0.65	0.36	N/A	0.2876	0.1218	36.54	0.00	0.00	0.00	0.00	0.00	36.54	3700.00	36.54	0.00	0.00	0.00	0.00
1:25	2.6	0.84	0.36	N/A	0.4820	0.2041	61.24	0.00	0.00	0.00	0.00	0.00	61.24	3700.00	51.39	9.85	0.00	0.00	0.00
1:30	2.7	0.87	0.36	N/A	0.5144	0.2179	65.36	0.00	0.00	0.00	0.00	0.00	65.36	3703.23	51.43	23.78	0.00	0.00	0.00
1:35	2.4	0.78	0.36	N/A	0.4172	0.1767	53.01	0.00	0.00	0.00	0.00	0.00	53.01	3707.80	51.50	25.29	0.00	0.00	0.00
1:40	2.7	0.87	0.36	N/A	0.5144	0.2179	65.36	0.00	0.00	0.00	0.00	0.00	65.36	3708.30	51.50	39.14	0.00	0.00	0.00
1:45	3.3	1.07	0.36	N/A	0.7088	0.3002	90.06	0.00	0.00	0.00	0.00	0.00	90.06	3712.84	51.57	77.63	0.01	0.00	0.00
1:50	3.1	1.00	0.36	N/A	0.6440	0.2727	81.82	0.00	0.00	0.00	0.00	0.00	81.82	3725.47	51.74	107.71	0.01	0.00	0.00
1:55	2.9	0.94	0.36	N/A	0.5792	0.2453	73.59	0.00	0.00	0.00	0.00	0.00	73.59	3735.34	51.88	129.42	0.01	0.00	0.00
2:00	3	0.97	0.36	N/A	0.6116	0.2590	77.71	0.00	0.00	0.00	0.00	0.00	77.71	3742.46	51.98	155.14	0.01	0.00	0.00
2:05	3.1	1.00	0.36	N/A	0.6440	0.2727	81.82	0.00	0.00	0.00	0.00	0.00	81.82	3750.90	52.10	184.87	0.01	0.00	0.00
2:10	4.2	1.36	0.36	N/A	1.0004	0.4237	127.10	0.00	0.00	0.00	0.00	0.00	127.10	3760.66	52.23	259.74	0.02	0.00	0.00
2:15	5	1.62	0.36	N/A	1.2596	0.5334	160.03	0.00	0.00	0.00	0.00	0.00	160.03	3785.22	52.57	367.21	0.03	0.00	0.00
2:20	3.5	1.13	0.36	N/A	0.7736	0.3276	98.29	0.00	0.00	0.00	0.00	0.00	98.29	3820.48	53.06	412.43	0.03	0.00	0.00
2:25	6.8	2.20	0.36	N/A	1.8428	0.7804	234.13	0.00	0.00	0.00	0.00	0.00	234.13	3835.32	53.27	593.29	0.05	0.00	0.00
2:30	7.3	2.37	0.36	N/A	2.0048	0.8490	254.71	0.00	0.00	0.00	0.00	0.00	254.71	3894.66	54.09	793.91	0.06	0.00	0.00
2:35	8.2	2.66	0.36	N/A	**2.2964**	**0.9725**	**291.76**	0.00	0.00	0.00	0.00	0.00	291.76	3960.48	55.01	1030.67	0.08	0.00	0.00
2:40	5.9	1.91	0.36	N/A	1.5512	0.6569	197.08	0.00	0.00	0.00	0.00	0.00	197.08	4038.16	56.09	**1171.66**	**0.09**	0.00	0.00
2:45	2	0.65	0.36	N/A	0.2876	0.1218	36.54	0.00	0.00	0.00	0.00	0.00	36.54	4084.42	56.73	1151.48	0.09	0.00	0.00
2:50	1.8	0.58	0.36	N/A	0.2228	0.0944	28.31	0.00	0.00	0.00	0.00	0.00	28.31	4077.79	56.64	1123.15	0.09	0.00	0.00
2:55	1.8	0.58	0.36	N/A	0.2228	0.0944	28.31	0.00	0.00	0.00	0.00	0.00	28.31	4068.50	56.51	1094.95	0.09	0.00	0.00
3:00	0.6	0.19	0.36	0.17	0.0194	0.0082	2.47	0.00	0.00	0.00	0.00	0.00	2.47	4059.25	56.38	1041.05	0.08	0.00	0.00
	0	0.00	0.36	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4041.56	56.13	984.91	0.08	0.00	0.00
	0	0.00	0.36	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4023.15	55.88	929.04	0.08	0.00	0.00
3:15	0	0.00	0.36	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4004.81	55.62	873.41	0.07	0.00	0.00
	0	0.00	0.36	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3986.56	55.37	818.04	0.07	0.00	0.00
	0	0.00	0.36	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3968.40	55.12	762.93	0.06	0.00	0.00
3:30	0	0.00	0.36	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3950.31	54.87	708.06	0.06	0.00	0.00
	0	0.00	0.36	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3932.31	54.62	653.45	0.05	0.00	0.00
	0	0.00	0.36	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3914.39	54.37	599.08	0.05	0.00	0.00
					Total volume (cf)		**2496.71**									**Total Overflow (cf)**		**0.00**	

6 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)	Outside Input (cf)	Drywell Retention Area (sf)	Drywell Period Perc. (c	Drywell Storage Vol. (cf)	Drywell Storage Depth (ft)	Overflow To Basin (cf)	Retention Area (sf)	Basin Period Perc. (cf)	Basin Storage Vol. (cf)	Basin Storage Depth (ft	Overflow Vol. (cf)	Overflow Rate (cfs)
0:05	0.5	0.21	0.36	0.19	0.0209	0.0089	2.66		0.00	0.00	0.00	0.00	0.00	2.66	3700.00	2.66	0.00	0.00	0.00	0.00
0:10	0.6	0.25	0.36	0.23	0.0251	0.0106	3.19		0.00	0.00	0.00	0.00	0.00	3.19	3700.00	3.19	0.00	0.00	0.00	0.00
0:15	0.6	0.25	0.36	0.23	0.0251	0.0106	3.19		0.00	0.00	0.00	0.00	0.00	3.19	3700.00	3.19	0.00	0.00	0.00	0.00
0:20	0.6	0.25	0.36	0.23	0.0251	0.0106	3.19		0.00	0.00	0.00	0.00	0.00	3.19	3700.00	3.19	0.00	0.00	0.00	0.00
0:25	0.6	0.25	0.36	0.23	0.0251	0.0106	3.19		0.00	0.00	0.00	0.00	0.00	3.19	3700.00	3.19	0.00	0.00	0.00	0.00
0:30	0.7	0.29	0.36	0.26	0.0293	0.0124	3.72		0.00	0.00	0.00	0.00	0.00	3.72	3700.00	3.72	0.00	0.00	0.00	0.00
0:35	0.7	0.29	0.36	0.26	0.0293	0.0124	3.72		0.00	0.00	0.00	0.00	0.00	3.72	3700.00	3.72	0.00	0.00	0.00	0.00
0:40	0.7	0.29	0.36	0.26	0.0293	0.0124	3.72		0.00	0.00	0.00	0.00	0.00	3.72	3700.00	3.72	0.00	0.00	0.00	0.00
0:45	0.7	0.29	0.36	0.26	0.0293	0.0124	3.72		0.00	0.00	0.00	0.00	0.00	3.72	3700.00	3.72	0.00	0.00	0.00	0.00
0:50	0.7	0.29	0.36	0.26	0.0293	0.0124	3.72		0.00	0.00	0.00	0.00	0.00	3.72	3700.00	3.72	0.00	0.00	0.00	0.00
0:55	0.7	0.29	0.36	0.26	0.0293	0.0124	3.72		0.00	0.00	0.00	0.00	0.00	3.72	3700.00	3.72	0.00	0.00	0.00	0.00
1:00	0.8	0.34	0.36	0.30	0.0335	0.0142	4.26		0.00	0.00	0.00	0.00	0.00	4.26	3700.00	4.26	0.00	0.00	0.00	0.00
1:05	0.8	0.34	0.36	0.30	0.0335	0.0142	4.26		0.00	0.00	0.00	0.00	0.00	4.26	3700.00	4.26	0.00	0.00	0.00	0.00
1:10	0.8	0.34	0.36	0.30	0.0335	0.0142	4.26		0.00	0.00	0.00	0.00	0.00	4.26	3700.00	4.26	0.00	0.00	0.00	0.00
1:15	0.8	0.34	0.36	0.30	0.0335	0.0142	4.26		0.00	0.00	0.00	0.00	0.00	4.26	3700.00	4.26	0.00	0.00	0.00	0.00
1:20	0.8	0.34	0.36	0.30	0.0335	0.0142	4.26		0.00	0.00	0.00	0.00	0.00	4.26	3700.00	4.26	0.00	0.00	0.00	0.00
1:25	0.8	0.34	0.36	0.30	0.0335	0.0142	4.26		0.00	0.00	0.00	0.00	0.00	4.26	3700.00	4.26	0.00	0.00	0.00	0.00
1:30	0.8	0.34	0.36	0.30	0.0335	0.0142	4.26		0.00	0.00	0.00	0.00	0.00	4.26	3700.00	4.26	0.00	0.00	0.00	0.00
1:35	0.8	0.34	0.36	0.30	0.0335	0.0142	4.26		0.00	0.00	0.00	0.00	0.00	4.26	3700.00	4.26	0.00	0.00	0.00	0.00
1:40	0.8	0.34	0.36	0.30	0.0335	0.0142	4.26		0.00	0.00	0.00	0.00	0.00	4.26	3700.00	4.26	0.00	0.00	0.00	0.00
1:45	0.8	0.34	0.36	0.30	0.0335	0.0142	4.26		0.00	0.00	0.00	0.00	0.00	4.26	3700.00	4.26	0.00	0.00	0.00	0.00
1:50	0.8	0.34	0.36	0.30	0.0335	0.0142	4.26		0.00	0.00	0.00	0.00	0.00	4.26	3700.00	4.26	0.00	0.00	0.00	0.00
1:55	0.8	0.34	0.36	0.30	0.0335	0.0142	4.26		0.00	0.00	0.00	0.00	0.00	4.26	3700.00	4.26	0.00	0.00	0.00	0.00
2:00	0.9	0.38	0.36	0.34	0.0377	0.0160	4.79		0.00	0.00	0.00	0.00	0.00	4.79	3700.00	4.79	0.00	0.00	0.00	0.00
2:05	0.8	0.34	0.36	0.30	0.0335	0.0142	4.26		0.00	0.00	0.00	0.00	0.00	4.26	3700.00	4.26	0.00	0.00	0.00	0.00
2:10	0.9	0.38	0.36	0.34	0.0377	0.0160	4.79		0.00	0.00	0.00	0.00	0.00	4.79	3700.00	4.79	0.00	0.00	0.00	0.00
2:15	0.9	0.38	0.36	0.34	0.0377	0.0160	4.79		0.00	0.00	0.00	0.00	0.00	4.79	3700.00	4.79	0.00	0.00	0.00	0.00
2:20	0.9	0.38	0.36	0.34	0.0377	0.0160	4.79		0.00	0.00	0.00	0.00	0.00	4.79	3700.00	4.79	0.00	0.00	0.00	0.00
2:25	0.9	0.38	0.36	0.34	0.0377	0.0160	4.79		0.00	0.00	0.00	0.00	0.00	4.79	3700.00	4.79	0.00	0.00	0.00	0.00
2:30	0.9	0.38	0.36	0.34	0.0377	0.0160	4.79		0.00	0.00	0.00	0.00	0.00	4.79	3700.00	4.79	0.00	0.00	0.00	0.00
2:35	0.9	0.38	0.36	0.34	0.0377	0.0160	4.79		0.00	0.00	0.00	0.00	0.00	4.79	3700.00	4.79	0.00	0.00	0.00	0.00
2:40	0.9	0.38	0.36	0.34	0.0377	0.0160	4.79		0.00	0.00	0.00	0.00	0.00	4.79	3700.00	4.79	0.00	0.00	0.00	0.00
2:45	1	0.42	0.36	N/A	0.0584	0.0247	7.42		0.00	0.00	0.00	0.00	0.00	7.42	3700.00	7.42	0.00	0.00	0.00	0.00
2:50	1	0.42	0.36	N/A	0.0584	0.0247	7.42		0.00	0.00	0.00	0.00	0.00	7.42	3700.00	7.42	0.00	0.00	0.00	0.00
2:55	1	0.42	0.36	N/A	0.0584	0.0247	7.42		0.00	0.00	0.00	0.00	0.00	7.42	3700.00	7.42	0.00	0.00	0.00	0.00
3:00	1	0.42	0.36	N/A	0.0584	0.0247	7.42		0.00	0.00	0.00	0.00	0.00	7.42	3700.00	7.42	0.00	0.00	0.00	0.00
3:05	1	0.42	0.36	N/A	0.0584	0.0247	7.42		0.00	0.00	0.00	0.00	0.00	7.42	3700.00	7.42	0.00	0.00	0.00	0.00
3:10	1.1	0.46	0.36	N/A	0.1003	0.0425	12.74		0.00	0.00	0.00	0.00	0.00	12.74	3700.00	12.74	0.00	0.00	0.00	0.00
3:15	1.1	0.46	0.36	N/A	0.1003	0.0425	12.74		0.00	0.00	0.00	0.00	0.00	12.74	3700.00	12.74	0.00	0.00	0.00	0.00
3:20	1.1	0.46	0.36	N/A	0.1003	0.0425	12.74		0.00	0.00	0.00	0.00	0.00	12.74	3700.00	12.74	0.00	0.00	0.00	0.00
3:25	1.2	0.50	0.36	N/A	0.1422	0.0602	18.06		0.00	0.00	0.00	0.00	0.00	18.06	3700.00	18.06	0.00	0.00	0.00	0.00
3:30	1.3	0.54	0.36	N/A	0.1841	0.0779	23.38		0.00	0.00	0.00	0.00	0.00	23.38	3700.00	23.38	0.00	0.00	0.00	0.00
3:35	1.4	0.59	0.36	N/A	0.2259	0.0957	28.71		0.00	0.00	0.00	0.00	0.00	28.71	3700.00	28.71	0.00	0.00	0.00	0.00
3:40	1.4	0.59	0.36	N/A	0.2259	0.0957	28.71		0.00	0.00	0.00	0.00	0.00	28.71	3700.00	28.71	0.00	0.00	0.00	0.00
3:45	1.5	0.63	0.36	N/A	0.2678	0.1134	34.03		0.00	0.00	0.00	0.00	0.00	34.03	3700.00	34.03	0.00	0.00	0.00	0.00
3:50	1.5	0.63	0.36	N/A	0.2678	0.1134	34.03		0.00	0.00	0.00	0.00	0.00	34.03	3700.00	34.03	0.00	0.00	0.00	0.00
3:55	1.6	0.67	0.36	N/A	0.3097	0.1312	39.35		0.00	0.00	0.00	0.00	0.00	39.35	3700.00	39.35	0.00	0.00	0.00	0.00
4:00	1.6	0.67	0.36	N/A	0.3097	0.1312	39.35		0.00	0.00	0.00	0.00	0.00	39.35	3700.00	39.35	0.00	0.00	0.00	0.00
4:05	1.7	0.71	0.36	N/A	0.3516	0.1489	44.67		0.00	0.00	0.00	0.00	0.00	44.67	3700.00	44.67	0.00	0.00	0.00	0.00
4:10	1.8	0.75	0.36	N/A	0.3935	0.1666	49.99		0.00	0.00	0.00	0.00	0.00	49.99	3700.00	49.99	0.00	0.00	0.00	0.00
4:15	1.9	0.80	0.36	N/A	0.4353	0.1844	55.31		0.00	0.00	0.00	0.00	0.00	55.31	3700.00	51.39	3.92	0.00	0.00	0.00

