CORAL MOUNTAIN RESORT

DRAFT EIR

SCH# 2021020310

TECHNICAL APPENDICES

Preliminary Hydrology Report
Appendix J.1

June 2021

PRELIMINARY HYDROLOGY REPORT

For Property Located In
A Portion of Sections 27 & 28, Township 6 South, Range 7 East, SBM
La Quinta, California

CORAL MOUNTAIN
Tentative Tract Map 37815

May, 2020

Prepared for:

CM Wave Development, L.L.C.

2440 Junction Place, Suite 200
Boulder, CO 80301

JN: 2553

MSA CONSULTING, INC.
> PLANNING > CIVIL ENGINEERING > LAND SURVEYING
34200 Bob Hope Drive, Rancho Mirage, CA 92270
760.320.9811 **msaconsultinginc.com**

PRELIMINARY HYDROLOGY REPORT

For Property Located In
A Portion of Sections 27 & 28, Township 6 South, Range 7 East, SBM
La Quinta, California

CORAL MOUNTAIN
Tentative Tract Map 37815

May, 2020

Prepared for:

CM Wave Development, L.L.C.

2440 Junction Place, Suite 200
Boulder, CO 80301

JN: 2553

MSA CONSULTING, INC.
> PLANNING > CIVIL ENGINEERING > LAND SURVEYING
34200 Bob Hope Drive, Rancho Mirage, CA 92270
760.320.9811 **msaconsultinginc.com**

TABLE OF CONTENTS

LIST OF APPENDICES

PROJECT DESCRIPTION & LOCATION

The project is proposed to consist of residential structures, a multi-story hotel complex, a wave lagoon and various outdoor amenities. The project site comprises approximately 377 acres with an additional 75 acres of offsite tributary area. The subject property is located on the southwest corner of Avenue 58 and Madison Street in the City of La Quinta and is situated in a portion of Sections 27 & 28, Township 6 South, Range 7 East, SBM. Existing dikes 2 & 4 along with the Coral Mountains border the property to the west and south. A vicinity map obtained from the Riverside TLMA website is included as Appendix A.

EXISTING SITE CONDITIONS

Flood Rate Map

The proposed area is covered by FIRM Panel Number 06065C2900G, effective date of August 28, 2008, which indicates the subject property lies within Zone X (Shaded), defined *as "Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood. Insurance purchase is not required in these areas.*" Refer to the attached NFIP Flood Insurance Rate Map in Appendix B.

Existing Topography

The property is generally vacant and undeveloped with CVWD irrigation mains, numerous dirt road and hiking trails. Various desert vegetation is found throughout the site.
The site is bounded to the east by Madison Street, to the north by 58th Avenue, existing levees and the Coral Mountains to the west and south, and 60th Avenue to the south. Groundwater was encountered at a depth of 47 feet for two of the borings. Site drainage appears to be controlled via sheet flow and surface infiltration generally from west to east.

PROPOSED FLOOD CONTROL REQUIREMENTS

The purpose of this report is to provide preliminary basin analyses for the subject property. The drainage requirements for this project fall under the jurisdiction of the City of La Quinta. Storm flows are conveyed through the site via street flow to localized low points. All proposed pad elevations are set a minimum of 1-foot above the high-side street elevation.

HYDROLOGY ANALYSIS DESIGN CRITERIA

Storm runoff volumes for the 100-year event were obtained utilizing the Synthetic Unit Hydrograph as described in the *RCFC&WCD Hydrology Manual*. The hydrologic data used for the calculations are as follows:

Hydrologic Soil Group

The existing soil is categorized primarily as hydrologic soil groups "A" and "B" for the majority of the subject property with soil group "D" being assigned to the Coral Mountain rock out-cropping as shown per the attached National Cooperative Soil Survey exhibits in Appendix C. For the purposes of this report, Soil Group 'B' was assigned to the analyses with the exception of the rock out-cropping.

Soil Group 'B' is defined by RCFCD as – "soils having moderate infiltration rates when thoroughly wetted and consisting chiefly of moderately deep to deep, moderately well to well drained soils with moderately fine to moderately coarse textures. These soils have a moderate rate of water transmission".

Soil Group 'D' is defined by RCFCD as – "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".

Antecedent Moisture Condition

AMC II – Moderate runoff potential, an intermediate condition. Per RCFC & WCD Hydrology Manual (Dated: April 1978): "For the purposes of design hydrology using District methods, AMC II should normally be assumed for both the 10-year and 100-year frequency storm".

Land Use Classifications and Runoff Index Numbers

Runoff Index Numbers were obtained from RCFCD Plates E6.1, E6.2 and E6.3 are summarized below:

Commercial or Residential Landscaping (Soil Group B)	56
Rock Out-cropping (Soil Group D)	93
Existing Open Brush – Poor	76

Percent of Impervious Cover (RCFCD Plate E-6.3):

Rock Out-cropping	5%
Existing Open Brush – Poor Condition	5%
Impervious Areas (Buildings, Pavement, Hardscape)	100%
Water Features	100%
Commercial Areas	90%
SFR – Low Density	30%
SFR – Medium Density	40%
SFR – High Density	50%
Open Space (Landscaping & Retention Basins)	10%

Low Loss Rates: 85%

Precipitation Frequency Estimates

Precipitation depths were obtained from NOAA Atlas 14:

2 Year - 1 Hour Precipitation:	0.358	inches
10 Year – 1 Hour Precipitation:	0.711	inches
10 Year –3 Hour Precipitation:	1.06	inches
10 Year – 6 Hour Precipitation:	1.36	inches
10 Year – 24 Hour Precipitation:	2.23	inches
100 Year – 1 Hour Precipitation:	1.44	inches
100 Year – 3 Hour Precipitation:	2.14	inches
100 Year - 6 Hour Precipitation	2.76	inches
100 Year – 24 Hour Precipitation	4.41	inches

Slope of Intensity Duration Curve: 0.52

See Appendix D for the NOAA Atlas 14 Point Precipitation Frequency Estimates and respective RCFCD Plates.

Site Infiltration

No percolation tests have been performed at the current time, therefore, for the purposes of this report a design percolation rate of 1 in/hr was used in the basin sizing calculations. Prior to the final design submittal, percolation tests will be performed, and should the 1 inch/hour rate not be achieved, Maxwell drywells will be proposed to de-water the basins within the required time period as specified by Riverside County BMP requirements.

Proposed Land Use Summaries

Land uses for each of the drainage areas were analyzed based on the preliminary site plan. In addition, a reconciliation was performed to verify the hydrologic boundary corresponds to the existing property boundary accounting for any differences. Land use worksheets are included in Appendix E.

SUMMARY of SYNTHETIC UNIT (SHORTCUT METHOD) ANALYSES

The proposed retention basins for the associated drainage areas were sized to retain the 100-year controlling storm event flood volumes and were analyzed utilizing the RCFCD Synthetic Unit (Shortcut Method). Per the manual, for areas of less than 100 – 200 acres, and lag times less than 7 – 8 minutes, the shortcut method is applicable. This method assumes that in a small watershed, response time to effective rainfall is very short. Therefore, runoff rates for a given period of time can be assumed to be directly proportional to effective rain. This method yields only approximate results (on the conservative side) and should be used only for watersheds meeting the criteria noted above.

It should be noted that the peak flow for the 1-hour storm is not necessarily representative for peak flow. Per RCFCD, peak discharges from the 3-hour storm should normally compare well with rational peaks.

The synthetic unit worksheets are included in Appendix F and are summarized on sheets 1 and 2 of the hydrology exhibits in Appendix H.

Drainage Area 'A'

This area is located on the westerly portion of the project and consists primarily of Dike Number 2, the Coral Mountains, a portion of Dike Number 4, the south-westerly portion of Planning Area IX and Planning Area X. Storm runoff (approximately 18.4 acre-feet) from this drainage sub-area is directed to the wave lagoon which provides over 73 acre-feet of retention. Shallow basins are proposed to retain 10-year storm flows from drainage areas 'A1' & 'A3'. During the final design process, once a more detailed land plan is provided, first flush storm flows from drainage area 'A2' will be captured and conveyed to an underground storage area prior to being discharged into the lagoon.

Drainage Area 'B'

Storm runoff of 4.2 acre-feet from this drainage area will be retained within the proposed lake.

Drainage Area 'C'

Storm runoff (roughly 1 acre-foot) for this drainage area will be conveyed to and retained in a temporary retention basin located in Drainage Area 'F'.

Drainage Area 'D'

Storm runoff of approximately 3.1 acre-feet for this drainage area will be conveyed to and retained in the proposed lake located within the "Farm".

Drainage Area 'E'

Storm runoff of approximately 5.7 acre-feet for this drainage area will be conveyed to and retained in a a large basin located in along the southerly portion of Planning Area VIII (Area 5). This basin will also provide a discharge location for the lagoon.

Drainage Area 'F'

This area is a future low-density residential development. Once developed it is anticipated approximately 4.0 acre-feet of retention will be required in addition to the 1 acre-foot basin required for Drainage Area 'C'.

Drainage Area 'G'

This area is a future low-density residential development. Once developed it is anticipated approximately 3.2 acre-feet of retention will be required.

Drainage Area 'H'

This area is a future commercial development. Once developed it is anticipated approximately 1.6 acre-feet of retention will be required.

Drainage Area 'I'

This area is a future low-density residential development. Once developed it is anticipated approximately 4.7 acre-feet of retention will be required.

Drainage Area 'Off-Site North'

This area consists of the south half of Avenue 58 and the northerly west half of Madison Street. The storm flows are captured by an existing catch basin and discharged into an existing basin which will remain when Drainage Area 'I' is developed.

Drainage Area 'Off-Site South'

This area consists of the north half of Avenue 60 and the southerly west half of Madison Street. The storm flows are captured by an existing catch basin and discharged into an existing basin which will remain when Drainage Area 'E' is developed.

PRELIMINARY WQMP ANALYSES

Preliminary design volume and flow for BMP measures were based on Worksheets 1 and 2 from the Riverside County – Whitewater River Region Water Quality Management Plan. Impervious area for the drainage sub-areas are derived from the preliminary land use worksheets. A summary of the BMP results is presented on sheet 1 of the Hydrology Exhibits in Appendix H with the worksheets being included as Appendix G.

RESULTS AND CONCLUSIONS

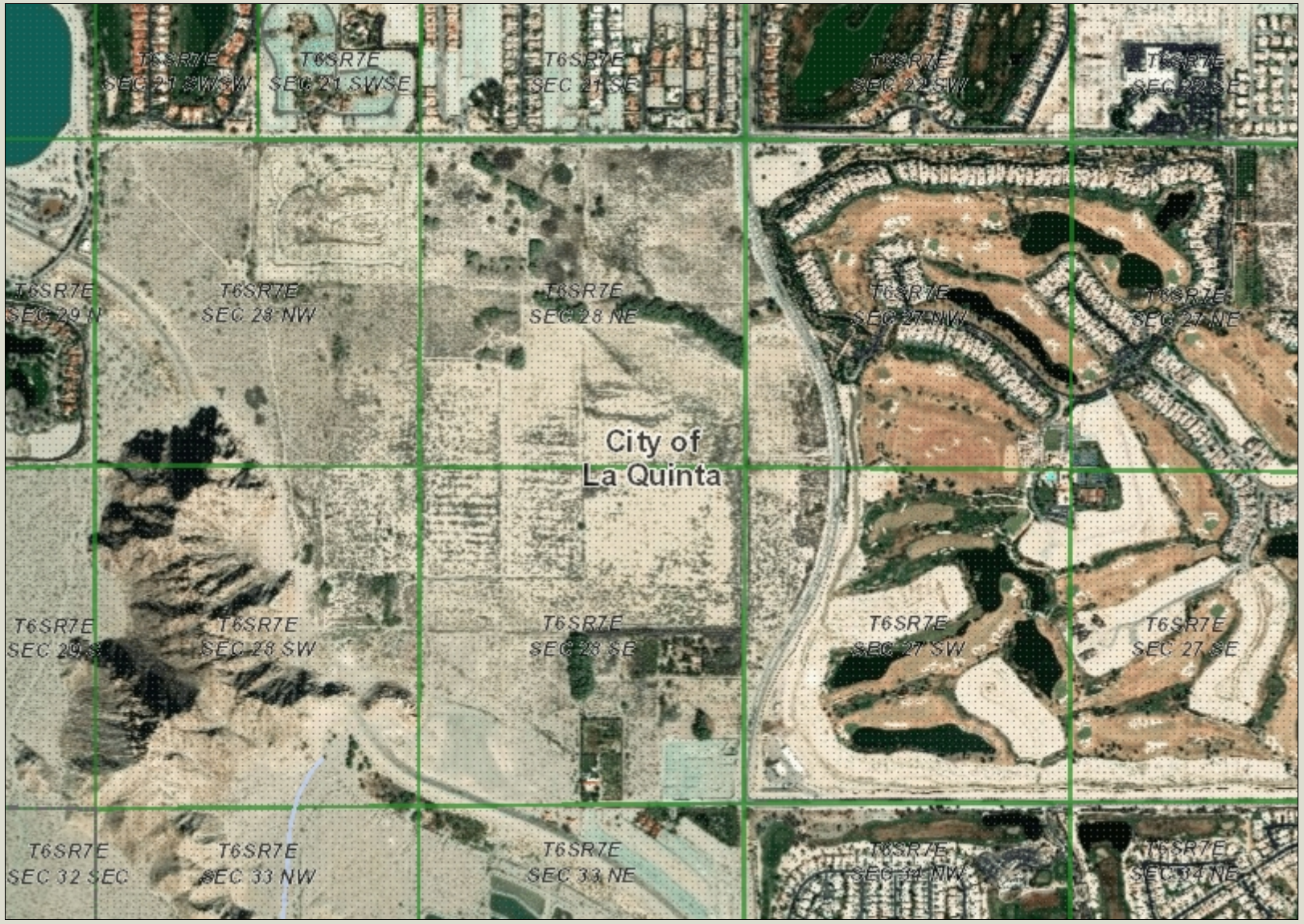
As the above narrative and appendices confirm, the proposed retention basins are sufficiently sized to contain the flood volume from the controlling 100-year storm. During the final design process, a more detailed hydrologic report will be submitted to the City for review and approval.

Appendix A

Riverside County TLMA Vicinity Map

CORAL MOUNTAIN

MSA Job No. 2553



Legend

- Blueline Streams
- Survey
- City Areas
- World Street Map

RCIT

0 1,505 3,009 Feet

IMPORTANT Maps and data are to be used for reference purposes only. Map features are approximate, and are not necessarily accurate to surveying or engineering standards. The County of Riverside makes no warranty or guarantee as to the content (the source is often third party), accuracy, timeliness, or completeness of any of the data provided, and assumes no legal responsibility for the information contained on this map. Any use of this product with respect to accuracy and precision shall be the sole responsibility of the user.

REPORT PRINTED ON... 9/18/2019 9:08:13 AM

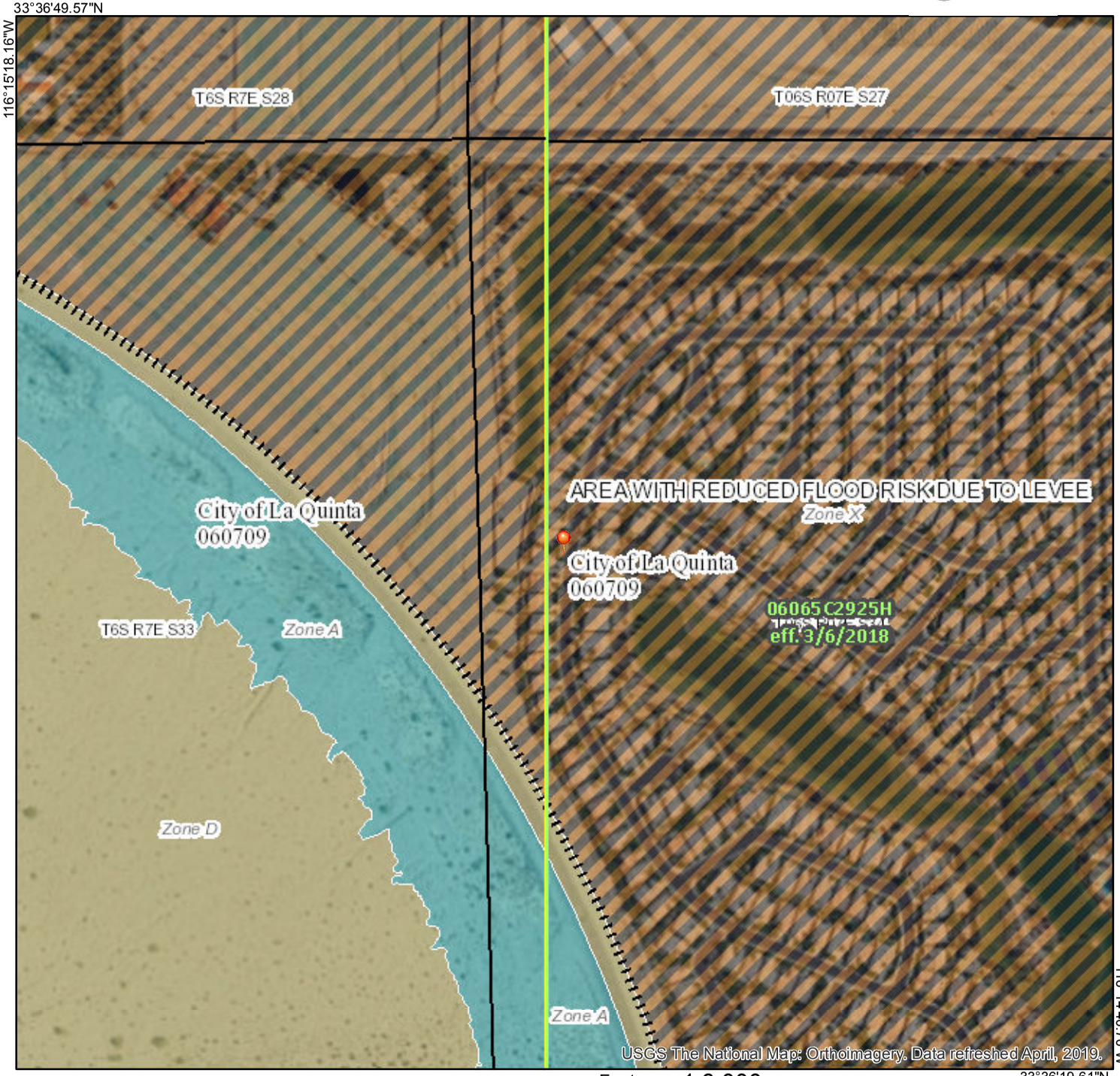
Notes

Latitude: 33.6202
Longitude: -116.2562

Appendix B
NFIP Flood Insurance Rate Map

National Flood Hazard Layer FIRMette

FEMA



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN — Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 — Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- 513 — Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 9/18/2019 at 12:24:12 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

National Flood Hazard Layer FIRMette

FEMA

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 9/18/2019 at 12:32:40 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

National Flood Hazard Layer FIRMette

FEMA

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN — Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 — Cross Sections with 1% Annual Chance Water Surface Elevation
- Coastal Transect
- 513 — Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

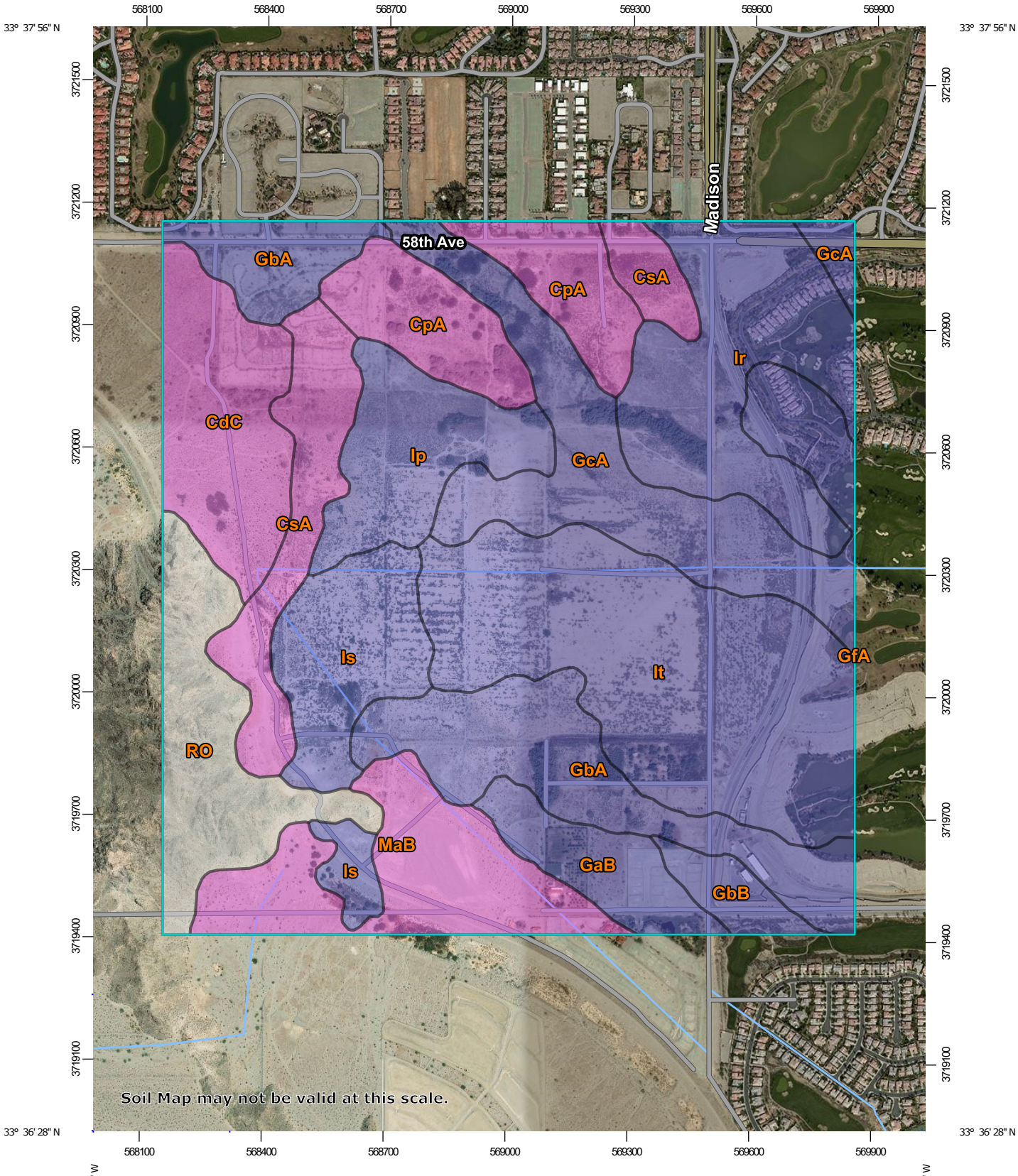
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 9/18/2019 at 12:29:49 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Appendix C
USDA NCSS Hydrologic Soils Map

Hydrologic Soil Group—Riverside County, Coachella Valley Area, California
(THE WAVE)



Map Scale: 1:13,200 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 150 300 600 900

Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

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 10, Sep 13, 2018

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

Date(s) aerial images were photographed: Dec 31, 2009—Oct 14, 2017

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
CdC	Carsitas gravelly sand, 0 to 9 percent slopes	A	50.9	6.9%
CpA	Coachella fine sand, 0 to 2 percent slopes	A	50.2	6.8%
CsA	Coachella fine sandy loam, 0 to 2 percent slopes	A	46.2	6.3%
GaB	Gilman loamy fine sand, 0 to 5 percent slopes	B	23.4	3.2%
GbA	Gilman fine sandy loam, 0 to 2 percent slopes	B	78.0	10.6%
GbB	Gilman fine sandy loam, 2 to 5 percent slopes	B	10.7	1.5%
GcA	Gilman fine sandy loam, wet, 0 to 2 percent slopes	B	89.1	12.1%
GfA	Gilman silt loam, wet, 0 to 2 percent slopes	B	0.0	0.0%
Ip	Indio fine sandy loam	B	40.7	5.5%
Ir	Indio fine sandy loam, wet	B	70.9	9.6%
Is	Indio very fine sandy loam	B	46.3	6.3%
It	Indio very fine sandy loam, wet	B	127.7	17.3%
MaB	Myoma fine sand, 0 to 5 percent slopes	A	55.0	7.4%
RO	Rock outcrop		49.8	6.7%
Totals for Area of Interest			**739.0**	**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

Appendix D

NOAA Atlas 14

RCFCD Reference Plates

NOAA Atlas 14, Volume 6, Version 2
Location name: La Quinta, California, USA*
Latitude: 33.6202°, Longitude: -116.2562°
Elevation: -31.22 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	**0.066** (0.056-0.080)	**0.103** (0.086-0.124)	**0.156** (0.130-0.189)	**0.203** (0.168-0.249)	**0.277** (0.221-0.350)	**0.340** (0.265-0.440)	**0.412** (0.313-0.547)	**0.494** (0.365-0.675)	**0.622** (0.440-0.887)	**0.737** (0.504-1.09)
10-min	**0.095** (0.080-0.115)	**0.147** (0.123-0.178)	**0.223** (0.186-0.271)	**0.292** (0.241-0.357)	**0.397** (0.316-0.502)	**0.488** (0.380-0.631)	**0.590** (0.449-0.783)	**0.708** (0.524-0.967)	**0.891** (0.631-1.27)	**1.06** (0.722-1.56)
15-min	**0.115** (0.096-0.139)	**0.178** (0.148-0.215)	**0.270** (0.225-0.327)	**0.353** (0.291-0.432)	**0.480** (0.382-0.607)	**0.590** (0.460-0.763)	**0.714** (0.543-0.947)	**0.856** (0.633-1.17)	**1.08** (0.763-1.54)	**1.28** (0.873-1.89)
30-min	**0.165** (0.138-0.200)	**0.255** (0.213-0.309)	**0.387** (0.322-0.470)	**0.506** (0.418-0.619)	**0.688** (0.549-0.872)	**0.846** (0.660-1.10)	**1.02** (0.780-1.36)	**1.23** (0.909-1.68)	**1.55** (1.10-2.21)	**1.83** (1.25-2.71)
60-min	**0.232** (0.194-0.280)	**0.358** (0.299-0.433)	**0.543** (0.452-0.660)	**0.711** (0.586-0.870)	**0.966** (0.771-1.22)	**1.19** (0.927-1.54)	**1.44** (1.10-1.91)	**1.73** (1.28-2.36)	**2.17** (1.54-3.10)	**2.57** (1.76-3.80)
2-hr	**0.322** (0.269-0.389)	**0.473** (0.395-0.572)	**0.698** (0.581-0.848)	**0.906** (0.747-1.11)	**1.23** (0.979-1.56)	**1.51** (1.18-1.95)	**1.83** (1.39-2.43)	**2.20** (1.63-3.01)	**2.77** (1.96-3.95)	**3.28** (2.24-4.85)
3-hr	**0.388** (0.324-0.468)	**0.559** (0.467-0.676)	**0.818** (0.681-0.993)	**1.06** (0.873-1.30)	**1.43** (1.14-1.82)	**1.76** (1.38-2.28)	**2.14** (1.63-2.84)	**2.58** (1.91-3.53)	**3.26** (2.31-4.65)	**3.87** (2.65-5.72)
6-hr	**0.508** (0.425-0.614)	**0.726** (0.606-0.879)	**1.06** (0.880-1.28)	**1.36** (1.13-1.67)	**1.84** (1.47-2.34)	**2.27** (1.77-2.94)	**2.76** (2.10-3.66)	**3.32** (2.46-4.54)	**4.21** (2.98-6.00)	**5.00** (3.42-7.38)
12-hr	**0.610** (0.509-0.737)	**0.893** (0.745-1.08)	**1.32** (1.10-1.60)	**1.70** (1.41-2.08)	**2.30** (1.83-2.91)	**2.82** (2.20-3.65)	**3.42** (2.60-4.53)	**4.10** (3.03-5.60)	**5.14** (3.64-7.33)	**6.07** (4.15-8.96)
24-hr	**0.759** (0.671-0.875)	**1.15** (1.01-1.33)	**1.72** (1.51-1.99)	**2.23** (1.95-2.60)	**3.00** (2.54-3.62)	**3.67** (3.05-4.51)	**4.41** (3.58-5.55)	**5.25** (4.15-6.79)	**6.53** (4.95-8.77)	**7.63** (5.60-10.6)
2-day	**0.871** (0.771-1.00)	**1.34** (1.18-1.54)	**2.01** (1.77-2.33)	**2.61** (2.28-3.05)	**3.51** (2.97-4.22)	**4.27** (3.54-5.24)	**5.11** (4.14-6.42)	**6.04** (4.77-7.81)	**7.44** (5.65-10.0)	**8.63** (6.34-12.0)
3-day	**0.936** (0.828-1.08)	**1.44** (1.28-1.67)	**2.18** (1.92-2.52)	**2.83** (2.47-3.30)	**3.79** (3.21-4.57)	**4.61** (3.83-5.66)	**5.50** (4.46-6.92)	**6.50** (5.13-8.40)	**7.98** (6.06-10.7)	**9.24** (6.79-12.9)
4-day	**0.994** (0.880-1.15)	**1.54** (1.36-1.77)	**2.31** (2.04-2.68)	**3.00** (2.63-3.50)	**4.02** (3.41-4.85)	**4.88** (4.06-6.00)	**5.83** (4.73-7.33)	**6.88** (5.43-8.89)	**8.43** (6.40-11.3)	**9.76** (7.16-13.6)
7-day	**1.06** (0.935-1.22)	**1.63** (1.44-1.88)	**2.45** (2.16-2.83)	**3.17** (2.77-3.70)	**4.24** (3.59-5.11)	**5.14** (4.26-6.31)	**6.12** (4.96-7.69)	**7.20** (5.69-9.30)	**8.81** (6.68-11.8)	**10.2** (7.46-14.1)
10-day	**1.09** (0.961-1.25)	**1.67** (1.48-1.93)	**2.52** (2.22-2.91)	**3.26** (2.85-3.80)	**4.36** (3.69-5.25)	**5.28** (4.38-6.48)	**6.28** (5.09-7.90)	**7.38** (5.83-9.54)	**9.01** (6.84-12.1)	**10.4** (7.62-14.4)
20-day	**1.17** (1.03-1.35)	**1.82** (1.61-2.10)	**2.75** (2.42-3.18)	**3.57** (3.12-4.17)	**4.78** (4.05-5.76)	**5.79** (4.81-7.12)	**6.89** (5.59-8.66)	**8.09** (6.39-10.4)	**9.83** (7.46-13.2)	**11.3** (8.29-15.7)
30-day	**1.24** (1.10-1.43)	**1.96** (1.73-2.26)	**2.99** (2.63-3.46)	**3.90** (3.41-4.55)	**5.24** (4.44-6.31)	**6.35** (5.27-7.81)	**7.55** (6.12-9.50)	**8.86** (6.99-11.4)	**10.7** (8.16-14.5)	**12.3** (9.04-17.1)
45-day	**1.34** (1.19-1.55)	**2.15** (1.90-2.49)	**3.32** (2.93-3.85)	**4.35** (3.81-5.08)	**5.88** (4.98-7.08)	**7.14** (5.93-8.77)	**8.49** (6.89-10.7)	**9.96** (7.87-12.9)	**12.1** (9.16-16.2)	**13.8** (10.1-19.2)
60-day	**1.42** (1.26-1.64)	**2.31** (2.04-2.67)	**3.60** (3.17-4.17)	**4.73** (4.14-5.52)	**6.40** (5.42-7.71)	**7.78** (6.46-9.56)	**9.27** (7.52-11.7)	**10.9** (8.58-14.0)	**13.2** (9.98-17.7)	**15.0** (11.0-20.9)

[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.