4:20	2	0.84	0.36	N/A	0.4772	0.2021	60.63	0.00	0.00	0.00	0.00	0.00	60.63	3701.29	51.41	13.15	0.00	0.00	0.00
4:25	2.1	0.88	0.36	N/A	0.5191	0.2198	65.95	0.00	0.00	0.00	0.00	0.00	65.95	3704.31	51.45	27.65	0.00	0.00	0.00
4:30	2.1	0.88	0.36	N/A	0.5191	0.2198	65.95	0.00	0.00	0.00	0.00	0.00	65.95	3709.07	51.51	42.08	0.00	0.00	0.00
4:35	2.2	0.92	0.36	N/A	0.5610	0.2376	71.27	0.00	0.00	0.00	0.00	0.00	71.27	3713.81	51.58	61.78	0.00	0.00	0.00
4:40	2.3	0.96	0.36	N/A	0.6029	0.2553	76.59	0.00	0.00	0.00	0.00	0.00	76.59	3720.27	51.67	86.70	0.01	0.00	0.00
4:45	2.4	1.01	0.36	N/A	0.6447	0.2730	81.91	0.00	0.00	0.00	0.00	0.00	81.91	3728.45	51.78	116.83	0.01	0.00	0.00
4:50	2.4	1.01	0.36	N/A	0.6447	0.2730	81.91	0.00	0.00	0.00	0.00	0.00	81.91	3738.33	51.92	146.82	0.01	0.00	0.00
4:55	2.5	1.05	0.36	N/A	0.6866	0.2908	87.24	0.00	0.00	0.00	0.00	0.00	87.24	3748.17	52.06	182.00	0.01	0.00	0.00
5:00	2.6	1.09	0.36	N/A	0.7285	0.3085	92.56	0.00	0.00	0.00	0.00	0.00	92.56	3759.71	52.22	222.34	0.02	0.00	0.00
5:05	3.1	1.30	0.36	N/A	0.9379	0.3972	119.16	0.00	0.00	0.00	0.00	0.00	119.16	3772.95	52.40	289.10	0.02	0.00	0.00
5:10	3.6	1.51	0.36	N/A	1.1473	0.4859	145.76	0.00	0.00	0.00	0.00	0.00	145.76	3794.85	52.71	382.15	0.03	0.00	0.00
5:15	3.9	1.63	0.36	N/A	1.2729	0.5391	161.73	0.00	0.00	0.00	0.00	0.00	161.73	3825.38	53.13	490.75	0.04	0.00	0.00
5:20	4.2	1.76	0.36	N/A	1.3986	0.5923	177.69	0.00	0.00	0.00	0.00	0.00	177.69	3861.01	53.63	614.82	0.05	0.00	0.00
5:25	4.7	1.97	0.36	N/A	1.6080	0.6810	204.29	0.00	0.00	0.00	0.00	0.00	204.29	3901.72	54.19	764.92	0.06	0.00	0.00
5:30	5.6	2.35	0.36	N/A	**1.9849**	**0.8406**	**252.18**	0.00	0.00	0.00	0.00	0.00	252.18	3950.97	54.87	962.23	0.08	0.00	0.00
5:35	1.9	0.80	0.36	N/A	0.4353	0.1844	55.31	0.00	0.00	0.00	0.00	0.00	55.31	4015.70	55.77	**961.76**	**0.08**	0.00	0.00
5:40	0.9	0.38	0.36	0.34	0.0377	0.0160	4.79	0.00	0.00	0.00	0.00	0.00	4.79	4015.55	55.77	910.78	0.07	0.00	0.00
5:45	0.6	0.25	0.36	0.23	0.0251	0.0106	3.19	0.00	0.00	0.00	0.00	0.00	3.19	3998.82	55.54	858.43	0.07	0.00	0.00
5:50	0.5	0.21	0.36	0.19	0.0209	0.0089	2.66	0.00	0.00	0.00	0.00	0.00	2.66	3981.65	55.30	805.79	0.07	0.00	0.00
5:55	0.3	0.13	0.36	0.11	0.0126	0.0053	1.60	0.00	0.00	0.00	0.00	0.00	1.60	3964.38	55.06	752.33	0.06	0.00	0.00
6:00	0.2	0.08	0.36	0.08	0.0084	0.0035	1.06	0.00	0.00	0.00	0.00	0.00	1.06	3946.84	54.82	698.57	0.06	0.00	0.00
	0	0.00	0.36	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3929.20	54.57	644.00	0.05	0.00	0.00
	0	0.00	0.36	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3911.29	54.32	589.68	0.05	0.00	0.00
6:15	0	0.00	0.36	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3893.47	54.08	535.60	0.04	0.00	0.00
	0	0.00	0.36	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3875.73	53.83	481.77	0.04	0.00	0.00
	0	0.00	0.36	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3858.07	53.58	428.19	0.03	0.00	0.00
6:30	0	0.00	0.36	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3840.49	53.34	374.85	0.03	0.00	0.00
	0	0.00	0.36	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3822.99	53.10	321.75	0.03	0.00	0.00
	0	0.00	0.36	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3805.57	52.86	268.90	0.02	0.00	0.00
6:45	0	0.00	0.36	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3788.22	52.61	216.28	0.02	0.00	0.00
	0	0.00	0.36	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3770.96	52.37	163.91	0.01	0.00	0.00
	0	0.00	0.36	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3753.78	52.14	111.77	0.01	0.00	0.00
7:00	0	0.00	0.36	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3736.67	51.90	59.87	0.00	0.00	0.00
					Total volume (cf)		**2415.79**								**Total Overflow (cf)**			**0.00**	

24 Hour Storm in 15 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)	Outside Input (cf)	Drywell Retention Area (sf)	Drywell Period Perc. (c	Drywell Storage Vol. (cf)	Drywell Storage Depth (ft)	Overflow To Basin (cf)	Retention Area (sf)	Basin Period Perc. (cf)	Basin Storage Vol. (cf)	Basin Storage Depth (ft	Overflow Vol. (cf)	Overflow Rate (cfs)
0:15	0.2	0.04	0.63	0.04	0.0042	0.0018	1.60	0.00	0.00	0.00	0.00	0.00	1.60	3700.00	1.60	0.00	0.00	0.00	0.00
0:30	0.3	0.06	0.63	0.06	0.0063	0.0027	2.41	0.00	0.00	0.00	0.00	0.00	2.41	3700.00	2.41	0.00	0.00	0.00	0.00
0:45	0.3	0.06	0.62	0.06	0.0063	0.0027	2.41	0.00	0.00	0.00	0.00	0.00	2.41	3700.00	2.41	0.00	0.00	0.00	0.00
1:00	0.4	0.08	0.61	0.08	0.0084	0.0036	3.21	0.00	0.00	0.00	0.00	0.00	3.21	3700.00	3.21	0.00	0.00	0.00	0.00
1:15	0.3	0.06	0.60	0.06	0.0063	0.0027	2.41	0.00	0.00	0.00	0.00	0.00	2.41	3700.00	2.41	0.00	0.00	0.00	0.00
1:30	0.3	0.06	0.60	0.06	0.0063	0.0027	2.41	0.00	0.00	0.00	0.00	0.00	2.41	3700.00	2.41	0.00	0.00	0.00	0.00
1:45	0.3	0.06	0.59	0.06	0.0063	0.0027	2.41	0.00	0.00	0.00	0.00	0.00	2.41	3700.00	2.41	0.00	0.00	0.00	0.00
2:00	0.4	0.08	0.58	0.08	0.0084	0.0036	3.21	0.00	0.00	0.00	0.00	0.00	3.21	3700.00	3.21	0.00	0.00	0.00	0.00
2:15	0.4	0.08	0.58	0.08	0.0084	0.0036	3.21	0.00	0.00	0.00	0.00	0.00	3.21	3700.00	3.21	0.00	0.00	0.00	0.00
2:30	0.4	0.08	0.57	0.08	0.0084	0.0036	3.21	0.00	0.00	0.00	0.00	0.00	3.21	3700.00	3.21	0.00	0.00	0.00	0.00
2:45	0.5	0.11	0.56	0.09	0.0105	0.0045	4.01	0.00	0.00	0.00	0.00	0.00	4.01	3700.00	4.01	0.00	0.00	0.00	0.00
3:00	0.5	0.11	0.55	0.09	0.0105	0.0045	4.01	0.00	0.00	0.00	0.00	0.00	4.01	3700.00	4.01	0.00	0.00	0.00	0.00
3:15	0.5	0.11	0.55	0.09	0.0105	0.0045	4.01	0.00	0.00	0.00	0.00	0.00	4.01	3700.00	4.01	0.00	0.00	0.00	0.00
3:30	0.5	0.11	0.54	0.09	0.0105	0.0045	4.01	0.00	0.00	0.00	0.00	0.00	4.01	3700.00	4.01	0.00	0.00	0.00	0.00
3:45	0.5	0.11	0.53	0.09	0.0105	0.0045	4.01	0.00	0.00	0.00	0.00	0.00	4.01	3700.00	4.01	0.00	0.00	0.00	0.00
4:00	0.6	0.13	0.53	0.11	0.0126	0.0053	4.81	0.00	0.00	0.00	0.00	0.00	4.81	3700.00	4.81	0.00	0.00	0.00	0.00
4:15	0.6	0.13	0.52	0.11	0.0126	0.0053	4.81	0.00	0.00	0.00	0.00	0.00	4.81	3700.00	4.81	0.00	0.00	0.00	0.00
4:30	0.7	0.15	0.51	0.13	0.0147	0.0062	5.61	0.00	0.00	0.00	0.00	0.00	5.61	3700.00	5.61	0.00	0.00	0.00	0.00
4:45	0.7	0.15	0.51	0.13	0.0147	0.0062	5.61	0.00	0.00	0.00	0.00	0.00	5.61	3700.00	5.61	0.00	0.00	0.00	0.00
5:00	0.8	0.17	0.50	0.15	0.0168	0.0071	6.42	0.00	0.00	0.00	0.00	0.00	6.42	3700.00	6.42	0.00	0.00	0.00	0.00
5:15	0.6	0.13	0.49	0.11	0.0126	0.0053	4.81	0.00	0.00	0.00	0.00	0.00	4.81	3700.00	4.81	0.00	0.00	0.00	0.00
5:30	0.7	0.15	0.49	0.13	0.0147	0.0062	5.61	0.00	0.00	0.00	0.00	0.00	5.61	3700.00	5.61	0.00	0.00	0.00	0.00
5:45	0.8	0.17	0.48	0.15	0.0168	0.0071	6.42	0.00	0.00	0.00	0.00	0.00	6.42	3700.00	6.42	0.00	0.00	0.00	0.00
6:00	0.8	0.17	0.47	0.15	0.0168	0.0071	6.42	0.00	0.00	0.00	0.00	0.00	6.42	3700.00	6.42	0.00	0.00	0.00	0.00
6:15	0.9	0.19	0.47	0.17	0.0189	0.0080	7.22	0.00	0.00	0.00	0.00	0.00	7.22	3700.00	7.22	0.00	0.00	0.00	0.00
6:30	0.9	0.19	0.46	0.17	0.0189	0.0080	7.22	0.00	0.00	0.00	0.00	0.00	7.22	3700.00	7.22	0.00	0.00	0.00	0.00
6:45	1	0.21	0.46	0.19	0.0210	0.0089	8.02	0.00	0.00	0.00	0.00	0.00	8.02	3700.00	8.02	0.00	0.00	0.00	0.00
7:00	1	0.21	0.45	0.19	0.0210	0.0089	8.02	0.00	0.00	0.00	0.00	0.00	8.02	3700.00	8.02	0.00	0.00	0.00	0.00
7:15	1	0.21	0.44	0.19	0.0210	0.0089	8.02	0.00	0.00	0.00	0.00	0.00	8.02	3700.00	8.02	0.00	0.00	0.00	0.00
7:30	1.1	0.23	0.44	0.21	0.0231	0.0098	8.82	0.00	0.00	0.00	0.00	0.00	8.82	3700.00	8.82	0.00	0.00	0.00	0.00
7:45	1.2	0.25	0.43	0.23	0.0252	0.0107	9.62	0.00	0.00	0.00	0.00	0.00	9.62	3700.00	9.62	0.00	0.00	0.00	0.00
8:00	1.3	0.27	0.43	0.25	0.0274	0.0116	10.43	0.00	0.00	0.00	0.00	0.00	10.43	3700.00	10.43	0.00	0.00	0.00	0.00
8:15	1.5	0.32	0.42	0.28	0.0316	0.0134	12.03	0.00	0.00	0.00	0.00	0.00	12.03	3700.00	12.03	0.00	0.00	0.00	0.00
8:30	1.5	0.32	0.41	0.28	0.0316	0.0134	12.03	0.00	0.00	0.00	0.00	0.00	12.03	3700.00	12.03	0.00	0.00	0.00	0.00
8:45	1.6	0.34	0.41	0.30	0.0337	0.0143	12.83	0.00	0.00	0.00	0.00	0.00	12.83	3700.00	12.83	0.00	0.00	0.00	0.00
9:00	1.7	0.36	0.40	0.32	0.0358	0.0151	13.63	0.00	0.00	0.00	0.00	0.00	13.63	3700.00	13.63	0.00	0.00	0.00	0.00
9:15	1.9	0.40	0.40	0.36	0.0400	0.0169	15.24	0.00	0.00	0.00	0.00	0.00	15.24	3700.00	15.24	0.00	0.00	0.00	0.00
9:30	2	0.42	0.39	0.38	0.0421	0.0178	16.04	0.00	0.00	0.00	0.00	0.00	16.04	3700.00	16.04	0.00	0.00	0.00	0.00
9:45	2.1	0.44	0.39	N/A	0.0567	0.0240	21.59	0.00	0.00	0.00	0.00	0.00	21.59	3700.00	21.59	0.00	0.00	0.00	0.00
10:00	2.2	0.46	0.38	N/A	0.0832	0.0353	31.73	0.00	0.00	0.00	0.00	0.00	31.73	3700.00	31.73	0.00	0.00	0.00	0.00
10:15	1.5	0.32	0.37	0.28	0.0316	0.0134	12.03	0.00	0.00	0.00	0.00	0.00	12.03	3700.00	12.03	0.00	0.00	0.00	0.00
10:30	1.5	0.32	0.37	0.28	0.0316	0.0134	12.03	0.00	0.00	0.00	0.00	0.00	12.03	3700.00	12.03	0.00	0.00	0.00	0.00
10:45	2	0.42	0.36	N/A	0.0575	0.0243	21.91	0.00	0.00	0.00	0.00	0.00	21.91	3700.00	21.91	0.00	0.00	0.00	0.00
11:00	2	0.42	0.36	N/A	0.0628	0.0266	23.94	0.00	0.00	0.00	0.00	0.00	23.94	3700.00	23.94	0.00	0.00	0.00	0.00
11:15	1.9	0.40	0.35	N/A	0.0470	0.0199	17.93	0.00	0.00	0.00	0.00	0.00	17.93	3700.00	17.93	0.00	0.00	0.00	0.00
11:30	1.9	0.40	0.35	N/A	0.0523	0.0221	19.92	0.00	0.00	0.00	0.00	0.00	19.92	3700.00	19.92	0.00	0.00	0.00	0.00
11:45	1.7	0.36	0.34	0.32	0.0358	0.0151	13.63	0.00	0.00	0.00	0.00	0.00	13.63	3700.00	13.63	0.00	0.00	0.00	0.00
12:00	1.8	0.38	0.34	N/A	0.0415	0.0176	15.81	0.00	0.00	0.00	0.00	0.00	15.81	3700.00	15.81	0.00	0.00	0.00	0.00
12:15	2.5	0.53	0.33	N/A	0.1938	0.0821	73.86	0.00	0.00	0.00	0.00	0.00	73.86	3700.00	73.86	0.00	0.00	0.00	0.00
12:30	2.6	0.55	0.33	N/A	0.2198	0.0931	83.78	0.00	0.00	0.00	0.00	0.00	83.78	3700.00	83.78	0.00	0.00	0.00	0.00
12:45	2.8	0.59	0.32	N/A	0.2668	0.1130	101.70	0.00	0.00	0.00	0.00	0.00	101.70	3700.00	101.70	0.00	0.00	0.00	0.00

13:00	2.9	0.61	0.32	N/A	0.2927	0.1240	111.57	0.00	0.00	0.00	0.00	0.00	111.57	3700.00	111.57	0.00	0.00	0.00	0.00
13:15	3.4	0.72	0.31	N/A	0.4027	0.1706	153.50	0.00	0.00	0.00	0.00	0.00	153.50	3700.00	153.50	0.00	0.00	0.00	0.00
13:30	3.4	0.72	0.31	N/A	**0.4075**	0.1726	**155.31**	0.00	0.00	0.00	0.00	0.00	155.31	3700.00	154.17	1.14	0.00	0.00	0.00
13:45	2.3	0.48	0.30	N/A	0.1807	0.0765	68.88	0.00	0.00	0.00	0.00	0.00	68.88	3700.37	154.18	0.00	0.00	0.00	0.00
14:00	2.3	0.48	0.30	N/A	0.1853	0.0785	70.64	0.00	0.00	0.00	0.00	0.00	70.64	3700.00	70.64	0.00	0.00	0.00	0.00
14:15	2.7	0.57	0.29	N/A	0.2741	0.1161	104.45	0.00	0.00	0.00	0.00	0.00	104.45	3700.00	104.45	0.00	0.00	0.00	0.00
14:30	2.6	0.55	0.29	N/A	0.2575	0.1091	98.15	0.00	0.00	0.00	0.00	0.00	98.15	3700.00	98.15	0.00	0.00	0.00	0.00
14:45	2.6	0.55	0.29	N/A	0.2619	0.1109	99.83	0.00	0.00	0.00	0.00	0.00	99.83	3700.00	99.83	0.00	0.00	0.00	0.00
15:00	2.5	0.53	0.28	N/A	0.2453	0.1039	93.48	0.00	0.00	0.00	0.00	0.00	93.48	3700.00	93.48	0.00	0.00	0.00	0.00
15:15	2.4	0.50	0.28	N/A	0.2285	0.0968	87.10	0.00	0.00	0.00	0.00	0.00	87.10	3700.00	87.10	0.00	0.00	0.00	0.00
15:30	2.3	0.48	0.27	N/A	0.2117	0.0897	80.69	0.00	0.00	0.00	0.00	0.00	80.69	3700.00	80.69	0.00	0.00	0.00	0.00
15:45	1.9	0.40	0.27	N/A	0.1317	0.0558	50.20	0.00	0.00	0.00	0.00	0.00	50.20	3700.00	50.20	0.00	0.00	0.00	0.00
16:00	1.9	0.40	0.26	N/A	0.1358	0.0575	51.76	0.00	0.00	0.00	0.00	0.00	51.76	3700.00	51.76	0.00	0.00	0.00	0.00
16:15	0.4	0.08	0.26	0.08	0.0084	0.0036	3.21	0.00	0.00	0.00	0.00	0.00	3.21	3700.00	3.21	0.00	0.00	0.00	0.00
16:30	0.4	0.08	0.26	0.08	0.0084	0.0036	3.21	0.00	0.00	0.00	0.00	0.00	3.21	3700.00	3.21	0.00	0.00	0.00	0.00
16:45	0.3	0.06	0.25	0.06	0.0063	0.0027	2.41	0.00	0.00	0.00	0.00	0.00	2.41	3700.00	2.41	0.00	0.00	0.00	0.00
17:00	0.3	0.06	0.25	0.06	0.0063	0.0027	2.41	0.00	0.00	0.00	0.00	0.00	2.41	3700.00	2.41	0.00	0.00	0.00	0.00
17:15	0.5	0.11	0.24	0.09	0.0105	0.0045	4.01	0.00	0.00	0.00	0.00	0.00	4.01	3700.00	4.01	0.00	0.00	0.00	0.00
17:30	0.5	0.11	0.24	0.09	0.0105	0.0045	4.01	0.00	0.00	0.00	0.00	0.00	4.01	3700.00	4.01	0.00	0.00	0.00	0.00
17:45	0.5	0.11	0.24	0.09	0.0105	0.0045	4.01	0.00	0.00	0.00	0.00	0.00	4.01	3700.00	4.01	0.00	0.00	0.00	0.00
18:00	0.4	0.08	0.23	0.08	0.0084	0.0036	3.21	0.00	0.00	0.00	0.00	0.00	3.21	3700.00	3.21	0.00	0.00	0.00	0.00
18:15	0.4	0.08	0.23	0.08	0.0084	0.0036	3.21	0.00	0.00	0.00	0.00	0.00	3.21	3700.00	3.21	0.00	0.00	0.00	0.00
18:30	0.4	0.08	0.23	0.08	0.0084	0.0036	3.21	0.00	0.00	0.00	0.00	0.00	3.21	3700.00	3.21	0.00	0.00	0.00	0.00
18:45	0.3	0.06	0.22	0.06	0.0063	0.0027	2.41	0.00	0.00	0.00	0.00	0.00	2.41	3700.00	2.41	0.00	0.00	0.00	0.00
19:00	0.2	0.04	0.22	0.04	0.0042	0.0018	1.60	0.00	0.00	0.00	0.00	0.00	1.60	3700.00	1.60	0.00	0.00	0.00	0.00
19:15	0.3	0.06	0.22	0.06	0.0063	0.0027	2.41	0.00	0.00	0.00	0.00	0.00	2.41	3700.00	2.41	0.00	0.00	0.00	0.00
19:30	0.4	0.08	0.21	0.08	0.0084	0.0036	3.21	0.00	0.00	0.00	0.00	0.00	3.21	3700.00	3.21	0.00	0.00	0.00	0.00
19:45	0.3	0.06	0.21	0.06	0.0063	0.0027	2.41	0.00	0.00	0.00	0.00	0.00	2.41	3700.00	2.41	0.00	0.00	0.00	0.00
20:00	0.2	0.04	0.21	0.04	0.0042	0.0018	1.60	0.00	0.00	0.00	0.00	0.00	1.60	3700.00	1.60	0.00	0.00	0.00	0.00
20:15	0.3	0.06	0.21	0.06	0.0063	0.0027	2.41	0.00	0.00	0.00	0.00	0.00	2.41	3700.00	2.41	0.00	0.00	0.00	0.00
20:30	0.3	0.06	0.20	0.06	0.0063	0.0027	2.41	0.00	0.00	0.00	0.00	0.00	2.41	3700.00	2.41	0.00	0.00	0.00	0.00
20:45	0.3	0.06	0.20	0.06	0.0063	0.0027	2.41	0.00	0.00	0.00	0.00	0.00	2.41	3700.00	2.41	0.00	0.00	0.00	0.00
21:00	0.2	0.04	0.20	0.04	0.0042	0.0018	1.60	0.00	0.00	0.00	0.00	0.00	1.60	3700.00	1.60	0.00	0.00	0.00	0.00
21:15	0.3	0.06	0.20	0.06	0.0063	0.0027	2.41	0.00	0.00	0.00	0.00	0.00	2.41	3700.00	2.41	0.00	0.00	0.00	0.00
21:30	0.2	0.04	0.19	0.04	0.0042	0.0018	1.60	0.00	0.00	0.00	0.00	0.00	1.60	3700.00	1.60	0.00	0.00	0.00	0.00
21:45	0.3	0.06	0.19	0.06	0.0063	0.0027	2.41	0.00	0.00	0.00	0.00	0.00	2.41	3700.00	2.41	0.00	0.00	0.00	0.00
22:00	0.2	0.04	0.19	0.04	0.0042	0.0018	1.60	0.00	0.00	0.00	0.00	0.00	1.60	3700.00	1.60	0.00	0.00	0.00	0.00
22:15	0.3	0.06	0.19	0.06	0.0063	0.0027	2.41	0.00	0.00	0.00	0.00	0.00	2.41	3700.00	2.41	0.00	0.00	0.00	0.00
22:30	0.2	0.04	0.19	0.04	0.0042	0.0018	1.60	0.00	0.00	0.00	0.00	0.00	1.60	3700.00	1.60	0.00	0.00	0.00	0.00
22:45	0.2	0.04	0.18	0.04	0.0042	0.0018	1.60	0.00	0.00	0.00	0.00	0.00	1.60	3700.00	1.60	0.00	0.00	0.00	0.00
23:00	0.2	0.04	0.18	0.04	0.0042	0.0018	1.60	0.00	0.00	0.00	0.00	0.00	1.60	3700.00	1.60	0.00	0.00	0.00	0.00
23:15	0.2	0.04	0.18	0.04	0.0042	0.0018	1.60	0.00	0.00	0.00	0.00	0.00	1.60	3700.00	1.60	0.00	0.00	0.00	0.00
23:30	0.2	0.04	0.18	0.04	0.0042	0.0018	1.60	0.00	0.00	0.00	0.00	0.00	1.60	3700.00	1.60	0.00	0.00	0.00	0.00
23:45	0.2	0.04	0.18	0.04	0.0042	0.0018	1.60	0.00	0.00	0.00	0.00	0.00	1.60	3700.00	1.60	0.00	0.00	0.00	0.00
24:00	0.2	0.04	0.18	0.04	0.0042	0.0018	1.60	0.00	0.00	0.00	0.00	0.00	1.60	3700.00	1.60	0.00	0.00	0.00	0.00
	0	0.00	0.18	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Total volume (cf)		**1998.58**								**Total Overflow (cf)**			**0.00**	

HYDROLOGY CALCULATIONS -

Using the RCFC&WCD Short Cut Unit Hydrograph Method

Area Designations	**The Wren**					
	OFF1					
Drainage Area (ac.)	**1.1800**					
Unit time (minutes)	**5**	**5**	**5**	**15**		
100 Year Storm Duration (hrs)	1	3	6	24		
Total Precipitation (Plates D-4.4,E-5.2, 5.4, 5.6)(in.)	**1.93**	**2.70**	**3.49**	**5.26**		Or data from NOAA interactive website
Soils Group	A					
AMC index II Runoff Number (plate E-6.1)	32					
Plate E-6.2 Pervious Area Loss Rate (Fp)(in/hr)	0.74	(AMC II)				
Percentage of Impervious Cover (Ai)(%) (plate E-6.3)		**90**				
Weighted Average Loss Rate (F=Fp(1-.9Ai))(in./hr.)	0.14	(used for 1, 3, and 6 hour storm, the 24 hour storm uses variable maximum loss rate per plate E-1.1 (3 of 6))				
Low Loss Rate Percent (%)	90					
Retention Basin Percolation Rate (in/hr)	**2**	(also used for drywell percolation rate)				

Percolation is taken incrementally.
Basin volume is calculated using the "truncated pyramid" formula, a more conservative estimate than "averaged end areas" sometimes used

(Drywell can be "zeroed out" by reducing numbers to less than .001, but should not entered as zeros or program chokes.)
Drywell storage includes 40% of the 1' wide rock bed surrounding the drywell: formula (upper)*PI()*(diam/2)^2+(lower)*PI()*((diam/2)^2+0.4*((diam/2+(grav+0.4166))^2-(diam/2+0.4166)^2))
The drywell wall thickness is assumed at 5" (0.4166) and the gravel bed width is variable "grav"

Drywell design factors **Upper sec. (ft.)=** **0.0001** **Lower sec. (ft.)=** **0.0001** **Ring diam. (ft.) =** **0.0001** **Drywell lower max. (cf)=** **0.00** **Upper max.(cf)=** **0.00**
Gravel bed width around drwyell= **0** **Drywell total(cf)=** **0.00**

Ret. Basin design (area, depth) **Top =** **0.0001** s.f. **Bot. =** **0.0001** **s.f.** **Max. Depth (d)=** **0.0001** **Max. storage=** **0.00** (d/3)*(bottom+top+(bottom*top)^0.50)
Formulas **vol=(h/3)*(bottom+top+(bottom*top)^0.50)** **area=bottom+(h/d)*(top-bottom)** **h=(vol*3)/(bottom+top+(bottom*top)^0.5)** **(values must be non-zero or error occurs)**
Outside input from: **N/A**

1 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:05	3.7	0.8569	0.1406	N/A	0.7163	0.8523	255.69
0:10	4.8	1.1117	0.1406	N/A	0.9711	1.1554	346.63
0:15	5.1	1.1812	0.1406	N/A	1.0406	1.2381	371.43
0:20	4.9	1.1348	0.1406	N/A	0.9942	1.1830	354.89
0:25	6.6	1.5286	0.1406	N/A	1.3880	1.6514	495.43
0:30	7.3	1.6907	0.1406	N/A	1.5501	1.8443	553.30
0:35	8.4	1.9454	0.1406	N/A	1.8048	2.1475	644.24
0:40	9	2.0844	0.1406	N/A	1.9438	2.3128	693.84
0:45	12.3	2.8487	0.1406	N/A	2.7081	3.2222	966.65
0:50	17.6	4.0762	0.1406	N/A	**3.9356**	**4.6827**	**1404.80**
0:55	16.1	3.7288	0.1406	N/A	3.5882	4.2693	1280.79
1:00	4.2	0.9727	0.1406	N/A	0.8321	0.9901	297.03
	0	0.0000	0.1406	0.00	0.0000	0.0000	0.00
	0	0.0000	0.1406	0.00	0.0000	0.0000	0.00
1:15	0	0.0000	0.1406	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**7664.72**

3 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:05	1.3	0.42	0.14	N/A	0.2806	0.3339	100.16
0:10	1.3	0.42	0.14	N/A	0.2806	0.3339	100.16
0:15	1.1	0.36	0.14	N/A	0.2158	0.2568	77.03
0:20	1.5	0.49	0.14	N/A	0.3454	0.4110	123.29
0:25	1.5	0.49	0.14	N/A	0.3454	0.4110	123.29
0:30	1.8	0.58	0.14	N/A	0.4426	0.5266	157.99
0:35	1.5	0.49	0.14	N/A	0.3454	0.4110	123.29
0:40	1.8	0.58	0.14	N/A	0.4426	0.5266	157.99
0:45	1.8	0.58	0.14	N/A	0.4426	0.5266	157.99
0:50	1.5	0.49	0.14	N/A	0.3454	0.4110	123.29
0:55	1.6	0.52	0.14	N/A	0.3778	0.4495	134.86
1:00	1.8	0.58	0.14	N/A	0.4426	0.5266	157.99
1:05	2.2	0.71	0.14	N/A	0.5722	0.6808	204.25
1:10	2.2	0.71	0.14	N/A	0.5722	0.6808	204.25
1:15	2.2	0.71	0.14	N/A	0.5722	0.6808	204.25
1:20	2	0.65	0.14	N/A	0.5074	0.6037	181.12
1:25	2.6	0.84	0.14	N/A	0.7018	0.8350	250.51
1:30	2.7	0.87	0.14	N/A	0.7342	0.8736	262.07
1:35	2.4	0.78	0.14	N/A	0.6370	0.7579	227.38
1:40	2.7	0.87	0.14	N/A	0.7342	0.8736	262.07
1:45	3.3	1.07	0.14	N/A	0.9286	1.1049	331.46
1:50	3.1	1.00	0.14	N/A	0.8638	1.0278	308.33
1:55	2.9	0.94	0.14	N/A	0.7990	0.9507	285.20
2:00	3	0.97	0.14	N/A	0.8314	0.9892	296.77
2:05	3.1	1.00	0.14	N/A	0.8638	1.0278	308.33
2:10	4.2	1.36	0.14	N/A	1.2202	1.4518	435.55
2:15	5	1.62	0.14	N/A	1.4794	1.7602	528.07
2:20	3.5	1.13	0.14	N/A	0.9934	1.1820	354.59
2:25	6.8	2.20	0.14	N/A	2.0626	2.4542	736.25
2:30	7.3	2.37	0.14	N/A	2.2246	2.6469	794.07
2:35	8.2	2.66	0.14	N/A	**2.5162**	**2.9939**	**898.16**
2:40	5.9	1.91	0.14	N/A	1.7710	2.1072	632.16
2:45	2	0.65	0.14	N/A	0.5074	0.6037	181.12
2:50	1.8	0.58	0.14	N/A	0.4426	0.5266	157.99
2:55	1.8	0.58	0.14	N/A	0.4426	0.5266	157.99
3:00	0.6	0.19	0.14	N/A	0.0538	0.0640	19.20
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
3:15	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
3:30	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**9758.44**

6 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:05	0.5	0.21	0.14	N/A	0.0688	0.0819	24.56
0:10	0.6	0.25	0.14	N/A	0.1107	0.1317	39.51
0:15	0.6	0.25	0.14	N/A	0.1107	0.1317	39.51
0:20	0.6	0.25	0.14	N/A	0.1107	0.1317	39.51
0:25	0.6	0.25	0.14	N/A	0.1107	0.1317	39.51
0:30	0.7	0.29	0.14	N/A	0.1526	0.1815	54.46
0:35	0.7	0.29	0.14	N/A	0.1526	0.1815	54.46
0:40	0.7	0.29	0.14	N/A	0.1526	0.1815	54.46
0:45	0.7	0.29	0.14	N/A	0.1526	0.1815	54.46
0:50	0.7	0.29	0.14	N/A	0.1526	0.1815	54.46
0:55	0.7	0.29	0.14	N/A	0.1526	0.1815	54.46
1:00	0.8	0.34	0.14	N/A	0.1944	0.2314	69.41
1:05	0.8	0.34	0.14	N/A	0.1944	0.2314	69.41
1:10	0.8	0.34	0.14	N/A	0.1944	0.2314	69.41
1:15	0.8	0.34	0.14	N/A	0.1944	0.2314	69.41
1:20	0.8	0.34	0.14	N/A	0.1944	0.2314	69.41
1:25	0.8	0.34	0.14	N/A	0.1944	0.2314	69.41
1:30	0.8	0.34	0.14	N/A	0.1944	0.2314	69.41
1:35	0.8	0.34	0.14	N/A	0.1944	0.2314	69.41
1:40	0.8	0.34	0.14	N/A	0.1944	0.2314	69.41
1:45	0.8	0.34	0.14	N/A	0.1944	0.2314	69.41
1:50	0.8	0.34	0.14	N/A	0.1944	0.2314	69.41
1:55	0.8	0.34	0.14	N/A	0.1944	0.2314	69.41
2:00	0.9	0.38	0.14	N/A	0.2363	0.2812	84.35
2:05	0.8	0.34	0.14	N/A	0.1944	0.2314	69.41
2:10	0.9	0.38	0.14	N/A	0.2363	0.2812	84.35
2:15	0.9	0.38	0.14	N/A	0.2363	0.2812	84.35
2:20	0.9	0.38	0.14	N/A	0.2363	0.2812	84.35
2:25	0.9	0.38	0.14	N/A	0.2363	0.2812	84.35
2:30	0.9	0.38	0.14	N/A	0.2363	0.2812	84.35
2:35	0.9	0.38	0.14	N/A	0.2363	0.2812	84.35
2:40	0.9	0.38	0.14	N/A	0.2363	0.2812	84.35
2:45	1	0.42	0.14	N/A	0.2782	0.3310	99.30
2:50	1	0.42	0.14	N/A	0.2782	0.3310	99.30
2:55	1	0.42	0.14	N/A	0.2782	0.3310	99.30
3:00	1	0.42	0.14	N/A	0.2782	0.3310	99.30
3:05	1	0.42	0.14	N/A	0.2782	0.3310	99.30
3:10	1.1	0.46	0.14	N/A	0.3201	0.3808	114.25
3:15	1.1	0.46	0.14	N/A	0.3201	0.3808	114.25
3:20	1.1	0.46	0.14	N/A	0.3201	0.3808	114.25
3:25	1.2	0.50	0.14	N/A	0.3620	0.4307	129.20
3:30	1.3	0.54	0.14	N/A	0.4038	0.4805	144.15
3:35	1.4	0.59	0.14	N/A	0.4457	0.5303	159.10
3:40	1.4	0.59	0.14	N/A	0.4457	0.5303	159.10
3:45	1.5	0.63	0.14	N/A	0.4876	0.5802	174.05
3:50	1.5	0.63	0.14	N/A	0.4876	0.5802	174.05
3:55	1.6	0.67	0.14	N/A	0.5295	0.6300	189.00
4:00	1.6	0.67	0.14	N/A	0.5295	0.6300	189.00
4:05	1.7	0.71	0.14	N/A	0.5714	0.6798	203.95
4:10	1.8	0.75	0.14	N/A	0.6132	0.7297	218.90
4:15	1.9	0.80	0.14	N/A	0.6551	0.7795	233.85