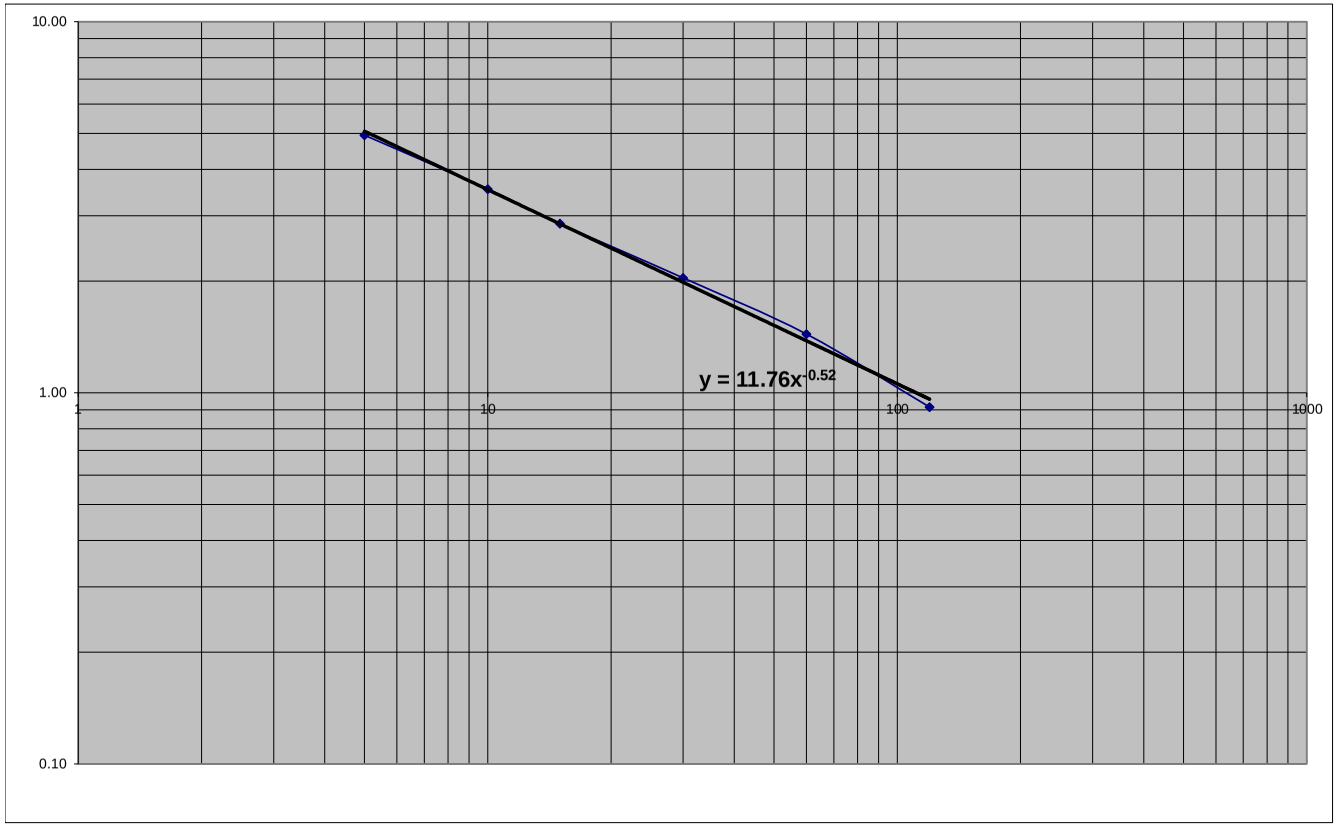
PF graphical

NOAA ATLAS 14 INTENSITY - DURATION WORKSHEET

PROJECT NAME	THE WAVE
PROJECT NUMBER	2553
STORM EVENT	100 yr
DATE:	September 18, 2019

DATA FROM NOAA ATLAS 14

MINUTES	RAINFALL INTENSITY (in/hr)	RAINFALL DEPTH (in)
5	4.94	0.41
10	3.54	0.59
15	2.86	0.71
30	2.04	1.02
60	1.44	1.44
120	0.92	1.83



INTENSITY VALUES FROM GRAPH

CONSTANT FROM GRAPH	11.76
EXPONENT FROM GRAPH	-0.52

MINUTES	RAINFALL INTENSITY (in/hr)	RAINFALL DEPTH (in)
5	5.09	0.42
10	3.55	0.59
15	2.88	0.72
20	2.48	0.83
25	2.21	0.92
30	2.01	1.00
35	1.85	1.08
40	1.73	1.15
45	1.62	1.22
50	1.54	1.28
55	1.46	1.34
60	1.40	1.40
65	1.34	1.45
70	1.29	1.51
75	1.25	1.56
80	1.20	1.61
85	1.17	1.65
90	1.13	1.70
95	1.10	1.74
100	1.07	1.79
105	1.05	1.83
110	1.02	1.87
115	1.00	1.91
120	0.98	1.95

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

PLATE E-6.1 (1 of 2)

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
AGRICULTURAL COVERS (cont.) -					
Legumes, Close Seeded (Alfalfa, sweetclover, timothy, etc.)	Poor	66	77	85	89
	Good	58	72	81	85
Orchards, Deciduous (Apples, apricots, pears, walnuts, etc.)		See Note 4			
Orchards, Evergreen (Citrus, avocados, etc.)	Poor	57	73	82	86
	Fair	44	65	77	82
	Good	33	58	72	79
Pasture, Dryland (Annual grasses)	Poor	67	78	86	89
	Fair	50	69	79	84
	Good	38	61	74	80
Pasture, Irrigated (Legumes and perennial grass)	Poor	58	74	83	87
	Fair	44	65	77	82
	Good	33	58	72	79
Row Crops (Field crops - tomatoes, sugar beets, etc.)	Poor	72	81	88	91
	Good	67	78	85	89
Small Grain (Wheat, oats, barley, etc.)	Poor	65	76	84	88
	Good	63	75	83	87
Vineyard		See Note 4			

Notes:

1. All runoff index (RI) numbers are for Antecedent Moisture Condition (AMC) II.

2. Quality of cover definitions:
   Poor-Heavily grazed or regularly burned areas. Less than 50 percent of the ground surface is protected by plant cover or brush and tree canopy.
   Fair-Moderate cover with 50 percent to 75 percent of the ground surface protected.
   Good-Heavy or dense cover with more than 75 percent of the ground surface protected.

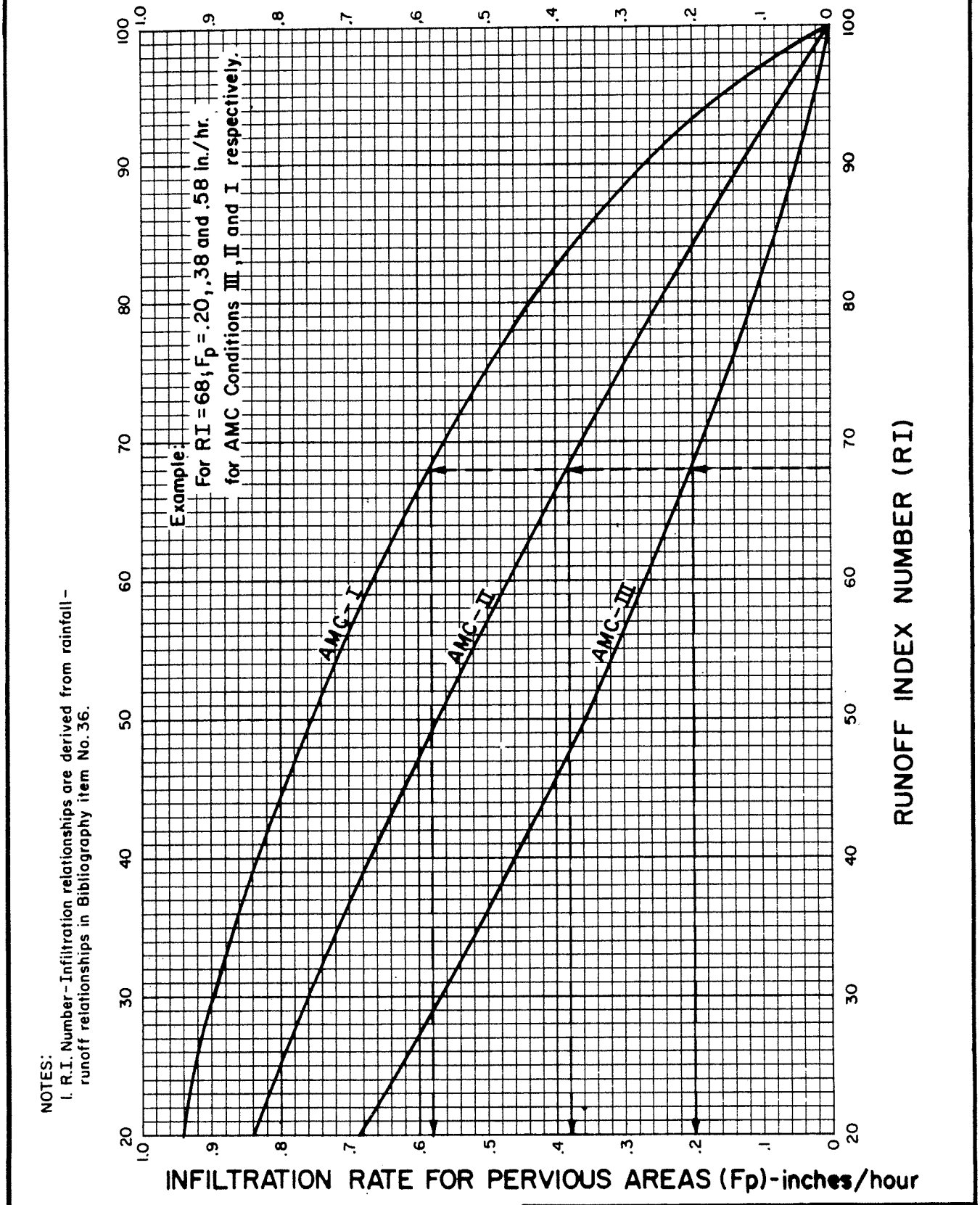
3. See Plate C-2 for a detailed description of cover types.

4. Use runoff index numbers based on ground cover type. See discussion under "Cover Type Descriptions" on Plate C-2.

5. Reference Bibliography item 17.

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

PLATE E-6.2

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

PLATE E-6.3

Appendix E
Preliminary Land Use Worksheets

TTM 37815 - CORAL MOUNTAIN
MSA JOB #2553
PROPOSED LAND USE AREAS - SYNTHETIC UNIT
March 30, 2020

HYDROLOGIC SOIL GROUP B

DRAINAGE AREA	PROPOSED LAND USE									
	ROCK OUTCROPPING RI=93 (acres)	EXIST OPEN BRUSH RI=76 (acres)	STREETS WALKS RI=56 (acres)	WATER FEATURE RI=56 (acres)	COMMERCIAL AREA RI=56 (acres)	PROPOSED RESIDENTIAL - LD RI=56 (acres)	PROPOSED RESIDENTIAL - MD RI=56 (acres)	PROPOSED RESIDENTIAL - HD RI=56 (acres)	PROPOSED OPEN SPACE RI=56 (acres)	TOTAL (acres)
DA-A	35.652	35.233	2.082	18.699	5.752	0.000	0.000	8.141	57.186	162.745
DA-B	0.000	0.000	2.581	6.423	1.483	20.347	0.000	0.000	10.752	41.586
DA-C	0.000	0.000	1.455	0.000	0.000	0.000	4.092	2.159	2.485	10.191
DA-D	0.000	0.000	2.588	2.323	4.803	0.000	0.000	7.637	11.052	28.403
DA-E	0.000	0.000	1.707	0.000	0.000	48.170	0.000	4.271	7.654	61.802
SUBTOTAL	**35.652**	**35.233**	**10.413**	**27.445**	**12.038**	**68.517**	**4.092**	**22.208**	**89.129**	**304.727**
FUTURE BNDY - F	0.000	0.000	0.353	0.000	0.000	42.760	0.000	0.000	1.698	44.811
FUTURE BNDY - G	0.000	0.000	0.316	0.000	0.000	33.880	0.000	0.000	1.546	35.742
FUTURE BNDY - H	0.000	0.000	0.000	0.000	7.118	0.000	0.000	0.000	0.000	7.118
FUTURE BNDY - I	0.000	0.000	0.470	0.000	0.000	47.890	0.000	0.000	3.269	51.629
TOTAL ON-SITE	**35.652**	**35.233**	**11.552**	**27.445**	**19.156**	**193.047**	**4.092**	**22.208**	**95.642**	**444.027**
OFF-SITE NORTH	0.000	0.000	5.754	0.000	0.000	0.000	0.000	0.000	5.950	11.704
OFF-SITE SOUTH	0.000	0.000	4.014	0.000	0.000	0.000	0.000	0.000	1.687	5.701
TOTAL OFF-SITE	**0.000**	**0.000**	**9.768**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**7.637**	**17.405**
TOTAL HYDROLOGIC AREA	**35.652**	**35.233**	**21.320**	**27.445**	**19.156**	**193.047**	**4.092**	**22.208**	**103.279**	**461.432**

AREA RECONCILIATION

MEASURED AREAS:		
ROCK OUTCROPPING	35.652	
EXIST OPEN BRUSH	35.233	
STREETS/WALKS	21.320	
WATER FEATURE	27.445	
COMMERCIAL	19.156	
LOTS - LOW DENSITY	193.047	
LOTS - MED DENSITY	4.092	
LOTS - HIGH DENSITY	22.208	
OPEN SPACE	103.279	
TOTAL HYDROLOGIC AREA		**461.432**
SURVEY BOUNDARY	384.389	
ADD:	77.080	
SUBTRACT:	0.037	
TOTAL AREA:		**461.432**

TTM 37815 - CORAL MOUNTAIN
MSA JOB #2553
PROPOSED LAND USE AREAS - SYNTHETIC UNIT
March 30, 2020

HYDROLOGIC SOIL GROUP B

DRAINAGE AREA	PROPOSED LAND USE									
	ROCK OUTCROPPING RI=93 (acres)	EXIST OPEN BRUSH RI=76 (acres)	STREETS WALKS RI=56 (acres)	WATER FEATURE RI=56 (acres)	COMMERCIAL AREA RI=56 (acres)	PROPOSED RESIDENTIAL - LD RI=56 (acres)	PROPOSED RESIDENTIAL - MD RI=56 (acres)	PROPOSED RESIDENTIAL - HD RI=56 (acres)	PROPOSED OPEN SPACE RI=56 (acres)	TOTAL (acres)
DA-A1	34.384	30.363	0.000	0.000	0.000	0.000	0.000	0.000	23.665	88.412
DA-A2	0.000	0.000	2.071	0.000	5.752	0.000	0.000	8.141	1.350	17.314
DA-A3	1.268	4.870	0.011	0.000	0.000	0.000	0.000	0.000	18.819	24.968
DA-A4	0.000	0.000	0.000	18.699	0.000	0.000	0.000	0.000	13.352	32.051
TOTAL - DA-A	**35.652**	**35.233**	**2.082**	**18.699**	**5.752**	**0.000**	**0.000**	**8.141**	**57.186**	**162.745**

TTM 37815 - CORAL MOUNTAIN
MSA JOB #2553
WQMP LAND USE - IMPERVIOUS AREAS
March 30, 2020

HYDROLOGIC SOIL GROUP A

DRAINAGE AREA	**LAND USE**										
	ROCK OUT-CROPPING Ai=5% (acres)	EXISTING OPEN BRUCH Ai=5% (acres)	STREETS WALKS Ai=100% (acres)	WATER FEATURES Ai=100% (acres)	COMMERCIAL Ai=90% (acres)	RESIDENTIAL LOW DENSITY Ai=30% (acres)	RESIDENTIAL MEDIUM DENSITY Ai=40% (acres)	RESIDENTIAL HIGH DENSITY Ai=50% (acres)	OPEN SPACE Ai=10% (acres)	TOTAL (acres)	IMPERVIOUS AREA (acres)
DA-A	35.652	35.233	2.082	18.699	5.752	0.000	0.000	8.141	57.186	162.745	39.291
DA-B	0.000	0.000	2.581	6.423	1.483	20.347	0.000	0.000	10.752	41.586	17.518
DA-C	0.000	0.000	1.455	0.000	0.000	0.000	4.092	2.159	2.485	10.191	4.420
DA-D	0.000	0.000	2.588	2.323	4.803	0.000	0.000	7.637	11.052	28.403	14.157
DA-E	0.000	0.000	1.707	0.000	0.000	48.170	0.000	4.271	7.654	61.802	19.059
SUBTOTAL	**35.652**	**35.233**	**10.413**	**27.445**	**12.038**	**68.517**	**4.092**	**22.208**	**89.129**	**304.727**	94.445
DA-F	0.000	0.000	0.353	0.000	0.000	42.760	0.000	0.000	1.698	44.811	13.351
DA-G	0.000	0.000	0.316	0.000	0.000	33.880	0.000	0.000	1.546	35.742	10.635
DA-H	0.000	0.000	0.000	0.000	7.118	0.000	0.000	0.000	0.000	7.118	6.406
DA-I	0.000	0.000	0.470	0.000	0.000	47.890	0.000	0.000	3.269	51.629	15.164
TOTAL ON-SITE	**35.652**	**35.233**	**11.552**	**27.445**	**19.156**	**193.047**	**4.092**	**22.208**	**95.642**	**444.027**	140.001
OFF-SITE NORTH	0.000	0.000	5.754	0.000	0.000	0.000	0.000	0.000	5.950	11.704	6.349

Appendix F

RCFCD Synthetic Unit Hydrograph Worksheets

RCFCD SYNTHETIC UNIT HYDROGRAPH - SHORTCUT METHOD

DATA INPUT SHEET

DATE	March 30, 2020
WORKSHEET PREPARED BY:	DLS
PROJECT NAME	CORAL MOUNTAIN
PROJECT NUMBER	2553
CONCENTRATION POINT DESIGNATION	WAVE LAGOON
AREA DESIGNATION	DA-A
AMC NUMBER	2

Low Loss Conditions: X=Existing; D=Developed; BS=Retention

AREA DESIG	SOIL GROUP	TRIBUTARY AREAS	ACRES	LOW LOSS CONDITION	RI NUMBER	AMC II INFILTRATION RATE	IMPERVIOUS PERCENT
11	D	EXISTING BARREN	35.652	X	93	0.09	0.05
12	B	EXISTING OPEN BRUSH - POOR	35.233	X	76	0.29	0.05
2	B	PAVING/HARDSCAPE	2.082	D	56	0.51	1.00
3	B	WATER FEATURE	18.699	D	56	0.51	1.00
1	B	COMMERCIAL	5.752	D	56	0.51	0.90
6	B	SF - HIGH DENSITY	8.141	D	56	0.51	0.50
9	B	LANDSCAPING	57.186	D	56	0.51	0.10

LENGTH OF WATERCOURSE (L)	1,180 ft
LENGTH TO POINT OPPOSITE CENTROID (Lca)	590 ft
ELEVATION OF HEADWATER	960.0 ft
ELEVATION OF CONCENTRATION POINT	456.0 ft
AVERAGE MANNINGS 'N' VALUE	0.03
STORM FREQUENCY (YEAR)	100
LOW LOSS RATE (Storm Events > 10 Years)	**85%**
POINT RAIN FROM NOAA ATLAS	**14**
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

BASIN CHARACTERISTICS:

ELEVATION	AREA
451.0 ft	548,486 sf
456.0 ft	726,985 sf

PERCOLATION RATE (in/hr)	0.0 in/hr
DRYWELL DATA	
NUMBER USED	
PERCOLATION RATE	
LOWEST FLOWLINE ELEVATION	
LOWEST PAD ELEVATION	

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 3/30/20

PHYSICAL DATA

[1] CONCENTRATION POINT	WAVE LAGOON
[2] AREA DESIGNATION	DA-A
[3] AREA - ACRES	162.745
[4] L-FEET	1180
[5] L-MILES	0.223
[6] La-FEET	590.00
[7] La-MILES	0.112
[8] ELEVATION OF HEADWATER	960
[9] ELEVATION OF CONCENTRATION POINT	456
[10] H-FEET	504
[11] S-FEET/MILE	2255.2
[12] S^0.5	47.49
[13] L*LCA/S^0.5	0.001
[14] AVERAGE MANNINGS 'N'	0.03
[15] LAG TIME-HOURS	0.04
[16] LAG TIME-MINUTES	2.5
[17] 100% OF LAG-MINUTES	2.5
[18] 200% OF LAG-MINUTES	4.9

RAINFALL DATA

[1] AMC	II
[2] FREQUENCY-YEARS	100
FROM NOAA ATLAS	**14**
[3] STORM DURATION:	Point Rain
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

STORM EVENT SUMMARY

STORM DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
RAINFALL VOLUME	(cu-ft)	850,704	1,264,241	1,630,516	**2,605,281**
SOIL LOSSES	(cu-ft)	157,045	464,495	840,545	**1,801,551**
EFFECTIVE RAIN	(in)	1.17	1.35	1.34	1.36
FLOOD VOLUME	(cu-ft)	693,659	799,746	789,971	**803,730**
	(acre-ft)	15.92	18.36	18.14	**18.45**
REQUIRED STORAGE	(cu-ft)	693,659	799,746	789,971	**803,730**
	(acre-ft)	15.92	18.36	18.14	**18.45**
FACTOR OF SAFETY		4.58	3.97	4.02	3.95
STORAGE PROVIDED	(cu-ft)	3,178,217			
	(acre-ft)	72.96			
PEAK FLOW	(cfs)	n/a	301.94	260.74	60.87
MAXIMUM WSEL	(ft)	452.09	452.26	452.24	**452.26**
DEPTH	(ft)	1.09	1.26	1.24	**1.26**
LOWEST FLOWLINE ELEVATION					
DIFFERENCE	(ft)				
LOWEST PAD ELEVATION					
DIFFERENCE	(ft)				
ESTIMATED TIME TO DEWATER BASIN Based on Total Flood Volume & Average Percolation Rate	(days)				

NOTE: PEAK FLOW FOR THE 1-HOUR STORM IS NOT REPRESENTATIVE. PER RCFCD PEAK DISCHARGES FROM THE 3-HOUR STORM SHOULD NORMALLY COMPARE WELL WITH RATIONAL PEAKS.

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM AMC II	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 3/30/20

AVERAGE ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA	AREA WEIGHTED AVERAGE	MAX AVERAGE ADJUSTED INFILTRATION RATE (in/hr)	LOW LOSS CONDITION	LOW LOSS RATE PER RCFC/2322	MIN AVERAGE ADJUSTED INFILTRATION RATE
D	EXISTING BARREN	93	0.09	5%	0.09	35.652	0.219	0.0188	UNDEVELOPED	0.9000	0.1972
B	EXISTING OPEN BRUSH - POOR	76	0.29	5%	0.28	35.233	0.216	0.0600	UNDEVELOPED	0.9000	0.1948
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	2.082	0.013	0.0007	DEVELOPED	0.1000	0.0013
B	WATER FEATURE	56	0.51	100%	0.05	18.699	0.115	0.0059	DEVELOPED	0.1000	0.0115
B	COMMERCIAL	56	0.51	90%	0.10	5.752	0.035	0.0034	DEVELOPED	0.1800	0.0064
B	SF - HIGH DENSITY	56	0.51	50%	0.28	8.141	0.050	0.0140	DEVELOPED	0.5000	0.0250
B	LANDSCAPING	56	0.51	10%	0.46	57.186	0.351	0.1631	DEVELOPED	0.8200	0.2881
					SUM	162.745	SUM	0.2658			0.7243

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.132916039

C= 0.00246

$F_t = C(24-(T/60))^{1.55} + F_m$ = 0.00246 (24-(T/60))^1.55 + 0.13 in/hr

CONSTANT LOSS RATE (3 & 6 HOUR STORMS) = **0.2658**

LOW LOSS RATE = **0.8500**

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period, T=1 1/2 unit time for the second period, etc.

NOTE: Low loss rates established per RCFC/2322 (Dated: May-30-95)
For 10 Year Storms or Less
Undeveloped Condition: Low Loss = 90%
Developed Condition: Low Loss = 0.9 - (0.8 * %impervious)
Basin Site: Low Loss = 10%
For 100 Year Storm - Low Loss should be between 80% & 90% of the Rainfall Rate

RCFC & WCD
HYDROLOGY
MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

1-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	162.75
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.45
UNIT TIME-PERCENT OF LAG	204.0
TOTAL ADJUSTED STORM RAIN-INCHES	1.44
CONSTANT LOSS RATE-in/hr	0.27
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	3.6	0.62	0.27	0.53	0.36	58.46	17,538	17,538	549,471	0	0	17,538	0.40	451.03
2	10	0.17	4.2	0.73	0.27	0.62	0.46	75.48	22,643	40,181	550,743	0	0	40,181	0.92	451.06
3	15	0.25	4.4	0.76	0.27	0.65	0.49	81.15	24,344	64,525	552,110	0	0	64,525	1.48	451.10
4	20	0.33	4.6	0.79	0.27	0.68	0.53	86.82	26,045	90,570	553,573	0	0	90,570	2.08	451.14
5	25	0.42	5.0	0.86	0.27	0.73	0.60	98.16	29,448	120,018	555,227	0	0	120,018	2.76	451.19
6	30	0.50	5.6	0.97	0.27	0.82	0.70	115.17	34,552	154,571	557,167	0	0	154,571	3.55	451.24
7	35	0.58	6.4	1.11	0.27	0.94	0.84	137.86	41,358	195,929	559,490	0	0	195,929	4.50	451.31
8	40	0.67	8.1	1.40	0.27	1.19	1.13	186.07	55,820	251,748	562,625	0	0	251,748	5.78	451.40
9	45	0.75	13.1	2.26	0.27	1.92	2.00	327.85	98,355	350,104	568,149	0	0	350,104	8.04	451.55
10	50	0.83	34.5	5.96	0.27	5.07	5.70	**934.69**	**280,406**	630,509	583,897	0	0	630,509	14.47	451.99
11	55	0.92	6.7	1.16	0.27	0.98	0.89	146.37	43,910	674,420	586,364	0	0	674,420	15.48	452.06
12	60	1.00	3.8	0.66	0.27	0.56	0.39	64.13	19,240	693,659	587,444	0	0	**693,659**	**15.92**	**452.09**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY	
TOTAL RAINFALL	1.44 in
RAINFALL VOLUME	850,704 cu-ft
SOIL LOSSES	157,045 cu-ft
EFFECTIVE RAIN	1.17 in
FLOOD VOLUME	15.92 acft
FLOOD VOLUME	693,659 cu-ft
REQUIRED STORAGE	15.92
REQUIRED STORAGE	693,659 cu-ft
MAX WSEL	452.09 ft
PEAK FLOW RATE	934.69 cfs
TOTAL BASIN LOSSES	0 cu-ft
AVERAGE PERCOLATION RATE	0.00 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	162.75
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.45
UNIT TIME-PERCENT OF LAG	204.0
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.27
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain	in/hr		Rain	Hydrograph	In	Volume	Percolation Area	Maximum Percolation	Percolation Out			WSEL
				in/hr	Max	Low	in/hr	Flow cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
			(Plate E-5.9)													
1	5	0.08	1.3	0.33	0.27	0.28	0.07	11.16	3,348	3,348	548,674	0	0	3,348	0.08	451.01
2	10	0.17	1.3	0.33	0.27	0.28	0.07	11.16	3,348	6,696	548,862	0	0	6,696	0.15	451.01
3	15	0.25	1.1	0.28	0.27	0.24	0.02	2.73	820	7,516	548,908	0	0	7,516	0.17	451.01
4	20	0.33	1.5	0.39	0.27	0.33	0.12	19.59	5,877	13,392	549,238	0	0	13,392	0.31	451.02
5	25	0.42	1.5	0.39	0.27	0.33	0.12	19.59	5,877	19,269	549,568	0	0	19,269	0.44	451.03
6	30	0.50	1.8	0.46	0.27	0.39	0.20	32.23	9,669	28,938	550,111	0	0	28,938	0.66	451.05
7	35	0.58	1.5	0.39	0.27	0.33	0.12	19.59	5,877	34,815	550,441	0	0	34,815	0.80	451.05
8	40	0.67	1.8	0.46	0.27	0.39	0.20	32.23	9,669	44,484	550,984	0	0	44,484	1.02	451.07
9	45	0.75	1.8	0.46	0.27	0.39	0.20	32.23	9,669	54,153	551,527	0	0	54,153	1.24	451.09
10	50	0.83	1.5	0.39	0.27	0.33	0.12	19.59	5,877	60,030	551,857	0	0	60,030	1.38	451.09
11	55	0.92	1.6	0.41	0.27	0.35	0.15	23.80	7,141	67,171	552,259	0	0	67,171	1.54	451.11
12	60	1.00	1.8	0.46	0.27	0.39	0.20	32.23	9,669	76,840	552,802	0	0	76,840	1.76	451.12
13	65	1.08	2.2	0.56	0.27	0.48	0.30	49.09	14,726	91,566	553,629	0	0	91,566	2.10	451.14
14	70	1.17	2.2	0.56	0.27	0.48	0.30	49.09	14,726	106,292	554,456	0	0	106,292	2.44	451.17
15	75	1.25	2.2	0.56	0.27	0.48	0.30	49.09	14,726	121,018	555,283	0	0	121,018	2.78	451.19
16	80	1.33	2.0	0.51	0.27	0.44	0.25	40.66	12,198	133,216	555,968	0	0	133,216	3.06	451.21
17	85	1.42	2.6	0.67	0.27	0.57	0.40	65.94	19,783	152,999	557,079	0	0	152,999	3.51	451.24
18	90	1.50	2.7	0.69	0.27	0.59	0.43	70.16	21,047	174,047	558,261	0	0	174,047	4.00	451.27
19	95	1.58	2.4	0.62	0.27	0.52	0.35	57.52	17,255	191,302	559,230	0	0	191,302	4.39	451.30
20	100	1.67	2.7	0.69	0.27	0.59	0.43	70.16	21,047	212,349	560,412	0	0	212,349	4.87	451.33
21	105	1.75	3.3	0.85	0.27	0.72	0.58	95.44	28,633	240,982	562,020	0	0	240,982	5.53	451.38
22	110	1.83	3.1	0.80	0.27	0.68	0.53	87.01	26,104	267,086	563,486	0	0	267,086	6.13	451.42
23	115	1.92	2.9	0.74	0.27	0.63	0.48	78.59	23,576	290,662	564,811	0	0	290,662	6.67	451.46
24	120	2.00	3.0	0.77	0.27	0.65	0.50	82.80	24,840	315,502	566,206	0	0	315,502	7.24	451.50
25	125	2.08	3.1	0.80	0.27	0.68	0.53	87.01	26,104	341,607	567,672	0	0	341,607	7.84	451.54

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	162.75
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.45
UNIT TIME-PERCENT OF LAG	204.0
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.27
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain in/hr	in/hr Max	Low	Rain in/hr	Hydrograph Flow cfs	In cu-ft	Volume cu-ft	Percolation Area sf	Maximum Percolation cu-ft	Percolation Out cu-ft	cu-ft	ac-ft	WSEL ft
			(Plate E-5.9)													
26	130	2.17	4.2	1.08	0.27	0.92	0.81	133.37	40,011	381,618	569,919	0	0	381,618	8.76	451.60
27	135	2.25	5.0	1.28	0.27	1.09	1.02	167.08	50,125	431,743	572,734	0	0	431,743	9.91	451.68
28	140	2.33	3.5	0.90	0.27	0.76	0.63	103.87	31,161	462,904	574,484	0	0	462,904	10.63	451.73
29	145	2.42	6.8	1.75	0.27	1.48	1.48	242.94	72,881	535,785	578,577	0	0	535,785	12.30	451.84
30	150	2.50	7.3	1.87	0.27	1.59	1.61	264.01	79,203	614,988	583,026	0	0	614,988	14.12	451.97
31	155	2.58	8.2	2.11	0.27	1.79	1.84	**301.94**	**90,581**	705,569	588,113	0	0	705,569	16.20	452.11
32	160	2.67	5.9	1.52	0.27	1.29	1.25	205.01	61,503	767,072	591,567	0	0	767,072	17.61	452.21
33	165	2.75	2.0	0.51	0.27	0.44	0.25	40.66	12,198	779,270	592,252	0	0	779,270	17.89	452.23
34	170	2.83	1.8	0.46	0.27	0.39	0.20	32.23	9,669	788,939	592,795	0	0	788,939	18.11	452.24
35	175	2.92	1.8	0.46	0.27	0.39	0.20	32.23	9,669	798,608	593,338	0	0	798,608	18.33	452.26
36	180	3.00	0.6	0.15	0.27	0.13	0.02	3.79	1,138	799,746	593,402	0	0	**799,746**	**18.36**	**452.26**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAIN	2.14 in
RAINFALL VOLUME	1,264,241 cu-ft
SOIL LOSSES	464,495 cu-ft
EFFECTIVE RAIN	1.35 in
FLOOD VOLUME	18.36 acft
FLOOD VOLUME	799,746 cu-ft
REQUIRED STORAGE	18.36 acft
REQUIRED STORAGE	799,746 cu-ft
MAX WSEL	452.26 ft
PEAK FLOW RATE	301.94 cfs
TOTAL BASIN LOSSES	0 cu-ft
AVERAGE PERCOLATION RATE	0.00 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	162.75
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.45
UNIT TIME-PERCENT OF LAG	204.0
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.27
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	0.5	0.17	0.27	0.14	0.02	4.08	1,223	1,223	548,555	0	0	1,223	0.03	451.00
2	10	0.17	0.6	0.20	0.27	0.17	0.03	4.89	1,467	2,690	548,637	0	0	2,690	0.06	451.00
3	15	0.25	0.6	0.20	0.27	0.17	0.03	4.89	1,467	4,158	548,720	0	0	4,158	0.10	451.01
4	20	0.33	0.6	0.20	0.27	0.17	0.03	4.89	1,467	5,625	548,802	0	0	5,625	0.13	451.01
5	25	0.42	0.6	0.20	0.27	0.17	0.03	4.89	1,467	7,093	548,884	0	0	7,093	0.16	451.01
6	30	0.50	0.7	0.23	0.27	0.20	0.03	5.71	1,712	8,805	548,981	0	0	8,805	0.20	451.01
7	35	0.58	0.7	0.23	0.27	0.20	0.03	5.71	1,712	10,517	549,077	0	0	10,517	0.24	451.02
8	40	0.67	0.7	0.23	0.27	0.20	0.03	5.71	1,712	12,229	549,173	0	0	12,229	0.28	451.02
9	45	0.75	0.7	0.23	0.27	0.20	0.03	5.71	1,712	13,941	549,269	0	0	13,941	0.32	451.02
10	50	0.83	0.7	0.23	0.27	0.20	0.03	5.71	1,712	15,653	549,365	0	0	15,653	0.36	451.02
11	55	0.92	0.7	0.23	0.27	0.20	0.03	5.71	1,712	17,365	549,461	0	0	17,365	0.40	451.03
12	60	1.00	0.8	0.26	0.27	0.23	0.04	6.52	1,957	19,322	549,571	0	0	19,322	0.44	451.03
13	65	1.08	0.8	0.26	0.27	0.23	0.04	6.52	1,957	21,278	549,681	0	0	21,278	0.49	451.03
14	70	1.17	0.8	0.26	0.27	0.23	0.04	6.52	1,957	23,235	549,791	0	0	23,235	0.53	451.04
15	75	1.25	0.8	0.26	0.27	0.23	0.04	6.52	1,957	25,191	549,901	0	0	25,191	0.58	451.04
16	80	1.33	0.8	0.26	0.27	0.23	0.04	6.52	1,957	27,148	550,011	0	0	27,148	0.62	451.04
17	85	1.42	0.8	0.26	0.27	0.23	0.04	6.52	1,957	29,105	550,121	0	0	29,105	0.67	451.05
18	90	1.50	0.8	0.26	0.27	0.23	0.04	6.52	1,957	31,061	550,231	0	0	31,061	0.71	451.05
19	95	1.58	0.8	0.26	0.27	0.23	0.04	6.52	1,957	33,018	550,340	0	0	33,018	0.76	451.05
20	100	1.67	0.8	0.26	0.27	0.23	0.04	6.52	1,957	34,975	550,450	0	0	34,975	0.80	451.06
21	105	1.75	0.8	0.26	0.27	0.23	0.04	6.52	1,957	36,931	550,560	0	0	36,931	0.85	451.06
22	110	1.83	0.8	0.26	0.27	0.23	0.04	6.52	1,957	38,888	550,670	0	0	38,888	0.89	451.06
23	115	1.92	0.8	0.26	0.27	0.23	0.04	6.52	1,957	40,844	550,780	0	0	40,844	0.94	451.06
24	120	2.00	0.9	0.30	0.27	0.25	0.03	5.29	1,588	42,432	550,869	0	0	42,432	0.97	451.07

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	162.75
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.45
UNIT TIME-PERCENT OF LAG	204.0
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.27
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
25	125	2.08	0.8	0.26	0.27	0.23	0.04	6.52	1,957	44,389	550,979	0	0	44,389	1.02	451.07
26	130	2.17	0.9	0.30	0.27	0.25	0.03	5.29	1,588	45,976	551,068	0	0	45,976	1.06	451.07
27	135	2.25	0.9	0.30	0.27	0.25	0.03	5.29	1,588	47,564	551,157	0	0	47,564	1.09	451.07
28	140	2.33	0.9	0.30	0.27	0.25	0.03	5.29	1,588	49,151	551,247	0	0	49,151	1.13	451.08
29	145	2.42	0.9	0.30	0.27	0.25	0.03	5.29	1,588	50,739	551,336	0	0	50,739	1.16	451.08
30	150	2.50	0.9	0.30	0.27	0.25	0.03	5.29	1,588	52,327	551,425	0	0	52,327	1.20	451.08
31	155	2.58	0.9	0.30	0.27	0.25	0.03	5.29	1,588	53,914	551,514	0	0	53,914	1.24	451.08
32	160	2.67	0.9	0.30	0.27	0.25	0.03	5.29	1,588	55,502	551,603	0	0	55,502	1.27	451.09
33	165	2.75	1.0	0.33	0.27	0.28	0.07	10.73	3,218	58,720	551,784	0	0	58,720	1.35	451.09
34	170	2.83	1.0	0.33	0.27	0.28	0.07	10.73	3,218	61,938	551,965	0	0	61,938	1.42	451.10
35	175	2.92	1.0	0.33	0.27	0.28	0.07	10.73	3,218	65,156	552,145	0	0	65,156	1.50	451.10
36	180	3.00	1.0	0.33	0.27	0.28	0.07	10.73	3,218	68,374	552,326	0	0	68,374	1.57	451.11
37	185	3.08	1.0	0.33	0.27	0.28	0.07	10.73	3,218	71,592	552,507	0	0	71,592	1.64	451.11
38	190	3.17	1.1	0.36	0.27	0.31	0.10	16.16	4,849	76,441	552,779	0	0	76,441	1.75	451.12
39	195	3.25	1.1	0.36	0.27	0.31	0.10	16.16	4,849	81,289	553,051	0	0	81,289	1.87	451.13
40	200	3.33	1.1	0.36	0.27	0.31	0.10	16.16	4,849	86,138	553,324	0	0	86,138	1.98	451.14
41	205	3.42	1.2	0.40	0.27	0.34	0.13	21.60	6,479	92,617	553,688	0	0	92,617	2.13	451.15
42	210	3.50	1.3	0.43	0.27	0.37	0.16	27.03	8,110	100,727	554,143	0	0	100,727	2.31	451.16
43	215	3.58	1.4	0.46	0.27	0.39	0.20	32.47	9,740	110,467	554,690	0	0	110,467	2.54	451.17
44	220	3.67	1.4	0.46	0.27	0.39	0.20	32.47	9,740	120,207	555,237	0	0	120,207	2.76	451.19
45	225	3.75	1.5	0.50	0.27	0.42	0.23	37.90	11,371	131,578	555,876	0	0	131,578	3.02	451.21
46	230	3.83	1.5	0.50	0.27	0.42	0.23	37.90	11,371	142,949	556,514	0	0	142,949	3.28	451.22
47	235	3.92	1.6	0.53	0.27	0.45	0.26	43.34	13,001	155,950	557,245	0	0	155,950	3.58	451.25
48	240	4.00	1.6	0.53	0.27	0.45	0.26	43.34	13,001	168,951	557,975	0	0	168,951	3.88	451.27
49	245	4.08	1.7	0.56	0.27	0.48	0.30	48.77	14,632	183,583	558,797	0	0	183,583	4.21	451.29
50	250	4.17	1.8	0.60	0.27	0.51	0.33	54.21	16,262	199,845	559,710	0	0	199,845	4.59	451.31

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	162.75
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.45
UNIT TIME-PERCENT OF LAG	204.0
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.27
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
51	255	4.25	1.9	0.63	0.27	0.53	0.36	59.64	17,893	217,738	560,715	0	0	217,738	5.00	451.34
52	260	4.33	2.0	0.66	0.27	0.56	0.40	65.08	19,523	237,261	561,811	0	0	237,261	5.45	451.37
53	265	4.42	2.1	0.70	0.27	0.59	0.43	70.51	21,154	258,415	562,999	0	0	258,415	5.93	451.41
54	270	4.50	2.1	0.70	0.27	0.59	0.43	70.51	21,154	279,568	564,187	0	0	279,568	6.42	451.44
55	275	4.58	2.2	0.73	0.27	0.62	0.46	75.95	22,784	302,353	565,467	0	0	302,353	6.94	451.48
56	280	4.67	2.3	0.76	0.27	0.65	0.50	81.38	24,415	326,767	566,838	0	0	326,767	7.50	451.51
57	285	4.75	2.4	0.79	0.27	0.68	0.53	86.82	26,045	352,813	568,301	0	0	352,813	8.10	451.56
58	290	4.83	2.4	0.79	0.27	0.68	0.53	86.82	26,045	378,858	569,764	0	0	378,858	8.70	451.60
59	295	4.92	2.5	0.83	0.27	0.70	0.56	92.25	27,676	406,534	571,318	0	0	406,534	9.33	451.64
60	300	5.00	2.6	0.86	0.27	0.73	0.60	97.69	29,306	435,840	572,964	0	0	435,840	10.01	451.69
61	305	5.08	3.1	1.03	0.27	0.87	0.76	124.86	37,459	473,299	575,068	0	0	473,299	10.87	451.74
62	310	5.17	3.6	1.19	0.27	1.01	0.93	152.04	45,612	518,911	577,630	0	0	518,911	11.91	451.82
63	315	5.25	3.9	1.29	0.27	1.10	1.03	168.34	50,503	569,414	580,466	0	0	569,414	13.07	451.90
64	320	5.33	4.2	1.39	0.27	1.18	1.13	184.65	55,395	624,808	583,577	0	0	624,808	14.34	451.98
65	325	5.42	4.7	1.56	0.27	1.32	1.29	211.82	63,547	688,356	587,146	0	0	688,356	15.80	452.08
66	330	5.50	5.6	1.85	0.27	1.58	1.59	**260.74**	**78,222**	766,577	591,539	0	0	766,577	17.60	452.21
67	335	5.58	1.9	0.63	0.27	0.53	0.36	59.64	17,893	784,470	592,544	0	0	784,470	18.01	452.23
68	340	5.67	0.9	0.30	0.27	0.25	0.03	5.29	1,588	786,058	592,634	0	0	786,058	18.05	452.24
69	345	5.75	0.6	0.20	0.27	0.17	0.03	4.89	1,467	787,525	592,716	0	0	787,525	18.08	452.24
70	350	5.83	0.5	0.17	0.27	0.14	0.02	4.08	1,223	788,748	592,785	0	0	788,748	18.11	452.24
71	355	5.92	0.3	0.10	0.27	0.08	0.01	2.45	734	789,482	592,826	0	0	789,482	18.12	452.24
72	360	6.00	0.2	0.07	0.27	0.06	0.01	1.63	489	789,971	592,853	0	0	**789,971**	**18.14**	**452.24**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	2.76 in
RAINFALL VOLUME	1,630,516 cu-ft
SOIL LOSSES	840,545 cu-ft
EFFECTIVE RAIN	1.34 in
FLOOD VOLUME	18.14 acft
FLOOD VOLUME	789,971 cu-ft
REQUIRED STORAGE	18.14 acft
REQUIRED STORAGE	789,971 cu-ft
MAX WSEL	452.24 ft
PEAK FLOW RATE	260.74 cfs
TOTAL BASIN LOSSES	0 cu-ft
AVERAGE PERCOLATION RATE	0.00 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	162.75	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	0.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.13		
LAG TIME - MINUTES	2.45	C	0.00246	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	612%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
1	15	0.25	0.2	0.035	0.469	0.030	0.01	0.87	782	782	548,530	0	0	782	0.02	451.00
2	30	0.50	0.3	0.053	0.464	0.045	0.01	1.30	1,172	1,954	548,596	0	0	1,954	0.04	451.00
3	45	0.75	0.3	0.053	0.459	0.045	0.01	1.30	1,172	3,126	548,662	0	0	3,126	0.07	451.00
4	60	1.00	0.4	0.071	0.453	0.060	0.01	1.74	1,563	4,690	548,749	0	0	4,690	0.11	451.01
5	75	1.25	0.3	0.053	0.448	0.045	0.01	1.30	1,172	5,862	548,815	0	0	5,862	0.13	451.01
6	90	1.50	0.3	0.053	0.443	0.045	0.01	1.30	1,172	7,034	548,881	0	0	7,034	0.16	451.01
7	105	1.75	0.3	0.053	0.437	0.045	0.01	1.30	1,172	8,207	548,947	0	0	8,207	0.19	451.01
8	120	2.00	0.4	0.071	0.432	0.060	0.01	1.74	1,563	9,770	549,035	0	0	9,770	0.22	451.02
9	135	2.25	0.4	0.071	0.427	0.060	0.01	1.74	1,563	11,333	549,122	0	0	11,333	0.26	451.02
10	150	2.50	0.4	0.071	0.422	0.060	0.01	1.74	1,563	12,896	549,210	0	0	12,896	0.30	451.02
11	165	2.75	0.5	0.088	0.416	0.075	0.01	2.17	1,954	14,850	549,320	0	0	14,850	0.34	451.02
12	180	3.00	0.5	0.088	0.411	0.075	0.01	2.17	1,954	16,804	549,430	0	0	16,804	0.39	451.03
13	195	3.25	0.5	0.088	0.406	0.075	0.01	2.17	1,954	18,758	549,540	0	0	18,758	0.43	451.03
14	210	3.50	0.5	0.088	0.401	0.075	0.01	2.17	1,954	20,712	549,649	0	0	20,712	0.48	451.03
15	225	3.75	0.5	0.088	0.396	0.075	0.01	2.17	1,954	22,666	549,759	0	0	22,666	0.52	451.04
16	240	4.00	0.6	0.106	0.391	0.090	0.02	2.61	2,345	25,011	549,891	0	0	25,011	0.57	451.04
17	255	4.25	0.6	0.106	0.386	0.090	0.02	2.61	2,345	27,355	550,022	0	0	27,355	0.63	451.04
18	270	4.50	0.7	0.123	0.381	0.105	0.02	3.04	2,736	30,091	550,176	0	0	30,091	0.69	451.05
19	285	4.75	0.7	0.123	0.376	0.105	0.02	3.04	2,736	32,827	550,330	0	0	32,827	0.75	451.05
20	300	5.00	0.8	0.141	0.372	0.120	0.02	3.47	3,126	35,953	550,505	0	0	35,953	0.83	451.06
21	315	5.25	0.6	0.106	0.367	0.090	0.02	2.61	2,345	38,298	550,637	0	0	38,298	0.88	451.06
22	330	5.50	0.7	0.123	0.362	0.105	0.02	3.04	2,736	41,033	550,791	0	0	41,033	0.94	451.06
23	345	5.75	0.8	0.141	0.357	0.120	0.02	3.47	3,126	44,160	550,966	0	0	44,160	1.01	451.07
24	360	6.00	0.8	0.141	0.352	0.120	0.02	3.47	3,126	47,286	551,142	0	0	47,286	1.09	451.07
25	375	6.25	0.9	0.159	0.348	0.135	0.02	3.91	3,517	50,803	551,339	0	0	50,803	1.17	451.08
26	390	6.50	0.9	0.159	0.343	0.135	0.02	3.91	3,517	54,320	551,537	0	0	54,320	1.25	451.09
27	405	6.75	1.0	0.176	0.339	0.150	0.03	4.34	3,908	58,228	551,756	0	0	58,228	1.34	451.09
28	420	7.00	1.0	0.176	0.334	0.150	0.03	4.34	3,908	62,136	551,976	0	0	62,136	1.43	451.10
29	435	7.25	1.0	0.176	0.329	0.150	0.03	4.34	3,908	66,044	552,195	0	0	66,044	1.52	451.10
30	450	7.50	1.1	0.194	0.325	0.165	0.03	4.78	4,299	70,343	552,437	0	0	70,343	1.61	451.11
31	465	7.75	1.2	0.212	0.320	0.180	0.03	5.21	4,690	75,032	552,700	0	0	75,032	1.72	451.12
32	480	8.00	1.3	0.229	0.316	0.195	0.03	5.64	5,080	80,112	552,985	0	0	80,112	1.84	451.13
33	495	8.25	1.5	0.265	0.312	0.225	0.04	6.51	5,862	85,974	553,315	0	0	85,974	1.97	451.14
34	510	8.50	1.5	0.265	0.307	0.225	0.04	6.51	5,862	91,836	553,644	0	0	91,836	2.11	451.14
35	525	8.75	1.6	0.282	0.303	0.240	0.04	6.95	6,253	98,089	553,995	0	0	98,089	2.25	451.15
36	540	9.00	1.7	0.300	0.299	0.255	0.00	0.18	165	98,254	554,004	0	0	98,254	2.26	451.15
37	555	9.25	1.9	0.335	0.295	0.285	0.04	6.67	6,000	104,254	554,341	0	0	104,254	2.39	451.16
38	570	9.50	2.0	0.353	0.290	0.300	0.06	10.25	9,224	113,478	554,859	0	0	113,478	2.61	451.18
39	585	9.75	2.1	0.370	0.286	0.315	0.08	13.83	12,443	125,920	555,558	0	0	125,920	2.89	451.20
40	600	10.00	2.2	0.388	0.282	0.330	0.11	17.39	15,655	141,576	556,437	0	0	141,576	3.25	451.22
41	615	10.25	1.5	0.265	0.278	0.225	0.04	6.51	5,862	147,438	556,767	0	0	147,438	3.38	451.23
42	630	10.50	1.5	0.265	0.274	0.225	0.04	6.51	5,862	153,299	557,096	0	0	153,299	3.52	451.24
43	645	10.75	2.0	0.353	0.270	0.300	0.08	13.59	12,231	165,530	557,783	0	0	165,530	3.80	451.26

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	162.75	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	0.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.13		
LAG TIME - MINUTES	2.45	C	0.00246	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	612%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses Percolation Area	Maximum Percolation	Percolation Out	Total In Basin		Basin WSEL
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
44	660	11.00	2.0	0.353	0.266	0.300	0.09	14.24	12,815	178,345	558,502	0	0	178,345	4.09	451.28
45	675	11.25	1.9	0.335	0.262	0.285	0.07	11.99	10,787	189,132	559,108	0	0	189,132	4.34	451.30
46	690	11.50	1.9	0.335	0.258	0.285	0.08	12.62	11,358	200,490	559,746	0	0	200,490	4.60	451.32
47	705	11.75	1.7	0.300	0.254	0.255	0.05	7.46	6,712	207,202	560,123	0	0	207,202	4.76	451.33
48	720	12.00	1.8	0.318	0.251	0.270	0.07	10.97	9,877	217,079	560,678	0	0	217,079	4.98	451.34
49	735	12.25	2.5	0.441	0.247	0.375	0.19	31.85	28,666	245,745	562,288	0	0	245,745	5.64	451.39
50	750	12.50	2.6	0.459	0.243	0.390	0.22	35.35	31,818	277,562	564,075	0	0	277,562	6.37	451.44
51	765	12.75	2.8	0.494	0.240	0.420	0.25	41.74	37,568	315,130	566,185	0	0	315,130	7.23	451.50
52	780	13.00	2.9	0.512	0.236	0.435	0.28	45.23	40,706	355,837	568,471	0	0	355,837	8.17	451.56
53	795	13.25	3.4	0.600	0.232	0.510	0.37	60.29	54,260	410,096	571,518	0	0	410,096	9.41	451.65
54	810	13.50	3.4	0.600	0.229	0.510	0.37	**60.87**	**54,780**	464,876	574,595	0	0	464,876	10.67	451.73
55	825	13.75	2.3	0.406	0.225	0.345	0.18	29.59	26,635	491,511	576,091	0	0	491,511	11.28	451.77
56	840	14.00	2.3	0.406	0.222	0.345	0.18	30.16	27,142	518,652	577,615	0	0	518,652	11.91	451.82
57	855	14.25	2.7	0.476	0.219	0.405	0.26	42.29	38,063	556,715	579,753	0	0	556,715	12.78	451.88
58	870	14.50	2.6	0.459	0.215	0.390	0.24	39.94	35,950	592,665	581,772	0	0	592,665	13.61	451.93
59	885	14.75	2.6	0.459	0.212	0.390	0.25	40.48	36,436	629,101	583,818	0	0	629,101	14.44	451.99
60	900	15.00	2.5	0.441	0.209	0.375	0.23	38.12	34,310	663,411	585,745	0	0	663,411	15.23	452.04
61	915	15.25	2.4	0.423	0.206	0.360	0.22	35.75	32,176	695,587	587,552	0	0	695,587	15.97	452.09
62	930	15.50	2.3	0.406	0.202	0.345	0.20	33.37	30,035	725,622	589,239	0	0	725,622	16.66	452.14
63	945	15.75	1.9	0.335	0.199	0.285	0.14	22.30	20,071	745,693	590,367	0	0	745,693	17.12	452.17
64	960	16.00	1.9	0.335	0.196	0.285	0.14	22.80	20,521	766,214	591,519	0	0	766,214	17.59	452.21
65	975	16.25	0.4	0.071	0.193	0.060	0.01	1.74	1,563	767,777	591,607	0	0	767,777	17.63	452.21
66	990	16.50	0.4	0.071	0.190	0.060	0.01	1.74	1,563	769,340	591,695	0	0	769,340	17.66	452.21
67	1005	16.75	0.3	0.053	0.187	0.045	0.01	1.30	1,172	770,512	591,760	0	0	770,512	17.69	452.21
68	1020	17.00	0.3	0.053	0.185	0.045	0.01	1.30	1,172	771,685	591,826	0	0	771,685	17.72	452.21
69	1035	17.25	0.5	0.088	0.182	0.075	0.01	2.17	1,954	773,639	591,936	0	0	773,639	17.76	452.22
70	1050	17.50	0.5	0.088	0.179	0.075	0.01	2.17	1,954	775,593	592,046	0	0	775,593	17.81	452.22
71	1065	17.75	0.5	0.088	0.176	0.075	0.01	2.17	1,954	777,547	592,156	0	0	777,547	17.85	452.22
72	1080	18.00	0.4	0.071	0.174	0.060	0.01	1.74	1,563	779,110	592,243	0	0	779,110	17.89	452.23
73	1095	18.25	0.4	0.071	0.171	0.060	0.01	1.74	1,563	780,673	592,331	0	0	780,673	17.92	452.23
74	1110	18.50	0.4	0.071	0.169	0.060	0.01	1.74	1,563	782,236	592,419	0	0	782,236	17.96	452.23
75	1125	18.75	0.3	0.053	0.166	0.045	0.01	1.30	1,172	783,409	592,485	0	0	783,409	17.98	452.23
76	1140	19.00	0.2	0.035	0.164	0.030	0.01	0.87	782	784,190	592,529	0	0	784,190	18.00	452.23
77	1155	19.25	0.3	0.053	0.162	0.045	0.01	1.30	1,172	785,363	592,595	0	0	785,363	18.03	452.24
78	1170	19.50	0.4	0.071	0.159	0.060	0.01	1.74	1,563	786,926	592,682	0	0	786,926	18.07	452.24
79	1185	19.75	0.3	0.053	0.157	0.045	0.01	1.30	1,172	788,098	592,748	0	0	788,098	18.09	452.24
80	1200	20.00	0.2	0.035	0.155	0.030	0.01	0.87	782	788,880	592,792	0	0	788,880	18.11	452.24
81	1215	20.25	0.3	0.053	0.153	0.045	0.01	1.30	1,172	790,052	592,858	0	0	790,052	18.14	452.24
82	1230	20.50	0.3	0.053	0.151	0.045	0.01	1.30	1,172	791,224	592,924	0	0	791,224	18.16	452.24
83	1245	20.75	0.3	0.053	0.149	0.045	0.01	1.30	1,172	792,397	592,990	0	0	792,397	18.19	452.25
84	1260	21.00	0.2	0.035	0.147	0.030	0.01	0.87	782	793,178	593,033	0	0	793,178	18.21	452.25
85	1275	21.25	0.3	0.053	0.146	0.045	0.01	1.30	1,172	794,351	593,099	0	0	794,351	18.24	452.25
86	1290	21.50	0.2	0.035	0.144	0.030	0.01	0.87	782	795,132	593,143	0	0	795,132	18.25	452.25

RCFC & WCD
HYDROLOGY
MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	162.75	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	0.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.13		
LAG TIME - MINUTES	2.45	C	0.00246	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	612%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
87	1305	21.75	0.3	0.053	0.142	0.045	0.01	1.30	1,172	796,305	593,209	0	0	796,305	18.28	452.25
88	1320	22.00	0.2	0.035	0.141	0.030	0.01	0.87	782	797,086	593,253	0	0	797,086	18.30	452.25
89	1335	22.25	0.3	0.053	0.139	0.045	0.01	1.30	1,172	798,259	593,319	0	0	798,259	18.33	452.26
90	1350	22.50	0.2	0.035	0.138	0.030	0.01	0.87	782	799,040	593,363	0	0	799,040	18.34	452.26
91	1365	22.75	0.2	0.035	0.137	0.030	0.01	0.87	782	799,822	593,407	0	0	799,822	18.36	452.26
92	1380	23.00	0.2	0.035	0.136	0.030	0.01	0.87	782	800,603	593,450	0	0	800,603	18.38	452.26
93	1395	23.25	0.2	0.035	0.135	0.030	0.01	0.87	782	801,385	593,494	0	0	801,385	18.40	452.26
94	1410	23.50	0.2	0.035	0.134	0.030	0.01	0.87	782	802,167	593,538	0	0	802,167	18.42	452.26
95	1425	23.75	0.2	0.035	0.133	0.030	0.01	0.87	782	802,948	593,582	0	0	802,948	18.43	452.26
96	1440	24.00	0.2	0.035	0.133	0.030	0.01	0.87	782	803,730	593,626	0	0	**803,730**	**18.45**	**452.26**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	4.41 in
RAINFALL VOLUME	2,605,281 cu-ft
SOIL LOSSES	1,801,551 cu-ft
EFFECTIVE RAIN	1.36 in
FLOOD VOLUME	18.45 acft
FLOOD VOLUME	803,730 cu-ft
REQUIRED STORAGE	18.45 acft
REQUIRED STORAGE	803,730 cu-ft
MAX WSEL	452.26 ft
PEAK FLOW RATE	60.87 cfs
TOTAL BASIN LOSSES	0 cu-ft
AVERAGE PERCOLATION RATE	0.00 cf/min

BASIN VOLUME WORKSHEET

PROECT CORAL MOUNTAIN
JOB No. 2553
BASIN DESIGNATION: WAVE LAGOON

BASIN CHARACTERISTICS

CONTOUR ELEVATION	DEPTH		AREA		VOLUME		
	INCR (ft)	TOTAL (ft)	INCR (sf)	TOTAL (sf)	INCR (cuft)	TOTAL (cuft)	(acre-ft)
451	0	0		548,486	0	0	0.00
456	5	5	178,499	726,985	3,178,217	3,178,217	72.96

WHERE:

$$V = \frac{1}{3}(E_1 - E_2)\left(A_1 + A_2 + \sqrt{A_1 A_2}\right)$$

RCFCD SYNTHETIC UNIT HYDROGRAPH - SHORTCUT METHOD

DATA INPUT SHEET

DATE	March 30, 2020
WORKSHEET PREPARED BY:	DLS
PROJECT NAME	CORAL MOUNTAIN
PROJECT NUMBER	2553
CONCENTRATION POINT DESIGNATION	10 YEAR BASIN
AREA DESIGNATION	DA-A1
AMC NUMBER	2

Low Loss Conditions: X=Existing; D=Developed; BS=Retention

AREA DESIG	SOIL GROUP	TRIBUTARY AREAS	ACRES	LOW LOSS CONDITION	RI NUMBER	AMC II INFILTRATION RATE	IMPERVIOUS PERCENT
11	D	EXISTING BARREN	34.384	X	93	0.09	0.05
12	B	EXISTING OPEN BRUSH - POOR	30.363	X	76	0.29	0.05
2	B	PAVING/HARDSCAPE	0.000	D	56	0.51	1.00
3	B	WATER FEATURE	0.000	D	56	0.51	1.00
1	B	COMMERCIAL	0.000	D	56	0.51	0.90
6	B	SF - HIGH DENSITY	0.000	D	56	0.51	0.50
9	B	LANDSCAPING	23.665	D	56	0.51	0.10

LENGTH OF WATERCOURSE (L)	1,180 ft
LENGTH TO POINT OPPOSITE CENTROID (Lca)	590 ft
ELEVATION OF HEADWATER	960.0 ft
ELEVATION OF CONCENTRATION POINT	461.0 ft
AVERAGE MANNINGS 'N' VALUE	0.03
STORM FREQUENCY (YEAR)	10
LOW LOSS RATE (Storm Events > 10 Years)	**85%**
POINT RAIN FROM NOAA ATLAS	**14**
1-HOUR	0.71 in
3-HOUR	1.06 in
6-HOUR	1.36 in
24-HOUR	2.23 in

BASIN CHARACTERISTICS:

ELEVATION	AREA
459.0 ft	65,765 sf
460.0 ft	77,310 sf
461.0 ft	89,480 sf

PERCOLATION RATE (in/hr)	1.0 in/hr
DRYWELL DATA	
NUMBER USED	
PERCOLATION RATE	
LOWEST FLOWLINE ELEVATION	
LOWEST PAD ELEVATION	

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 3/30/20

PHYSICAL DATA

[1] CONCENTRATION POINT	10 YEAR BASIN
[2] AREA DESIGNATION	DA-A1
[3] AREA - ACRES	88.412
[4] L-FEET	1180
[5] L-MILES	0.223
[6] La-FEET	590.00
[7] La-MILES	0.112
[8] ELEVATION OF HEADWATER	960
[9] ELEVATION OF CONCENTRATION POINT	461
[10] H-FEET	499
[11] S-FEET/MILE	2232.8
[12] S^0.5	47.25
[13] L*LCA/S^0.5	0.001
[14] AVERAGE MANNINGS 'N'	0.03
[15] LAG TIME-HOURS	0.04
[16] LAG TIME-MINUTES	2.5
[17] 100% OF LAG-MINUTES	2.5
[18] 200% OF LAG-MINUTES	4.9

RAINFALL DATA

[1] AMC	II
[2] FREQUENCY-YEARS	10
FROM NOAA ATLAS	**14**
[3] STORM DURATION:	Point Rain
1-HOUR	0.71 in
3-HOUR	1.06 in
6-HOUR	1.36 in
24-HOUR	2.23 in

STORM EVENT SUMMARY

STORM DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
RAINFALL VOLUME	(cu-ft)	228,186	340,193	436,474	**715,689**
SOIL LOSSES	(cu-ft)	81,121	209,809	309,926	**625,214**
EFFECTIVE RAIN	(in)	0.46	0.41	0.39	0.28
FLOOD VOLUME	(cu-ft)	**147,065**	130,384	126,548	90,475
	(acre-ft)	**3.38**	2.99	2.91	2.08
REQUIRED STORAGE	(cu-ft)	**140,938**	113,286	95,565	19,645
	(acre-ft)	**3.24**	2.60	2.19	0.45
FACTOR OF SAFETY		1.10	1.37	1.62	7.88
STORAGE PROVIDED	(cu-ft)	154,781			
	(acre-ft)	3.55			
PEAK FLOW	(cfs)	n/a	70.45	58.94	7.64
MAXIMUM WSEL	(ft)	**460.83**	460.50	460.29	459.27
DEPTH	(ft)	**1.83**	1.50	1.29	0.27
LOWEST FLOWLINE ELEVATION					
DIFFERENCE	(ft)				
LOWEST PAD ELEVATION					
DIFFERENCE	(ft)				
ESTIMATED TIME TO DEWATER BASIN Based on Total Flood Volume & Average Percolation Rate	(days)	1.0	0.9	1.0	1.0

NOTE: PEAK FLOW FOR THE 1-HOUR STORM IS NOT REPRESENTATIVE. PER RCFCD PEAK DISCHARGES FROM THE 3-HOUR STORM SHOULD NORMALLY COMPARE WELL WITH RATIONAL PEAKS.

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM AMC II	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 3/30/20

AVERAGE ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA	AREA WEIGHTED AVERAGE	MAX AVERAGE ADJUSTED INFILTRATION RATE (in/hr)	LOW LOSS CONDITION	LOW LOSS RATE PER RCFC/2322	MIN AVERAGE ADJUSTED INFILTRATION RATE
D	EXISTING BARREN	93	0.09	5%	0.09	34.384	0.389	0.0334	UNDEVELOPED	0.9000	0.3500
B	EXISTING OPEN BRUSH - POOR	76	0.29	5%	0.28	30.363	0.343	0.0951	UNDEVELOPED	0.9000	0.3091
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	0.000	0.000	0.0000	DEVELOPED	0.1000	0.0000
B	WATER FEATURE	56	0.51	100%	0.05	0.000	0.000	0.0000	DEVELOPED	0.1000	0.0000
B	COMMERCIAL	56	0.51	90%	0.10	0.000	0.000	0.0000	DEVELOPED	0.1800	0.0000
B	SF - HIGH DENSITY	56	0.51	50%	0.28	0.000	0.000	0.0000	DEVELOPED	0.5000	0.0000
B	LANDSCAPING	56	0.51	10%	0.46	23.665	0.268	0.1242	DEVELOPED	0.8200	0.2195
					SUM	88.412	SUM	0.2528			0.8786

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.126381397

C= 0.00234

$F_t = C(24-(T/60))^{1.55} + F_m$ = 0.00234 (24-(T/60))^1.55 + 0.13 in/hr

CONSTANT LOSS RATE (3 & 6 HOUR STORMS) = **0.2528**

LOW LOSS RATE = **0.8786**

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period, T=1 1/2 unit time for the second period, etc.