4:20	2	0.84	0.14	N/A	0.6970	0.8293	248.79
4:25	2.1	0.88	0.14	N/A	0.7389	0.8791	263.74
4:30	2.1	0.88	0.14	N/A	0.7389	0.8791	263.74
4:35	2.2	0.92	0.14	N/A	0.7808	0.9290	278.69
4:40	2.3	0.96	0.14	N/A	0.8226	0.9788	293.64
4:45	2.4	1.01	0.14	N/A	0.8645	1.0286	308.59
4:50	2.4	1.01	0.14	N/A	0.8645	1.0286	308.59
4:55	2.5	1.05	0.14	N/A	0.9064	1.0785	323.54
5:00	2.6	1.09	0.14	N/A	0.9483	1.1283	338.49
5:05	3.1	1.30	0.14	N/A	1.1577	1.3774	413.23
5:10	3.6	1.51	0.14	N/A	1.3671	1.6266	487.98
5:15	3.9	1.63	0.14	N/A	1.4927	1.7761	532.83
5:20	4.2	1.76	0.14	N/A	1.6184	1.9256	577.67
5:25	4.7	1.97	0.14	N/A	1.8278	2.1747	652.42
5:30	5.6	2.35	0.14	N/A	**2.2047**	**2.6232**	**786.96**
5:35	1.9	0.80	0.14	N/A	0.6551	0.7795	233.85
5:40	0.9	0.38	0.14	N/A	0.2363	0.2812	84.35
5:45	0.6	0.25	0.14	N/A	0.1107	0.1317	39.51
5:50	0.5	0.21	0.14	N/A	0.0688	0.0819	24.56
5:55	0.3	0.13	0.14	0.11	0.0126	0.0149	4.48
6:00	0.2	0.08	0.14	0.08	0.0084	0.0100	2.99
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
6:15	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
6:30	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
6:45	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
	0	0.00	0.14	0.00	0.0000	0.0000	0.00
7:00	0	0.00	0.14	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**11368.69**

24 Hour Storm in 15 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:15	0.2	0.04	0.25	0.04	0.0042	0.0050	4.51
0:30	0.3	0.06	0.24	0.06	0.0063	0.0075	6.76
0:45	0.3	0.06	0.24	0.06	0.0063	0.0075	6.76
1:00	0.4	0.08	0.24	0.08	0.0084	0.0100	9.01
1:15	0.3	0.06	0.24	0.06	0.0063	0.0075	6.76
1:30	0.3	0.06	0.23	0.06	0.0063	0.0075	6.76
1:45	0.3	0.06	0.23	0.06	0.0063	0.0075	6.76
2:00	0.4	0.08	0.23	0.08	0.0084	0.0100	9.01
2:15	0.4	0.08	0.22	0.08	0.0084	0.0100	9.01
2:30	0.4	0.08	0.22	0.08	0.0084	0.0100	9.01
2:45	0.5	0.11	0.22	0.09	0.0105	0.0125	11.27
3:00	0.5	0.11	0.22	0.09	0.0105	0.0125	11.27
3:15	0.5	0.11	0.21	0.09	0.0105	0.0125	11.27
3:30	0.5	0.11	0.21	0.09	0.0105	0.0125	11.27
3:45	0.5	0.11	0.21	0.09	0.0105	0.0125	11.27
4:00	0.6	0.13	0.21	0.11	0.0126	0.0150	13.52
4:15	0.6	0.13	0.20	0.11	0.0126	0.0150	13.52
4:30	0.7	0.15	0.20	0.13	0.0147	0.0175	15.77
4:45	0.7	0.15	0.20	0.13	0.0147	0.0175	15.77
5:00	0.8	0.17	0.20	0.15	0.0168	0.0200	18.02
5:15	0.6	0.13	0.19	0.11	0.0126	0.0150	13.52
5:30	0.7	0.15	0.19	0.13	0.0147	0.0175	15.77
5:45	0.8	0.17	0.19	0.15	0.0168	0.0200	18.02
6:00	0.8	0.17	0.19	0.15	0.0168	0.0200	18.02
6:15	0.9	0.19	0.18	0.17	0.0189	0.0225	20.28
6:30	0.9	0.19	0.18	0.17	0.0189	0.0225	20.28
6:45	1	0.21	0.18	N/A	0.0326	0.0387	34.86
7:00	1	0.21	0.18	N/A	0.0350	0.0416	37.44
7:15	1	0.21	0.17	N/A	0.0373	0.0444	40.00
7:30	1.1	0.23	0.17	N/A	0.0608	0.0723	65.06
7:45	1.2	0.25	0.17	N/A	0.0841	0.1001	90.11
8:00	1.3	0.27	0.17	N/A	0.1075	0.1279	115.13
8:15	1.5	0.32	0.16	N/A	0.1519	0.1807	162.66
8:30	1.5	0.32	0.16	N/A	0.1542	0.1835	165.11
8:45	1.6	0.34	0.16	N/A	0.1775	0.2112	190.07
9:00	1.7	0.36	0.16	N/A	0.2008	0.2389	215.01
9:15	1.9	0.40	0.15	N/A	0.2451	0.2916	262.45
9:30	2	0.42	0.15	N/A	0.2683	0.3193	287.35
9:45	2.1	0.44	0.15	N/A	0.2916	0.3469	312.22
10:00	2.2	0.46	0.15	N/A	0.3148	0.3745	337.07
10:15	1.5	0.32	0.15	N/A	0.1696	0.2018	181.65
10:30	1.5	0.32	0.14	N/A	0.1718	0.2044	183.92
10:45	2	0.42	0.14	N/A	0.2791	0.3320	298.82
11:00	2	0.42	0.14	N/A	0.2811	0.3345	301.05
11:15	1.9	0.40	0.14	N/A	0.2621	0.3119	280.72
11:30	1.9	0.40	0.14	N/A	0.2642	0.3143	282.90
11:45	1.7	0.36	0.13	N/A	0.2241	0.2667	239.99
12:00	1.8	0.38	0.13	N/A	0.2471	0.2941	264.65
12:15	2.5	0.53	0.13	N/A	0.3964	0.4716	424.48
12:30	2.6	0.55	0.13	N/A	0.4194	0.4990	449.09
12:45	2.8	0.59	0.13	N/A	0.4634	0.5513	496.21

13:00	2.9	0.61	0.12	N/A	0.4863	0.5786	520.77
13:15	3.4	0.72	0.12	N/A	0.5934	0.7060	635.43
13:30	3.4	0.72	0.12	N/A	**0.5952**	0.7082	**637.41**
13:45	2.3	0.48	0.12	N/A	0.3656	0.4350	391.53
14:00	2.3	0.48	0.12	N/A	0.3674	0.4372	393.46
14:15	2.7	0.57	0.11	N/A	0.4534	0.5394	485.49
14:30	2.6	0.55	0.11	N/A	0.4341	0.5165	464.83
14:45	2.6	0.55	0.11	N/A	0.4358	0.5185	466.68
15:00	2.5	0.53	0.11	N/A	0.4165	0.4955	445.98
15:15	2.4	0.50	0.11	N/A	0.3971	0.4725	425.24
15:30	2.3	0.48	0.11	N/A	0.3777	0.4494	404.48
15:45	1.9	0.40	0.10	N/A	0.2952	0.3512	316.09
16:00	1.9	0.40	0.10	N/A	0.2968	0.3531	317.80
16:15	0.4	0.08	0.10	0.08	0.0084	0.0100	9.01
16:30	0.4	0.08	0.10	0.08	0.0084	0.0100	9.01
16:45	0.3	0.06	0.10	0.06	0.0063	0.0075	6.76
17:00	0.3	0.06	0.10	0.06	0.0063	0.0075	6.76
17:15	0.5	0.11	0.10	0.09	0.0105	0.0125	11.27
17:30	0.5	0.11	0.09	N/A	0.0112	0.0133	12.00
17:45	0.5	0.11	0.09	N/A	0.0126	0.0150	13.50
18:00	0.4	0.08	0.09	0.08	0.0084	0.0100	9.01
18:15	0.4	0.08	0.09	0.08	0.0084	0.0100	9.01
18:30	0.4	0.08	0.09	0.08	0.0084	0.0100	9.01
18:45	0.3	0.06	0.09	0.06	0.0063	0.0075	6.76
19:00	0.2	0.04	0.09	0.04	0.0042	0.0050	4.51
19:15	0.3	0.06	0.08	0.06	0.0063	0.0075	6.76
19:30	0.4	0.08	0.08	0.08	0.0084	0.0100	9.01
19:45	0.3	0.06	0.08	0.06	0.0063	0.0075	6.76
20:00	0.2	0.04	0.08	0.04	0.0042	0.0050	4.51
20:15	0.3	0.06	0.08	0.06	0.0063	0.0075	6.76
20:30	0.3	0.06	0.08	0.06	0.0063	0.0075	6.76
20:45	0.3	0.06	0.08	0.06	0.0063	0.0075	6.76
21:00	0.2	0.04	0.08	0.04	0.0042	0.0050	4.51
21:15	0.3	0.06	0.08	0.06	0.0063	0.0075	6.76
21:30	0.2	0.04	0.08	0.04	0.0042	0.0050	4.51
21:45	0.3	0.06	0.07	0.06	0.0063	0.0075	6.76
22:00	0.2	0.04	0.07	0.04	0.0042	0.0050	4.51
22:15	0.3	0.06	0.07	0.06	0.0063	0.0075	6.76
22:30	0.2	0.04	0.07	0.04	0.0042	0.0050	4.51
22:45	0.2	0.04	0.07	0.04	0.0042	0.0050	4.51
23:00	0.2	0.04	0.07	0.04	0.0042	0.0050	4.51
23:15	0.2	0.04	0.07	0.04	0.0042	0.0050	4.51
23:30	0.2	0.04	0.07	0.04	0.0042	0.0050	4.51
23:45	0.2	0.04	0.07	0.04	0.0042	0.0050	4.51
24:00	0.2	0.04	0.07	0.04	0.0042	0.0050	4.51
	0	0.00	0.07	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**12155.64**

HYDROLOGY CALCULATIONS -

Using the RCFC&WCD Short Cut Unit Hydrograph Method

Area Designations	**The Wren**				
	OFF2				
Drainage Area (ac.)	**0.2100**				
Unit time (minutes)	**5**	**5**	**5**	**15**	
100 Year Storm Duration (hrs)	1	3	6	24	
Total Precipitation (Plates D-4.4,E-5.2, 5.4, 5.6)(in.)	**1.93**	**2.70**	**3.49**	**5.26**	Or data from NOAA interactive website
Soils Group	A				
AMC index II Runoff Number (plate E-6.1)	32				
Plate E-6.2 Pervious Area Loss Rate (Fp)(in/hr)	0.74	(AMC II)			
Percentage of Impervious Cover (Ai)(%) (plate E-6.3)		**55.5**			
Weighted Average Loss Rate (F=Fp(1-.9Ai))(in./hr.)	0.37	(used for 1, 3, and 6 hour storm, the 24 hour storm uses variable maximum loss rate per plate E-1.1 (3 of 6))			
Low Loss Rate Percent (%)	90				
Retention Basin Percolation Rate (in/hr)	**2**	(also used for drywell percolation rate)			

Percolation is taken incrementally.
Basin volume is calculated using the "truncated pyramid" formula, a more conservative estimate than "averaged end areas" sometimes used

(Drywell can be "zeroed out" by reducing numbers to less than .001, but should not entered as zeros or program chokes.)
Drywell storage includes 40% of the 1' wide rock bed surrounding the drywell: formula (upper)*PI()*(diam/2)^2+(lower)*PI()*((diam/2)^2+0.4*((diam/2+(grav+0.4166))^2-(diam/2+0.4166)^2))
The drywell wall thickness is assumed at 5" (0.4166) and the gravel bed width is variable "grav"

Drywell design factors **Upper sec. (ft.)=** **0.0001** **Lower sec. (ft.)=** **0.0001** **Ring diam. (ft.) =** **0.0001** **Drywell lower max. (cf)=** **0.00** **Upper max.(cf)=** **0.00**
Gravel bed width around drwyell= **0** **Drywell total(cf)=** **0.00**

Ret. Basin design (area, depth) **Top =** **0.0001** s.f. **Bot. =** **0.0001** **s.f.** **Max. Depth (d)=** **0.0001** **Max. storage=** **0.00** (d/3)*(bottom+top+(bottom*top)^0.50)
Formulas **vol=(h/3)*(bottom+top+(bottom*top)^0.50)** **area=bottom+(h/d)*(top-bottom)** **h=(vol*3)/(bottom+top+(bottom*top)^0.5)** **(values must be non-zero or error occurs)**
Outside input from: **N/A**

1 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:05	3.7	0.8569	0.3704	N/A	0.4866	0.1030	30.91
0:10	4.8	1.1117	0.3704	N/A	0.7413	0.1570	47.09
0:15	5.1	1.1812	0.3704	N/A	0.8108	0.1717	51.51
0:20	4.9	1.1348	0.3704	N/A	0.7645	0.1619	48.56
0:25	6.6	1.5286	0.3704	N/A	1.1582	0.2452	73.57
0:30	7.3	1.6907	0.3704	N/A	1.3203	0.2796	83.87
0:35	8.4	1.9454	0.3704	N/A	1.5751	0.3335	100.06
0:40	9	2.0844	0.3704	N/A	1.7140	0.3629	108.88
0:45	12.3	2.8487	0.3704	N/A	2.4783	0.5248	157.43
0:50	17.6	4.0762	0.3704	N/A	**3.7058**	**0.7847**	**235.41**
0:55	16.1	3.7288	0.3704	N/A	3.3584	0.7111	213.34
1:00	4.2	0.9727	0.3704	N/A	0.6024	0.1275	38.26
	0	0.0000	0.3704	0.00	0.0000	0.0000	0.00
	0	0.0000	0.3704	0.00	0.0000	0.0000	0.00
1:15	0	0.0000	0.3704	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**1188.91**

3 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:05	1.3	0.42	0.37	N/A	0.0508	0.0108	3.23
0:10	1.3	0.42	0.37	N/A	0.0508	0.0108	3.23
0:15	1.1	0.36	0.37	0.32	0.0356	0.0075	2.26
0:20	1.5	0.49	0.37	N/A	0.1156	0.0245	7.35
0:25	1.5	0.49	0.37	N/A	0.1156	0.0245	7.35
0:30	1.8	0.58	0.37	N/A	0.2128	0.0451	13.52
0:35	1.5	0.49	0.37	N/A	0.1156	0.0245	7.35
0:40	1.8	0.58	0.37	N/A	0.2128	0.0451	13.52
0:45	1.8	0.58	0.37	N/A	0.2128	0.0451	13.52
0:50	1.5	0.49	0.37	N/A	0.1156	0.0245	7.35
0:55	1.6	0.52	0.37	N/A	0.1480	0.0313	9.40
1:00	1.8	0.58	0.37	N/A	0.2128	0.0451	13.52
1:05	2.2	0.71	0.37	N/A	0.3424	0.0725	21.75
1:10	2.2	0.71	0.37	N/A	0.3424	0.0725	21.75
1:15	2.2	0.71	0.37	N/A	0.3424	0.0725	21.75
1:20	2	0.65	0.37	N/A	0.2776	0.0588	17.64
1:25	2.6	0.84	0.37	N/A	0.4720	0.1000	29.99
1:30	2.7	0.87	0.37	N/A	0.5044	0.1068	32.04
1:35	2.4	0.78	0.37	N/A	0.4072	0.0862	25.87
1:40	2.7	0.87	0.37	N/A	0.5044	0.1068	32.04
1:45	3.3	1.07	0.37	N/A	0.6988	0.1480	44.39
1:50	3.1	1.00	0.37	N/A	0.6340	0.1343	40.28
1:55	2.9	0.94	0.37	N/A	0.5692	0.1205	36.16
2:00	3	0.97	0.37	N/A	0.6016	0.1274	38.22
2:05	3.1	1.00	0.37	N/A	0.6340	0.1343	40.28
2:10	4.2	1.36	0.37	N/A	0.9904	0.2097	62.92
2:15	5	1.62	0.37	N/A	1.2496	0.2646	79.38
2:20	3.5	1.13	0.37	N/A	0.7636	0.1617	48.51
2:25	6.8	2.20	0.37	N/A	1.8328	0.3881	116.43
2:30	7.3	2.37	0.37	N/A	1.9948	0.4224	126.72
2:35	8.2	2.66	0.37	N/A	**2.2864**	**0.4842**	**145.25**
2:40	5.9	1.91	0.37	N/A	1.5412	0.3264	97.91
2:45	2	0.65	0.37	N/A	0.2776	0.0588	17.64
2:50	1.8	0.58	0.37	N/A	0.2128	0.0451	13.52
2:55	1.8	0.58	0.37	N/A	0.2128	0.0451	13.52
3:00	0.6	0.19	0.37	0.17	0.0194	0.0041	1.23
	0	0.00	0.37	0.00	0.0000	0.0000	0.00
	0	0.00	0.37	0.00	0.0000	0.0000	0.00
3:15	0	0.00	0.37	0.00	0.0000	0.0000	0.00
	0	0.00	0.37	0.00	0.0000	0.0000	0.00
	0	0.00	0.37	0.00	0.0000	0.0000	0.00
3:30	0	0.00	0.37	0.00	0.0000	0.0000	0.00
	0	0.00	0.37	0.00	0.0000	0.0000	0.00
	0	0.00	0.37	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**1226.78**