NOTE: Low loss rates established per RCFC/2322 (Dated: May-30-95)
For 10 Year Storms or Less
Undeveloped Condition: Low Loss = 90%
Developed Condition: Low Loss = 0.9 - (0.8 * %impervious)
Basin Site: Low Loss = 10%
For 100 Year Storm - Low Loss should be between 80% & 90% of the Rainfall Rate

RCFC & WCD
HYDROLOGY
MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

1-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	88.41
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.46
UNIT TIME-PERCENT OF LAG	203.6
TOTAL ADJUSTED STORM RAIN-INCHES	0.71
CONSTANT LOSS RATE-in/hr	0.25
LOW LOSS RATE - PERCENT	87.86%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	3.6	0.31	0.25	0.27	0.05	4.85	1,455	1,455	66,000	458	458	996	0.02	459.01
2	10	0.17	4.2	0.36	0.25	0.31	0.11	9.41	2,824	3,820	66,382	461	461	3,359	0.08	459.05
3	15	0.25	4.4	0.38	0.25	0.33	0.12	10.93	3,280	6,639	66,838	464	464	6,175	0.14	459.09
4	20	0.33	4.6	0.39	0.25	0.34	0.14	12.45	3,736	9,911	67,366	468	468	9,444	0.22	459.13
5	25	0.42	5.0	0.43	0.25	0.37	0.17	15.50	4,649	14,093	68,042	473	473	13,620	0.31	459.19
6	30	0.50	5.6	0.48	0.25	0.42	0.23	20.06	6,018	19,639	68,938	479	479	19,160	0.44	459.27
7	35	0.58	6.4	0.55	0.25	0.48	0.29	26.15	7,844	27,004	70,128	487	487	26,517	0.61	459.37
8	40	0.67	8.1	0.69	0.25	0.61	0.44	39.08	11,723	38,240	71,943	500	500	37,740	0.87	459.53
9	45	0.75	13.1	1.12	0.25	0.98	0.86	77.11	23,132	60,873	75,600	525	525	60,348	1.39	459.84
10	50	0.83	34.5	2.94	0.25	2.59	2.69	**239.88**	**71,964**	132,312	86,198	599	599	131,713	3.02	460.72
11	55	0.92	6.7	0.57	0.25	0.50	0.32	28.43	8,528	140,241	87,356	607	607	139,635	3.21	460.82
12	60	1.00	3.8	0.32	0.25	0.28	0.07	6.37	1,911	141,546	87,547	608	608	**140,938**	**3.24**	**460.83**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY	
TOTAL RAINFALL	0.71 in
RAINFALL VOLUME	228,186 cu-ft
SOIL LOSSES	81,121 cu-ft
EFFECTIVE RAIN	0.46 in
FLOOD VOLUME	3.38 acft
FLOOD VOLUME	147,065 cu-ft
REQUIRED STORAGE	3.24
REQUIRED STORAGE	140,938 cu-ft
MAX WSEL	460.83 ft
PEAK FLOW RATE	239.88 cfs
TOTAL BASIN LOSSES	6,127 cu-ft
AVERAGE PERCOLATION RATE	102.12 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	88.41
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.46
UNIT TIME-PERCENT OF LAG	203.6
TOTAL ADJUSTED STORM RAIN (in)	1.06
CONSTANT LOSS RATE (in/hr)	0.25
LOW LOSS RATE - PERCENT	87.86%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain in/hr	in/hr Max	Low	Rain in/hr	Hydrograph Flow cfs	In cu-ft	Volume cu-ft	Percolation Area sf	Maximum Percolation cu-ft	Percolation Out cu-ft	cu-ft	ac-ft	WSEL ft
			(Plate E-5.9)													
1	5	0.08	1.3	0.17	0.25	0.15	0.02	1.79	537	537	65,852	457	457	80	0.00	459.00
2	10	0.17	1.3	0.17	0.25	0.15	0.02	1.79	537	617	65,865	457	457	159	0.00	459.00
3	15	0.25	1.1	0.14	0.25	0.12	0.02	1.51	454	614	65,864	457	457	156	0.00	459.00
4	20	0.33	1.5	0.19	0.25	0.17	0.02	2.07	620	776	65,890	458	458	318	0.01	459.00
5	25	0.42	1.5	0.19	0.25	0.17	0.02	2.07	620	938	65,916	458	458	480	0.01	459.01
6	30	0.50	1.8	0.23	0.25	0.20	0.03	2.48	743	1,223	65,963	458	458	765	0.02	459.01
7	35	0.58	1.5	0.19	0.25	0.17	0.02	2.07	620	1,385	65,989	458	458	927	0.02	459.01
8	40	0.67	1.8	0.23	0.25	0.20	0.03	2.48	743	1,670	66,035	459	459	1,212	0.03	459.02
9	45	0.75	1.8	0.23	0.25	0.20	0.03	2.48	743	1,955	66,081	459	459	1,496	0.03	459.02
10	50	0.83	1.5	0.19	0.25	0.17	0.02	2.07	620	2,116	66,107	459	459	1,657	0.04	459.02
11	55	0.92	1.6	0.20	0.25	0.18	0.02	2.20	661	2,317	66,139	459	459	1,858	0.04	459.03
12	60	1.00	1.8	0.23	0.25	0.20	0.03	2.48	743	2,602	66,185	460	460	2,142	0.05	459.03
13	65	1.08	2.2	0.28	0.25	0.25	0.03	2.41	724	2,866	66,228	460	460	2,406	0.06	459.03
14	70	1.17	2.2	0.28	0.25	0.25	0.03	2.41	724	3,130	66,271	460	460	2,670	0.06	459.04
15	75	1.25	2.2	0.28	0.25	0.25	0.03	2.41	724	3,394	66,313	461	461	2,934	0.07	459.04
16	80	1.33	2.0	0.25	0.25	0.22	0.00	0.15	44	2,978	66,246	460	460	2,518	0.06	459.04
17	85	1.42	2.6	0.33	0.25	0.29	0.08	6.95	2,085	4,603	66,509	462	462	4,141	0.10	459.06
18	90	1.50	2.7	0.34	0.25	0.30	0.09	8.08	2,425	6,566	66,826	464	464	6,102	0.14	459.09
19	95	1.58	2.4	0.31	0.25	0.27	0.05	4.68	1,405	7,506	66,978	465	465	7,041	0.16	459.10
20	100	1.67	2.7	0.34	0.25	0.30	0.09	8.08	2,425	9,466	67,294	467	467	8,999	0.21	459.13
21	105	1.75	3.3	0.42	0.25	0.37	0.17	14.89	4,466	13,465	67,940	472	472	12,994	0.30	459.18
22	110	1.83	3.1	0.39	0.25	0.35	0.14	12.62	3,786	16,779	68,476	476	476	16,304	0.37	459.23
23	115	1.92	2.9	0.37	0.25	0.32	0.12	10.35	3,106	19,409	68,901	478	478	18,931	0.43	459.26
24	120	2.00	3.0	0.38	0.25	0.34	0.13	11.49	3,446	22,377	69,380	482	482	21,895	0.50	459.31
25	125	2.08	3.1	0.39	0.25	0.35	0.14	12.62	3,786	25,681	69,914	486	486	25,195	0.58	459.35

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	88.41
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.46
UNIT TIME-PERCENT OF LAG	203.6
TOTAL ADJUSTED STORM RAIN (in)	1.06
CONSTANT LOSS RATE (in/hr)	0.25
LOW LOSS RATE - PERCENT	87.86%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain in/hr	in/hr Max	Low	Rain in/hr	Hydrograph Flow cfs	In cu-ft	Volume cu-ft	Percolation Area sf	Maximum Percolation cu-ft	Percolation Out cu-ft	cu-ft	ac-ft	WSEL ft
			(Plate E-5.9)													
26	130	2.17	4.2	0.53	0.25	0.47	0.28	25.09	7,528	32,723	71,052	493	493	32,230	0.74	459.45
27	135	2.25	5.0	0.64	0.25	0.56	0.38	34.17	10,250	42,479	72,628	504	504	41,975	0.96	459.59
28	140	2.33	3.5	0.45	0.25	0.39	0.19	17.16	5,147	47,122	73,378	510	510	46,612	1.07	459.65
29	145	2.42	6.8	0.86	0.25	0.76	0.61	54.58	16,373	62,985	75,941	527	527	62,458	1.43	459.87
30	150	2.50	7.3	0.93	0.25	0.82	0.68	60.25	18,074	80,532	78,635	546	546	79,986	1.84	460.10
31	155	2.58	8.2	1.04	0.25	0.92	0.79	**70.45**	**21,136**	101,122	81,642	567	567	100,555	2.31	460.35
32	160	2.67	5.9	0.75	0.25	0.66	0.50	44.37	13,311	113,866	83,504	580	580	**113,286**	**2.60**	**460.50**
33	165	2.75	2.0	0.25	0.25	0.22	0.00	0.15	44	113,330	83,426	579	579	112,751	2.59	460.50
34	170	2.83	1.8	0.23	0.25	0.20	0.03	2.48	743	113,494	83,450	580	580	112,914	2.59	460.50
35	175	2.92	1.8	0.23	0.25	0.20	0.03	2.48	743	113,658	83,474	580	580	113,078	2.60	460.50
36	180	3.00	0.6	0.08	0.25	0.07	0.01	0.83	248	113,326	83,425	579	579	112,747	2.59	460.50

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAIN	1.06 in
RAINFALL VOLUME	340,193 cu-ft
SOIL LOSSES	209,809 cu-ft
EFFECTIVE RAIN	0.41 in
FLOOD VOLUME	2.99 acft
FLOOD VOLUME	130,384 cu-ft
REQUIRED STORAGE	2.60 acft
REQUIRED STORAGE	113,286 cu-ft
MAX WSEL	460.50 ft
PEAK FLOW RATE	70.45 cfs
TOTAL BASIN LOSSES	17,637 cu-ft
AVERAGE PERCOLATION RATE	97.98 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	88.41
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.46
UNIT TIME-PERCENT OF LAG	203.6
TOTAL ADJUSTED STORM RAIN (in)	1.36
CONSTANT LOSS RATE (in/hr)	0.25
LOW LOSS RATE - PERCENT	87.86%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	0.5	0.08	0.25	0.07	0.01	0.88	265	265	65,808	457	265	0	0.00	459.00
2	10	0.17	0.6	0.10	0.25	0.09	0.01	1.06	318	318	65,816	457	318	0	0.00	459.00
3	15	0.25	0.6	0.10	0.25	0.09	0.01	1.06	318	318	65,816	457	318	0	0.00	459.00
4	20	0.33	0.6	0.10	0.25	0.09	0.01	1.06	318	318	65,816	457	318	0	0.00	459.00
5	25	0.42	0.6	0.10	0.25	0.09	0.01	1.06	318	318	65,816	457	318	0	0.00	459.00
6	30	0.50	0.7	0.11	0.25	0.10	0.01	1.24	371	371	65,825	457	371	0	0.00	459.00
7	35	0.58	0.7	0.11	0.25	0.10	0.01	1.24	371	371	65,825	457	371	0	0.00	459.00
8	40	0.67	0.7	0.11	0.25	0.10	0.01	1.24	371	371	65,825	457	371	0	0.00	459.00
9	45	0.75	0.7	0.11	0.25	0.10	0.01	1.24	371	371	65,825	457	371	0	0.00	459.00
10	50	0.83	0.7	0.11	0.25	0.10	0.01	1.24	371	371	65,825	457	371	0	0.00	459.00
11	55	0.92	0.7	0.11	0.25	0.10	0.01	1.24	371	371	65,825	457	371	0	0.00	459.00
12	60	1.00	0.8	0.13	0.25	0.11	0.02	1.41	424	424	65,833	457	424	0	0.00	459.00
13	65	1.08	0.8	0.13	0.25	0.11	0.02	1.41	424	424	65,833	457	424	0	0.00	459.00
14	70	1.17	0.8	0.13	0.25	0.11	0.02	1.41	424	424	65,833	457	424	0	0.00	459.00
15	75	1.25	0.8	0.13	0.25	0.11	0.02	1.41	424	424	65,833	457	424	0	0.00	459.00
16	80	1.33	0.8	0.13	0.25	0.11	0.02	1.41	424	424	65,833	457	424	0	0.00	459.00
17	85	1.42	0.8	0.13	0.25	0.11	0.02	1.41	424	424	65,833	457	424	0	0.00	459.00
18	90	1.50	0.8	0.13	0.25	0.11	0.02	1.41	424	424	65,833	457	424	0	0.00	459.00
19	95	1.58	0.8	0.13	0.25	0.11	0.02	1.41	424	424	65,833	457	424	0	0.00	459.00
20	100	1.67	0.8	0.13	0.25	0.11	0.02	1.41	424	424	65,833	457	424	0	0.00	459.00
21	105	1.75	0.8	0.13	0.25	0.11	0.02	1.41	424	424	65,833	457	424	0	0.00	459.00
22	110	1.83	0.8	0.13	0.25	0.11	0.02	1.41	424	424	65,833	457	424	0	0.00	459.00
23	115	1.92	0.8	0.13	0.25	0.11	0.02	1.41	424	424	65,833	457	424	0	0.00	459.00
24	120	2.00	0.9	0.15	0.25	0.13	0.02	1.59	477	477	65,842	457	457	20	0.00	459.00

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	88.41
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.46
UNIT TIME-PERCENT OF LAG	203.6
TOTAL ADJUSTED STORM RAIN (in)	1.36
CONSTANT LOSS RATE (in/hr)	0.25
LOW LOSS RATE - PERCENT	87.86%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain	in/hr		Rain	Hydrograph	In	Volume	Percolation	Maximum	Percolation			WSEL
				in/hr	Max	Low		Flow			Area	Percolation	Out			
			(Plate E-5.9)				in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
25	125	2.08	0.8	0.13	0.25	0.11	0.02	1.41	424	444	65,837	457	444	0	0.00	459.00
26	130	2.17	0.9	0.15	0.25	0.13	0.02	1.59	477	477	65,842	457	457	20	0.00	459.00
27	135	2.25	0.9	0.15	0.25	0.13	0.02	1.59	477	497	65,845	457	457	39	0.00	459.00
28	140	2.33	0.9	0.15	0.25	0.13	0.02	1.59	477	516	65,848	457	457	59	0.00	459.00
29	145	2.42	0.9	0.15	0.25	0.13	0.02	1.59	477	536	65,852	457	457	79	0.00	459.00
30	150	2.50	0.9	0.15	0.25	0.13	0.02	1.59	477	556	65,855	457	457	98	0.00	459.00
31	155	2.58	0.9	0.15	0.25	0.13	0.02	1.59	477	575	65,858	457	457	118	0.00	459.00
32	160	2.67	0.9	0.15	0.25	0.13	0.02	1.59	477	595	65,861	457	457	137	0.00	459.00
33	165	2.75	1.0	0.16	0.25	0.14	0.02	1.77	530	667	65,873	457	457	210	0.00	459.00
34	170	2.83	1.0	0.16	0.25	0.14	0.02	1.77	530	740	65,885	458	458	282	0.01	459.00
35	175	2.92	1.0	0.16	0.25	0.14	0.02	1.77	530	812	65,896	458	458	355	0.01	459.00
36	180	3.00	1.0	0.16	0.25	0.14	0.02	1.77	530	885	65,908	458	458	427	0.01	459.01
37	185	3.08	1.0	0.16	0.25	0.14	0.02	1.77	530	957	65,920	458	458	499	0.01	459.01
38	190	3.17	1.1	0.18	0.25	0.16	0.02	1.94	583	1,082	65,940	458	458	624	0.01	459.01
39	195	3.25	1.1	0.18	0.25	0.16	0.02	1.94	583	1,207	65,960	458	458	749	0.02	459.01
40	200	3.33	1.1	0.18	0.25	0.16	0.02	1.94	583	1,332	65,980	458	458	874	0.02	459.01
41	205	3.42	1.2	0.20	0.25	0.17	0.02	2.12	636	1,510	66,009	458	458	1,051	0.02	459.01
42	210	3.50	1.3	0.21	0.25	0.19	0.03	2.30	689	1,740	66,046	459	459	1,282	0.03	459.02
43	215	3.58	1.4	0.23	0.25	0.20	0.03	2.47	742	2,023	66,092	459	459	1,564	0.04	459.02
44	220	3.67	1.4	0.23	0.25	0.20	0.03	2.47	742	2,306	66,138	459	459	1,847	0.04	459.03
45	225	3.75	1.5	0.24	0.25	0.22	0.03	2.65	795	2,642	66,192	460	460	2,182	0.05	459.03
46	230	3.83	1.5	0.24	0.25	0.22	0.03	2.65	795	2,977	66,246	460	460	2,517	0.06	459.04
47	235	3.92	1.6	0.26	0.25	0.23	0.01	0.75	224	2,741	66,208	460	460	2,281	0.05	459.03
48	240	4.00	1.6	0.26	0.25	0.23	0.01	0.75	224	2,504	66,170	460	460	2,045	0.05	459.03
49	245	4.08	1.7	0.28	0.25	0.24	0.02	2.20	660	2,705	66,202	460	460	2,245	0.05	459.03
50	250	4.17	1.8	0.29	0.25	0.26	0.04	3.65	1,096	3,342	66,305	460	460	2,881	0.07	459.04

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	88.41
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.46
UNIT TIME-PERCENT OF LAG	203.6
TOTAL ADJUSTED STORM RAIN (in)	1.36
CONSTANT LOSS RATE (in/hr)	0.25
LOW LOSS RATE - PERCENT	87.86%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern Percent	Storm Rain	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
	Minutes	Hours	(Plate E-5.9)	in/hr	Max	Low	in/hr	cfs	cu-ft	cu-ft	Percolation Area sf	Maximum Percolation cu-ft	Percolation Out cu-ft	cu-ft	ac-ft	ft
51	255	4.25	1.9	0.31	0.25	0.27	0.06	5.11	1,533	4,414	66,478	462	462	3,952	0.09	459.06
52	260	4.33	2.0	0.33	0.25	0.29	0.07	6.56	1,969	5,922	66,722	463	463	5,459	0.13	459.08
53	265	4.42	2.1	0.34	0.25	0.30	0.09	8.02	2,406	7,864	67,036	466	466	7,399	0.17	459.10
54	270	4.50	2.1	0.34	0.25	0.30	0.09	8.02	2,406	9,805	67,349	468	468	9,337	0.21	459.13
55	275	4.58	2.2	0.36	0.25	0.32	0.11	9.47	2,842	12,179	67,733	470	470	11,709	0.27	459.16
56	280	4.67	2.3	0.38	0.25	0.33	0.12	10.93	3,279	14,988	68,186	474	474	14,514	0.33	459.20
57	285	4.75	2.4	0.39	0.25	0.34	0.14	12.38	3,715	18,230	68,710	477	477	17,753	0.41	459.25
58	290	4.83	2.4	0.39	0.25	0.34	0.14	12.38	3,715	21,468	69,233	481	481	20,987	0.48	459.29
59	295	4.92	2.5	0.41	0.25	0.36	0.16	13.84	4,152	25,139	69,826	485	485	24,654	0.57	459.35
60	300	5.00	2.6	0.42	0.25	0.37	0.17	15.29	4,588	29,242	70,489	490	490	28,753	0.66	459.40
61	305	5.08	3.1	0.51	0.25	0.44	0.25	22.57	6,771	35,523	71,504	497	497	35,027	0.80	459.49
62	310	5.17	3.6	0.59	0.25	0.52	0.33	29.84	8,953	43,980	72,870	506	506	43,474	1.00	459.61
63	315	5.25	3.9	0.64	0.25	0.56	0.38	34.21	10,262	53,736	74,447	517	517	53,219	1.22	459.74
64	320	5.33	4.2	0.69	0.25	0.60	0.43	38.57	11,572	64,791	76,233	529	529	64,262	1.48	459.90
65	325	5.42	4.7	0.77	0.25	0.67	0.51	45.85	13,754	78,016	78,268	544	544	77,472	1.78	460.07
66	330	5.50	5.6	0.91	0.25	0.80	0.66	**58.94**	**17,682**	95,155	80,771	561	561	94,594	2.17	460.28
67	335	5.58	1.9	0.31	0.25	0.27	0.06	5.11	1,533	96,127	80,913	562	562	**95,565**	**2.19**	**460.29**
68	340	5.67	0.9	0.15	0.25	0.13	0.02	1.59	477	96,042	80,900	562	562	95,480	2.19	460.29
69	345	5.75	0.6	0.10	0.25	0.09	0.01	1.06	318	95,798	80,865	562	562	95,236	2.19	460.29
70	350	5.83	0.5	0.08	0.25	0.07	0.01	0.88	265	95,501	80,822	561	561	94,940	2.18	460.28
71	355	5.92	0.3	0.05	0.25	0.04	0.01	0.53	159	95,099	80,763	561	561	94,538	2.17	460.28
72	360	6.00	0.2	0.03	0.25	0.03	0.00	0.35	106	94,644	80,696	560	560	94,084	2.16	460.27

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	1.36 in
RAINFALL VOLUME	436,474 cu-ft
SOIL LOSSES	309,926 cu-ft
EFFECTIVE RAIN	0.39 in
FLOOD VOLUME	2.91 acft
FLOOD VOLUME	126,548 cu-ft
REQUIRED STORAGE	2.19 acft
REQUIRED STORAGE	95,565 cu-ft
MAX WSEL	460.29 ft
PEAK FLOW RATE	58.94 cfs
TOTAL BASIN LOSSES	32,464 cu-ft
AVERAGE PERCOLATION RATE	90.18 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	88.41	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.13		
LAG TIME - MINUTES	2.46	C	0.00234	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	611%	Low Loss Rate (percent)	87.86%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	2.23			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
1	15	0.25	0.2	0.018	0.446	0.016	0.00	0.19	174	174	65,793	1,371	174	0	0.00	459.00
2	30	0.50	0.3	0.027	0.441	0.024	0.00	0.29	261	261	65,807	1,371	261	0	0.00	459.00
3	45	0.75	0.3	0.027	0.436	0.024	0.00	0.29	261	261	65,807	1,371	261	0	0.00	459.00
4	60	1.00	0.4	0.036	0.431	0.031	0.00	0.39	348	348	65,821	1,371	348	0	0.00	459.00
5	75	1.25	0.3	0.027	0.426	0.024	0.00	0.29	261	261	65,807	1,371	261	0	0.00	459.00
6	90	1.50	0.3	0.027	0.421	0.024	0.00	0.29	261	261	65,807	1,371	261	0	0.00	459.00
7	105	1.75	0.3	0.027	0.416	0.024	0.00	0.29	261	261	65,807	1,371	261	0	0.00	459.00
8	120	2.00	0.4	0.036	0.411	0.031	0.00	0.39	348	348	65,821	1,371	348	0	0.00	459.00
9	135	2.25	0.4	0.036	0.406	0.031	0.00	0.39	348	348	65,821	1,371	348	0	0.00	459.00
10	150	2.50	0.4	0.036	0.401	0.031	0.00	0.39	348	348	65,821	1,371	348	0	0.00	459.00
11	165	2.75	0.5	0.045	0.396	0.039	0.01	0.48	434	434	65,835	1,372	434	0	0.00	459.00
12	180	3.00	0.5	0.045	0.391	0.039	0.01	0.48	434	434	65,835	1,372	434	0	0.00	459.00
13	195	3.25	0.5	0.045	0.386	0.039	0.01	0.48	434	434	65,835	1,372	434	0	0.00	459.00
14	210	3.50	0.5	0.045	0.381	0.039	0.01	0.48	434	434	65,835	1,372	434	0	0.00	459.00
15	225	3.75	0.5	0.045	0.377	0.039	0.01	0.48	434	434	65,835	1,372	434	0	0.00	459.00
16	240	4.00	0.6	0.054	0.372	0.047	0.01	0.58	521	521	65,849	1,372	521	0	0.00	459.00
17	255	4.25	0.6	0.054	0.367	0.047	0.01	0.58	521	521	65,849	1,372	521	0	0.00	459.00
18	270	4.50	0.7	0.062	0.363	0.055	0.01	0.68	608	608	65,863	1,372	608	0	0.00	459.00
19	285	4.75	0.7	0.062	0.358	0.055	0.01	0.68	608	608	65,863	1,372	608	0	0.00	459.00
20	300	5.00	0.8	0.071	0.353	0.063	0.01	0.77	695	695	65,877	1,372	695	0	0.00	459.00
21	315	5.25	0.6	0.054	0.349	0.047	0.01	0.58	521	521	65,849	1,372	521	0	0.00	459.00
22	330	5.50	0.7	0.062	0.344	0.055	0.01	0.68	608	608	65,863	1,372	608	0	0.00	459.00
23	345	5.75	0.8	0.071	0.340	0.063	0.01	0.77	695	695	65,877	1,372	695	0	0.00	459.00
24	360	6.00	0.8	0.071	0.335	0.063	0.01	0.77	695	695	65,877	1,372	695	0	0.00	459.00
25	375	6.25	0.9	0.080	0.331	0.071	0.01	0.87	782	782	65,891	1,373	782	0	0.00	459.00
26	390	6.50	0.9	0.080	0.326	0.071	0.01	0.87	782	782	65,891	1,373	782	0	0.00	459.00
27	405	6.75	1.0	0.089	0.322	0.078	0.01	0.97	869	869	65,905	1,373	869	0	0.00	459.00
28	420	7.00	1.0	0.089	0.318	0.078	0.01	0.97	869	869	65,905	1,373	869	0	0.00	459.00
29	435	7.25	1.0	0.089	0.313	0.078	0.01	0.97	869	869	65,905	1,373	869	0	0.00	459.00
30	450	7.50	1.1	0.098	0.309	0.086	0.01	1.06	956	956	65,919	1,373	956	0	0.00	459.00
31	465	7.75	1.2	0.107	0.305	0.094	0.01	1.16	1,043	1,043	65,933	1,374	1,043	0	0.00	459.00
32	480	8.00	1.3	0.116	0.301	0.102	0.01	1.26	1,130	1,130	65,948	1,374	1,130	0	0.00	459.00
33	495	8.25	1.5	0.134	0.296	0.118	0.02	1.45	1,303	1,303	65,976	1,374	1,303	0	0.00	459.00
34	510	8.50	1.5	0.134	0.292	0.118	0.02	1.45	1,303	1,303	65,976	1,374	1,303	0	0.00	459.00
35	525	8.75	1.6	0.143	0.288	0.125	0.02	1.54	1,390	1,390	65,990	1,375	1,375	16	0.00	459.00
36	540	9.00	1.7	0.152	0.284	0.133	0.02	1.64	1,477	1,493	66,006	1,375	1,375	118	0.00	459.00
37	555	9.25	1.9	0.169	0.280	0.149	0.02	1.83	1,651	1,769	66,051	1,376	1,376	393	0.01	459.01
38	570	9.50	2.0	0.178	0.276	0.157	0.02	1.93	1,738	2,130	66,109	1,377	1,377	753	0.02	459.01
39	585	9.75	2.1	0.187	0.272	0.165	0.02	2.03	1,825	2,578	66,181	1,379	1,379	1,199	0.03	459.02
40	600	10.00	2.2	0.196	0.268	0.172	0.02	2.12	1,912	3,111	66,268	1,381	1,381	1,730	0.04	459.02
41	615	10.25	1.5	0.134	0.264	0.118	0.02	1.45	1,303	3,034	66,255	1,380	1,380	1,653	0.04	459.02
42	630	10.50	1.5	0.134	0.261	0.118	0.02	1.45	1,303	2,957	66,243	1,380	1,380	1,577	0.04	459.02
43	645	10.75	2.0	0.178	0.257	0.157	0.02	1.93	1,738	3,315	66,301	1,381	1,381	1,933	0.04	459.03

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	88.41	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.13		
LAG TIME - MINUTES	2.46	C	0.00234	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	611%	Low Loss Rate (percent)	87.86%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	2.23			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses Percolation Area	Maximum Percolation	Percolation Out	Total In Basin		Basin WSEL
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
44	660	11.00	2.0	0.178	0.253	0.157	0.02	1.93	1,738	3,671	66,358	1,382	1,382	2,289	0.05	459.03
45	675	11.25	1.9	0.169	0.249	0.149	0.02	1.83	1,651	3,940	66,402	1,383	1,383	2,556	0.06	459.04
46	690	11.50	1.9	0.169	0.246	0.149	0.02	1.83	1,651	4,207	66,445	1,384	1,384	2,823	0.06	459.04
47	705	11.75	1.7	0.152	0.242	0.133	0.02	1.64	1,477	4,300	66,460	1,385	1,385	2,916	0.07	459.04
48	720	12.00	1.8	0.161	0.238	0.141	0.02	1.74	1,564	4,480	66,489	1,385	1,385	3,095	0.07	459.04
49	735	12.25	2.5	0.223	0.235	0.196	0.03	2.41	2,172	5,267	66,616	1,388	1,388	3,879	0.09	459.05
50	750	12.50	2.6	0.232	0.231	0.204	0.00	0.06	54	3,933	66,400	1,383	1,383	2,550	0.06	459.04
51	765	12.75	2.8	0.250	0.228	0.219	0.02	1.96	1,764	4,313	66,462	1,385	1,385	2,929	0.07	459.04
52	780	13.00	2.9	0.259	0.224	0.227	0.03	3.06	2,755	5,684	66,683	1,389	1,389	4,295	0.10	459.06
53	795	13.25	3.4	0.303	0.221	0.266	0.08	7.34	6,606	10,900	67,526	1,407	1,407	9,493	0.22	459.13
54	810	13.50	3.4	0.303	0.218	0.266	0.09	**7.64**	**6,874**	16,368	68,409	1,425	1,425	14,942	0.34	459.21
55	825	13.75	2.3	0.205	0.214	0.180	0.02	2.22	1,999	16,941	68,502	1,427	1,427	15,514	0.36	459.22
56	840	14.00	2.3	0.205	0.211	0.180	0.02	2.22	1,999	17,512	68,594	1,429	1,429	16,083	0.37	459.23
57	855	14.25	2.7	0.241	0.208	0.212	0.03	2.94	2,649	18,733	68,791	1,433	1,433	17,300	0.40	459.24
58	870	14.50	2.6	0.232	0.205	0.204	0.03	2.43	2,188	19,488	68,913	1,436	1,436	18,052	0.41	459.25
59	885	14.75	2.6	0.232	0.202	0.204	0.03	2.71	2,439	20,492	69,076	1,439	1,439	19,053	0.44	459.27
60	900	15.00	2.5	0.223	0.198	0.196	0.02	2.19	1,971	21,024	69,162	1,441	1,441	19,583	0.45	459.27
61	915	15.25	2.4	0.214	0.195	0.188	0.02	1.67	1,499	21,082	69,171	1,441	1,441	19,641	0.45	459.27
62	930	15.50	2.3	0.205	0.192	0.180	0.01	1.14	1,023	20,664	69,103	1,440	1,440	19,224	0.44	459.27
63	945	15.75	1.9	0.169	0.189	0.149	0.02	1.83	1,651	20,875	69,138	1,440	1,440	19,435	0.45	459.27
64	960	16.00	1.9	0.169	0.187	0.149	0.02	1.83	1,651	21,086	69,172	1,441	1,441	**19,645**	**0.45**	**459.27**
65	975	16.25	0.4	0.036	0.184	0.031	0.00	0.39	348	19,992	68,995	1,437	1,437	18,555	0.43	459.26
66	990	16.50	0.4	0.036	0.181	0.031	0.00	0.39	348	18,902	68,819	1,434	1,434	17,469	0.40	459.24
67	1005	16.75	0.3	0.027	0.178	0.024	0.00	0.29	261	17,729	68,629	1,430	1,430	16,300	0.37	459.23
68	1020	17.00	0.3	0.027	0.175	0.024	0.00	0.29	261	16,560	68,440	1,426	1,426	15,134	0.35	459.21
69	1035	17.25	0.5	0.045	0.173	0.039	0.01	0.48	434	15,569	68,280	1,423	1,423	14,146	0.32	459.20
70	1050	17.50	0.5	0.045	0.170	0.039	0.01	0.48	434	14,581	68,121	1,419	1,419	13,162	0.30	459.18
71	1065	17.75	0.5	0.045	0.168	0.039	0.01	0.48	434	13,596	67,962	1,416	1,416	12,180	0.28	459.17
72	1080	18.00	0.4	0.036	0.165	0.031	0.00	0.39	348	12,528	67,789	1,412	1,412	11,116	0.26	459.16
73	1095	18.25	0.4	0.036	0.163	0.031	0.00	0.39	348	11,463	67,617	1,409	1,409	10,055	0.23	459.14
74	1110	18.50	0.4	0.036	0.160	0.031	0.00	0.39	348	10,402	67,446	1,405	1,405	8,997	0.21	459.13
75	1125	18.75	0.3	0.027	0.158	0.024	0.00	0.29	261	9,258	67,261	1,401	1,401	7,856	0.18	459.11
76	1140	19.00	0.2	0.018	0.156	0.016	0.00	0.19	174	8,030	67,062	1,397	1,397	6,633	0.15	459.09
77	1155	19.25	0.3	0.027	0.154	0.024	0.00	0.29	261	6,894	66,879	1,393	1,393	5,500	0.13	459.08
78	1170	19.50	0.4	0.036	0.152	0.031	0.00	0.39	348	5,848	66,710	1,390	1,390	4,458	0.10	459.06
79	1185	19.75	0.3	0.027	0.149	0.024	0.00	0.29	261	4,719	66,527	1,386	1,386	3,333	0.08	459.05
80	1200	20.00	0.2	0.018	0.147	0.016	0.00	0.19	174	3,507	66,332	1,382	1,382	2,125	0.05	459.03
81	1215	20.25	0.3	0.027	0.145	0.024	0.00	0.29	261	2,386	66,150	1,378	1,378	1,007	0.02	459.01
82	1230	20.50	0.3	0.027	0.144	0.024	0.00	0.29	261	1,268	65,970	1,374	1,268	0	0.00	459.00
83	1245	20.75	0.3	0.027	0.142	0.024	0.00	0.29	261	261	65,807	1,371	261	0	0.00	459.00
84	1260	21.00	0.2	0.018	0.140	0.016	0.00	0.19	174	174	65,793	1,371	174	0	0.00	459.00
85	1275	21.25	0.3	0.027	0.138	0.024	0.00	0.29	261	261	65,807	1,371	261	0	0.00	459.00
86	1290	21.50	0.2	0.018	0.137	0.016	0.00	0.19	174	174	65,793	1,371	174	0	0.00	459.00