6 Hour Storm in 5 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:05	0.5	0.21	0.37	0.19	0.0209	0.0044	1.33
0:10	0.6	0.25	0.37	0.23	0.0251	0.0053	1.60
0:15	0.6	0.25	0.37	0.23	0.0251	0.0053	1.60
0:20	0.6	0.25	0.37	0.23	0.0251	0.0053	1.60
0:25	0.6	0.25	0.37	0.23	0.0251	0.0053	1.60
0:30	0.7	0.29	0.37	0.26	0.0293	0.0062	1.86
0:35	0.7	0.29	0.37	0.26	0.0293	0.0062	1.86
0:40	0.7	0.29	0.37	0.26	0.0293	0.0062	1.86
0:45	0.7	0.29	0.37	0.26	0.0293	0.0062	1.86
0:50	0.7	0.29	0.37	0.26	0.0293	0.0062	1.86
0:55	0.7	0.29	0.37	0.26	0.0293	0.0062	1.86
1:00	0.8	0.34	0.37	0.30	0.0335	0.0071	2.13
1:05	0.8	0.34	0.37	0.30	0.0335	0.0071	2.13
1:10	0.8	0.34	0.37	0.30	0.0335	0.0071	2.13
1:15	0.8	0.34	0.37	0.30	0.0335	0.0071	2.13
1:20	0.8	0.34	0.37	0.30	0.0335	0.0071	2.13
1:25	0.8	0.34	0.37	0.30	0.0335	0.0071	2.13
1:30	0.8	0.34	0.37	0.30	0.0335	0.0071	2.13
1:35	0.8	0.34	0.37	0.30	0.0335	0.0071	2.13
1:40	0.8	0.34	0.37	0.30	0.0335	0.0071	2.13
1:45	0.8	0.34	0.37	0.30	0.0335	0.0071	2.13
1:50	0.8	0.34	0.37	0.30	0.0335	0.0071	2.13
1:55	0.8	0.34	0.37	0.30	0.0335	0.0071	2.13
2:00	0.9	0.38	0.37	0.34	0.0377	0.0080	2.39
2:05	0.8	0.34	0.37	0.30	0.0335	0.0071	2.13
2:10	0.9	0.38	0.37	0.34	0.0377	0.0080	2.39
2:15	0.9	0.38	0.37	0.34	0.0377	0.0080	2.39
2:20	0.9	0.38	0.37	0.34	0.0377	0.0080	2.39
2:25	0.9	0.38	0.37	0.34	0.0377	0.0080	2.39
2:30	0.9	0.38	0.37	0.34	0.0377	0.0080	2.39
2:35	0.9	0.38	0.37	0.34	0.0377	0.0080	2.39
2:40	0.9	0.38	0.37	0.34	0.0377	0.0080	2.39
2:45	1	0.42	0.37	N/A	0.0484	0.0103	3.08
2:50	1	0.42	0.37	N/A	0.0484	0.0103	3.08
2:55	1	0.42	0.37	N/A	0.0484	0.0103	3.08
3:00	1	0.42	0.37	N/A	0.0484	0.0103	3.08
3:05	1	0.42	0.37	N/A	0.0484	0.0103	3.08
3:10	1.1	0.46	0.37	N/A	0.0903	0.0191	5.74
3:15	1.1	0.46	0.37	N/A	0.0903	0.0191	5.74
3:20	1.1	0.46	0.37	N/A	0.0903	0.0191	5.74
3:25	1.2	0.50	0.37	N/A	0.1322	0.0280	8.40
3:30	1.3	0.54	0.37	N/A	0.1741	0.0369	11.06
3:35	1.4	0.59	0.37	N/A	0.2160	0.0457	13.72
3:40	1.4	0.59	0.37	N/A	0.2160	0.0457	13.72
3:45	1.5	0.63	0.37	N/A	0.2578	0.0546	16.38
3:50	1.5	0.63	0.37	N/A	0.2578	0.0546	16.38
3:55	1.6	0.67	0.37	N/A	0.2997	0.0635	19.04
4:00	1.6	0.67	0.37	N/A	0.2997	0.0635	19.04
4:05	1.7	0.71	0.37	N/A	0.3416	0.0723	21.70
4:10	1.8	0.75	0.37	N/A	0.3835	0.0812	24.36
4:15	1.9	0.80	0.37	N/A	0.4254	0.0901	27.02

4:20	2	0.84	0.37	N/A	0.4672	0.0989	29.68
4:25	2.1	0.88	0.37	N/A	0.5091	0.1078	32.34
4:30	2.1	0.88	0.37	N/A	0.5091	0.1078	32.34
4:35	2.2	0.92	0.37	N/A	0.5510	0.1167	35.00
4:40	2.3	0.96	0.37	N/A	0.5929	0.1255	37.66
4:45	2.4	1.01	0.37	N/A	0.6348	0.1344	40.32
4:50	2.4	1.01	0.37	N/A	0.6348	0.1344	40.32
4:55	2.5	1.05	0.37	N/A	0.6766	0.1433	42.98
5:00	2.6	1.09	0.37	N/A	0.7185	0.1521	45.64
5:05	3.1	1.30	0.37	N/A	0.9279	0.1965	58.95
5:10	3.6	1.51	0.37	N/A	1.1373	0.2408	72.25
5:15	3.9	1.63	0.37	N/A	1.2630	0.2674	80.23
5:20	4.2	1.76	0.37	N/A	1.3886	0.2940	88.21
5:25	4.7	1.97	0.37	N/A	1.5980	0.3384	101.51
5:30	5.6	2.35	0.37	N/A	**1.9749**	**0.4182**	**125.46**
5:35	1.9	0.80	0.37	N/A	0.4254	0.0901	27.02
5:40	0.9	0.38	0.37	0.34	0.0377	0.0080	2.39
5:45	0.6	0.25	0.37	0.23	0.0251	0.0053	1.60
5:50	0.5	0.21	0.37	0.19	0.0209	0.0044	1.33
5:55	0.3	0.13	0.37	0.11	0.0126	0.0027	0.80
6:00	0.2	0.08	0.37	0.08	0.0084	0.0018	0.53
	0	0.00	0.37	0.00	0.0000	0.0000	0.00
	0	0.00	0.37	0.00	0.0000	0.0000	0.00
6:15	0	0.00	0.37	0.00	0.0000	0.0000	0.00
	0	0.00	0.37	0.00	0.0000	0.0000	0.00
	0	0.00	0.37	0.00	0.0000	0.0000	0.00
6:30	0	0.00	0.37	0.00	0.0000	0.0000	0.00
	0	0.00	0.37	0.00	0.0000	0.0000	0.00
	0	0.00	0.37	0.00	0.0000	0.0000	0.00
6:45	0	0.00	0.37	0.00	0.0000	0.0000	0.00
	0	0.00	0.37	0.00	0.0000	0.0000	0.00
	0	0.00	0.37	0.00	0.0000	0.0000	0.00
7:00	0	0.00	0.37	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**1185.68**

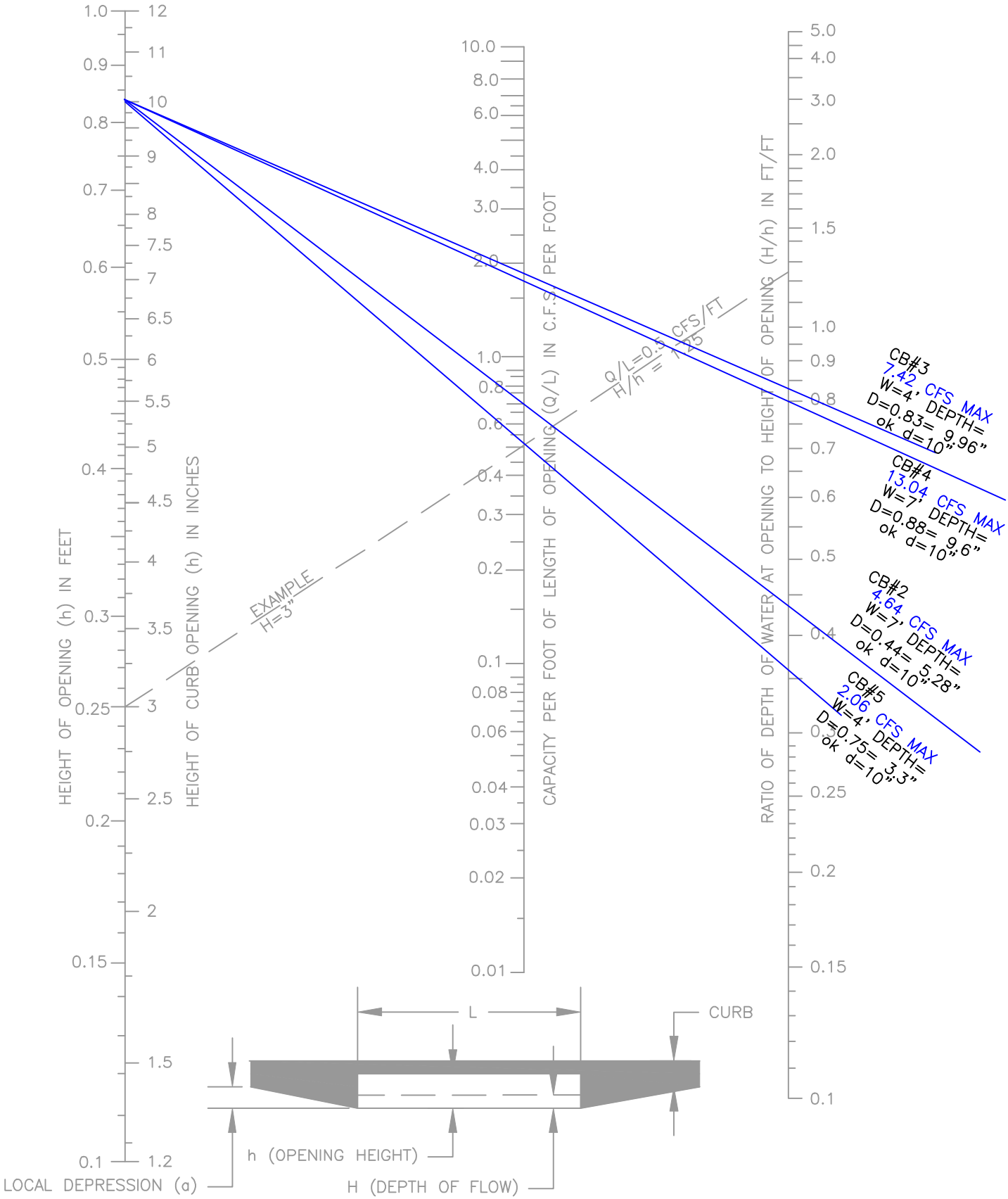
24 Hour Storm in 15 minute increments

Time	Pattern %	Storm Rain (in/hr)	Loss Rate Value Max.	Min.	Effective Rain (in/hr	Flow Rate (cfs)	Flow Vol. (cf)
0:15	0.2	0.04	0.65	0.04	0.0042	0.0009	0.80
0:30	0.3	0.06	0.64	0.06	0.0063	0.0013	1.20
0:45	0.3	0.06	0.64	0.06	0.0063	0.0013	1.20
1:00	0.4	0.08	0.63	0.08	0.0084	0.0018	1.60
1:15	0.3	0.06	0.62	0.06	0.0063	0.0013	1.20
1:30	0.3	0.06	0.61	0.06	0.0063	0.0013	1.20
1:45	0.3	0.06	0.61	0.06	0.0063	0.0013	1.20
2:00	0.4	0.08	0.60	0.08	0.0084	0.0018	1.60
2:15	0.4	0.08	0.59	0.08	0.0084	0.0018	1.60
2:30	0.4	0.08	0.58	0.08	0.0084	0.0018	1.60
2:45	0.5	0.11	0.58	0.09	0.0105	0.0022	2.00
3:00	0.5	0.11	0.57	0.09	0.0105	0.0022	2.00
3:15	0.5	0.11	0.56	0.09	0.0105	0.0022	2.00
3:30	0.5	0.11	0.56	0.09	0.0105	0.0022	2.00
3:45	0.5	0.11	0.55	0.09	0.0105	0.0022	2.00
4:00	0.6	0.13	0.54	0.11	0.0126	0.0027	2.41
4:15	0.6	0.13	0.53	0.11	0.0126	0.0027	2.41
4:30	0.7	0.15	0.53	0.13	0.0147	0.0031	2.81
4:45	0.7	0.15	0.52	0.13	0.0147	0.0031	2.81
5:00	0.8	0.17	0.51	0.15	0.0168	0.0036	3.21
5:15	0.6	0.13	0.51	0.11	0.0126	0.0027	2.41
5:30	0.7	0.15	0.50	0.13	0.0147	0.0031	2.81
5:45	0.8	0.17	0.49	0.15	0.0168	0.0036	3.21
6:00	0.8	0.17	0.49	0.15	0.0168	0.0036	3.21
6:15	0.9	0.19	0.48	0.17	0.0189	0.0040	3.61
6:30	0.9	0.19	0.47	0.17	0.0189	0.0040	3.61
6:45	1	0.21	0.47	0.19	0.0210	0.0045	4.01
7:00	1	0.21	0.46	0.19	0.0210	0.0045	4.01
7:15	1	0.21	0.46	0.19	0.0210	0.0045	4.01
7:30	1.1	0.23	0.45	0.21	0.0231	0.0049	4.41
7:45	1.2	0.25	0.44	0.23	0.0252	0.0053	4.81
8:00	1.3	0.27	0.44	0.25	0.0274	0.0058	5.21
8:15	1.5	0.32	0.43	0.28	0.0316	0.0067	6.01
8:30	1.5	0.32	0.43	0.28	0.0316	0.0067	6.01
8:45	1.6	0.34	0.42	0.30	0.0337	0.0071	6.42
9:00	1.7	0.36	0.41	0.32	0.0358	0.0076	6.82
9:15	1.9	0.40	0.41	0.36	0.0400	0.0085	7.62
9:30	2	0.42	0.40	0.38	0.0421	0.0089	8.02
9:45	2.1	0.44	0.40	N/A	0.0460	0.0097	8.76
10:00	2.2	0.46	0.39	N/A	0.0727	0.0154	13.86
10:15	1.5	0.32	0.38	0.28	0.0316	0.0067	6.01
10:30	1.5	0.32	0.38	0.28	0.0316	0.0067	6.01
10:45	2	0.42	0.37	N/A	0.0474	0.0100	9.03
11:00	2	0.42	0.37	N/A	0.0529	0.0112	10.08
11:15	1.9	0.40	0.36	0.36	0.0400	0.0085	7.62
11:30	1.9	0.40	0.36	N/A	0.0426	0.0090	8.12
11:45	1.7	0.36	0.35	0.32	0.0358	0.0076	6.82
12:00	1.8	0.38	0.35	0.34	0.0379	0.0080	7.22
12:15	2.5	0.53	0.34	N/A	0.1846	0.0391	35.18
12:30	2.6	0.55	0.34	N/A	0.2107	0.0446	40.16
12:45	2.8	0.59	0.33	N/A	0.2579	0.0546	49.15