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	88.41	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.13		
LAG TIME - MINUTES	2.46	C	0.00234	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	611%	Low Loss Rate (percent)	87.86%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	2.23			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
87	1305	21.75	0.3	0.027	0.135	0.024	0.00	0.29	261	261	65,807	1,371	261	0	0.00	459.00
88	1320	22.00	0.2	0.018	0.134	0.016	0.00	0.19	174	174	65,793	1,371	174	0	0.00	459.00
89	1335	22.25	0.3	0.027	0.133	0.024	0.00	0.29	261	261	65,807	1,371	261	0	0.00	459.00
90	1350	22.50	0.2	0.018	0.131	0.016	0.00	0.19	174	174	65,793	1,371	174	0	0.00	459.00
91	1365	22.75	0.2	0.018	0.130	0.016	0.00	0.19	174	174	65,793	1,371	174	0	0.00	459.00
92	1380	23.00	0.2	0.018	0.129	0.016	0.00	0.19	174	174	65,793	1,371	174	0	0.00	459.00
93	1395	23.25	0.2	0.018	0.128	0.016	0.00	0.19	174	174	65,793	1,371	174	0	0.00	459.00
94	1410	23.50	0.2	0.018	0.128	0.016	0.00	0.19	174	174	65,793	1,371	174	0	0.00	459.00
95	1425	23.75	0.2	0.018	0.127	0.016	0.00	0.19	174	174	65,793	1,371	174	0	0.00	459.00
96	1440	24.00	0.2	0.018	0.126	0.016	0.00	0.19	174	174	65,793	1,371	174	0	0.00	459.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	2.23 in
RAINFALL VOLUME	715,689 cu-ft
SOIL LOSSES	625,214 cu-ft
EFFECTIVE RAIN	0.28 in
FLOOD VOLUME	2.08 acft
FLOOD VOLUME	90,475 cu-ft
REQUIRED STORAGE	0.45 acft
REQUIRED STORAGE	19,645 cu-ft
MAX WSEL	459.27 ft
PEAK FLOW RATE	7.64 cfs
TOTAL BASIN LOSSES	90,475 cu-ft
AVERAGE PERCOLATION RATE	62.83 cf/min

BASIN VOLUME WORKSHEET

PROECT CORAL MOUNTAIN
JOB No. 2553
BASIN DESIGNATION: 10 YEAR BASIN

BASIN CHARACTERISTICS

CONTOUR ELEVATION	DEPTH		AREA		VOLUME		
	INCR (ft)	TOTAL (ft)	INCR (sf)	TOTAL (sf)	INCR (cuft)	TOTAL (cuft)	(acre-ft)
459	0	0		65,765	0	0	0.00
460	1	1	11,545	77,310	71,460	71,460	1.64
461	1	2	12,170	89,480	83,321	154,781	3.55

WHERE:

$$V = \frac{1}{3}(E_1 - E_2)\left(A_1 + A_2 + \sqrt{A_1 A_2}\right)$$

RCFCD SYNTHETIC UNIT HYDROGRAPH - SHORTCUT METHOD

DATA INPUT SHEET

DATE:	March 30, 2020
WORKSHEET PREPARED BY:	DLS
PROJECT NAME	CORAL MOUNTAIN
PROJECT NUMBER	2553
CONCENTRATION POINT DESIGNATION	REQUIRED 10 YEAR STORAGE
AREA DESIGNATION	DA-A2
AMC NUMBER	2

Low Loss Conditions: X=Existing; D=Developed; BS=Retention

AREA DESIG	SOIL GROUP	TRIBUTARY AREAS	ACRES	LOW LOSS CONDITION	RI NUMBER	AMC II INFILTRATION RATE	IMPERVIOUS PERCENT
2	B	PAVING/HARDSCAPE	2.071	D	56	0.51	1.00
1	B	COMMERCIAL	5.752	D	56	0.51	0.90
6	B	SF - HIGH DENSITY	8.141	D	56	0.51	0.50
9	B	LANDSCAPING	1.350	D	56	0.51	0.10

LENGTH OF WATERCOURSE (L)	1,260 ft
LENGTH TO POINT OPPOSITE CENTROID (Lca)	630 ft
ELEVATION OF HEADWATER	465.3 ft
ELEVATION OF CONCENTRATION POINT	458.0 ft
AVERAGE MANNINGS 'N' VALUE	0.02
STORM FREQUENCY (YEAR)	10
LOW LOSS RATE (For Storms Greater Than 10 Years)	85%
POINT RAIN FROM NOAA ATLAS	**14**
1-HOUR	0.71 in
3-HOUR	1.06 in
6-HOUR	1.36 in
24-HOUR	2.23 in

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 3/30/20

PHYSICAL DATA

[1] CONCENTRATION POINT	REQUIRED 10 YEAR STORAGE
[2] AREA DESIGNATION	DA-A2
[3] AREA - ACRES	17.314
[4] L-FEET	1260
[5] L-MILES	0.239
[6] La-FEET	630.00
[7] La-MILES	0.119
[8] ELEVATION OF HEADWATER	465.3
[9] ELEVATION OF CONCENTRATION POINT	458
[10] H-FEET	7.3
[11] S-FEET/MILE	30.6
[12] S^0.5	5.53
[13] L*LCA/S^0.5	0.005
[14] AVERAGE MANNINGS 'N'	0.02
[15] LAG TIME-HOURS	0.06
[16] LAG TIME-MINUTES	3.9
[17] 100% OF LAG-MINUTES	3.9
[18] 200% OF LAG-MINUTES	7.8

RAINFALL DATA

[1] AMC	II
[2] FREQUENCY-YEARS	10
NOAA ATLAS	**14**
[3] DURATION:	Point Rain
1-HOUR	0.71 in
3-HOUR	1.06 in
6-HOUR	1.36 in
24-HOUR	2.23 in

STORM EVENT SUMMARY

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
TOTAL RAINFALL	(in)	0.71	1.06	1.36	2.23
RAINFALL VOLUME	(cuft)	44,624	66,621	85,476	140,156
SOIL LOSSES	(cuft)	12,970	32,123	39,734	73,692
EFFECTIVE RAIN	(in)	0.50	0.55	0.73	1.06
FLOOD VOLUME	(cu-ft)	31,653	34,498	45,742	66,464
	(acre-ft)	0.73	0.79	1.05	1.53
PEAK FLOW	(cfs)	N/A	14.61	12.35	2.19

NOTE: PEAK FLOW FOR THE 1-HOUR STORM IS NOT REPRESENTATIVE. PER RCFCD PEAK DISCHARGES FROM THE 3-HOUR STORM SHOULD NORMALLY COMPARE WELL WITH RATIONAL PEAKS.

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM AMC II	PROJECT:	CORAL MOUNTAIN		
		Job No.:	2553		
		BY:	DLS	DATE:	3/30/20

AVERAGE ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA	AREA WEIGHTED AVERAGE	MAX AVERAGE ADJUSTED INFILTRATION RATE (in/hr)	LOW LOSS CONDITION	LOW LOSS RATE PER RCFC/2322 (in/hr)	MIN AVERAGE ADJUSTED INFILTRATION RATE (in/hr)
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	2.071	0.120	0.0061	DEVELOPED	0.1000	0.0120
B	COMMERCIAL	56	0.51	90%	0.10	5.752	0.332	0.0322	DEVELOPED	0.1800	0.0598
B	SF - HIGH DENSITY	56	0.51	50%	0.28	8.141	0.470	0.1319	DEVELOPED	0.5000	0.2351
B	LANDSCAPING	56	0.51	10%	0.46	1.350	0.078	0.0362	DEVELOPED	0.8200	0.0639
					SUM	17.314		SUM	0.2064		0.3708

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.10318457

C= 0.00191

Ft=C(24-(T/60))^1.55 = 0.00191 (24-(T/60))^1.55 + **0.10** in/hr

CONSTANT LOSS RATE (3 & 6 HOUR STORMS) = **0.2064** in/hr

LOW LOSS RATE = **0.3708** in/hr

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period, T=1 1/2 unit time for the second period, etc.

NOTE: Low loss rates established per RCFC/2322 (Dated: May-30-95)
For 10 Year Storms or Less
Undeveloped Condition: Low Loss = 90%
Developed Condition: Low Loss = 0.9 - (0.8 * %impervious)
Basin Site: Low Loss = 10%
For 100 Year Storm - Low Loss should be between 80% & 90% of the Rainfall Rate

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 1-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	17.31
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.89
UNIT TIME-PERCENT OF LAG	128.6
TOTAL ADJUSTED STORM RAIN-INCHES	0.71
CONSTANT LOSS RATE-in/hr	0.21
LOW LOSS RATE - PERCENT	37%

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs
1	5	0.08	3.6	0.31	0.21	0.11	0.10	1.75
2	10	0.17	4.2	0.36	0.21	0.13	0.15	2.64
3	15	0.25	4.4	0.37	0.21	0.14	0.17	2.94
4	20	0.33	4.6	0.39	0.21	0.15	0.19	3.24
5	25	0.42	5.0	0.43	0.21	0.16	0.22	3.83
6	30	0.50	5.6	0.48	0.21	0.18	0.27	4.73
7	35	0.58	6.4	0.55	0.21	0.20	0.34	5.92
8	40	0.67	8.1	0.69	0.21	0.26	0.48	8.45
9	45	0.75	13.1	1.12	0.21	0.41	0.91	15.88
10	50	0.83	34.5	2.94	0.21	1.09	2.73	**47.71**
11	55	0.92	6.7	0.57	0.21	0.21	0.36	6.36
12	60	1.00	3.8	0.32	0.21	0.12	0.12	2.05

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL (in)	0.71
RAINFALL VOLUME (cuft)	44,624
SOIL LOSSES (cuft)	12,970
EFFECTIVE RAIN (in)	0.50
FLOOD VOLUME (acft)	0.73
FLOOD VOLUME (cuft)	31,653
PEAK FLOW RATE (cfs)	47.71

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 3-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	17.31	
UNIT TIME-MINUTES	5	
LAG TIME - MINUTES	3.89	
UNIT TIME-PERCENT OF LAG	128.6	
TOTAL ADJUSTED STORM RAIN-INCHES	1.06	
CONSTANT LOSS RATE-in/hr		0.21
LOW LOSS RATE - PERCENT		37%

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs
1	5	0.08	1.3	0.17	0.21	0.06	0.10	1.82
2	10	0.17	1.3	0.17	0.21	0.06	0.10	1.82
3	15	0.25	1.1	0.14	0.21	0.05	0.09	1.54
4	20	0.33	1.5	0.19	0.21	0.07	0.12	2.10
5	25	0.42	1.5	0.19	0.21	0.07	0.12	2.10
6	30	0.50	1.8	0.23	0.21	0.08	0.02	0.39
7	35	0.58	1.5	0.19	0.21	0.07	0.12	2.10
8	40	0.67	1.8	0.23	0.21	0.08	0.02	0.39
9	45	0.75	1.8	0.23	0.21	0.08	0.02	0.39
10	50	0.83	1.5	0.19	0.21	0.07	0.12	2.10
11	55	0.92	1.6	0.20	0.21	0.08	0.13	2.24
12	60	1.00	1.8	0.23	0.21	0.08	0.02	0.39
13	65	1.08	2.2	0.28	0.21	0.10	0.07	1.28
14	70	1.17	2.2	0.28	0.21	0.10	0.07	1.28
15	75	1.25	2.2	0.28	0.21	0.10	0.07	1.28
16	80	1.33	2.0	0.25	0.21	0.09	0.05	0.84
17	85	1.42	2.6	0.33	0.21	0.12	0.12	2.17
18	90	1.50	2.7	0.34	0.21	0.13	0.14	2.39
19	95	1.58	2.4	0.31	0.21	0.11	0.10	1.73
20	100	1.67	2.7	0.34	0.21	0.13	0.14	2.39
21	105	1.75	3.3	0.42	0.21	0.16	0.21	3.73
22	110	1.83	3.1	0.39	0.21	0.15	0.19	3.28
23	115	1.92	2.9	0.37	0.21	0.14	0.16	2.84
24	120	2.00	3.0	0.38	0.21	0.14	0.18	3.06
25	125	2.08	3.1	0.39	0.21	0.15	0.19	3.28
26	130	2.17	4.2	0.53	0.21	0.20	0.33	5.72
27	135	2.25	5.0	0.64	0.21	0.24	0.43	7.50
28	140	2.33	3.5	0.45	0.21	0.17	0.24	4.17
29	145	2.42	6.8	0.86	0.21	0.32	0.66	11.50
30	150	2.50	7.3	0.93	0.21	0.34	0.72	12.61
31	155	2.58	8.2	1.04	0.21	0.39	0.84	**14.61**
32	160	2.67	5.9	0.75	0.21	0.28	0.54	9.50
33	165	2.75	2.0	0.25	0.21	0.09	0.05	0.84
34	170	2.83	1.8	0.23	0.21	0.08	0.02	0.39
35	175	2.92	1.8	0.23	0.21	0.08	0.02	0.39
36	180	3.00	0.6	0.08	0.21	0.03	0.05	0.84

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL (in)	1.06
RAINFALL VOLUME (cuft)	66,621
SOIL LOSSES (cuft)	32,123
EFFECTIVE RAIN (in)	0.55
FLOOD VOLUME (acft)	0.79
FLOOD VOLUME (cuft)	34,498
PEAK FLOW RATE (cfs)	14.61

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 6-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	17.31
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.89
UNIT TIME-PERCENT OF LAG	128.6
TOTAL ADJUSTED STORM RAIN-INCHES	1.36
CONSTANT LOSS RATE-in/hr	0.206
LOW LOSS RATE - PERCENT	37%

Unit Time Period	Time		Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow
	Minutes	Hours	(Plate E-5.9)		Max	Low	in/hr	cfs
1	5	0.08	0.5	0.082	0.21	0.03	0.05	0.90
2	10	0.17	0.6	0.098	0.21	0.04	0.06	1.08
3	15	0.25	0.6	0.098	0.21	0.04	0.06	1.08
4	20	0.33	0.6	0.098	0.21	0.04	0.06	1.08
5	25	0.42	0.6	0.098	0.21	0.04	0.06	1.08
6	30	0.50	0.7	0.114	0.21	0.04	0.07	1.25
7	35	0.58	0.7	0.114	0.21	0.04	0.07	1.25
8	40	0.67	0.7	0.114	0.21	0.04	0.07	1.25
9	45	0.75	0.7	0.114	0.21	0.04	0.07	1.25
10	50	0.83	0.7	0.114	0.21	0.04	0.07	1.25
11	55	0.92	0.7	0.114	0.21	0.04	0.07	1.25
12	60	1.00	0.8	0.131	0.21	0.05	0.08	1.43
13	65	1.08	0.8	0.131	0.21	0.05	0.08	1.43
14	70	1.17	0.8	0.131	0.21	0.05	0.08	1.43
15	75	1.25	0.8	0.131	0.21	0.05	0.08	1.43
16	80	1.33	0.8	0.131	0.21	0.05	0.08	1.43
17	85	1.42	0.8	0.131	0.21	0.05	0.08	1.43
18	90	1.50	0.8	0.131	0.21	0.05	0.08	1.43
19	95	1.58	0.8	0.131	0.21	0.05	0.08	1.43
20	100	1.67	0.8	0.131	0.21	0.05	0.08	1.43
21	105	1.75	0.8	0.131	0.21	0.05	0.08	1.43
22	110	1.83	0.8	0.131	0.21	0.05	0.08	1.43
23	115	1.92	0.8	0.131	0.21	0.05	0.08	1.43
24	120	2.00	0.9	0.147	0.21	0.05	0.09	1.61
25	125	2.08	0.8	0.131	0.21	0.05	0.08	1.43
26	130	2.17	0.9	0.147	0.21	0.05	0.09	1.61
27	135	2.25	0.9	0.147	0.21	0.05	0.09	1.61
28	140	2.33	0.9	0.147	0.21	0.05	0.09	1.61
29	145	2.42	0.9	0.147	0.21	0.05	0.09	1.61
30	150	2.50	0.9	0.147	0.21	0.05	0.09	1.61
31	155	2.58	0.9	0.147	0.21	0.05	0.09	1.61
32	160	2.67	0.9	0.147	0.21	0.05	0.09	1.61
33	165	2.75	1.0	0.163	0.21	0.06	0.10	1.79
34	170	2.83	1.0	0.163	0.21	0.06	0.10	1.79
35	175	2.92	1.0	0.163	0.21	0.06	0.10	1.79
36	180	3.00	1.0	0.163	0.21	0.06	0.10	1.79
37	185	3.08	1.0	0.163	0.21	0.06	0.10	1.79
38	190	3.17	1.1	0.180	0.21	0.07	0.11	1.97
39	195	3.25	1.1	0.180	0.21	0.07	0.11	1.97
40	200	3.33	1.1	0.180	0.21	0.07	0.11	1.97
41	205	3.42	1.2	0.196	0.21	0.07	0.12	2.15
42	210	3.50	1.3	0.212	0.21	0.08	0.01	0.10
43	215	3.58	1.4	0.228	0.21	0.08	0.02	0.39
44	220	3.67	1.4	0.228	0.21	0.08	0.02	0.39
45	225	3.75	1.5	0.245	0.21	0.09	0.04	0.67
46	230	3.83	1.5	0.245	0.21	0.09	0.04	0.67
47	235	3.92	1.6	0.261	0.21	0.10	0.05	0.96
48	240	4.00	1.6	0.261	0.21	0.10	0.05	0.96
49	245	4.08	1.7	0.277	0.21	0.10	0.07	1.24
50	250	4.17	1.8	0.294	0.21	0.11	0.09	1.53
51	255	4.25	1.9	0.310	0.21	0.11	0.10	1.81
52	260	4.33	2.0	0.326	0.21	0.12	0.12	2.10
53	265	4.42	2.1	0.343	0.21	0.13	0.14	2.38
54	270	4.50	2.1	0.343	0.21	0.13	0.14	2.38

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 6-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	17.31
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.89
UNIT TIME-PERCENT OF LAG	128.6
TOTAL ADJUSTED STORM RAIN-INCHES	1.36
CONSTANT LOSS RATE-in/hr	0.206
LOW LOSS RATE - PERCENT	37%

Unit Time Period	Time		Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow
	Minutes	Hours	(Plate E-5.9)		Max	Low	in/hr	cfs
55	275	4.58	2.2	0.359	0.21	0.13	0.15	2.67
56	280	4.67	2.3	0.375	0.21	0.14	0.17	2.95
57	285	4.75	2.4	0.392	0.21	0.15	0.19	3.24
58	290	4.83	2.4	0.392	0.21	0.15	0.19	3.24
59	295	4.92	2.5	0.408	0.21	0.15	0.20	3.52
60	300	5.00	2.6	0.424	0.21	0.16	0.22	3.81
61	305	5.08	3.1	0.506	0.21	0.19	0.30	5.23
62	310	5.17	3.6	0.588	0.21	0.22	0.38	6.65
63	315	5.25	3.9	0.636	0.21	0.24	0.43	7.51
64	320	5.33	4.2	0.685	0.21	0.25	0.48	8.36
65	325	5.42	4.7	0.767	0.21	0.28	0.56	9.79
66	330	5.50	5.6	0.914	0.21	0.34	0.71	**12.35**
67	335	5.58	1.9	0.310	0.21	0.11	0.10	1.81
68	340	5.67	0.9	0.147	0.21	0.05	0.09	1.61
69	345	5.75	0.6	0.098	0.21	0.04	0.06	1.08
70	350	5.83	0.5	0.082	0.21	0.03	0.05	0.90
71	355	5.92	0.3	0.049	0.21	0.02	0.03	0.54
72	360	6.00	0.2	0.033	0.21	0.01	0.02	0.36

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL (in)	1.36
RAINFALL VOLUME (cuft)	85,476
SOIL LOSSES (cuft)	39,734
EFFECTIVE RAIN (in)	0.73
FLOOD VOLUME (acft)	1.05
FLOOD VOLUME (cuft)	45,742
PEAK FLOW RATE (cfs)	12.35

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 24-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE: BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	17.314	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.2064
LAG TIME - MINUTES	3.89	MINIMUM LOSS RATE (for var. loss) - in/hr	0.103
UNIT TIME-PERCENT OF LAG	385.7	LOW LOSS RATE - DECIMAL	0.37
TOTAL ADJUSTED STORM RAIN-INCHES	2.23	C	0.00191

Unit Time Period	Time		Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain in/hr	Flood Hydrograph Flow cfs
	Minutes	Hours	(Plate E-5.9)		Max	Low		
1	15	0.25	0.2	0.018	0.364	0.007	0.011	0.20
2	30	0.50	0.3	0.027	0.360	0.010	0.017	0.29
3	45	0.75	0.3	0.027	0.356	0.010	0.017	0.29
4	60	1.00	0.4	0.036	0.352	0.013	0.022	0.39
5	75	1.25	0.3	0.027	0.348	0.010	0.017	0.29
6	90	1.50	0.3	0.027	0.344	0.010	0.017	0.29
7	105	1.75	0.3	0.027	0.339	0.010	0.017	0.29
8	120	2.00	0.4	0.036	0.335	0.013	0.022	0.39
9	135	2.25	0.4	0.036	0.331	0.013	0.022	0.39
10	150	2.50	0.4	0.036	0.327	0.013	0.022	0.39
11	165	2.75	0.5	0.045	0.323	0.017	0.028	0.49
12	180	3.00	0.5	0.045	0.319	0.017	0.028	0.49
13	195	3.25	0.5	0.045	0.315	0.017	0.028	0.49
14	210	3.50	0.5	0.045	0.311	0.017	0.028	0.49
15	225	3.75	0.5	0.045	0.308	0.017	0.028	0.49
16	240	4.00	0.6	0.054	0.304	0.020	0.034	0.59
17	255	4.25	0.6	0.054	0.300	0.020	0.034	0.59
18	270	4.50	0.7	0.062	0.296	0.023	0.039	0.69
19	285	4.75	0.7	0.062	0.292	0.023	0.039	0.69
20	300	5.00	0.8	0.071	0.288	0.026	0.045	0.78
21	315	5.25	0.6	0.054	0.285	0.020	0.034	0.59
22	330	5.50	0.7	0.062	0.281	0.023	0.039	0.69
23	345	5.75	0.8	0.071	0.277	0.026	0.045	0.78
24	360	6.00	0.8	0.071	0.274	0.026	0.045	0.78
25	375	6.25	0.9	0.080	0.270	0.030	0.051	0.88
26	390	6.50	0.9	0.080	0.266	0.030	0.051	0.88
27	405	6.75	1.0	0.089	0.263	0.033	0.056	0.98
28	420	7.00	1.0	0.089	0.259	0.033	0.056	0.98
29	435	7.25	1.0	0.089	0.256	0.033	0.056	0.98
30	450	7.50	1.1	0.098	0.252	0.036	0.062	1.08
31	465	7.75	1.2	0.107	0.249	0.040	0.067	1.18
32	480	8.00	1.3	0.116	0.245	0.043	0.073	1.27
33	495	8.25	1.5	0.134	0.242	0.050	0.084	1.47
34	510	8.50	1.5	0.134	0.239	0.050	0.084	1.47
35	525	8.75	1.6	0.143	0.235	0.053	0.090	1.57
36	540	9.00	1.7	0.152	0.232	0.056	0.095	1.67
37	555	9.25	1.9	0.169	0.229	0.063	0.107	1.86
38	570	9.50	2.0	0.178	0.225	0.066	0.112	1.96
39	585	9.75	2.1	0.187	0.222	0.069	0.118	2.06
40	600	10.00	2.2	0.196	0.219	0.073	0.123	2.16
41	615	10.25	1.5	0.134	0.216	0.050	0.084	1.47
42	630	10.50	1.5	0.134	0.213	0.050	0.084	1.47
43	645	10.75	2.0	0.178	0.210	0.066	0.112	1.96
44	660	11.00	2.0	0.178	0.207	0.066	0.112	1.96
45	675	11.25	1.9	0.169	0.203	0.063	0.107	1.86
46	690	11.50	1.9	0.169	0.200	0.063	0.107	1.86
47	705	11.75	1.7	0.152	0.198	0.056	0.095	1.67
48	720	12.00	1.8	0.161	0.195	0.060	0.101	1.76
49	735	12.25	2.5	0.223	0.192	0.083	0.031	0.55
50	750	12.50	2.6	0.232	0.189	0.086	0.043	0.75
51	765	12.75	2.8	0.250	0.186	0.093	0.064	1.11
52	780	13.00	2.9	0.259	0.183	0.096	0.076	1.32
53	795	13.25	3.4	0.303	0.180	0.112	0.123	2.15
54	810	13.50	3.4	0.303	0.178	0.112	0.126	**2.19**
55	825	13.75	2.3	0.205	0.175	0.076	0.030	0.53
56	840	14.00	2.3	0.205	0.172	0.076	0.033	0.57
57	855	14.25	2.7	0.241	0.170	0.089	0.071	1.24
58	870	14.50	2.6	0.232	0.167	0.086	0.065	1.13
59	885	14.75	2.6	0.232	0.165	0.086	0.067	1.18
60	900	15.00	2.5	0.223	0.162	0.083	0.061	1.06
61	915	15.25	2.4	0.214	0.160	0.079	0.055	0.95
62	930	15.50	2.3	0.205	0.157	0.076	0.048	0.84
63	945	15.75	1.9	0.169	0.155	0.063	0.015	0.26

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 24-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE: BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	17.314	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.2064
LAG TIME - MINUTES	3.89	MINIMUM LOSS RATE (for var. loss) - in/hr	0.103
UNIT TIME-PERCENT OF LAG	385.7	LOW LOSS RATE - DECIMAL	0.37
TOTAL ADJUSTED STORM RAIN-INCHES	2.23	C	0.00191

Unit Time Period	Time		Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain in/hr	Flood Hydrograph Flow cfs
	Minutes	Hours	(Plate E-5.9)		Max	Low		
64	960	16.00	1.9	0.169	0.152	0.063	0.017	0.30
65	975	16.25	0.4	0.036	0.150	0.013	0.022	0.39
66	990	16.50	0.4	0.036	0.148	0.013	0.022	0.39
67	1005	16.75	0.3	0.027	0.145	0.010	0.017	0.29
68	1020	17.00	0.3	0.027	0.143	0.010	0.017	0.29
69	1035	17.25	0.5	0.045	0.141	0.017	0.028	0.49
70	1050	17.50	0.5	0.045	0.139	0.017	0.028	0.49
71	1065	17.75	0.5	0.045	0.137	0.017	0.028	0.49
72	1080	18.00	0.4	0.036	0.135	0.013	0.022	0.39
73	1095	18.25	0.4	0.036	0.133	0.013	0.022	0.39
74	1110	18.50	0.4	0.036	0.131	0.013	0.022	0.39
75	1125	18.75	0.3	0.027	0.129	0.010	0.017	0.29
76	1140	19.00	0.2	0.018	0.127	0.007	0.011	0.20
77	1155	19.25	0.3	0.027	0.125	0.010	0.017	0.29
78	1170	19.50	0.4	0.036	0.124	0.013	0.022	0.39
79	1185	19.75	0.3	0.027	0.122	0.010	0.017	0.29
80	1200	20.00	0.2	0.018	0.120	0.007	0.011	0.20
81	1215	20.25	0.3	0.027	0.119	0.010	0.017	0.29
82	1230	20.50	0.3	0.027	0.117	0.010	0.017	0.29
83	1245	20.75	0.3	0.027	0.116	0.010	0.017	0.29
84	1260	21.00	0.2	0.018	0.114	0.007	0.011	0.20
85	1275	21.25	0.3	0.027	0.113	0.010	0.017	0.29
86	1290	21.50	0.2	0.018	0.112	0.007	0.011	0.20
87	1305	21.75	0.3	0.027	0.110	0.010	0.017	0.29
88	1320	22.00	0.2	0.018	0.109	0.007	0.011	0.20
89	1335	22.25	0.3	0.027	0.108	0.010	0.017	0.29
90	1350	22.50	0.2	0.018	0.107	0.007	0.011	0.20
91	1365	22.75	0.2	0.018	0.106	0.007	0.011	0.20
92	1380	23.00	0.2	0.018	0.105	0.007	0.011	0.20
93	1395	23.25	0.2	0.018	0.105	0.007	0.011	0.20
94	1410	23.50	0.2	0.018	0.104	0.007	0.011	0.20
95	1425	23.75	0.2	0.018	0.104	0.007	0.011	0.20
96	1440	24.00	0.2	0.018	0.103	0.007	0.011	0.20

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL (in)	2.23
RAINFALL VOLUME (cuft)	140,156
SOIL LOSSES (cuft)	73,692
EFFECTIVE RAIN (in)	1.06
FLOOD VOLUME (acft)	1.53
FLOOD VOLUME (cuft)	66,464
PEAK FLOW (cfs)	2.19

RCFCD SYNTHETIC UNIT HYDROGRAPH - SHORTCUT METHOD

DATA INPUT SHEET

DATE	March 30, 2020
WORKSHEET PREPARED BY:	DLS
PROJECT NAME	CORAL MOUNTAIN
PROJECT NUMBER	2553
CONCENTRATION POINT DESIGNATION	10 YEAR BASIN
AREA DESIGNATION	DA-A3
AMC NUMBER	2

Low Loss Conditions: X=Existing; D=Developed; BS=Retention

AREA DESIG	SOIL GROUP	TRIBUTARY AREAS	ACRES	LOW LOSS CONDITION	RI NUMBER	AMC II INFILTRATION RATE	IMPERVIOUS PERCENT
11	D	EXISTING BARREN	1.268	X	93	0.09	0.05
12	B	EXISTING OPEN BRUSH - POOR	4.870	X	76	0.29	0.05
2	B	PAVING/HARDSCAPE	0.011	D	56	0.51	1.00
3	B	WATER FEATURE	0.000	D	56	0.51	1.00
1	B	COMMERCIAL	0.000	D	56	0.51	0.90
6	B	SF - HIGH DENSITY	0.000	D	56	0.51	0.50
9	B	LANDSCAPING	18.819	D	56	0.51	0.10

LENGTH OF WATERCOURSE (L)	1,050 ft
LENGTH TO POINT OPPOSITE CENTROID (Lca)	525 ft
ELEVATION OF HEADWATER	520.0 ft
ELEVATION OF CONCENTRATION POINT	472.0 ft
AVERAGE MANNINGS 'N' VALUE	0.03
STORM FREQUENCY (YEAR)	10
LOW LOSS RATE (Storm Events > 10 Years)	**85%**
POINT RAIN FROM NOAA ATLAS	**14**
1-HOUR	0.71 in
3-HOUR	1.06 in
6-HOUR	1.36 in
24-HOUR	2.23 in

BASIN CHARACTERISTICS:

ELEVATION	AREA
468.0 ft	10,730 sf
469.0 ft	17,060 sf
470.0 ft	24,025 sf

PERCOLATION RATE (in/hr)	1.0 in/hr
DRYWELL DATA	
NUMBER USED	
PERCOLATION RATE	
LOWEST FLOWLINE ELEVATION	
LOWEST PAD ELEVATION	

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 3/30/20

PHYSICAL DATA

[1] CONCENTRATION POINT	10 YEAR BASIN
[2] AREA DESIGNATION	DA-A3
[3] AREA - ACRES	24.968
[4] L-FEET	1050
[5] L-MILES	0.199
[6] La-FEET	525.00
[7] La-MILES	0.099
[8] ELEVATION OF HEADWATER	520
[9] ELEVATION OF CONCENTRATION POINT	472
[10] H-FEET	48
[11] S-FEET/MILE	241.4
[12] S^0.5	15.54
[13] L*LCA/S^0.5	0.001
[14] AVERAGE MANNINGS 'N'	0.03
[15] LAG TIME-HOURS	0.06
[16] LAG TIME-MINUTES	3.4
[17] 100% OF LAG-MINUTES	3.4
[18] 200% OF LAG-MINUTES	6.9

RAINFALL DATA

[1] AMC	II
[2] FREQUENCY-YEARS	10
FROM NOAA ATLAS	**14**
[3] STORM DURATION:	Point Rain
1-HOUR	0.71 in
3-HOUR	1.06 in
6-HOUR	1.36 in
24-HOUR	2.23 in

STORM EVENT SUMMARY

STORM DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
RAINFALL VOLUME	(cu-ft)	64,441	96,072	123,263	**202,114**
SOIL LOSSES	(cu-ft)	32,724	69,661	96,384	**169,645**
EFFECTIVE RAIN	(in)	0.35	0.29	0.30	0.36
FLOOD VOLUME	(cu-ft)	31,717	26,411	26,879	**32,470**
	(acre-ft)	0.73	0.61	0.62	**0.75**
REQUIRED STORAGE	(cu-ft)	**30,493**	23,026	20,546	14,184
	(acre-ft)	**0.70**	0.53	0.47	0.33
FACTOR OF SAFETY		1.12	1.49	1.67	2.41
STORAGE PROVIDED	(cu-ft)	34,217			
	(acre-ft)	0.79			
PEAK FLOW	(cfs)	n/a	15.98	12.73	1.23
MAXIMUM WSEL	(ft)	**469.82**	469.45	469.33	469.02
DEPTH	(ft)	**1.82**	1.45	1.33	1.02
LOWEST FLOWLINE ELEVATION					
DIFFERENCE	(ft)				
LOWEST PAD ELEVATION					
DIFFERENCE	(ft)				
ESTIMATED TIME TO DEWATER BASIN Based on Total Flood Volume & Average Percolation Rate	(days)	1.1	1.0	1.0	1.3

NOTE: PEAK FLOW FOR THE 1-HOUR STORM IS NOT REPRESENTATIVE. PER RCFCD PEAK DISCHARGES FROM THE 3-HOUR STORM SHOULD NORMALLY COMPARE WELL WITH RATIONAL PEAKS.

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM AMC II	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 3/30/20

AVERAGE ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA	AREA WEIGHTED AVERAGE	MAX AVERAGE ADJUSTED INFILTRATION RATE (in/hr)	LOW LOSS CONDITION	LOW LOSS RATE PER RCFC/2322	MIN AVERAGE ADJUSTED INFILTRATION RATE
D	EXISTING BARREN	93	0.09	5%	0.09	1.268	0.051	0.0044	UNDEVELOPED	0.9000	0.0457
B	EXISTING OPEN BRUSH - POOR	76	0.29	5%	0.28	4.870	0.195	0.0540	UNDEVELOPED	0.9000	0.1755
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	0.011	0.000	0.0000	DEVELOPED	0.1000	0.0000
B	WATER FEATURE	56	0.51	100%	0.05	0.000	0.000	0.0000	DEVELOPED	0.1000	0.0000
B	COMMERCIAL	56	0.51	90%	0.10	0.000	0.000	0.0000	DEVELOPED	0.1800	0.0000
B	SF - HIGH DENSITY	56	0.51	50%	0.28	0.000	0.000	0.0000	DEVELOPED	0.5000	0.0000
B	LANDSCAPING	56	0.51	10%	0.46	18.819	0.754	0.3498	DEVELOPED	0.8200	0.6181
					SUM	24.968	SUM	0.4082			0.8393

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.204105054

C= 0.00378

$F_t = C(24-(T/60))^{1.55} + F_m$ = 0.00378 (24-(T/60))^1.55 + 0.20 in/hr

CONSTANT LOSS RATE (3 & 6 HOUR STORMS) = **0.4082**

LOW LOSS RATE = **0.8393**

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period, T=1 1/2 unit time for the second period, etc.

NOTE: Low loss rates established per RCFC/2322 (Dated: May-30-95)
For 10 Year Storms or Less
Undeveloped Condition: Low Loss = 90%
Developed Condition: Low Loss = 0.9 - (0.8 * %impervious)
Basin Site: Low Loss = 10%
For 100 Year Storm - Low Loss should be between 80% & 90% of the Rainfall Rate

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

1-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	24.97
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.43
UNIT TIME-PERCENT OF LAG	145.8
TOTAL ADJUSTED STORM RAIN-INCHES	0.71
CONSTANT LOSS RATE-in/hr	0.41
LOW LOSS RATE - PERCENT	83.93%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	3.6	0.31	0.41	0.26	0.05	1.24	373	373	10,901	76	76	297	0.01	468.02
2	10	0.17	4.2	0.36	0.41	0.30	0.06	1.45	435	732	11,066	77	77	655	0.02	468.05
3	15	0.25	4.4	0.38	0.41	0.32	0.06	1.52	456	1,110	11,240	78	78	1,032	0.02	468.07
4	20	0.33	4.6	0.39	0.41	0.33	0.06	1.59	476	1,509	11,423	79	79	1,429	0.03	468.10
5	25	0.42	5.0	0.43	0.41	0.36	0.02	0.46	139	1,568	11,451	80	80	1,489	0.03	468.11
6	30	0.50	5.6	0.48	0.41	0.40	0.07	1.75	526	2,014	11,656	81	81	1,933	0.04	468.14
7	35	0.58	6.4	0.55	0.41	0.46	0.14	3.47	1,041	2,974	12,097	84	84	2,890	0.07	468.21
8	40	0.67	8.1	0.69	0.41	0.58	0.28	7.12	2,137	5,027	13,040	91	91	4,936	0.11	468.36
9	45	0.75	13.1	1.12	0.41	0.94	0.71	17.86	5,359	10,295	15,461	107	107	10,188	0.23	468.74
10	50	0.83	34.5	2.94	0.41	2.47	2.54	**63.83**	**19,149**	29,337	22,362	155	155	29,181	0.67	469.75
11	55	0.92	6.7	0.57	0.41	0.48	0.16	4.11	1,234	30,416	22,730	158	158	30,258	0.69	469.81
12	60	1.00	3.8	0.32	0.41	0.27	0.05	1.31	393	30,651	22,810	158	158	**30,493**	**0.70**	**469.82**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY	
TOTAL RAINFALL	0.71 in
RAINFALL VOLUME	64,441 cu-ft
SOIL LOSSES	32,724 cu-ft
EFFECTIVE RAIN	0.35 in
FLOOD VOLUME	0.73 acft
FLOOD VOLUME	31,717 cu-ft
REQUIRED STORAGE	0.70
REQUIRED STORAGE	30,493 cu-ft
MAX WSEL	469.82 ft
PEAK FLOW RATE	63.83 cfs
TOTAL BASIN LOSSES	1,224 cu-ft
AVERAGE PERCOLATION RATE	20.40 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	24.97
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.43
UNIT TIME-PERCENT OF LAG	145.8
TOTAL ADJUSTED STORM RAIN (in)	1.06
CONSTANT LOSS RATE (in/hr)	0.41
LOW LOSS RATE - PERCENT	83.93%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate in/hr		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain in/hr	Max	Low	Rain	Hydrograph Flow	In	Volume	Percolation Area	Maximum Percolation	Percolation Out			WSEL
			(Plate E-5.9)				in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
1	5	0.08	1.3	0.17	0.41	0.14	0.03	0.67	201	201	10,822	75	75	125	0.00	468.01
2	10	0.17	1.3	0.17	0.41	0.14	0.03	0.67	201	326	10,880	76	76	251	0.01	468.02
3	15	0.25	1.1	0.14	0.41	0.12	0.02	0.57	170	420	10,923	76	76	344	0.01	468.03
4	20	0.33	1.5	0.19	0.41	0.16	0.03	0.77	232	576	10,995	76	76	500	0.01	468.04
5	25	0.42	1.5	0.19	0.41	0.16	0.03	0.77	232	731	11,066	77	77	654	0.02	468.05
6	30	0.50	1.8	0.23	0.41	0.19	0.04	0.93	278	932	11,158	77	77	855	0.02	468.06
7	35	0.58	1.5	0.19	0.41	0.16	0.03	0.77	232	1,086	11,229	78	78	1,008	0.02	468.07
8	40	0.67	1.8	0.23	0.41	0.19	0.04	0.93	278	1,286	11,321	79	79	1,207	0.03	468.09
9	45	0.75	1.8	0.23	0.41	0.19	0.04	0.93	278	1,485	11,413	79	79	1,406	0.03	468.10
10	50	0.83	1.5	0.19	0.41	0.16	0.03	0.77	232	1,637	11,483	80	80	1,558	0.04	468.11
11	55	0.92	1.6	0.20	0.41	0.17	0.03	0.82	247	1,805	11,559	80	80	1,724	0.04	468.13
12	60	1.00	1.8	0.23	0.41	0.19	0.04	0.93	278	2,002	11,650	81	81	1,921	0.04	468.14
13	65	1.08	2.2	0.28	0.41	0.23	0.04	1.13	340	2,261	11,769	82	82	2,179	0.05	468.16
14	70	1.17	2.2	0.28	0.41	0.23	0.04	1.13	340	2,519	11,888	83	83	2,436	0.06	468.18
15	75	1.25	2.2	0.28	0.41	0.23	0.04	1.13	340	2,776	12,006	83	83	2,692	0.06	468.20
16	80	1.33	2.0	0.25	0.41	0.21	0.04	1.03	309	3,001	12,109	84	84	2,917	0.07	468.21
17	85	1.42	2.6	0.33	0.41	0.28	0.05	1.34	401	3,318	12,255	85	85	3,233	0.07	468.23
18	90	1.50	2.7	0.34	0.41	0.29	0.06	1.39	417	3,650	12,407	86	86	3,564	0.08	468.26
19	95	1.58	2.4	0.31	0.41	0.26	0.05	1.23	370	3,934	12,538	87	87	3,847	0.09	468.28
20	100	1.67	2.7	0.34	0.41	0.29	0.06	1.39	417	4,264	12,690	88	88	4,176	0.10	468.30
21	105	1.75	3.3	0.42	0.41	0.35	0.01	0.29	87	4,263	12,689	88	88	4,175	0.10	468.30
22	110	1.83	3.1	0.39	0.41	0.33	0.06	1.59	478	4,653	12,869	89	89	4,564	0.10	468.33
23	115	1.92	2.9	0.37	0.41	0.31	0.06	1.49	448	5,011	13,033	91	91	4,921	0.11	468.36
24	120	2.00	3.0	0.38	0.41	0.32	0.06	1.54	463	5,384	13,204	92	92	5,292	0.12	468.38
25	125	2.08	3.1	0.39	0.41	0.33	0.06	1.59	478	5,771	13,382	93	93	5,678	0.13	468.41

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	24.97
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.43
UNIT TIME-PERCENT OF LAG	145.8
TOTAL ADJUSTED STORM RAIN (in)	1.06
CONSTANT LOSS RATE (in/hr)	0.41
LOW LOSS RATE - PERCENT	83.93%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm Rain	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
	Minutes	Hours	Percent (Plate E-5.9)	in/hr	Max	Low	in/hr	cfs	cu-ft	cu-ft	Percolation Area sf	Maximum Percolation cu-ft	Percolation Out cu-ft	cu-ft	ac-ft	ft
26	130	2.17	4.2	0.53	0.41	0.45	0.13	3.17	952	6,630	13,777	96	96	6,534	0.15	468.47
27	135	2.25	5.0	0.64	0.41	0.53	0.23	5.73	1,720	8,254	14,524	101	101	8,153	0.19	468.59
28	140	2.33	3.5	0.45	0.41	0.37	0.04	0.93	279	8,433	14,606	101	101	8,331	0.19	468.60
29	145	2.42	6.8	0.86	0.41	0.73	0.46	11.50	3,450	11,781	16,144	112	112	11,669	0.27	468.85
30	150	2.50	7.3	0.93	0.41	0.78	0.52	13.10	3,930	15,599	17,682	123	123	15,476	0.36	469.08
31	155	2.58	8.2	1.04	0.41	0.88	0.63	**15.98**	**4,795**	20,271	19,274	134	134	20,137	0.46	469.31
32	160	2.67	5.9	0.75	0.41	0.63	0.34	8.62	2,585	22,722	20,109	140	140	22,583	0.52	469.43
33	165	2.75	2.0	0.25	0.41	0.21	0.04	1.03	309	22,892	20,167	140	140	22,751	0.52	469.44
34	170	2.83	1.8	0.23	0.41	0.19	0.04	0.93	278	23,029	20,213	140	140	22,889	0.53	469.45
35	175	2.92	1.8	0.23	0.41	0.19	0.04	0.93	278	23,167	20,260	141	141	**23,026**	**0.53**	**469.45**
36	180	3.00	0.6	0.08	0.41	0.06	0.01	0.31	93	23,119	20,244	141	141	22,978	0.53	469.45

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAIN	1.06 in
RAINFALL VOLUME	96,072 cu-ft
SOIL LOSSES	69,661 cu-ft
EFFECTIVE RAIN	0.29 in
FLOOD VOLUME	0.61 acft
FLOOD VOLUME	26,411 cu-ft
REQUIRED STORAGE	0.53 acft
REQUIRED STORAGE	23,026 cu-ft
MAX WSEL	469.45 ft
PEAK FLOW RATE	15.98 cfs
TOTAL BASIN LOSSES	3,433 cu-ft
AVERAGE PERCOLATION RATE	19.07 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	24.97
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.43
UNIT TIME-PERCENT OF LAG	145.8
TOTAL ADJUSTED STORM RAIN (in)	1.36
CONSTANT LOSS RATE (in/hr)	0.41
LOW LOSS RATE - PERCENT	83.93%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	0.5	0.08	0.41	0.07	0.01	0.33	99	99	10,776	75	75	24	0.00	468.00
2	10	0.17	0.6	0.10	0.41	0.08	0.02	0.40	119	143	10,796	75	75	68	0.00	468.00
3	15	0.25	0.6	0.10	0.41	0.08	0.02	0.40	119	187	10,816	75	75	112	0.00	468.01
4	20	0.33	0.6	0.10	0.41	0.08	0.02	0.40	119	231	10,836	75	75	155	0.00	468.01
5	25	0.42	0.6	0.10	0.41	0.08	0.02	0.40	119	274	10,856	75	75	199	0.00	468.01
6	30	0.50	0.7	0.11	0.41	0.10	0.02	0.46	139	337	10,885	76	76	262	0.01	468.02
7	35	0.58	0.7	0.11	0.41	0.10	0.02	0.46	139	400	10,914	76	76	325	0.01	468.02
8	40	0.67	0.7	0.11	0.41	0.10	0.02	0.46	139	463	10,943	76	76	387	0.01	468.03
9	45	0.75	0.7	0.11	0.41	0.10	0.02	0.46	139	526	10,972	76	76	450	0.01	468.03
10	50	0.83	0.7	0.11	0.41	0.10	0.02	0.46	139	588	11,000	76	76	512	0.01	468.04
11	55	0.92	0.7	0.11	0.41	0.10	0.02	0.46	139	650	11,029	77	77	574	0.01	468.04
12	60	1.00	0.8	0.13	0.41	0.11	0.02	0.53	158	732	11,067	77	77	655	0.02	468.05
13	65	1.08	0.8	0.13	0.41	0.11	0.02	0.53	158	814	11,104	77	77	737	0.02	468.05
14	70	1.17	0.8	0.13	0.41	0.11	0.02	0.53	158	895	11,141	77	77	818	0.02	468.06
15	75	1.25	0.8	0.13	0.41	0.11	0.02	0.53	158	976	11,179	78	78	899	0.02	468.07
16	80	1.33	0.8	0.13	0.41	0.11	0.02	0.53	158	1,057	11,216	78	78	979	0.02	468.07
17	85	1.42	0.8	0.13	0.41	0.11	0.02	0.53	158	1,138	11,253	78	78	1,059	0.02	468.08
18	90	1.50	0.8	0.13	0.41	0.11	0.02	0.53	158	1,218	11,290	78	78	1,139	0.03	468.08
19	95	1.58	0.8	0.13	0.41	0.11	0.02	0.53	158	1,298	11,326	79	79	1,219	0.03	468.09
20	100	1.67	0.8	0.13	0.41	0.11	0.02	0.53	158	1,378	11,363	79	79	1,299	0.03	468.09
21	105	1.75	0.8	0.13	0.41	0.11	0.02	0.53	158	1,457	11,400	79	79	1,378	0.03	468.10
22	110	1.83	0.8	0.13	0.41	0.11	0.02	0.53	158	1,536	11,436	79	79	1,457	0.03	468.11
23	115	1.92	0.8	0.13	0.41	0.11	0.02	0.53	158	1,615	11,472	80	80	1,536	0.04	468.11
24	120	2.00	0.9	0.15	0.41	0.12	0.02	0.59	178	1,714	11,518	80	80	1,634	0.04	468.12

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	24.97
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.43
UNIT TIME-PERCENT OF LAG	145.8
TOTAL ADJUSTED STORM RAIN (in)	1.36
CONSTANT LOSS RATE (in/hr)	0.41
LOW LOSS RATE - PERCENT	83.93%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
25	125	2.08	0.8	0.13	0.41	0.11	0.02	0.53	158	1,792	11,554	80	80	1,712	0.04	468.12
26	130	2.17	0.9	0.15	0.41	0.12	0.02	0.59	178	1,890	11,599	81	81	1,810	0.04	468.13
27	135	2.25	0.9	0.15	0.41	0.12	0.02	0.59	178	1,988	11,644	81	81	1,907	0.04	468.14
28	140	2.33	0.9	0.15	0.41	0.12	0.02	0.59	178	2,085	11,688	81	81	2,004	0.05	468.15
29	145	2.42	0.9	0.15	0.41	0.12	0.02	0.59	178	2,182	11,733	81	81	2,101	0.05	468.15
30	150	2.50	0.9	0.15	0.41	0.12	0.02	0.59	178	2,279	11,777	82	82	2,197	0.05	468.16
31	155	2.58	0.9	0.15	0.41	0.12	0.02	0.59	178	2,376	11,822	82	82	2,293	0.05	468.17
32	160	2.67	0.9	0.15	0.41	0.12	0.02	0.59	178	2,472	11,866	82	82	2,389	0.05	468.17
33	165	2.75	1.0	0.16	0.41	0.14	0.03	0.66	198	2,587	11,919	83	83	2,505	0.06	468.18
34	170	2.83	1.0	0.16	0.41	0.14	0.03	0.66	198	2,703	11,972	83	83	2,619	0.06	468.19
35	175	2.92	1.0	0.16	0.41	0.14	0.03	0.66	198	2,817	12,025	84	84	2,734	0.06	468.20
36	180	3.00	1.0	0.16	0.41	0.14	0.03	0.66	198	2,932	12,077	84	84	2,848	0.07	468.21
37	185	3.08	1.0	0.16	0.41	0.14	0.03	0.66	198	3,046	12,130	84	84	2,962	0.07	468.22
38	190	3.17	1.1	0.18	0.41	0.15	0.03	0.73	218	3,180	12,191	85	85	3,095	0.07	468.22
39	195	3.25	1.1	0.18	0.41	0.15	0.03	0.73	218	3,313	12,253	85	85	3,228	0.07	468.23
40	200	3.33	1.1	0.18	0.41	0.15	0.03	0.73	218	3,446	12,314	86	86	3,360	0.08	468.24
41	205	3.42	1.2	0.20	0.41	0.16	0.03	0.79	238	3,598	12,383	86	86	3,512	0.08	468.25
42	210	3.50	1.3	0.21	0.41	0.18	0.03	0.86	257	3,769	12,462	87	87	3,683	0.08	468.27
43	215	3.58	1.4	0.23	0.41	0.19	0.04	0.92	277	3,960	12,550	87	87	3,873	0.09	468.28
44	220	3.67	1.4	0.23	0.41	0.19	0.04	0.92	277	4,150	12,637	88	88	4,062	0.09	468.29
45	225	3.75	1.5	0.24	0.41	0.21	0.04	0.99	297	4,359	12,733	88	88	4,271	0.10	468.31
46	230	3.83	1.5	0.24	0.41	0.21	0.04	0.99	297	4,568	12,829	89	89	4,479	0.10	468.33
47	235	3.92	1.6	0.26	0.41	0.22	0.04	1.06	317	4,796	12,934	90	90	4,706	0.11	468.34
48	240	4.00	1.6	0.26	0.41	0.22	0.04	1.06	317	5,023	13,038	91	91	4,932	0.11	468.36
49	245	4.08	1.7	0.28	0.41	0.23	0.04	1.12	337	5,269	13,151	91	91	5,177	0.12	468.38
50	250	4.17	1.8	0.29	0.41	0.25	0.05	1.19	356	5,534	13,273	92	92	5,442	0.12	468.40

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	24.97
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.43
UNIT TIME-PERCENT OF LAG	145.8
TOTAL ADJUSTED STORM RAIN (in)	1.36
CONSTANT LOSS RATE (in/hr)	0.41
LOW LOSS RATE - PERCENT	83.93%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
51	255	4.25	1.9	0.31	0.41	0.26	0.05	1.25	376	5,818	13,404	93	93	5,725	0.13	468.42
52	260	4.33	2.0	0.33	0.41	0.27	0.05	1.32	396	6,121	13,543	94	94	6,027	0.14	468.44
53	265	4.42	2.1	0.34	0.41	0.29	0.06	1.39	416	6,443	13,691	95	95	6,347	0.15	468.46
54	270	4.50	2.1	0.34	0.41	0.29	0.06	1.39	416	6,763	13,838	96	96	6,667	0.15	468.48
55	275	4.58	2.2	0.36	0.41	0.30	0.06	1.45	436	7,103	13,994	97	97	7,006	0.16	468.51
56	280	4.67	2.3	0.38	0.41	0.32	0.06	1.52	455	7,461	14,159	98	98	7,363	0.17	468.53
57	285	4.75	2.4	0.39	0.41	0.33	0.06	1.58	475	7,838	14,332	100	100	7,739	0.18	468.56
58	290	4.83	2.4	0.39	0.41	0.33	0.06	1.58	475	8,214	14,505	101	101	8,113	0.19	468.59
59	295	4.92	2.5	0.41	0.41	0.34	0.07	1.65	495	8,608	14,686	102	102	8,506	0.20	468.62
60	300	5.00	2.6	0.42	0.41	0.36	0.02	0.41	122	8,628	14,695	102	102	8,526	0.20	468.62
61	305	5.08	3.1	0.51	0.41	0.42	0.10	2.46	738	9,264	14,987	104	104	9,160	0.21	468.67
62	310	5.17	3.6	0.59	0.41	0.49	0.18	4.51	1,354	10,514	15,562	108	108	10,406	0.24	468.76
63	315	5.25	3.9	0.64	0.41	0.53	0.23	5.75	1,724	12,130	16,305	113	113	12,017	0.28	468.87
64	320	5.33	4.2	0.69	0.41	0.58	0.28	6.98	2,094	14,111	17,175	119	119	13,991	0.32	469.01
65	325	5.42	4.7	0.77	0.41	0.64	0.36	9.03	2,710	16,702	18,058	125	125	16,576	0.38	469.14
66	330	5.50	5.6	0.91	0.41	0.77	0.51	**12.73**	**3,820**	20,396	19,316	134	134	20,262	0.47	469.32
67	335	5.58	1.9	0.31	0.41	0.26	0.05	1.25	376	20,638	19,399	135	135	20,503	0.47	469.33
68	340	5.67	0.9	0.15	0.41	0.12	0.02	0.59	178	20,681	19,414	135	135	**20,546**	**0.47**	**469.33**
69	345	5.75	0.6	0.10	0.41	0.08	0.02	0.40	119	20,665	19,408	135	135	20,531	0.47	469.33
70	350	5.83	0.5	0.08	0.41	0.07	0.01	0.33	99	20,630	19,396	135	135	20,495	0.47	469.33
71	355	5.92	0.3	0.05	0.41	0.04	0.01	0.20	59	20,554	19,370	135	135	20,420	0.47	469.33
72	360	6.00	0.2	0.03	0.41	0.03	0.01	0.13	40	20,459	19,338	134	134	20,325	0.47	469.32

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	1.36 in
RAINFALL VOLUME	123,263 cu-ft
SOIL LOSSES	96,384 cu-ft
EFFECTIVE RAIN	0.30 in
FLOOD VOLUME	0.62 acft
FLOOD VOLUME	26,879 cu-ft
REQUIRED STORAGE	0.47 acft
REQUIRED STORAGE	20,546 cu-ft
MAX WSEL	469.33 ft
PEAK FLOW RATE	12.73 cfs
TOTAL BASIN LOSSES	6,554 cu-ft
AVERAGE PERCOLATION RATE	18.20 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	24.97	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.20		
LAG TIME - MINUTES	3.43	C	0.00378	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	437%	Low Loss Rate (percent)	83.93%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	2.23			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
1	15	0.25	0.2	0.018	0.721	0.015	0.00	0.07	65	65	10,760	224	65	0	0.00	468.00
2	30	0.50	0.3	0.027	0.712	0.022	0.00	0.11	97	97	10,775	224	97	0	0.00	468.00
3	45	0.75	0.3	0.027	0.704	0.022	0.00	0.11	97	97	10,775	224	97	0	0.00	468.00
4	60	1.00	0.4	0.036	0.696	0.030	0.01	0.14	130	130	10,790	225	130	0	0.00	468.00
5	75	1.25	0.3	0.027	0.688	0.022	0.00	0.11	97	97	10,775	224	97	0	0.00	468.00
6	90	1.50	0.3	0.027	0.680	0.022	0.00	0.11	97	97	10,775	224	97	0	0.00	468.00
7	105	1.75	0.3	0.027	0.671	0.022	0.00	0.11	97	97	10,775	224	97	0	0.00	468.00
8	120	2.00	0.4	0.036	0.663	0.030	0.01	0.14	130	130	10,790	225	130	0	0.00	468.00
9	135	2.25	0.4	0.036	0.655	0.030	0.01	0.14	130	130	10,790	225	130	0	0.00	468.00
10	150	2.50	0.4	0.036	0.647	0.030	0.01	0.14	130	130	10,790	225	130	0	0.00	468.00
11	165	2.75	0.5	0.045	0.639	0.037	0.01	0.18	162	162	10,805	225	162	0	0.00	468.00
12	180	3.00	0.5	0.045	0.632	0.037	0.01	0.18	162	162	10,805	225	162	0	0.00	468.00
13	195	3.25	0.5	0.045	0.624	0.037	0.01	0.18	162	162	10,805	225	162	0	0.00	468.00
14	210	3.50	0.5	0.045	0.616	0.037	0.01	0.18	162	162	10,805	225	162	0	0.00	468.00
15	225	3.75	0.5	0.045	0.608	0.037	0.01	0.18	162	162	10,805	225	162	0	0.00	468.00
16	240	4.00	0.6	0.054	0.601	0.045	0.01	0.22	195	195	10,820	225	195	0	0.00	468.00
17	255	4.25	0.6	0.054	0.593	0.045	0.01	0.22	195	195	10,820	225	195	0	0.00	468.00
18	270	4.50	0.7	0.062	0.585	0.052	0.01	0.25	227	227	10,834	226	226	2	0.00	468.00
19	285	4.75	0.7	0.062	0.578	0.052	0.01	0.25	227	229	10,835	226	226	3	0.00	468.00
20	300	5.00	0.8	0.071	0.570	0.060	0.01	0.29	260	263	10,851	226	226	37	0.00	468.00
21	315	5.25	0.6	0.054	0.563	0.045	0.01	0.22	195	232	10,836	226	226	6	0.00	468.00
22	330	5.50	0.7	0.062	0.556	0.052	0.01	0.25	227	233	10,837	226	226	7	0.00	468.00
23	345	5.75	0.8	0.071	0.548	0.060	0.01	0.29	260	267	10,853	226	226	41	0.00	468.00
24	360	6.00	0.8	0.071	0.541	0.060	0.01	0.29	260	301	10,868	226	226	74	0.00	468.01
25	375	6.25	0.9	0.080	0.534	0.067	0.01	0.32	292	367	10,898	227	227	140	0.00	468.01
26	390	6.50	0.9	0.080	0.527	0.067	0.01	0.32	292	432	10,928	228	228	204	0.00	468.01
27	405	6.75	1.0	0.089	0.520	0.075	0.01	0.36	325	529	10,973	229	229	300	0.01	468.02
28	420	7.00	1.0	0.089	0.513	0.075	0.01	0.36	325	625	11,017	230	230	395	0.01	468.03
29	435	7.25	1.0	0.089	0.506	0.075	0.01	0.36	325	720	11,061	230	230	490	0.01	468.04
30	450	7.50	1.1	0.098	0.499	0.082	0.02	0.40	357	847	11,119	232	232	615	0.01	468.04
31	465	7.75	1.2	0.107	0.492	0.090	0.02	0.43	390	1,005	11,192	233	233	772	0.02	468.06
32	480	8.00	1.3	0.116	0.485	0.097	0.02	0.47	422	1,194	11,279	235	235	959	0.02	468.07
33	495	8.25	1.5	0.134	0.479	0.112	0.02	0.54	487	1,446	11,394	237	237	1,208	0.03	468.09
34	510	8.50	1.5	0.134	0.472	0.112	0.02	0.54	487	1,695	11,509	240	240	1,456	0.03	468.11
35	525	8.75	1.6	0.143	0.465	0.120	0.02	0.58	520	1,975	11,638	242	242	1,733	0.04	468.13
36	540	9.00	1.7	0.152	0.459	0.127	0.02	0.61	552	2,285	11,780	245	245	2,039	0.05	468.15
37	555	9.25	1.9	0.169	0.452	0.142	0.03	0.69	617	2,656	11,951	249	249	2,407	0.06	468.17
38	570	9.50	2.0	0.178	0.446	0.150	0.03	0.72	649	3,057	12,135	253	253	2,804	0.06	468.20
39	585	9.75	2.1	0.187	0.439	0.157	0.03	0.76	682	3,486	12,332	257	257	3,229	0.07	468.23
40	600	10.00	2.2	0.196	0.433	0.165	0.03	0.79	714	3,943	12,542	261	261	3,682	0.08	468.27
41	615	10.25	1.5	0.134	0.427	0.112	0.02	0.54	487	4,169	12,646	263	263	3,905	0.09	468.28
42	630	10.50	1.5	0.134	0.421	0.112	0.02	0.54	487	4,392	12,749	266	266	4,127	0.09	468.30
43	645	10.75	2.0	0.178	0.415	0.150	0.03	0.72	649	4,776	12,925	269	269	4,507	0.10	468.33