13:00	2.9	0.61	0.33	N/A	0.2839	0.0601	54.11
13:15	3.4	0.72	0.32	N/A	0.3941	0.0834	75.10
13:30	3.4	0.72	0.32	N/A	**0.3989**	0.0845	**76.03**
13:45	2.3	0.48	0.31	N/A	0.1723	0.0365	32.84
14:00	2.3	0.48	0.31	N/A	0.1771	0.0375	33.74
14:15	2.7	0.57	0.30	N/A	0.2659	0.0563	50.67
14:30	2.6	0.55	0.30	N/A	0.2495	0.0528	47.54
14:45	2.6	0.55	0.29	N/A	0.2540	0.0538	48.41
15:00	2.5	0.53	0.29	N/A	0.2375	0.0503	45.26
15:15	2.4	0.50	0.28	N/A	0.2208	0.0468	42.09
15:30	2.3	0.48	0.28	N/A	0.2042	0.0432	38.91
15:45	1.9	0.40	0.28	N/A	0.1243	0.0263	23.68
16:00	1.9	0.40	0.27	N/A	0.1285	0.0272	24.48
16:15	0.4	0.08	0.27	0.08	0.0084	0.0018	1.60
16:30	0.4	0.08	0.26	0.08	0.0084	0.0018	1.60
16:45	0.3	0.06	0.26	0.06	0.0063	0.0013	1.20
17:00	0.3	0.06	0.26	0.06	0.0063	0.0013	1.20
17:15	0.5	0.11	0.25	0.09	0.0105	0.0022	2.00
17:30	0.5	0.11	0.25	0.09	0.0105	0.0022	2.00
17:45	0.5	0.11	0.24	0.09	0.0105	0.0022	2.00
18:00	0.4	0.08	0.24	0.08	0.0084	0.0018	1.60
18:15	0.4	0.08	0.24	0.08	0.0084	0.0018	1.60
18:30	0.4	0.08	0.23	0.08	0.0084	0.0018	1.60
18:45	0.3	0.06	0.23	0.06	0.0063	0.0013	1.20
19:00	0.2	0.04	0.23	0.04	0.0042	0.0009	0.80
19:15	0.3	0.06	0.22	0.06	0.0063	0.0013	1.20
19:30	0.4	0.08	0.22	0.08	0.0084	0.0018	1.60
19:45	0.3	0.06	0.22	0.06	0.0063	0.0013	1.20
20:00	0.2	0.04	0.21	0.04	0.0042	0.0009	0.80
20:15	0.3	0.06	0.21	0.06	0.0063	0.0013	1.20
20:30	0.3	0.06	0.21	0.06	0.0063	0.0013	1.20
20:45	0.3	0.06	0.21	0.06	0.0063	0.0013	1.20
21:00	0.2	0.04	0.20	0.04	0.0042	0.0009	0.80
21:15	0.3	0.06	0.20	0.06	0.0063	0.0013	1.20
21:30	0.2	0.04	0.20	0.04	0.0042	0.0009	0.80
21:45	0.3	0.06	0.20	0.06	0.0063	0.0013	1.20
22:00	0.2	0.04	0.20	0.04	0.0042	0.0009	0.80
22:15	0.3	0.06	0.19	0.06	0.0063	0.0013	1.20
22:30	0.2	0.04	0.19	0.04	0.0042	0.0009	0.80
22:45	0.2	0.04	0.19	0.04	0.0042	0.0009	0.80
23:00	0.2	0.04	0.19	0.04	0.0042	0.0009	0.80
23:15	0.2	0.04	0.19	0.04	0.0042	0.0009	0.80
23:30	0.2	0.04	0.19	0.04	0.0042	0.0009	0.80
23:45	0.2	0.04	0.19	0.04	0.0042	0.0009	0.80
24:00	0.2	0.04	0.19	0.04	0.0042	0.0009	0.80
	0	0.00	0.19	0.00	0.0000	0.0000	0.00
					Total volume (cf)		**962.47**

CATCH BASIN SIZING

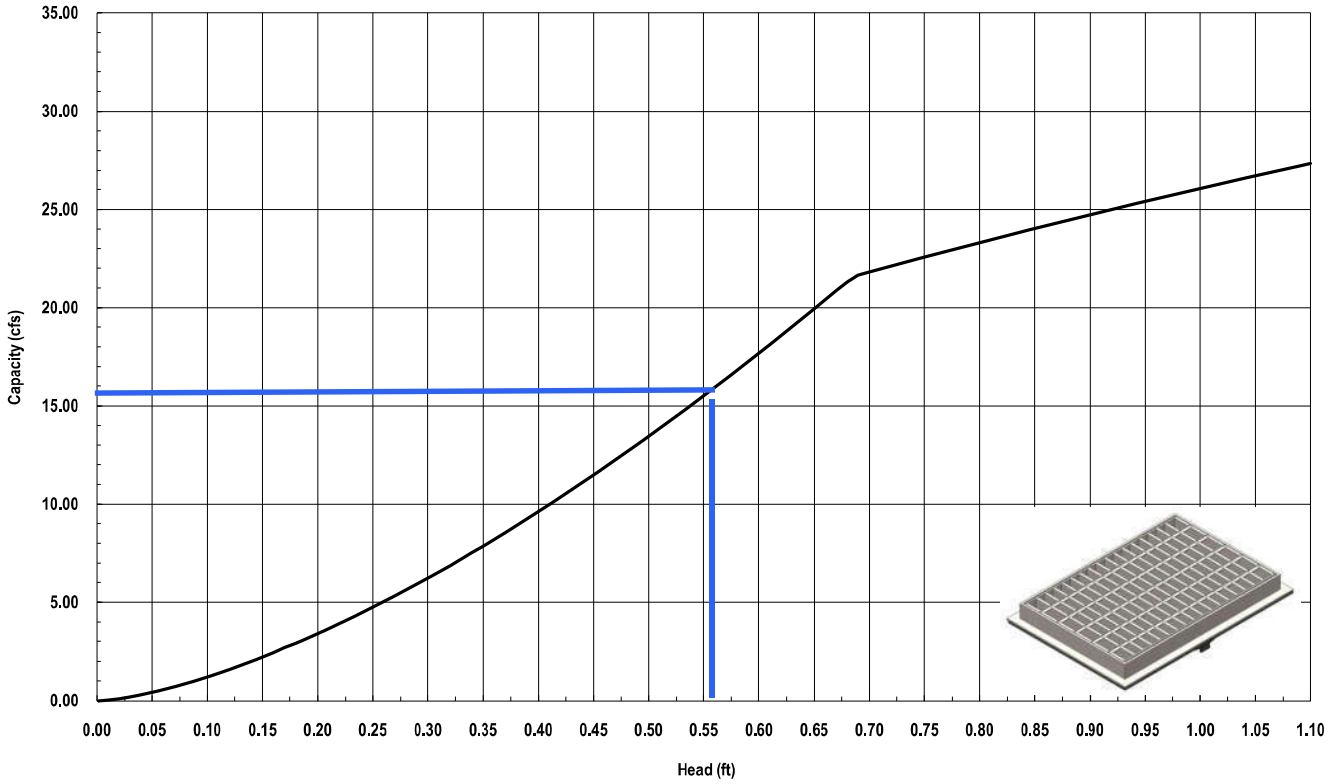
1073.03



BASED ON THE BUREAU OF PUBLIC ROADS
DIVISION TWO , WASH., D.C.

NOMOGRAPH FOR CAPACITY OF CURB
OPENING INLETS AT LOW POINTS

Nyloplast 2' x 3' Steel Bar / MAG Grate Inlet Capacity Chart



Nyloplast®
3130 Verona Avenue • Buford, GA 30518
(866) 888-8479 / (770) 932-2443 • Fax: (770) 932-2490
© Nyloplast Inlet Capacity Charts June 2012

WQMP WORKSHEETS

Whitewater Watershed

BMP Design Volume, V_{BMP} (Rev. 03-2012)

Legend: Required Entries / Calculated Cells

Company Name	Christiansen & Company	Date	3/1/2024
Designed by	Keith Christiansen	County/City Case No	
Company Project Number/Name	Date Palm Apartments		
Drainage Area Number/Name	DMA1		

Enter the Area Tributary to this Feature A_T = 10.48 acres

Determine the Effective Impervious Fraction

Type of post-development surface cover (use pull down menu): Mixed Surface Types

Effective Impervious Fraction I_f = 0.68

Calculate the composite Runoff Coefficient, C for the BMP Tributary Area

Use the following equation based on the WEF/ASCE Method

$C = 0.858I_f^3 - 0.78I_f^2 + 0.774I_f + 0.04$ C = 0.47

Determine Design Storage Volume, V_{BMP}

Calculate V_U, the 85% Unit Storage Volume $V_U = 0.40 \times C$ V_u = 0.19 (in*ac)/ac

Calculate the design storage volume of the BMP, V_{BMP}.

$$V_{BMP}\ (ft^3) = \frac{V_U\ (in\text{-}ac/ac) \times A_T\ (ac) \times 43{,}560\ (ft^2/ac)}{12\ (in/ft)}$$

V_{BMP} = 7,228 ft^3

Notes:

Infiltration Basin - Design Procedure (Rev. 06-2014)	BMP ID Ret 1	Legend:	Required Entries / Calculated Cells

Company Name:	Christiansen & Company	Date:	
Designed by:	Keith A. Christiansen	County/City Case No.:	

Design Volume

a) Tributary Drainage Area (BMP subarea)	A_{TRIB} =	10.48	acres
b) Enter V_{BMP} determined from Section 4.3 of this Handbook	V_{BMP}=	6,467	ft^3

Maximum Depth

a) Infiltration rate	I =	2	in/hr
b) Factor of Safety (See Table 1, Appendix B: "Infiltration Testing" from this BMP Handbook)	FS =	3	
c) Calculate D_1 $D_1 = \frac{I\ (in/hr) \times 48\ hrs}{12\ (in/ft) \times FS}$	D_1 =	2.7	ft
d) Enter the depth of freeboard (at least 1 ft)		1	ft
e) Enter depth to historic high ground water (measured from **top** of basin)		50	ft
f) Enter depth to top of bedrock or impermeable layer (measured from **top** of basin)		10	ft
g) D_2 is the smaller of: Depth to groundwater - (10 ft + freeboard) and Depth to impermeable layer - (5 ft + freeboard)	D_2 =	4.0	ft
h) D_{MAX} is the smaller value of D_1 and D_2 but shall not exceed 5 feet	D_{MAX} =	2.7	ft

Basin Geometry

a) Basin side slopes (no steeper than 4:1)	z =	4	:1
b) Proposed basin depth (excluding freeboard)	d_B =	2.5	ft
c) Minimum bottom surface area of basin ($A_S = V_{BMP}/d_B$)	A_S =	2587	ft^2
d) Proposed Design Surface Area	A_D =	45000	ft^2

Forebay

a) Forebay volume (minimum 0.5% V_{BMP})	Volume =	32	ft^3
b) Forebay depth (height of berm/splashwall. 1 foot min.)	Depth =	1	ft
c) Forebay surface area (minimum)	Area =	32	ft^2
d) Full height notch-type weir	Width (W) =	12.0	in

Notes:

INFILTRATION TEST

Sladden Engineering

45090 Golf Center Parkway, Suite F, Indio, CA. 92201 (760) 863-0713 Fax (760) 863-0847
6782 Stanton Avenue, Suite C, Buena Park, CA. 90621 (714) 523-0952 Fax (714) 523-1369
450 Egan Avenue, Beaumont, CA. 92223 (951) 845-7743 Fax (951) 845-8863
www.SladdenEngineering.com

October 10, 2023

Project No. 544-23272
23-10-496

Coachella Valley Community Development Group
36101 Bob Hope Drive, Suite E5
Rancho Mirage, California 92270

Project: Proposed Apartment Complex
APN 670-110-043
30260 Date Palm Drive
Palm Springs, California

Subject: Percolation/Infiltration Testing for On-Site Stormwater Management

In accordance with your request, we have performed percolation testing on the subject site to evaluate the infiltration potential of the near surface soil to assist in storm water management system design. It is our understanding that on-site stormwater retention including infiltration is planned for the proposed project.

Percolation testing was performed within two (2) shallow test holes excavated on the site. Testing was performed at depths of approximately 10 & 5 feet below existing grade for P-1 & P-2, respectively. The approximate locations of the test holes are presented on the attached Test Location Plan (Figure 2). Testing was performed by placing water within the test bores and recording the drop in the water surface with time. Testing was performed in general accordance with the *United States Bureau of Reclamation (BOR) Procedure 7300-89 (1999)*. Test results are summarized in the following table.

PERCOLATION TEST RESULTS

Test No.	Depth (Ft)	USCS	Percolation Rate (in/hr)	Infiltration Rate (in/hr)
P-1	10.00	SM	99.00	14.40
P-2	5.00	SM	109.50	17.01

The percolation rates determined represent the ultimate field rates that do not include a safety factor. The corresponding infiltration rates were calculated using the Porchet Method. An appropriate safety factor should be incorporated into design.

Groundwater was not encountered within our exploratory boreholes. Based upon our review of groundwater levels within the vicinity of the site[1], it is our opinion that groundwater should not be a controlling factor in stormwater retention/infiltration system design.

If you have any questions regarding this memo or the referenced reports, please contact the undersigned.

Respectfully submitted,
SLADDEN ENGINEERING

PROFESSIONAL GEOLOGIST
JAMES W. MINOR III
No. 9735
STATE OF CALIFORNIA

James W. Minor III
Senior Geologist

Copies: PDF/Addressee

[1] California Department of Water Resources, 2023, Water Data Library; available at: http://wdl.water.ca.gov/waterdatalibrary/

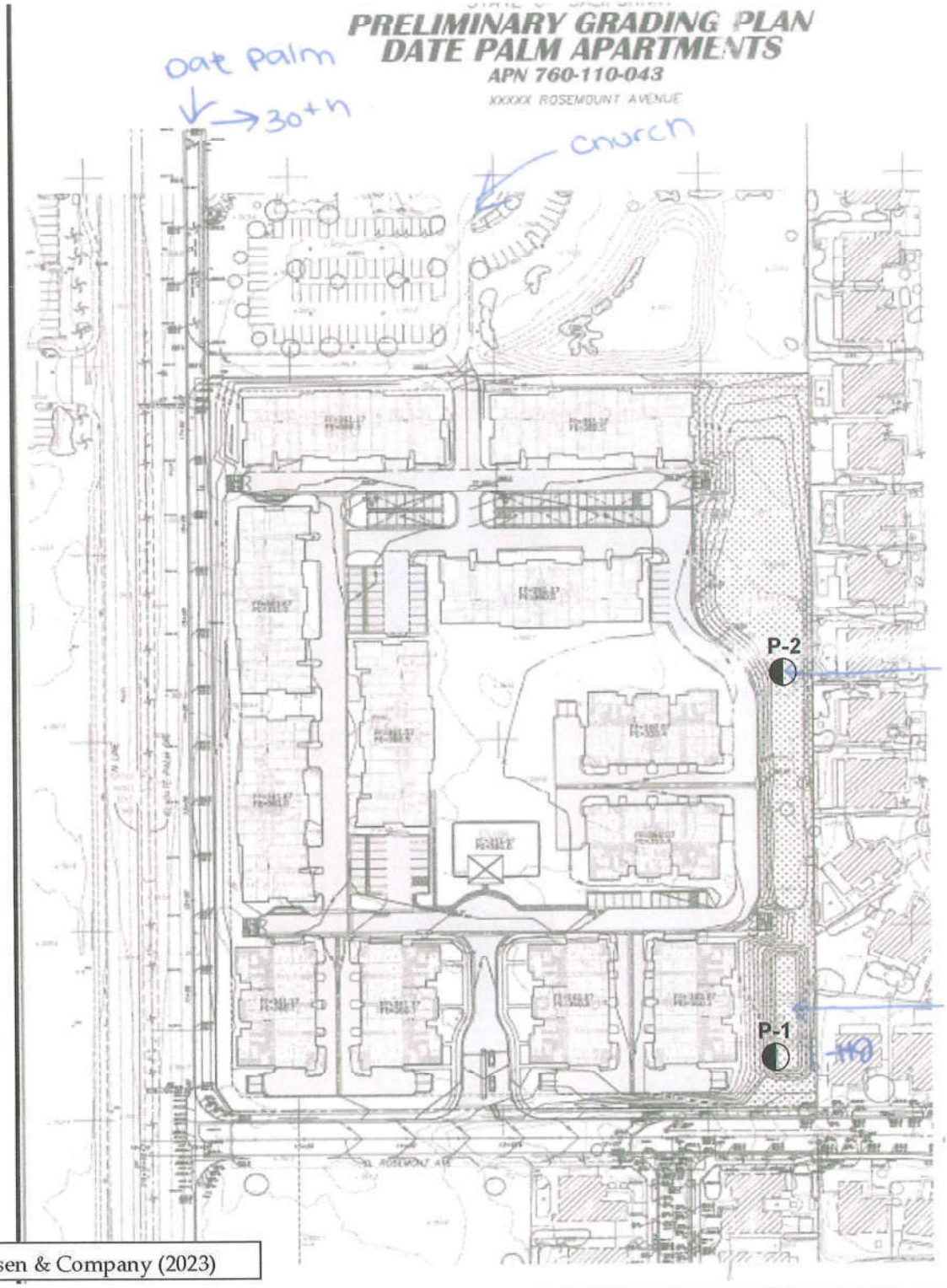
SITE LOCATION MAP
TEST LOCATION PLAN

USGS (2018)

Sladden Engineering	SITE LOCATION MAP	FIGURE 1
	Project Number: 544-23272	
	Report Number: 23-10-496	
	Date: October 10, 2023	

EXPLANATION OF MAP SYMBOLS

P-2 Percolation/ Infiltration Test Location



Christansen & Company (2023)

Sladden Engineering	TEST LOCATION PLAN		FIGURE
	Project Number:	544-23272	2
	Report Number:	23-10-496	
	Date:	October 10, 2023	

BORELOGS

SLADDEN ENGINEERING

BORE LOG

Drill Rig:	Mobile B-61	Date Drilled:	8/31/2023
Elevation:	370 Ft (MSL)	Boring No:	P-1

Sample	Blow Counts	Bulk Sample	Expansion Index	% Minus #200	% Moisture	Dry Density	Depth (Feet)	Graphic Lithology	Description
							2, 4, 6, 8		Silty Sand (SM); yellowish brown, dry, fine-grained.
							10		Silty Sand/Sandy Silt (SM/ML); yellowish brown, dry, , fine-grained.
							12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50		Terminated at ~ 10.0 Feet bgs. No Bedrock encountered. No Groundwater or Seepage Encountered. Borehole Cased with Perforated Pipe for Percolation Testing.