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	24.97	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.20		
LAG TIME - MINUTES	3.43	C	0.00378	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	437%	Low Loss Rate (percent)	83.93%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	2.23			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
44	660	11.00	2.0	0.178	0.409	0.150	0.03	0.72	649	5,156	13,100	273	273	4,883	0.11	468.35
45	675	11.25	1.9	0.169	0.403	0.142	0.03	0.69	617	5,500	13,258	276	276	5,224	0.12	468.38
46	690	11.50	1.9	0.169	0.397	0.142	0.03	0.69	617	5,841	13,415	279	279	5,562	0.13	468.40
47	705	11.75	1.7	0.152	0.391	0.127	0.02	0.61	552	6,114	13,540	282	282	5,832	0.13	468.42
48	720	12.00	1.8	0.161	0.385	0.135	0.03	0.65	584	6,416	13,679	285	285	6,131	0.14	468.45
49	735	12.25	2.5	0.223	0.379	0.187	0.04	0.90	812	6,943	13,921	290	290	6,653	0.15	468.48
50	750	12.50	2.6	0.232	0.373	0.195	0.04	0.94	844	7,497	14,176	295	295	7,202	0.17	468.52
51	765	12.75	2.8	0.250	0.368	0.210	0.04	1.01	909	8,111	14,458	301	301	7,810	0.18	468.57
52	780	13.00	2.9	0.259	0.362	0.217	0.04	1.05	942	8,751	14,752	307	307	8,444	0.19	468.61
53	795	13.25	3.4	0.303	0.357	0.255	0.05	**1.23**	**1,104**	9,548	15,118	315	315	9,233	0.21	468.67
54	810	13.50	3.4	0.303	0.351	0.255	0.05	**1.23**	**1,104**	10,337	15,481	323	323	10,014	0.23	468.73
55	825	13.75	2.3	0.205	0.346	0.172	0.03	0.83	747	10,761	15,676	327	327	10,435	0.24	468.76
56	840	14.00	2.3	0.205	0.341	0.172	0.03	0.83	747	11,181	15,869	331	331	10,851	0.25	468.79
57	855	14.25	2.7	0.241	0.336	0.202	0.04	0.97	877	11,728	16,120	336	336	11,392	0.26	468.83
58	870	14.50	2.6	0.232	0.331	0.195	0.04	0.94	844	12,236	16,353	341	341	11,895	0.27	468.86
59	885	14.75	2.6	0.232	0.325	0.195	0.04	0.94	844	12,739	16,585	346	346	12,394	0.28	468.90
60	900	15.00	2.5	0.223	0.320	0.187	0.04	0.90	812	13,206	16,799	350	350	12,856	0.30	468.93
61	915	15.25	2.4	0.214	0.316	0.180	0.03	0.87	779	13,635	16,996	354	354	13,281	0.30	468.96
62	930	15.50	2.3	0.205	0.311	0.172	0.03	0.83	747	14,028	17,147	357	357	13,670	0.31	468.99
63	945	15.75	1.9	0.169	0.306	0.142	0.03	0.69	617	14,287	17,235	359	359	13,928	0.32	469.01
64	960	16.00	1.9	0.169	0.301	0.142	0.03	0.69	617	14,545	17,323	361	361	**14,184**	**0.33**	**469.02**
65	975	16.25	0.4	0.036	0.297	0.030	0.01	0.14	130	14,314	17,244	359	359	13,955	0.32	469.01
66	990	16.50	0.4	0.036	0.292	0.030	0.01	0.14	130	14,085	17,166	358	358	13,727	0.32	469.00
67	1005	16.75	0.3	0.027	0.288	0.022	0.00	0.11	97	13,825	17,077	356	356	13,469	0.31	468.98
68	1020	17.00	0.3	0.027	0.283	0.022	0.00	0.11	97	13,566	16,965	353	353	13,213	0.30	468.96
69	1035	17.25	0.5	0.045	0.279	0.037	0.01	0.18	162	13,375	16,877	352	352	13,024	0.30	468.95
70	1050	17.50	0.5	0.045	0.275	0.037	0.01	0.18	162	13,186	16,790	350	350	12,836	0.29	468.93
71	1065	17.75	0.5	0.045	0.271	0.037	0.01	0.18	162	12,998	16,704	348	348	12,650	0.29	468.92
72	1080	18.00	0.4	0.036	0.267	0.030	0.01	0.14	130	12,780	16,604	346	346	12,434	0.29	468.90
73	1095	18.25	0.4	0.036	0.263	0.030	0.01	0.14	130	12,564	16,504	344	344	12,220	0.28	468.89
74	1110	18.50	0.4	0.036	0.259	0.030	0.01	0.14	130	12,350	16,406	342	342	12,009	0.28	468.87
75	1125	18.75	0.3	0.027	0.255	0.022	0.00	0.11	97	12,106	16,294	339	339	11,766	0.27	468.85
76	1140	19.00	0.2	0.018	0.252	0.015	0.00	0.07	65	11,831	16,168	337	337	11,495	0.26	468.83
77	1155	19.25	0.3	0.027	0.248	0.022	0.00	0.11	97	11,592	16,058	335	335	11,257	0.26	468.82
78	1170	19.50	0.4	0.036	0.245	0.030	0.01	0.14	130	11,387	15,963	333	333	11,055	0.25	468.80
79	1185	19.75	0.3	0.027	0.241	0.022	0.00	0.11	97	11,152	15,855	330	330	10,822	0.25	468.79
80	1200	20.00	0.2	0.018	0.238	0.015	0.00	0.07	65	10,887	15,733	328	328	10,559	0.24	468.77
81	1215	20.25	0.3	0.027	0.235	0.022	0.00	0.11	97	10,656	15,628	326	326	10,331	0.24	468.75
82	1230	20.50	0.3	0.027	0.232	0.022	0.00	0.11	97	10,428	15,523	323	323	10,105	0.23	468.73
83	1245	20.75	0.3	0.027	0.229	0.022	0.00	0.11	97	10,202	15,419	321	321	9,881	0.23	468.72
84	1260	21.00	0.2	0.018	0.226	0.015	0.00	0.07	65	9,946	15,301	319	319	9,627	0.22	468.70
85	1275	21.25	0.3	0.027	0.224	0.022	0.00	0.11	97	9,725	15,199	317	317	9,408	0.22	468.68
86	1290	21.50	0.2	0.018	0.221	0.015	0.00	0.07	65	9,473	15,084	314	314	9,159	0.21	468.66

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	24.97	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.20		
LAG TIME - MINUTES	3.43	C	0.00378	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	437%	Low Loss Rate (percent)	83.93%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	2.23			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
87	1305	21.75	0.3	0.027	0.219	0.022	0.00	0.11	97	9,256	14,984	312	312	8,944	0.21	468.65
88	1320	22.00	0.2	0.018	0.216	0.015	0.00	0.07	65	9,009	14,870	310	310	8,699	0.20	468.63
89	1335	22.25	0.3	0.027	0.214	0.022	0.00	0.11	97	8,796	14,773	308	308	8,489	0.19	468.62
90	1350	22.50	0.2	0.018	0.212	0.015	0.00	0.07	65	8,554	14,661	305	305	8,248	0.19	468.60
91	1365	22.75	0.2	0.018	0.210	0.015	0.00	0.07	65	8,313	14,551	303	303	8,010	0.18	468.58
92	1380	23.00	0.2	0.018	0.209	0.015	0.00	0.07	65	8,075	14,441	301	301	7,774	0.18	468.56
93	1395	23.25	0.2	0.018	0.207	0.015	0.00	0.07	65	7,839	14,333	299	299	7,540	0.17	468.55
94	1410	23.50	0.2	0.018	0.206	0.015	0.00	0.07	65	7,605	14,225	296	296	7,309	0.17	468.53
95	1425	23.75	0.2	0.018	0.205	0.015	0.00	0.07	65	7,374	14,119	294	294	7,080	0.16	468.51
96	1440	24.00	0.2	0.018	0.204	0.015	0.00	0.07	65	7,145	14,014	292	292	6,853	0.16	468.50

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	2.23 in
RAINFALL VOLUME	202,114 cu-ft
SOIL LOSSES	169,645 cu-ft
EFFECTIVE RAIN	0.36 in
FLOOD VOLUME	0.75 acft
FLOOD VOLUME	32,470 cu-ft
REQUIRED STORAGE	0.33 acft
REQUIRED STORAGE	14,184 cu-ft
MAX WSEL	469.02 ft
PEAK FLOW RATE	1.23 cfs
TOTAL BASIN LOSSES	25,617 cu-ft
AVERAGE PERCOLATION RATE	17.79 cf/min

BASIN VOLUME WORKSHEET

PROECT CORAL MOUNTAIN
JOB No. 2553
BASIN DESIGNATION: 10 YEAR BASIN

BASIN CHARACTERISTICS

CONTOUR ELEVATION	DEPTH		AREA		VOLUME		
	INCR (ft)	TOTAL (ft)	INCR (sf)	TOTAL (sf)	INCR (cuft)	TOTAL (cuft)	(acre-ft)
468	0	0		10,730	0	0	0.00
469	1	1	6,330	17,060	13,773	13,773	0.32
470	1	2	6,965	24,025	20,443	34,217	0.79

WHERE:

$$V = \frac{1}{3}(E_1 - E_2)\left(A_1 + A_2 + \sqrt{A_1 A_2}\right)$$

RCFCD SYNTHETIC UNIT HYDROGRAPH - SHORTCUT METHOD

DATA INPUT SHEET

DATE	March 30, 2020
WORKSHEET PREPARED BY:	DLS
PROJECT NAME	CORAL MOUNTAIN
PROJECT NUMBER	2553
CONCENTRATION POINT DESIGNATION	BASIN B
AREA DESIGNATION	DA-B
AMC NUMBER	2

Low Loss Conditions: X=Existing; D=Developed; BS=Retention

AREA DESIG	SOIL GROUP	TRIBUTARY AREAS	ACRES	LOW LOSS CONDITION	RI NUMBER	AMC II INFILTRATION RATE	IMPERVIOUS PERCENT
1	B	COMMERCIAL	1.483	D	56	0.51	0.90
2	B	PAVING/HARDSCAPE	2.574	D	56	0.51	1.00
3	B	WATER FEATURE	6.423	D	56	0.51	1.00
4	B	SF - LOW DENSITY	20.347	D	56	0.51	0.30
5	B	SF - MEDIUM DENSITY	0.000	D	56	0.51	0.40
6	B	SF - HIGH DENSITY	0.000	D	56	0.51	0.50
9	B	LANDSCAPING	10.759	D	56	0.51	0.10

LENGTH OF WATERCOURSE (L)	2,000 ft
LENGTH TO POINT OPPOSITE CENTROID (Lca)	1,000 ft
ELEVATION OF HEADWATER	485.0 ft
ELEVATION OF CONCENTRATION POINT	460.2 ft
AVERAGE MANNINGS 'N' VALUE	0.02
STORM FREQUENCY (YEAR)	100
LOW LOSS RATE (Storm Events > 10 Years)	**85%**
POINT RAIN FROM NOAA ATLAS	**14**
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

BASIN CHARACTERISTICS:

ELEVATION	AREA
458.0 ft	279,800 sf
459.0 ft	304,405 sf

PERCOLATION RATE (in/hr)	0.0 in/hr
DRYWELL DATA	
NUMBER USED	
PERCOLATION RATE	
LOWEST FLOWLINE ELEVATION	
LOWEST PAD ELEVATION	

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 3/30/20

PHYSICAL DATA

[1] CONCENTRATION POINT	BASIN B
[2] AREA DESIGNATION	DA-B
[3] AREA - ACRES	41.586
[4] L-FEET	2000
[5] L-MILES	0.379
[6] La-FEET	1000.00
[7] La-MILES	0.189
[8] ELEVATION OF HEADWATER	485
[9] ELEVATION OF CONCENTRATION POINT	460.2
[10] H-FEET	24.8
[11] S-FEET/MILE	65.5
[12] S^0.5	8.09
[13] L*LCA/S^0.5	0.009
[14] AVERAGE MANNINGS 'N'	0.02
[15] LAG TIME-HOURS	0.08
[16] LAG TIME-MINUTES	4.8
[17] 100% OF LAG-MINUTES	4.8
[18] 200% OF LAG-MINUTES	9.6

RAINFALL DATA

[1] AMC	II
[2] FREQUENCY-YEARS	100
FROM NOAA ATLAS	**14**
[3] STORM DURATION:	Point Rain
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

STORM EVENT SUMMARY

STORM DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
RAINFALL VOLUME	(cu-ft)	217,379	323,050	416,643	**665,724**
SOIL LOSSES	(cu-ft)	47,811	140,132	235,776	**499,505**
EFFECTIVE RAIN	(in)	1.12	1.21	1.20	1.10
FLOOD VOLUME	(cu-ft)	169,568	**182,917**	180,867	166,219
	(acre-ft)	3.89	**4.20**	4.15	3.82
REQUIRED STORAGE	(cu-ft)	169,568	**182,917**	180,867	166,219
	(acre-ft)	3.89	**4.20**	4.15	3.82
FACTOR OF SAFETY		1.72	1.60	1.61	1.76
STORAGE PROVIDED	(cu-ft)	292,016			
	(acre-ft)	6.70			
PEAK FLOW	(cfs)	n/a	75.02	64.49	13.72
MAXIMUM WSEL	(ft)	458.58	**458.63**	458.62	458.57
DEPTH	(ft)	0.58	**0.63**	0.62	0.57
LOWEST FLOWLINE ELEVATION					
DIFFERENCE	(ft)				
LOWEST PAD ELEVATION					
DIFFERENCE	(ft)				
ESTIMATED TIME TO DEWATER BASIN Based on Total Flood Volume & Average Percolation Rate	(days)				

NOTE: PEAK FLOW FOR THE 1-HOUR STORM IS NOT REPRESENTATIVE. PER RCFCD PEAK DISCHARGES FROM THE 3-HOUR STORM SHOULD NORMALLY COMPARE WELL WITH RATIONAL PEAKS.

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM AMC II	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 3/30/20

AVERAGE ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA	AREA WEIGHTED AVERAGE	MAX AVERAGE ADJUSTED INFILTRATION RATE (in/hr)	LOW LOSS CONDITION	LOW LOSS RATE PER RCFC/2322	MIN AVERAGE ADJUSTED INFILTRATION RATE
B	COMMERCIAL	56	0.51	90%	0.10	1.483	0.036	0.0035	DEVELOPED	0.1800	0.0064
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	2.574	0.062	0.0032	DEVELOPED	0.1000	0.0062
B	WATER FEATURE	56	0.51	100%	0.05	6.423	0.154	0.0079	DEVELOPED	0.1000	0.0154
B	SF - LOW DENSITY	56	0.51	30%	0.37	20.347	0.489	0.1822	DEVELOPED	0.6600	0.3229
B	SF - MEDIUM DENSITY	56	0.51	40%	0.33	0.000	0.000	0.0000	DEVELOPED	0.5800	0.0000
B	SF - HIGH DENSITY	56	0.51	50%	0.28	0.000	0.000	0.0000	DEVELOPED	0.5000	0.0000
B	LANDSCAPING	56	0.51	10%	0.46	10.759	0.259	0.1201	DEVELOPED	0.8200	0.2121
					SUM	41.586	SUM	0.3167			0.5631

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.158358458

C= 0.00293

$F_t=C(24-(T/60))^{1.55}+F_m$ = 0.00293 (24-(T/60))^1.55 + 0.16 in/hr

CONSTANT LOSS RATE (3 & 6 HOUR STORMS) = **0.3167**

LOW LOSS RATE = **0.8500**

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period, T=1 1/2 unit time for the second period, etc.

NOTE: Low loss rates established per RCFC/2322 (Dated: May-30-95)
For 10 Year Storms or Less
Undeveloped Condition: Low Loss = 90%
Developed Condition: Low Loss = 0.9 - (0.8 * %impervious)
Basin Site: Low Loss = 10%
For 100 Year Storm - Low Loss should be between 80% & 90% of the Rainfall Rate

RCFC & WCD
HYDROLOGY
MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

1-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	41.59
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	4.78
UNIT TIME-PERCENT OF LAG	104.6
TOTAL ADJUSTED STORM RAIN-INCHES	1.44
CONSTANT LOSS RATE-in/hr	0.32
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	3.6	0.62	0.32	0.53	0.31	12.80	3,841	3,841	280,124	0	0	3,841	0.09	458.01
2	10	0.17	4.2	0.73	0.32	0.62	0.41	17.15	5,146	8,987	280,557	0	0	8,987	0.21	458.03
3	15	0.25	4.4	0.76	0.32	0.65	0.44	18.60	5,580	14,568	281,027	0	0	14,568	0.33	458.05
4	20	0.33	4.6	0.79	0.32	0.68	0.48	20.05	6,015	20,583	281,534	0	0	20,583	0.47	458.07
5	25	0.42	5.0	0.86	0.32	0.73	0.55	22.95	6,885	27,467	282,114	0	0	27,467	0.63	458.09
6	30	0.50	5.6	0.97	0.32	0.82	0.65	27.30	8,189	35,656	282,804	0	0	35,656	0.82	458.12
7	35	0.58	6.4	1.11	0.32	0.94	0.79	33.09	9,928	45,584	283,641	0	0	45,584	1.05	458.16
8	40	0.67	8.1	1.40	0.32	1.19	1.08	45.41	13,623	59,208	284,789	0	0	59,208	1.36	458.20
9	45	0.75	13.1	2.26	0.32	1.92	1.95	81.64	24,492	83,700	286,853	0	0	83,700	1.92	458.29
10	50	0.83	34.5	5.96	0.32	5.07	5.64	**236.71**	**71,012**	154,712	292,836	0	0	154,712	3.55	458.53
11	55	0.92	6.7	1.16	0.32	0.98	0.84	35.27	10,580	165,292	293,727	0	0	165,292	3.79	458.57
12	60	1.00	3.8	0.66	0.32	0.56	0.34	14.25	4,276	169,568	294,088	0	0	**169,568**	**3.89**	**458.58**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	1.44 in
RAINFALL VOLUME	217,379 cu-ft
SOIL LOSSES	47,811 cu-ft
EFFECTIVE RAIN	1.12 in
FLOOD VOLUME	3.89 acft
FLOOD VOLUME	169,568 cu-ft
REQUIRED STORAGE	3.89
REQUIRED STORAGE	169,568 cu-ft
MAX WSEL	458.58 ft
PEAK FLOW RATE	236.71 cfs
TOTAL BASIN LOSSES	0 cu-ft
AVERAGE PERCOLATION RATE	0.00 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	41.59
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	4.78
UNIT TIME-PERCENT OF LAG	104.6
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.32
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain in/hr	in/hr Max	Low	Rain in/hr	Hydrograph Flow cfs	In cu-ft	Volume cu-ft	Percolation Area sf	Maximum Percolation cu-ft	Percolation Out cu-ft	cu-ft	ac-ft	WSEL ft
			(Plate E-5.9)													
1	5	0.08	1.3	0.33	0.32	0.28	0.02	0.72	215	215	279,818	0	0	215	0.00	458.00
2	10	0.17	1.3	0.33	0.32	0.28	0.02	0.72	215	431	279,836	0	0	431	0.01	458.00
3	15	0.25	1.1	0.28	0.32	0.24	0.04	1.78	533	964	279,881	0	0	964	0.02	458.00
4	20	0.33	1.5	0.39	0.32	0.33	0.07	2.87	862	1,825	279,954	0	0	1,825	0.04	458.01
5	25	0.42	1.5	0.39	0.32	0.33	0.07	2.87	862	2,687	280,026	0	0	2,687	0.06	458.01
6	30	0.50	1.8	0.46	0.32	0.39	0.15	6.10	1,831	4,518	280,181	0	0	4,518	0.10	458.02
7	35	0.58	1.5	0.39	0.32	0.33	0.07	2.87	862	5,379	280,253	0	0	5,379	0.12	458.02
8	40	0.67	1.8	0.46	0.32	0.39	0.15	6.10	1,831	7,210	280,407	0	0	7,210	0.17	458.02
9	45	0.75	1.8	0.46	0.32	0.39	0.15	6.10	1,831	9,040	280,562	0	0	9,040	0.21	458.03
10	50	0.83	1.5	0.39	0.32	0.33	0.07	2.87	862	9,902	280,634	0	0	9,902	0.23	458.03
11	55	0.92	1.6	0.41	0.32	0.35	0.09	3.95	1,185	11,086	280,734	0	0	11,086	0.25	458.04
12	60	1.00	1.8	0.46	0.32	0.39	0.15	6.10	1,831	12,917	280,888	0	0	12,917	0.30	458.04
13	65	1.08	2.2	0.56	0.32	0.48	0.25	10.41	3,123	16,040	281,152	0	0	16,040	0.37	458.05
14	70	1.17	2.2	0.56	0.32	0.48	0.25	10.41	3,123	19,163	281,415	0	0	19,163	0.44	458.07
15	75	1.25	2.2	0.56	0.32	0.48	0.25	10.41	3,123	22,286	281,678	0	0	22,286	0.51	458.08
16	80	1.33	2.0	0.51	0.32	0.44	0.20	8.26	2,477	24,762	281,886	0	0	24,762	0.57	458.08
17	85	1.42	2.6	0.67	0.32	0.57	0.35	14.72	4,415	29,177	282,258	0	0	29,177	0.67	458.10
18	90	1.50	2.7	0.69	0.32	0.59	0.38	15.79	4,738	33,915	282,658	0	0	33,915	0.78	458.12
19	95	1.58	2.4	0.62	0.32	0.52	0.30	12.56	3,769	37,684	282,975	0	0	37,684	0.87	458.13
20	100	1.67	2.7	0.69	0.32	0.59	0.38	15.79	4,738	42,423	283,374	0	0	42,423	0.97	458.15
21	105	1.75	3.3	0.85	0.32	0.72	0.53	22.25	6,676	49,099	283,937	0	0	49,099	1.13	458.17
22	110	1.83	3.1	0.80	0.32	0.68	0.48	20.10	6,030	55,129	284,445	0	0	55,129	1.27	458.19
23	115	1.92	2.9	0.74	0.32	0.63	0.43	17.95	5,384	60,513	284,899	0	0	60,513	1.39	458.21
24	120	2.00	3.0	0.77	0.32	0.65	0.45	19.02	5,707	66,221	285,380	0	0	66,221	1.52	458.23
25	125	2.08	3.1	0.80	0.32	0.68	0.48	20.10	6,030	72,251	285,888	0	0	72,251	1.66	458.25

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	41.59
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	4.78
UNIT TIME-PERCENT OF LAG	104.6
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.32
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain	in/hr		Rain	Hydrograph	In	Volume	Percolation Area	Maximum Percolation	Percolation Out			WSEL
				in/hr	Max	Low	in/hr	Flow cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
			(Plate E-5.9)													
26	130	2.17	4.2	1.08	0.32	0.92	0.76	31.95	9,584	81,835	286,695	0	0	81,835	1.88	458.28
27	135	2.25	5.0	1.28	0.32	1.09	0.97	40.56	12,168	94,003	287,721	0	0	94,003	2.16	458.32
28	140	2.33	3.5	0.90	0.32	0.76	0.58	24.41	7,322	101,326	288,338	0	0	101,326	2.33	458.35
29	145	2.42	6.8	1.75	0.32	1.48	1.43	59.94	17,983	119,309	289,853	0	0	119,309	2.74	458.41
30	150	2.50	7.3	1.87	0.32	1.59	1.56	65.33	19,598	138,907	291,504	0	0	138,907	3.19	458.48
31	155	2.58	8.2	2.11	0.32	1.79	1.79	**75.02**	**22,506**	161,413	293,400	0	0	161,413	3.71	458.55
32	160	2.67	5.9	1.52	0.32	1.29	1.20	50.25	15,076	176,489	294,671	0	0	176,489	4.05	458.60
33	165	2.75	2.0	0.51	0.32	0.44	0.20	8.26	2,477	178,965	294,879	0	0	178,965	4.11	458.61
34	170	2.83	1.8	0.46	0.32	0.39	0.15	6.10	1,831	180,796	295,034	0	0	180,796	4.15	458.62
35	175	2.92	1.8	0.46	0.32	0.39	0.15	6.10	1,831	182,627	295,188	0	0	182,627	4.19	458.63
36	180	3.00	0.6	0.15	0.32	0.13	0.02	0.97	291	182,917	295,212	0	0	**182,917**	**4.20**	**458.63**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAIN	2.14 in
RAINFALL VOLUME	323,050 cu-ft
SOIL LOSSES	140,132 cu-ft
EFFECTIVE RAIN	1.21 in
FLOOD VOLUME	4.20 acft
FLOOD VOLUME	182,917 cu-ft
REQUIRED STORAGE	4.20 acft
REQUIRED STORAGE	182,917 cu-ft
MAX WSEL	458.63 ft
PEAK FLOW RATE	75.02 cfs
TOTAL BASIN LOSSES	0 cu-ft
AVERAGE PERCOLATION RATE	0.00 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	41.59
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	4.78
UNIT TIME-PERCENT OF LAG	104.6
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.32
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain	in/hr		Rain	Hydrograph	In	Volume	Percolation Area	Maximum Percolation	Percolation Out			WSEL
				in/hr	Max	Low		Flow								
			(Plate E-5.9)				in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
1	5	0.08	0.5	0.17	0.32	0.14	0.02	1.04	312	312	279,826	0	0	312	0.01	458.00
2	10	0.17	0.6	0.20	0.32	0.17	0.03	1.25	375	687	279,858	0	0	687	0.02	458.00
3	15	0.25	0.6	0.20	0.32	0.17	0.03	1.25	375	1,062	279,890	0	0	1,062	0.02	458.00
4	20	0.33	0.6	0.20	0.32	0.17	0.03	1.25	375	1,437	279,921	0	0	1,437	0.03	458.00
5	25	0.42	0.6	0.20	0.32	0.17	0.03	1.25	375	1,812	279,953	0	0	1,812	0.04	458.01
6	30	0.50	0.7	0.23	0.32	0.20	0.03	1.46	437	2,250	279,990	0	0	2,250	0.05	458.01
7	35	0.58	0.7	0.23	0.32	0.20	0.03	1.46	437	2,687	280,026	0	0	2,687	0.06	458.01
8	40	0.67	0.7	0.23	0.32	0.20	0.03	1.46	437	3,125	280,063	0	0	3,125	0.07	458.01
9	45	0.75	0.7	0.23	0.32	0.20	0.03	1.46	437	3,562	280,100	0	0	3,562	0.08	458.01
10	50	0.83	0.7	0.23	0.32	0.20	0.03	1.46	437	4,000	280,137	0	0	4,000	0.09	458.01
11	55	0.92	0.7	0.23	0.32	0.20	0.03	1.46	437	4,437	280,174	0	0	4,437	0.10	458.02
12	60	1.00	0.8	0.26	0.32	0.23	0.04	1.67	500	4,937	280,216	0	0	4,937	0.11	458.02
13	65	1.08	0.8	0.26	0.32	0.23	0.04	1.67	500	5,437	280,258	0	0	5,437	0.12	458.02
14	70	1.17	0.8	0.26	0.32	0.23	0.04	1.67	500	5,937	280,300	0	0	5,937	0.14	458.02
15	75	1.25	0.8	0.26	0.32	0.23	0.04	1.67	500	6,437	280,342	0	0	6,437	0.15	458.02
16	80	1.33	0.8	0.26	0.32	0.23	0.04	1.67	500	6,937	280,385	0	0	6,937	0.16	458.02
17	85	1.42	0.8	0.26	0.32	0.23	0.04	1.67	500	7,437	280,427	0	0	7,437	0.17	458.03
18	90	1.50	0.8	0.26	0.32	0.23	0.04	1.67	500	7,937	280,469	0	0	7,937	0.18	458.03
19	95	1.58	0.8	0.26	0.32	0.23	0.04	1.67	500	8,437	280,511	0	0	8,437	0.19	458.03
20	100	1.67	0.8	0.26	0.32	0.23	0.04	1.67	500	8,937	280,553	0	0	8,937	0.21	458.03
21	105	1.75	0.8	0.26	0.32	0.23	0.04	1.67	500	9,437	280,595	0	0	9,437	0.22	458.03
22	110	1.83	0.8	0.26	0.32	0.23	0.04	1.67	500	9,937	280,637	0	0	9,937	0.23	458.03
23	115	1.92	0.8	0.26	0.32	0.23	0.04	1.67	500	10,437	280,679	0	0	10,437	0.24	458.04
24	120	2.00	0.9	0.30	0.32	0.25	0.04	1.87	562	10,999	280,727	0	0	10,999	0.25	458.04

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	41.59
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	4.78
UNIT TIME-PERCENT OF LAG	104.6
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.32
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm Rain	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
	Minutes	Hours	Percent	in/hr	Max	Low	in/hr	cfs	cu-ft	cu-ft	Percolation Area sf	Maximum Percolation cu-ft	Percolation Out cu-ft	cu-ft	ac-ft	ft
			(Plate E-5.9)													
25	125	2.08	0.8	0.26	0.32	0.23	0.04	1.67	500	11,499	280,769	0	0	11,499	0.26	458.04
26	130	2.17	0.9	0.30	0.32	0.25	0.04	1.87	562	12,062	280,816	0	0	12,062	0.28	458.04
27	135	2.25	0.9	0.30	0.32	0.25	0.04	1.87	562	12,624	280,864	0	0	12,624	0.29	458.04
28	140	2.33	0.9	0.30	0.32	0.25	0.04	1.87	562	13,187	280,911	0	0	13,187	0.30	458.05
29	145	2.42	0.9	0.30	0.32	0.25	0.04	1.87	562	13,749	280,958	0	0	13,749	0.32	458.05
30	150	2.50	0.9	0.30	0.32	0.25	0.04	1.87	562	14,312	281,006	0	0	14,312	0.33	458.05
31	155	2.58	0.9	0.30	0.32	0.25	0.04	1.87	562	14,874	281,053	0	0	14,874	0.34	458.05
32	160	2.67	0.9	0.30	0.32	0.25	0.04	1.87	562	15,437	281,101	0	0	15,437	0.35	458.05
33	165	2.75	1.0	0.33	0.32	0.28	0.01	0.61	182	15,619	281,116	0	0	15,619	0.36	458.05
34	170	2.83	1.0	0.33	0.32	0.28	0.01	0.61	182	15,801	281,131	0	0	15,801	0.36	458.05
35	175	2.92	1.0	0.33	0.32	0.28	0.01	0.61	182	15,983	281,147	0	0	15,983	0.37	458.05
36	180	3.00	1.0	0.33	0.32	0.28	0.01	0.61	182	16,165	281,162	0	0	16,165	0.37	458.06
37	185	3.08	1.0	0.33	0.32	0.28	0.01	0.61	182	16,348	281,177	0	0	16,348	0.38	458.06
38	190	3.17	1.1	0.36	0.32	0.31	0.05	2.00	599	16,946	281,228	0	0	16,946	0.39	458.06
39	195	3.25	1.1	0.36	0.32	0.31	0.05	2.00	599	17,545	281,278	0	0	17,545	0.40	458.06
40	200	3.33	1.1	0.36	0.32	0.31	0.05	2.00	599	18,144	281,329	0	0	18,144	0.42	458.06
41	205	3.42	1.2	0.40	0.32	0.34	0.08	3.38	1,015	19,160	281,414	0	0	19,160	0.44	458.07
42	210	3.50	1.3	0.43	0.32	0.37	0.11	4.77	1,432	20,592	281,535	0	0	20,592	0.47	458.07
43	215	3.58	1.4	0.46	0.32	0.39	0.15	6.16	1,849	22,441	281,691	0	0	22,441	0.52	458.08
44	220	3.67	1.4	0.46	0.32	0.39	0.15	6.16	1,849	24,289	281,847	0	0	24,289	0.56	458.08
45	225	3.75	1.5	0.50	0.32	0.42	0.18	7.55	2,265	26,555	282,037	0	0	26,555	0.61	458.09
46	230	3.83	1.5	0.50	0.32	0.42	0.18	7.55	2,265	28,820	282,228	0	0	28,820	0.66	458.10
47	235	3.92	1.6	0.53	0.32	0.45	0.21	8.94	2,682	31,502	282,454	0	0	31,502	0.72	458.11
48	240	4.00	1.6	0.53	0.32	0.45	0.21	8.94	2,682	34,184	282,680	0	0	34,184	0.78	458.12
49	245	4.08	1.7	0.56	0.32	0.48	0.25	10.33	3,099	37,283	282,941	0	0	37,283	0.86	458.13
50	250	4.17	1.8	0.60	0.32	0.51	0.28	11.72	3,515	40,798	283,238	0	0	40,798	0.94	458.14