Completion Notes:

PROPOSED APARTMENT COMPLEX
30260 DATE PALM DRIVE, CATHEDRAL CITY

Project No: 544-23272
Report No: 23-10-496

SLADDEN ENGINEERING

BORE LOG

Drill Rig:	Mobile B-61	Date Drilled:	8/31/2023
Elevation:	370 Ft (MSL)	Boring No:	P-2

Sample	Blow Counts	Bulk Sample	Expansion Index	% Minus #200	% Moisture	Dry Density	Depth (Feet)	Graphic Lithology	Description
							2, 4		Silty Sand (SM); yellowish brown, dry, fine-grained.
							6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50		Terminated at ~ 5.0 Feet bgs. No Bedrock encountered. No Groundwater or Seepage Encountered. Borehole Cased with Perforated Pipe for Percolation Testing.

Completion Notes:

PROPOSED APARTMENT COMPLEX
30260 DATE PALM DRIVE, CATHEDRAL CITY

Project No: 544-23272
Report No: 23-10-496

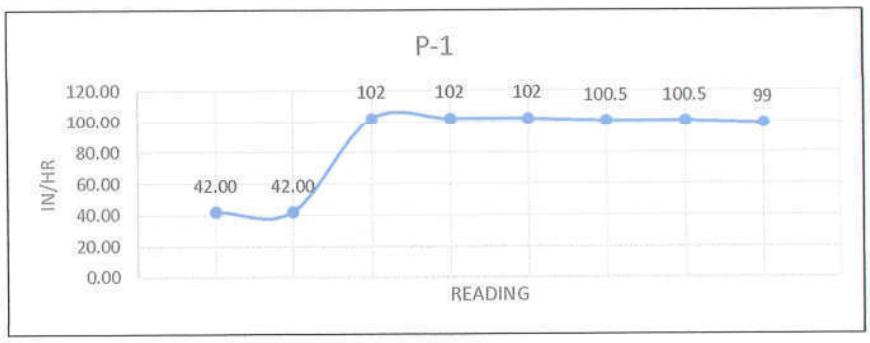
STORMWATER TESTING DATA SHEETS

STORMWATER PERCOLATION SHEET (LESS THAN 10 FT)

Project:	30260 Date Palm Drive, Cathedral City	Depth (ft):	10.00
Job No. :	544-23272	USCS Soil Class:	SM
Date:	9/13/13	Sandy Soil:	R.F.
Test Hole #:	P-1	Tested By:	R.F.

READING	TIME (min)	DEPTH (ft)	INITIAL W (in)	FINAL W (in)	ΔW (in)	IN/HR
A	25.00	10.00	20	2.50	17 4/8	42.00
B	25.00	10.00	20	2.50	17 4/8	42.00

READING	TIME (min)	DEPTH (ft)	INITIAL W (in)	FINAL W (in)	ΔW (in)	IN/HR
1	10.00	10.00	20	3.00	17	102
2	10.00	10.00	20	3.00	17	102
3	10.00	10.00	20	3.00	17	102
4	10.00	10.00	20	3.25	16 6/8	100.5
5	10.00	10.00	20	3.25	16 6/8	100.5
6	10.00	10.00	20	3.50	16 4/8	99



PERCOLATION RATE CONVERSION (PORCHET METHOD)

$$I_{t=} \quad \frac{\Delta H\ 60\ R}{\Delta t(r+2H_{avg})}$$

Δt =	10.00
D_f =	116.50
r =	4.00
D_0 =	100
D_t =	120.00
H_0 =	20
H_f =	3.5
ΔH =	16.50
H_{avg} =	11.75

Δt (minutes)
D_f (Final Depth to water)
r (hole radius in inches)
D_0 (Initial Depth to water)
D_t (Total Depth of test hole)
H_0 (initial height of water at selected time interval)

$$H_0 = D_t - D_0$$

H_f (final height of water at the selected time interval)

$$H_f = D_t - D_f$$

ΔH (change in head over the time interval)

$$\Delta H = H_0 - H_f$$

H_{avg} (average head height over the time interval)

$$H_{avg} = (H_0 + H_f)/2$$

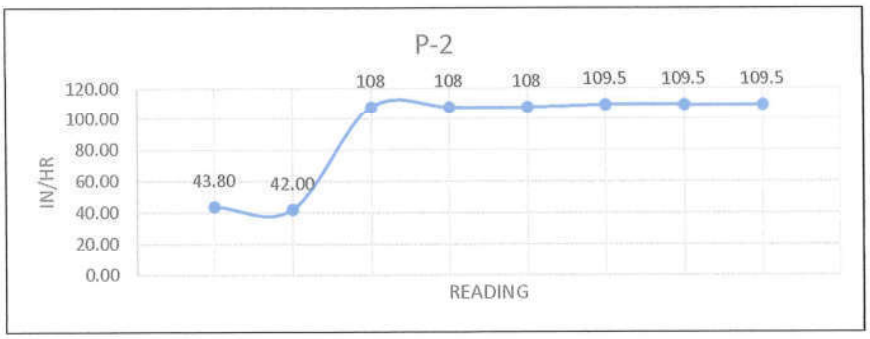
Field Rate:	99 in/hr
Infiltration Rate:	14.40 in/hr

STORMWATER PERCOLATION SHEET (LESS THAN 10 FT)

Project:	30260 Date Palm Drive, Cathedral City	Depth (ft):	5.00
Job No. :	544-23272	USCS Soil Class:	SM
Date:	9/13/13	Sandy Soil:	R.F.
Test Hole #:	P-2	Tested By:	R.F.

READING	TIME (min)	DEPTH (ft)	INITIAL W (in)	FINAL W (in)	ΔW (in)	IN/HR
A	25.00	5.00	20	1.75	18 2/8	43.80
B	25.00	5.00	20	2.50	17 4/8	42.00

READING	TIME (min)	DEPTH (ft)	INITIAL W (in)	FINAL W (in)	ΔW (in)	IN/HR
1	10.00	5.00	20	2.00	18	108
2	10.00	5.00	20	2.00	18	108
3	10.00	5.00	20	2.00	18	108
4	10.00	5.00	20	1.75	18 2/8	109.5
5	10.00	5.00	20	1.75	18 2/8	109.5
6	10.00	5.00	20	1.75	18 2/8	109.5



PERCOLATION RATE CONVERSION (PORCHET METHOD)

$$I_t = \frac{\Delta H\ 60\ R}{\Delta t(r+2H_{avg})}$$

Δt =	10.00
D_f =	58.25
r =	4.00
D_0 =	40
D_t =	60.00
H_0 =	20
H_f =	1.75
ΔH =	18.25
H_{avg} =	10.88

Δt (minutes)
D_f (Final Depth to water)
r (hole radius in inches)
D_0 (Initial Depth to water)
D_t (Total Depth of test hole)
H_0 (initial height of water at selected time interval)

$$H_0 = D_t - D_0$$

H_f (final height of water at the selected time interval)

$$H_f = D_t - D_f$$

ΔH (change in head over the time interval)

$$\Delta H = H_0 - H_f$$

H_{avg} (average head height over the time interval)

$$H_{avg} = (H_0 + H_f)/2$$

Field Rate: 109.5 in/hr
Infiltration Rate: 17.01 in/hr

HYDROLOGY MAP

PRE-DEVELOPMENT

IN THE CITY OF CATHEDRAL CITY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

PRELIMINARY PRE HYDROLOGY MAP
THE WREN

APN 670-110-043

XXXXX ROSEMOUNT AVENUE

BEING A PORTION OF THE NORTHWEST QUARTER OF SECTION 15, TOWNSHIP 4, SOUTH, RANGE 5, EAST, S.B.B.M.

IN THE CITY OF CATHEDRAL CITY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

PRELIMINARY PRE HYDROLOGY MAP
THE WREN

EXHIBIT DATE: OCTOBER 6, 2023

DATA TABLE

APPLICANT:	COACHELLA VALLEY COMMUNITY DEVELOPMENT GROUP, INC		
ADDRESS:	36101 BOB HOPE DRIVE, SUITE E5 RANCHO MIRAGE, CA 92270		
CONTACT:	STEFAN VOGEL	**TELEPHONE:**	(626) 277-6782
	email: (stefan@buildbys2.com		
LAND OWNER:	DESERT CARE, LLC		
ADDRESS:	31190 CALLE CATUGA CATHEDRAL CITY, CA 92234		
CONTACT:	STEFAN VOGEL	**TELEPHONE:**	(626) 277-6782
	email: (stefan@buildbys2.com		
EXHIBIT PREPARER:	CHRISTIANSEN & COMPANY		
ADDRESS:	5225 CANYON CREST DRIVE, SUITE 231 RIVERSIDE, CA 92507		
CONTACT:	KEITH CHRISTIANSEN	**TELEPHONE:**	(951)329-6713
	email: keith@ccocivil.com		
ARCHITECT:	HUMPHREYS & PARTNERS ARCHITECTS, LP		
ADDRESS:	7330 TRADITIONAL STREET COSTA MESA, CA 92626		
CONTACT:	VELY ZAJECI	**TELEPHONE:**	(949)955-4500
	email: vely@humphreys.com		
LANDSCAPE ARCHITECT:	JGA LANDSCAPE ARCHITECT		
ADDRESS:	19866 COVENTRY LANE HUNTINGTON BEACH, CA 92646		
CONTACT:	JIM SHROPE	**TELEPHONE:**	(760)615-9873
	email: jimshrope@outlook.com		
GEOTECHNICAL:	LANDMARK CONSULTANTS, INC.		
ADDRESS:	77-948 WILDCAT DRIVE PALM DESERT, CA 92211		
CONTACT:	GREG M. CHANDKA	**TELEPHONE:**	(760)360-0665
	email: gchandka@lmcinc@cox.com		
GEO/INFILTRATION:	SLADDEN ENGINEERING		
ADDRESS:	45290 GOLF CENTER PARKWAY INDIO, CA 92201		
CONTACT:	BRETT ANDERSON	**TELEPHONE:**	(760)863-0713
	email: banderson@sladdenengineering.com		
SOURCE OF TOPOGRAPHY:	INLAND AERIAL SURVEYS, INC.		
ADDRESS:	7117 ARLINGTON AVENUE, SUITE "A" RIVERSIDE, CA 92503		
DATE OF TOPOGRAPHY:	JULY 11, 2023	**TELEPHONE:**	(951) 687-4252

ASSESSOR'S PARCEL NUMBER: 670-110-043

PROPOSED IMPROVEMENT SCHEDULE: SCHEDULE "A"

LEGAL DESCRIPTION: **PARCEL 1 OF PARCEL MAP NO. 27350, IN THE CITY OF CATHEDRAL CITY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, ON FILE IN BOOK 174, PAGES 98 AND 99 OF PARCEL MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA, EXCEPTING THEREFROM THAT PORTION WHICH LIES WITHIN THE BOUNDARIES OF PARCEL MAP NO. 30063 IN BOOK 218, PAGES 43-44, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA, SAID LAND BEING SHOWN AS DESIGNATED REMAINDER ON SAID PARCEL MAP NO. 34063.**

EXISTING ZONING:	PCC (PLANNED COMMUNITY COMMERCIAL)
PROPOSED ZONING:	R3 (MULTIPLE FAMILY RESIDENTIAL)
EXISTING GENERAL PLAN LAND USE:	CG (GENERAL COMMERCIAL)
PROPOSED GENERAL PLAN LAND USE:	RM (MEDIUM DENSITY RESIDENTIAL)

AREAS:

	ACREAGE:	OWNER / MAINTENANCE ENTITY:
EXISTING GROSS ACREAGE:	10.48 ACRES	
PROPOSED NET ACREAGE:	10.48 ACRES	PRIVATE
BUILDINGS (138724 SF)	3.18 ACRES	PRIVATE
ASPHALT (111774 SF)	2.57 ACRES	PRIVATE
CONCRETE (34951 SF)	0.80 ACRES	PRIVATE
LANDSCAPE (125947 SF)	2.89 ACRES	PRIVATE
RETENTION BASIN (45113 SF)	1.04 ACRES	PRIVATE

EXISTING EASEMENT NOTES:

1. AN EASEMENT FOR STREET PURPOSES IN FAVOR OF THE COUNTY OF SAN BERNARDINO AS RECORDED IN BOOK 2825, AT PAGE 265, DATED 1/1/61, REC. OF RIVERSIDE COUNTY, CA.
2. AN EASEMENT FOR PUBLIC HIGHWAY AND PUBLIC UTILITY PURPOSES IN FAVOR OF THE CITY OF CATHEDRAL CITY AS RECORDED PER INST. NO. 188899 , DATED 6/6/91, REC. OF RIVERSIDE COUNTY, CA.

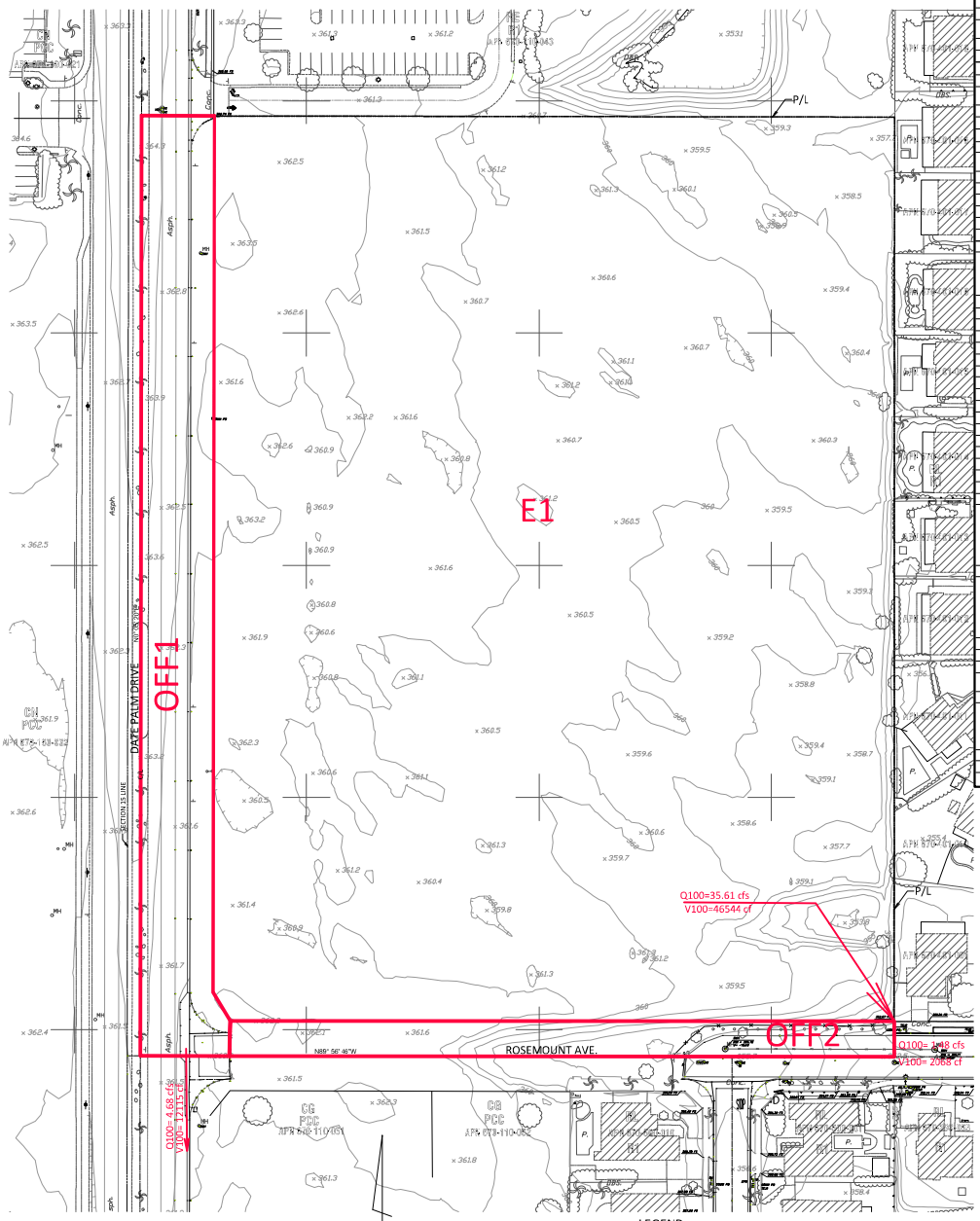
UTILITY PURVEYORS:

WATER -	COACHELLA VALLEY WATER DISTRICT	PH: 760-398-2651
SEWER -	COACHELLA VALLEY WATER DISTRICT	PH: 760-398-2651
ELECTRIC -	SOUTHERN CALIFORNIA EDISON	PH: 760-202-4252
GAS -	SOUTHERN CALIFORNIA GAS COMPANY	PH: 800-427-2200
TELEPHONE -	FRONTIER	PH: 760-416-1726
CABLE -	SPECTRUM	PH: 760-346-3714

LIQUEFACTION:	NO LIQUEFACTION AREA
FEMA FLOOD ZONE DESIGNATION:	ZONE X (FLOOD HAZARD IS UNDETERMINED, BUT POSSIBLE) PER FIRM MAP NO. 06065C1537G / DATED: AUGUST 28, 2008

NOTE:
1. THIS MAP INCLUDES THE ENTIRE CONTIGUOUS OWNERSHIP OF THE LAND DIVIDER.
2. THERE ARE NO KNOWN WELLS ON PROPERTY OR WITHIN 200 FEET OF PROPERTY.
3. THERE ARE NO EXISTING DWELLINGS, BUILDINGS, OR OTHER STRUCTURES KNOWN ON THE PROPERTY.
4. SUBDIVISION WILL SHOW COMPLIANCE WITH CITY/COUNTY WATER QUALITY MANAGEMENT PER A SEPARATE WQMP REPORT.

REVISIONS:	NO.	DATE:	DESCRIPTION:



HYDRAULIC DATA

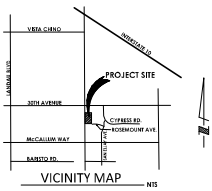
TRIBUTARY	AREA (AC.)	IMP%	Q100 (cfs)	V100 (cf)
E1	10.48	5.0%	35.61	46544
OFF1	1.18	90.0%	4.68	12155
OFF2	0.42	25.0%	1.48	2068

LEGEND

BTM	INDICATES BOTTOM
L.F.	INDICATE LINEAR FEET
FL	INDICATES FLOWLINE
TC	INDICATES TOP OF CURB
TP	INDICATES TOP OF PAVEMENT
INV.	INDICATES INVERT ELEVATION
TG	INDICATES TOP OF GRATE
EG	INDICATES EXISTING GRADE
FS	INDICATES FINISHED HARD SURFACE
FG	INDICATES FINISHED DIRT
P/L	INDICATES PROPERTY LINE
TF	INDICATES TOP OF FOOTING
TW	INDICATES TOP OF WALL
P	INDICATES PLANTER
	INDICATES BLOCK WALL
	INDICATES DECORATIVE CONCRETE PER LANDSCAPE PLAN
	INDICATES PROPOSED ASPHALT
150	INDICATES EXISTING CONTOUR
50	INDICATES PROPOSED CONTOUR

SCALE: 1"= 40'

0 20 40 80 120 160



VICINITY MAP

NTS

DIGALERT
DIAL BEFORE YOU DIG
TWO WORKING DAYS BEFORE YOU DIG
TOLL FREE 811
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

PRIVATE PROPERTY PRINTING NOTE:
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"AS BUILT"

REVISION	CORRECTED BY	APPROVED BY	DATE APPROVED	DATE DATE

REGISTERED PROFESSIONAL ENGINEER
KEITH A. CHRISTIANSEN
No. 50083
Exp. 12-31-24
CIVIL
STATE OF CALIFORNIA

BENCHMARK: DATE PALM/RAMON 110
ELEV. 363.23
LOCATION: BENCHMARK: FD. CATHEDRAL CITY BRONZE DISC, IN CONCRETE MONUMENT AT THE NE COR. OF DATE PALM DR. & RAMON RD. APPROX. 20 FEET FROM EDGES OF PAVEMENT.

PREPARED UNDER THE DIRECT SUPERVISION OF:
KEITH A. CHRISTIANSEN R.C.E. 50083
DATE

5225 Canyon Crest Drive, Ste 231
Riverside, CA 92507
PH: 951-329-6713 Fax: 951-328-4610
www.ccocivil.com
Christiansen & Company
Civil Engineering • Planning • Surveying
Est. 1997

DESIGN BY: K.A.C.
DRAWN BY: C.A.C.
CHECKED BY: K.A.C.

CITY OF CATHEDRAL CITY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA
PRELIMINARY PRE HYDROLOGY MAP
THE WREN
APN 670-110-043
XXXXX ROSEMOUNT AVENUE
BEING A PORTION OF THE NORTHWEST QUARTER OF SECTION 15, TOWNSHIP 4, SOUTH, RANGE 5, EAST, S.B.B.M.

FILE NO.
DWG. NO.
SHEET 1 OF 1 SHEETS

POST-DEVELOPMENT

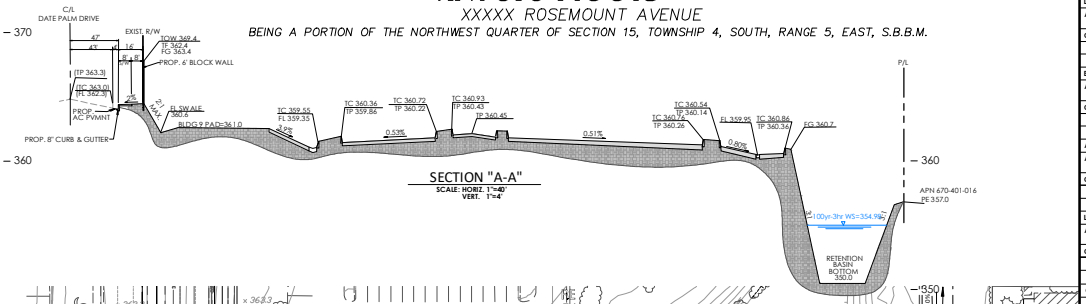
IN THE CITY OF CATHEDRAL CITY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

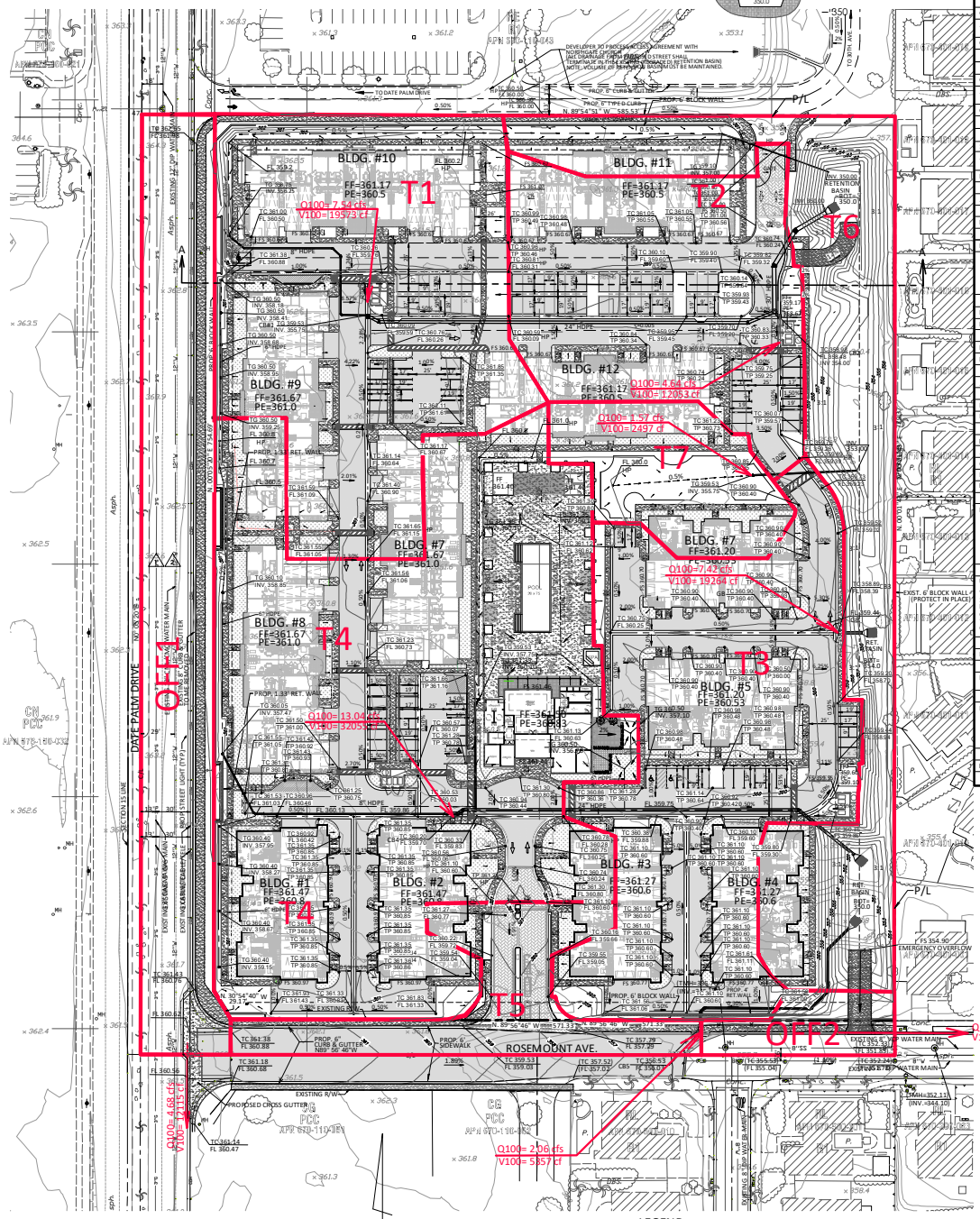
PRELIMINARY POST HYDROLOGY MAP THE WREN

APN 670-110-043

XXXXX ROSEMOUNT AVENUE

BEING A PORTION OF THE NORTHWEST QUARTER OF SECTION 15, TOWNSHIP 4, SOUTH, RANGE 5, EAST, S.B.B.M.





IN THE CITY OF CATHEDRAL CITY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

PRELIMINARY POST HYDROLOGY MAP THE WREN

EXHIBIT DATE: MARCH 4, 2024

DATA TABLE

APPLICANT:	COACHELLA VALLEY COMMUNITY DEELOPMENT GROUP, INC		
ADDRESS:	36101 BOB HOPE DRIVE, SUITE E5 RANCHO MIRAGE, CA 92270		
CONTACT:	STEFAN VOGEL	TELEPHONE:	(626) 277-6782
	email: stefan@buildbys2.com		
LAND OWNER:	DESERT CARE, LLC		
ADDRESS:	31190 CALLE CAYUGA CATHEDRAL CITY, CA 92234		
CONTACT:	STEFAN VOGEL	TELEPHONE:	(626) 277-6782
	email: stefan@buildbys2.com		
EXHIBIT PREPARER:	CHRISTIANSEN & COMPANY		
ADDRESS:	5225 CANYON CREST DRIVE, SUITE 251 RIVERSIDE, CA 92507		
CONTACT:	KEITH CHRISTIANSEN	TELEPHONE:	(951)323-4713
	email: keith@ccocivil.com		
ARCHITECT:	HUMPHREYS & PARTNERS ARCHITECTS, LP		
ADDRESS:	2350 BRISTOL STREET COSTA MESA, CA 92626		
CONTACT:	VELY ZAJEC	TELEPHONE:	(949)955-4500
	email: vely@humphreys.com		
LANDSCAPE ARCHITECT:	JSA LANDSCAPE ARCHITECT		
ADDRESS:	19846 COVENTRY LANE HUNTINGTON BEACH, CA 92646		
CONTACT:	JIM SHROPE	TELEPHONE:	(760)610-9873
	email: jshrope@outlook.com		
GEOTECHNICAL:	LANDMARK CONSULTANTS, INC.		
ADDRESS:	77-948 WILDCAT DRIVE PALM DESERT, CA 92211		
CONTACT:	GREG M. CHANDRA	TELEPHONE:	(760)360-0665
	email: gchandra@landmark-ca.com		
GEO/INFILTRATION:	SLADDEN ENGINEERING		
ADDRESS:	45090 GOLF CENTER PARKWAY INDIO, CA 92201		
CONTACT:	BRETT ANDERSON	TELEPHONE:	(760)863-0713
	email: banderson@sladdenengineering.com		
SOURCE OF TOPOGRAPHY:	INLAND AERIAL SURVEYS, INC.		
ADDRESS:	7117 ARLINGTON AVENUE, SUITE "A" RIVERSIDE, CA 92503		
DATE OF TOPOGRAPHY:	JULY 11, 2023	TELEPHONE:	(951) 687-4252

ASSESSOR'S PARCEL NUMBER: 670-110-043

PROPOSED IMPROVEMENT SCHEDULE: SCHEDULE "A"

LEGAL DESCRIPTION: PARCEL 1 OF PARCEL MAP NO. 27302, IN THE CITY OF CATHEDRAL CITY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, ON FILE IN BOOK 174, PAGES 95 AND 96 OF PARCEL MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA, EXCEPTING THEREFROM THAT PORTION WHICH LIES WITHIN THE BOUNDARIES OF PARCEL MAP NO. 34063 IN BOOK 218, PAGES 43~44, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA, SAID LAND BEING SHOWN AS DESIGNATED REMAINDER ON SAID PARCEL MAP NO. 34063.

EXISTING ZONING:	PCC (PLANNED COMMUNITY COMMERCIAL)
PROPOSED ZONING:	R3 (MULTIPLE FAMILY RESIDENTIAL)
EXISTING GENERAL PLAN LAND USE:	CG (GENERAL COMMERCIAL)
PROPOSED GENERAL PLAN LAND USE:	RMH (MEDIUM HIGH DENSITY RESIDENTIAL)

AREAS:

	ACREAGE:	OWNER / MAINTENANCE ENTITY:
EXISTING GROSS ACREAGE:	10.48 ACRES	
PROPOSED NET ACREAGE:	10.48 ACRES	PRIVATE
BUILDINGS (138724 SF)	3.18 ACRES	PRIVATE
ASPHALT (117745 SF)	2.57 ACRES	PRIVATE
CONCRETE (34951 SF)	0.80 ACRES	PRIVATE
LANDSCAPE (125947 SF)	2.89 ACRES	PRIVATE
RETENTION BASIN (45113 SF)	1.04 ACRES	PRIVATE

EXISTING EASEMENT NOTES:

1. AN EASEMENT FOR STREET PURPOSES IN FAVOR OF THE COUNTY OF SAN BERNARDINO AS RECORDED IN BOOK 2825 AT PAGE 265, DATED 1/1/61, REC. OF RIVERSIDE COUNTY, CA.
2. AN EASEMENT FOR PUBLIC HIGHWAY AND PUBLIC UTILITY PURPOSED IN FAVOR OF THE CITY OF CATHEDRAL CITY AS RECORDED PER INST. NO. 188899, DATED 6/6/91, REC. OF RIVERSIDE COUNTY, CA.

UTILITY PURVEYORS:

WATER -	COACHELLA VALLEY WATER DISTRICT	PH: 760-398-2651
SEWER -	COACHELLA VALLEY WATER DISTRICT	PH: 760-398-2651
ELECTRIC -	SOUTHERN CALIFORNIA EDISON	PH: 760-202-4252
GAS -	SOUTHERN CALIFORNIA GAS COMPANY	PH: 800-427-2200
TELEPHONE -	FRONTIER	PH: 760-864-1726
CABLE -	SPECTRUM	PH: 760-346-3714

LIQUEFACTION: NO LIQUEFACTION AREA

FEMA FLOOD ZONE DESIGNATION: ZONE X (FLOOD HAZARD IS UNDETERMINED, BUT POSSIBLE) PER FIRM MAP NO. 06065C1579G / DATED: AUGUST 28, 2008

NOTE:
1. THIS MAP INCLUDES THE ENTIRE CONTIGUOUS OWNERSHIP OF THE LAND DIVIDER.
2. THERE ARE NO KNOWN WELLS ON PROPERTY OR WITHIN 200 FEET OF PROPERTY.
3. THERE ARE NO EXISTING DWELLINGS, BUILDINGS, OR OTHER STRUCTURES KNOWN ON THIS PROPERTY.
4. SUBDIVISION WILL SHOW COMPLIANCE WITH CITY/COUNTY WATER QUALITY MANAGEMENT PER A SEPARATE WQMP REPORT.

REVISIONS:	NO.	DATE:	DESCRIPTION:

HYDRAULIC DATA

TRIBUTARY	AREA (AC.)	IMP%	Q100 (cfs)	V100 (cf)
T1(C8#1)	1.90	90.0%	7.54	19573
T2(C8#2)	1.17	90.0%	4.64	12053
T3(C8#3)	1.87	90.0%	7.42	19264
T4(C8#4)	3.30	87.3%	13.04	32055
T5(C8#5)	0.52	90.0%	2.06	5357
T6	1.54	5.0%	5.23	6838
T7	0.42	57.0%	1.57	2497
ENTIRE PROJECT	10.48	67.9%	40.04	70427
OFF1	1.18	90.0%	4.68	12155
OFF2	0.21	55.5%	0.78	1227

DIGALERT — DIAL BEFORE YOU DIG — TWO WORKING DAYS BEFORE YOU DIG — TOLL FREE 811 — A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

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REVISION	CORRECTED BY	DATE	APPROVED BY	DATE

SCALE: 1" = 40'

REGISTERED PROFESSIONAL ENGINEER — KEITH A. CHRISTIANSEN — No. 50083 — STATE OF CALIFORNIA

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PREPARED UNDER THE DIRECT SUPERVISION OF: KEITH A. CHRISTIANSEN — R.C.E. 50083 — DATE

Christiansen & Company — Land Development · Design · Engineering — P.C. 4917 — 5225 Canyon Crest Drive, Ste 251, Riverside, California 92507, Ph: 951-323-4713 Fax: 951-688-96 50, e-mail: keith@ccocivil.com

DESIGN BY: K.A.C. — DRAWN BY: C.A.C. — CHECKED BY: K.A.C.

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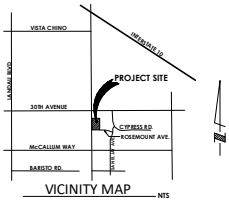

VICINITY MAP — NTS