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	41.59
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	4.78
UNIT TIME-PERCENT OF LAG	104.6
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.32
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
51	255	4.25	1.9	0.63	0.32	0.53	0.31	13.11	3,932	44,730	283,569	0	0	44,730	1.03	458.15
52	260	4.33	2.0	0.66	0.32	0.56	0.35	14.50	4,349	49,079	283,935	0	0	49,079	1.13	458.17
53	265	4.42	2.1	0.70	0.32	0.59	0.38	15.88	4,765	53,844	284,337	0	0	53,844	1.24	458.18
54	270	4.50	2.1	0.70	0.32	0.59	0.38	15.88	4,765	58,609	284,738	0	0	58,609	1.35	458.20
55	275	4.58	2.2	0.73	0.32	0.62	0.41	17.27	5,182	63,791	285,175	0	0	63,791	1.46	458.22
56	280	4.67	2.3	0.76	0.32	0.65	0.45	18.66	5,599	69,390	285,647	0	0	69,390	1.59	458.24
57	285	4.75	2.4	0.79	0.32	0.68	0.48	20.05	6,015	75,405	286,154	0	0	75,405	1.73	458.26
58	290	4.83	2.4	0.79	0.32	0.68	0.48	20.05	6,015	81,420	286,660	0	0	81,420	1.87	458.28
59	295	4.92	2.5	0.83	0.32	0.70	0.51	21.44	6,432	87,852	287,202	0	0	87,852	2.02	458.30
60	300	5.00	2.6	0.86	0.32	0.73	0.54	22.83	6,848	94,701	287,779	0	0	94,701	2.17	458.32
61	305	5.08	3.1	1.03	0.32	0.87	0.71	29.77	8,932	103,632	288,532	0	0	103,632	2.38	458.35
62	310	5.17	3.6	1.19	0.32	1.01	0.88	36.72	11,015	114,647	289,460	0	0	114,647	2.63	458.39
63	315	5.25	3.9	1.29	0.32	1.10	0.97	40.88	12,265	126,912	290,493	0	0	126,912	2.91	458.43
64	320	5.33	4.2	1.39	0.32	1.18	1.07	45.05	13,515	140,427	291,632	0	0	140,427	3.22	458.48
65	325	5.42	4.7	1.56	0.32	1.32	1.24	51.99	15,598	156,025	292,947	0	0	156,025	3.58	458.53
66	330	5.50	5.6	1.85	0.32	1.58	1.54	**64.49**	**19,348**	175,373	294,577	0	0	175,373	4.03	458.60
67	335	5.58	1.9	0.63	0.32	0.53	0.31	13.11	3,932	179,305	294,908	0	0	179,305	4.12	458.61
68	340	5.67	0.9	0.30	0.32	0.25	0.04	1.87	562	179,867	294,955	0	0	179,867	4.13	458.62
69	345	5.75	0.6	0.20	0.32	0.17	0.03	1.25	375	180,242	294,987	0	0	180,242	4.14	458.62
70	350	5.83	0.5	0.17	0.32	0.14	0.02	1.04	312	180,555	295,013	0	0	180,555	4.14	458.62
71	355	5.92	0.3	0.10	0.32	0.08	0.01	0.62	187	180,742	295,029	0	0	180,742	4.15	458.62
72	360	6.00	0.2	0.07	0.32	0.06	0.01	0.42	125	180,867	295,040	0	0	**180,867**	**4.15**	**458.62**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	2.76 in
RAINFALL VOLUME	416,643 cu-ft
SOIL LOSSES	235,776 cu-ft
EFFECTIVE RAIN	1.20 in
FLOOD VOLUME	4.15 acft
FLOOD VOLUME	180,867 cu-ft
REQUIRED STORAGE	4.15 acft
REQUIRED STORAGE	180,867 cu-ft
MAX WSEL	458.62 ft
PEAK FLOW RATE	64.49 cfs
TOTAL BASIN LOSSES	0 cu-ft
AVERAGE PERCOLATION RATE	0.00 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	41.59	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	0.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.16		
LAG TIME - MINUTES	4.78	C	0.00293	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	314%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
1	15	0.25	0.2	0.035	0.559	0.030	0.01	0.22	200	200	279,817	0	0	200	0.00	458.00
2	30	0.50	0.3	0.053	0.553	0.045	0.01	0.33	300	499	279,842	0	0	499	0.01	458.00
3	45	0.75	0.3	0.053	0.546	0.045	0.01	0.33	300	799	279,867	0	0	799	0.02	458.00
4	60	1.00	0.4	0.071	0.540	0.060	0.01	0.44	399	1,198	279,901	0	0	1,198	0.03	458.00
5	75	1.25	0.3	0.053	0.534	0.045	0.01	0.33	300	1,498	279,926	0	0	1,498	0.03	458.01
6	90	1.50	0.3	0.053	0.527	0.045	0.01	0.33	300	1,797	279,951	0	0	1,797	0.04	458.01
7	105	1.75	0.3	0.053	0.521	0.045	0.01	0.33	300	2,097	279,977	0	0	2,097	0.05	458.01
8	120	2.00	0.4	0.071	0.515	0.060	0.01	0.44	399	2,496	280,010	0	0	2,496	0.06	458.01
9	135	2.25	0.4	0.071	0.508	0.060	0.01	0.44	399	2,896	280,044	0	0	2,896	0.07	458.01
10	150	2.50	0.4	0.071	0.502	0.060	0.01	0.44	399	3,295	280,078	0	0	3,295	0.08	458.01
11	165	2.75	0.5	0.088	0.496	0.075	0.01	0.55	499	3,795	280,120	0	0	3,795	0.09	458.01
12	180	3.00	0.5	0.088	0.490	0.075	0.01	0.55	499	4,294	280,162	0	0	4,294	0.10	458.01
13	195	3.25	0.5	0.088	0.484	0.075	0.01	0.55	499	4,793	280,204	0	0	4,793	0.11	458.02
14	210	3.50	0.5	0.088	0.478	0.075	0.01	0.55	499	5,293	280,246	0	0	5,293	0.12	458.02
15	225	3.75	0.5	0.088	0.472	0.075	0.01	0.55	499	5,792	280,288	0	0	5,792	0.13	458.02
16	240	4.00	0.6	0.106	0.466	0.090	0.02	0.67	599	6,391	280,338	0	0	6,391	0.15	458.02
17	255	4.25	0.6	0.106	0.460	0.090	0.02	0.67	599	6,990	280,389	0	0	6,990	0.16	458.02
18	270	4.50	0.7	0.123	0.454	0.105	0.02	0.78	699	7,689	280,448	0	0	7,689	0.18	458.03
19	285	4.75	0.7	0.123	0.448	0.105	0.02	0.78	699	8,388	280,507	0	0	8,388	0.19	458.03
20	300	5.00	0.8	0.141	0.443	0.120	0.02	0.89	799	9,187	280,574	0	0	9,187	0.21	458.03
21	315	5.25	0.6	0.106	0.437	0.090	0.02	0.67	599	9,786	280,625	0	0	9,786	0.22	458.03
22	330	5.50	0.7	0.123	0.431	0.105	0.02	0.78	699	10,485	280,683	0	0	10,485	0.24	458.04
23	345	5.75	0.8	0.141	0.426	0.120	0.02	0.89	799	11,284	280,751	0	0	11,284	0.26	458.04
24	360	6.00	0.8	0.141	0.420	0.120	0.02	0.89	799	12,083	280,818	0	0	12,083	0.28	458.04
25	375	6.25	0.9	0.159	0.414	0.135	0.02	1.00	899	12,982	280,894	0	0	12,982	0.30	458.04
26	390	6.50	0.9	0.159	0.409	0.135	0.02	1.00	899	13,880	280,970	0	0	13,880	0.32	458.05
27	405	6.75	1.0	0.176	0.403	0.150	0.03	1.11	999	14,879	281,054	0	0	14,879	0.34	458.05
28	420	7.00	1.0	0.176	0.398	0.150	0.03	1.11	999	15,878	281,138	0	0	15,878	0.36	458.05
29	435	7.25	1.0	0.176	0.392	0.150	0.03	1.11	999	16,876	281,222	0	0	16,876	0.39	458.06
30	450	7.50	1.1	0.194	0.387	0.165	0.03	1.22	1,098	17,975	281,315	0	0	17,975	0.41	458.06
31	465	7.75	1.2	0.212	0.382	0.180	0.03	1.33	1,198	19,173	281,415	0	0	19,173	0.44	458.07
32	480	8.00	1.3	0.229	0.377	0.195	0.03	1.44	1,298	20,471	281,525	0	0	20,471	0.47	458.07
33	495	8.25	1.5	0.265	0.371	0.225	0.04	1.66	1,498	21,969	281,651	0	0	21,969	0.50	458.08
34	510	8.50	1.5	0.265	0.366	0.225	0.04	1.66	1,498	23,467	281,777	0	0	23,467	0.54	458.08
35	525	8.75	1.6	0.282	0.361	0.240	0.04	1.78	1,598	25,064	281,912	0	0	25,064	0.58	458.09
36	540	9.00	1.7	0.300	0.356	0.255	0.04	1.89	1,698	26,762	282,055	0	0	26,762	0.61	458.09
37	555	9.25	1.9	0.335	0.351	0.285	0.05	2.11	1,897	28,659	282,215	0	0	28,659	0.66	458.10
38	570	9.50	2.0	0.353	0.346	0.300	0.01	0.29	260	28,919	282,237	0	0	28,919	0.66	458.10
39	585	9.75	2.1	0.370	0.341	0.315	0.03	1.24	1,112	30,031	282,330	0	0	30,031	0.69	458.10
40	600	10.00	2.2	0.388	0.336	0.330	0.05	2.18	1,963	31,994	282,496	0	0	31,994	0.73	458.11
41	615	10.25	1.5	0.265	0.331	0.225	0.04	1.66	1,498	33,492	282,622	0	0	33,492	0.77	458.11
42	630	10.50	1.5	0.265	0.326	0.225	0.04	1.66	1,498	34,989	282,748	0	0	34,989	0.80	458.12
43	645	10.75	2.0	0.353	0.322	0.300	0.03	1.31	1,175	36,164	282,847	0	0	36,164	0.83	458.12

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	41.59	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	0.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.16		
LAG TIME - MINUTES	4.78	C	0.00293	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	314%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses Percolation Area	Maximum Percolation	Percolation Out	Total In Basin		Basin WSEL
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
44	660	11.00	2.0	0.353	0.317	0.300	0.04	1.50	1,353	37,517	282,961	0	0	37,517	0.86	458.13
45	675	11.25	1.9	0.335	0.312	0.285	0.02	0.96	863	38,380	283,034	0	0	38,380	0.88	458.13
46	690	11.50	1.9	0.335	0.308	0.285	0.03	1.15	1,037	39,416	283,121	0	0	39,416	0.90	458.13
47	705	11.75	1.7	0.300	0.303	0.255	0.04	1.89	1,698	41,114	283,264	0	0	41,114	0.94	458.14
48	720	12.00	1.8	0.318	0.299	0.270	0.02	0.79	713	41,827	283,324	0	0	41,827	0.96	458.14
49	735	12.25	2.5	0.441	0.294	0.375	0.15	6.16	5,541	47,368	283,791	0	0	47,368	1.09	458.16
50	750	12.50	2.6	0.459	0.290	0.390	0.17	7.08	6,373	53,742	284,328	0	0	53,742	1.23	458.18
51	765	12.75	2.8	0.494	0.285	0.420	0.21	8.74	7,869	61,611	284,991	0	0	61,611	1.41	458.21
52	780	13.00	2.9	0.512	0.281	0.435	0.23	9.66	8,697	70,308	285,724	0	0	70,308	1.61	458.24
53	795	13.25	3.4	0.600	0.277	0.510	0.32	13.54	12,186	82,494	286,751	0	0	82,494	1.89	458.28
54	810	13.50	3.4	0.600	0.273	0.510	0.33	**13.72**	**12,345**	94,839	287,791	0	0	94,839	2.18	458.32
55	825	13.75	2.3	0.406	0.269	0.345	0.14	5.75	5,178	100,017	288,227	0	0	100,017	2.30	458.34
56	840	14.00	2.3	0.406	0.264	0.345	0.14	5.92	5,332	105,349	288,677	0	0	105,349	2.42	458.36
57	855	14.25	2.7	0.476	0.260	0.405	0.22	9.05	8,147	113,496	289,363	0	0	113,496	2.61	458.39
58	870	14.50	2.6	0.459	0.256	0.390	0.20	8.48	7,632	121,128	290,006	0	0	121,128	2.78	458.41
59	885	14.75	2.6	0.459	0.253	0.390	0.21	8.64	7,779	128,907	290,662	0	0	128,907	2.96	458.44
60	900	15.00	2.5	0.441	0.249	0.375	0.19	8.07	7,259	136,166	291,273	0	0	136,166	3.13	458.47
61	915	15.25	2.4	0.423	0.245	0.360	0.18	7.49	6,737	142,904	291,841	0	0	142,904	3.28	458.49
62	930	15.50	2.3	0.406	0.241	0.345	0.16	6.90	6,213	149,117	292,364	0	0	149,117	3.42	458.51
63	945	15.75	1.9	0.335	0.237	0.285	0.10	4.10	3,689	152,806	292,675	0	0	152,806	3.51	458.52
64	960	16.00	1.9	0.335	0.234	0.285	0.10	4.25	3,826	156,632	292,998	0	0	156,632	3.60	458.54
65	975	16.25	0.4	0.071	0.230	0.060	0.01	0.44	399	157,032	293,031	0	0	157,032	3.60	458.54
66	990	16.50	0.4	0.071	0.227	0.060	0.01	0.44	399	157,431	293,065	0	0	157,431	3.61	458.54
67	1005	16.75	0.3	0.053	0.223	0.045	0.01	0.33	300	157,731	293,090	0	0	157,731	3.62	458.54
68	1020	17.00	0.3	0.053	0.220	0.045	0.01	0.33	300	158,030	293,115	0	0	158,030	3.63	458.54
69	1035	17.25	0.5	0.088	0.217	0.075	0.01	0.55	499	158,530	293,158	0	0	158,530	3.64	458.54
70	1050	17.50	0.5	0.088	0.213	0.075	0.01	0.55	499	159,029	293,200	0	0	159,029	3.65	458.54
71	1065	17.75	0.5	0.088	0.210	0.075	0.01	0.55	499	159,528	293,242	0	0	159,528	3.66	458.55
72	1080	18.00	0.4	0.071	0.207	0.060	0.01	0.44	399	159,928	293,275	0	0	159,928	3.67	458.55
73	1095	18.25	0.4	0.071	0.204	0.060	0.01	0.44	399	160,327	293,309	0	0	160,327	3.68	458.55
74	1110	18.50	0.4	0.071	0.201	0.060	0.01	0.44	399	160,726	293,343	0	0	160,726	3.69	458.55
75	1125	18.75	0.3	0.053	0.198	0.045	0.01	0.33	300	161,026	293,368	0	0	161,026	3.70	458.55
76	1140	19.00	0.2	0.035	0.195	0.030	0.01	0.22	200	161,226	293,385	0	0	161,226	3.70	458.55
77	1155	19.25	0.3	0.053	0.193	0.045	0.01	0.33	300	161,525	293,410	0	0	161,525	3.71	458.55
78	1170	19.50	0.4	0.071	0.190	0.060	0.01	0.44	399	161,925	293,444	0	0	161,925	3.72	458.55
79	1185	19.75	0.3	0.053	0.187	0.045	0.01	0.33	300	162,224	293,469	0	0	162,224	3.72	458.56
80	1200	20.00	0.2	0.035	0.185	0.030	0.01	0.22	200	162,424	293,486	0	0	162,424	3.73	458.56
81	1215	20.25	0.3	0.053	0.182	0.045	0.01	0.33	300	162,724	293,511	0	0	162,724	3.74	458.56
82	1230	20.50	0.3	0.053	0.180	0.045	0.01	0.33	300	163,023	293,536	0	0	163,023	3.74	458.56
83	1245	20.75	0.3	0.053	0.178	0.045	0.01	0.33	300	163,323	293,561	0	0	163,323	3.75	458.56
84	1260	21.00	0.2	0.035	0.176	0.030	0.01	0.22	200	163,523	293,578	0	0	163,523	3.75	458.56
85	1275	21.25	0.3	0.053	0.173	0.045	0.01	0.33	300	163,822	293,603	0	0	163,822	3.76	458.56
86	1290	21.50	0.2	0.035	0.171	0.030	0.01	0.22	200	164,022	293,620	0	0	164,022	3.77	458.56

RCFC & WCD
HYDROLOGY
MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	41.59	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	0.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.16		
LAG TIME - MINUTES	4.78	C	0.00293	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	314%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
87	1305	21.75	0.3	0.053	0.170	0.045	0.01	0.33	300	164,321	293,646	0	0	164,321	3.77	458.56
88	1320	22.00	0.2	0.035	0.168	0.030	0.01	0.22	200	164,521	293,662	0	0	164,521	3.78	458.56
89	1335	22.25	0.3	0.053	0.166	0.045	0.01	0.33	300	164,821	293,688	0	0	164,821	3.78	458.56
90	1350	22.50	0.2	0.035	0.165	0.030	0.01	0.22	200	165,020	293,704	0	0	165,020	3.79	458.57
91	1365	22.75	0.2	0.035	0.163	0.030	0.01	0.22	200	165,220	293,721	0	0	165,220	3.79	458.57
92	1380	23.00	0.2	0.035	0.162	0.030	0.01	0.22	200	165,420	293,738	0	0	165,420	3.80	458.57
93	1395	23.25	0.2	0.035	0.161	0.030	0.01	0.22	200	165,620	293,755	0	0	165,620	3.80	458.57
94	1410	23.50	0.2	0.035	0.160	0.030	0.01	0.22	200	165,819	293,772	0	0	165,819	3.81	458.57
95	1425	23.75	0.2	0.035	0.159	0.030	0.01	0.22	200	166,019	293,789	0	0	166,019	3.81	458.57
96	1440	24.00	0.2	0.035	0.158	0.030	0.01	0.22	200	166,219	293,805	0	0	**166,219**	**3.82**	**458.57**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	4.41 in
RAINFALL VOLUME	665,724 cu-ft
SOIL LOSSES	499,505 cu-ft
EFFECTIVE RAIN	1.10 in
FLOOD VOLUME	3.82 acft
FLOOD VOLUME	166,219 cu-ft
REQUIRED STORAGE	3.82 acft
REQUIRED STORAGE	166,219 cu-ft
MAX WSEL	458.57 ft
PEAK FLOW RATE	13.72 cfs
TOTAL BASIN LOSSES	0 cu-ft
AVERAGE PERCOLATION RATE	0.00 cf/min

BASIN VOLUME WORKSHEET

PROECT CORAL MOUNTAIN
JOB No. 2553
BASIN DESIGNATION: BASIN B

BASIN CHARACTERISTICS

CONTOUR ELEVATION	DEPTH		AREA		VOLUME		
	INCR (ft)	TOTAL (ft)	INCR (sf)	TOTAL (sf)	INCR (cuft)	TOTAL (cuft)	(acre-ft)
458	0	0		279,800	0	0	0.00
459	1	1	24,605	304,405	292,016	292,016	6.70

WHERE:

$$V = \frac{1}{3}(E_1 - E_2)\left(A_1 + A_2 + \sqrt{A_1 A_2}\right)$$

RCFCD SYNTHETIC UNIT HYDROGRAPH - SHORTCUT METHOD

DATA INPUT SHEET

DATE	March 30, 2020
WORKSHEET PREPARED BY:	DLS
PROJECT NAME	CORAL MOUNTAIN
PROJECT NUMBER	2553
CONCENTRATION POINT DESIGNATION	BASIN C
AREA DESIGNATION	DA-C
AMC NUMBER	2

Low Loss Conditions: X=Existing; D=Developed; BS=Retention

AREA DESIG	SOIL GROUP	TRIBUTARY AREAS	ACRES	LOW LOSS CONDITION	RI NUMBER	AMC II INFILTRATION RATE	IMPERVIOUS PERCENT
2	B	PAVING/HARDSCAPE	1.455	D	56	0.51	1.00
5	B	SF - MEDIUM DENSITY	4.092	D	56	0.51	0.40
6	B	SF - HIGH DENSITY	2.159	D	56	0.51	0.50
9	B	LANDSCAPING	2.485	D	56	0.51	0.10

LENGTH OF WATERCOURSE (L)	1,350 ft
LENGTH TO POINT OPPOSITE CENTROID (Lca)	675 ft
ELEVATION OF HEADWATER	464.0 ft
ELEVATION OF CONCENTRATION POINT	455.0 ft
AVERAGE MANNINGS 'N' VALUE	0.02
STORM FREQUENCY (YEAR)	100
LOW LOSS RATE (Storm Events > 10 Years)	**85%**
POINT RAIN FROM NOAA ATLAS	**14**
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

BASIN CHARACTERISTICS:

ELEVATION	AREA
452.0 ft	25,035 sf
453.0 ft	28,965 sf
454.0 ft	33,060 sf

PERCOLATION RATE (in/hr)	1.0 in/hr
DRYWELL DATA	
NUMBER USED	
PERCOLATION RATE	
LOWEST FLOWLINE ELEVATION	
LOWEST PAD ELEVATION	

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 3/30/20

PHYSICAL DATA

[1] CONCENTRATION POINT	BASIN C
[2] AREA DESIGNATION	DA-C
[3] AREA - ACRES	10.191
[4] L-FEET	1350
[5] L-MILES	0.256
[6] La-FEET	675.00
[7] La-MILES	0.128
[8] ELEVATION OF HEADWATER	464
[9] ELEVATION OF CONCENTRATION POINT	455
[10] H-FEET	9
[11] S-FEET/MILE	35.2
[12] S^0.5	5.93
[13] L*LCA/S^0.5	0.006
[14] AVERAGE MANNINGS 'N'	0.02
[15] LAG TIME-HOURS	0.07
[16] LAG TIME-MINUTES	4.0
[17] 100% OF LAG-MINUTES	4.0
[18] 200% OF LAG-MINUTES	8.0

RAINFALL DATA

[1] AMC	II
[2] FREQUENCY-YEARS	100
FROM NOAA ATLAS	**14**
[3] STORM DURATION:	Point Rain
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

STORM EVENT SUMMARY

STORM DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
RAINFALL VOLUME	(cu-ft)	53,271	79,166	102,102	**163,141**
SOIL LOSSES	(cu-ft)	11,503	33,734	57,155	**121,656**
EFFECTIVE RAIN	(in)	1.13	1.23	1.21	1.12
FLOOD VOLUME	(cu-ft)	41,768	**45,432**	44,947	41,485
	(acre-ft)	0.96	**1.04**	1.03	0.95
REQUIRED STORAGE	(cu-ft)	**39,500**	39,121	34,975	19,901
	(acre-ft)	**0.91**	0.90	0.80	0.46
FACTOR OF SAFETY		1.47	1.48	1.66	2.91
STORAGE PROVIDED	(cu-ft)	57,966			
	(acre-ft)	1.33			
PEAK FLOW	(cfs)	n/a	18.44	15.86	3.41
MAXIMUM WSEL	(ft)	**453.40**	453.39	453.26	452.74
DEPTH	(ft)	**1.40**	1.39	1.26	0.74
LOWEST FLOWLINE ELEVATION					
DIFFERENCE	(ft)				
LOWEST PAD ELEVATION					
DIFFERENCE	(ft)				
ESTIMATED TIME TO DEWATER BASIN Based on Total Flood Volume & Average Percolation Rate	(days)	0.8	0.9	1.1	1.1

NOTE: PEAK FLOW FOR THE 1-HOUR STORM IS NOT REPRESENTATIVE. PER RCFCD PEAK DISCHARGES FROM THE 3-HOUR STORM SHOULD NORMALLY COMPARE WELL WITH RATIONAL PEAKS.

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM AMC II	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 3/30/20

AVERAGE ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA	AREA WEIGHTED AVERAGE	MAX AVERAGE ADJUSTED INFILTRATION RATE (in/hr)	LOW LOSS CONDITION	LOW LOSS RATE PER RCFC/2322	MIN AVERAGE ADJUSTED INFILTRATION RATE
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	1.455	0.143	0.0073	DEVELOPED	0.1000	0.0143
B	SF - MEDIUM DENSITY	56	0.51	40%	0.33	4.092	0.402	0.1311	DEVELOPED	0.5800	0.2329
B	SF - HIGH DENSITY	56	0.51	50%	0.28	2.159	0.212	0.0594	DEVELOPED	0.5000	0.1059
B	LANDSCAPING	56	0.51	10%	0.46	2.485	0.244	0.1132	DEVELOPED	0.8200	0.2000
					SUM	10.191	SUM	0.3109			0.5530

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.155466676

C= 0.00288

$F_t = C(24-(T/60))^{1.55} + F_m$ = 0.00288 (24-(T/60))^1.55 + 0.16 in/hr

CONSTANT LOSS RATE (3 & 6 HOUR STORMS) = **0.3109**

LOW LOSS RATE = **0.8500**

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period, T=1 1/2 unit time for the second period, etc.

NOTE: Low loss rates established per RCFC/2322 (Dated: May-30-95)
For 10 Year Storms or Less
Undeveloped Condition: Low Loss = 90%
Developed Condition: Low Loss = 0.9 - (0.8 * %impervious)
Basin Site: Low Loss = 10%
For 100 Year Storm - Low Loss should be between 80% & 90% of the Rainfall Rate

RCFC & WCD
HYDROLOGY
MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

1-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	10.19
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.99
UNIT TIME-PERCENT OF LAG	125.3
TOTAL ADJUSTED STORM RAIN-INCHES	1.44
CONSTANT LOSS RATE-in/hr	0.31
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	3.6	0.62	0.31	0.53	0.31	3.20	959	959	25,175	175	175	784	0.02	452.03
2	10	0.17	4.2	0.73	0.31	0.62	0.41	4.26	1,279	2,063	25,336	176	176	1,887	0.04	452.07
3	15	0.25	4.4	0.76	0.31	0.65	0.45	4.62	1,385	3,273	25,512	177	177	3,095	0.07	452.11
4	20	0.33	4.6	0.79	0.31	0.68	0.48	4.97	1,492	4,587	25,703	178	178	4,409	0.10	452.16
5	25	0.42	5.0	0.86	0.31	0.73	0.55	5.68	1,705	6,114	25,926	180	180	5,934	0.14	452.22
6	30	0.50	5.6	0.97	0.31	0.82	0.66	6.75	2,025	7,958	26,194	182	182	7,777	0.18	452.29
7	35	0.58	6.4	1.11	0.31	0.94	0.79	8.17	2,451	10,227	26,525	184	184	10,043	0.23	452.37
8	40	0.67	8.1	1.40	0.31	1.19	1.09	11.19	3,356	13,399	26,987	187	187	13,212	0.30	452.49
9	45	0.75	13.1	2.26	0.31	1.92	1.95	20.07	6,020	19,232	27,837	193	193	19,039	0.44	452.71
10	50	0.83	34.5	5.96	0.31	5.07	5.65	**58.07**	**17,420**	36,458	30,218	210	210	36,249	0.83	453.30
11	55	0.92	6.7	1.16	0.31	0.98	0.85	8.70	2,611	38,859	30,535	212	212	38,647	0.89	453.38
12	60	1.00	3.8	0.66	0.31	0.56	0.35	3.55	1,066	39,713	30,648	213	213	**39,500**	**0.91**	**453.40**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY	
TOTAL RAINFALL	1.44 in
RAINFALL VOLUME	53,271 cu-ft
SOIL LOSSES	11,503 cu-ft
EFFECTIVE RAIN	1.13 in
FLOOD VOLUME	0.96 acft
FLOOD VOLUME	41,768 cu-ft
REQUIRED STORAGE	0.91
REQUIRED STORAGE	39,500 cu-ft
MAX WSEL	453.40 ft
PEAK FLOW RATE	58.07 cfs
TOTAL BASIN LOSSES	2,268 cu-ft
AVERAGE PERCOLATION RATE	37.80 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	10.19
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.99
UNIT TIME-PERCENT OF LAG	125.3
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.31
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate in/hr		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain in/hr	Max	Low	Rain	Hydrograph Flow	In	Volume	Percolation Area	Maximum Percolation	Percolation Out			WSEL
			(Plate E-5.9)				in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
1	5	0.08	1.3	0.33	0.31	0.28	0.02	0.24	71	71	25,045	174	71	0	0.00	452.00
2	10	0.17	1.3	0.33	0.31	0.28	0.02	0.24	71	71	25,045	174	71	0	0.00	452.00
3	15	0.25	1.1	0.28	0.31	0.24	0.04	0.44	131	131	25,054	174	131	0	0.00	452.00
4	20	0.33	1.5	0.39	0.31	0.33	0.07	0.76	229	229	25,068	174	174	55	0.00	452.00
5	25	0.42	1.5	0.39	0.31	0.33	0.07	0.76	229	284	25,076	174	174	110	0.00	452.00
6	30	0.50	1.8	0.46	0.31	0.39	0.15	1.55	466	576	25,119	174	174	402	0.01	452.01
7	35	0.58	1.5	0.39	0.31	0.33	0.07	0.76	229	631	25,127	174	174	456	0.01	452.02
8	40	0.67	1.8	0.46	0.31	0.39	0.15	1.55	466	923	25,169	175	175	748	0.02	452.03
9	45	0.75	1.8	0.46	0.31	0.39	0.15	1.55	466	1,214	25,212	175	175	1,039	0.02	452.04
10	50	0.83	1.5	0.39	0.31	0.33	0.07	0.76	229	1,268	25,220	175	175	1,093	0.03	452.04
11	55	0.92	1.6	0.41	0.31	0.35	0.10	1.03	308	1,401	25,239	175	175	1,226	0.03	452.05
12	60	1.00	1.8	0.46	0.31	0.39	0.15	1.55	466	1,692	25,282	176	176	1,517	0.03	452.06
13	65	1.08	2.2	0.56	0.31	0.48	0.25	2.61	783	2,300	25,370	176	176	2,124	0.05	452.08
14	70	1.17	2.2	0.56	0.31	0.48	0.25	2.61	783	2,907	25,458	177	177	2,730	0.06	452.10
15	75	1.25	2.2	0.56	0.31	0.48	0.25	2.61	783	3,513	25,547	177	177	3,336	0.08	452.12
16	80	1.33	2.0	0.51	0.31	0.44	0.20	2.08	625	3,960	25,612	178	178	3,783	0.09	452.14
17	85	1.42	2.6	0.67	0.31	0.57	0.36	3.67	1,100	4,882	25,746	179	179	4,704	0.11	452.17
18	90	1.50	2.7	0.69	0.31	0.59	0.38	3.93	1,179	5,882	25,892	180	180	5,703	0.13	452.21
19	95	1.58	2.4	0.62	0.31	0.52	0.31	3.14	941	6,644	26,003	181	181	6,464	0.15	452.24
20	100	1.67	2.7	0.69	0.31	0.59	0.38	3.93	1,179	7,642	26,148	182	182	7,461	0.17	452.28
21	105	1.75	3.3	0.85	0.31	0.72	0.54	5.51	1,654	9,115	26,363	183	183	8,932	0.21	452.33
22	110	1.83	3.1	0.80	0.31	0.68	0.49	4.99	1,496	10,427	26,554	184	184	10,243	0.24	452.38
23	115	1.92	2.9	0.74	0.31	0.63	0.43	4.46	1,337	11,580	26,722	186	186	11,395	0.26	452.42
24	120	2.00	3.0	0.77	0.31	0.65	0.46	4.72	1,416	12,811	26,901	187	187	12,624	0.29	452.47
25	125	2.08	3.1	0.80	0.31	0.68	0.49	4.99	1,496	14,120	27,092	188	188	13,932	0.32	452.52

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	10.19
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.99
UNIT TIME-PERCENT OF LAG	125.3
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.31
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
26	130	2.17	4.2	1.08	0.31	0.92	0.77	7.89	2,366	16,298	27,409	190	190	16,108	0.37	452.60
27	135	2.25	5.0	1.28	0.31	1.09	0.97	10.00	3,000	19,108	27,819	193	193	18,914	0.43	452.70
28	140	2.33	3.5	0.90	0.31	0.76	0.59	6.04	1,812	20,727	28,055	195	195	20,532	0.47	452.76
29	145	2.42	6.8	1.75	0.31	1.48	1.44	14.75	4,425	24,957	28,671	199	199	24,758	0.57	452.92
30	150	2.50	7.3	1.87	0.31	1.59	1.56	16.07	4,821	29,578	29,309	204	204	29,375	0.67	453.08
31	155	2.58	8.2	2.11	0.31	1.79	1.79	**18.44**	**5,533**	34,908	30,013	208	208	34,699	0.80	453.25
32	160	2.67	5.9	1.52	0.31	1.29	1.20	12.37	3,712	38,411	30,476	212	212	38,200	0.88	453.36
33	165	2.75	2.0	0.51	0.31	0.44	0.20	2.08	625	38,825	30,531	212	212	38,613	0.89	453.38
34	170	2.83	1.8	0.46	0.31	0.39	0.15	1.55	466	39,079	30,564	212	212	38,867	0.89	453.38
35	175	2.92	1.8	0.46	0.31	0.39	0.15	1.55	466	39,333	30,598	212	212	**39,121**	**0.90**	**453.39**
36	180	3.00	0.6	0.15	0.31	0.13	0.02	0.24	71	39,192	30,579	212	212	38,980	0.89	453.39

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAIN	2.14 in
RAINFALL VOLUME	79,166 cu-ft
SOIL LOSSES	33,734 cu-ft
EFFECTIVE RAIN	1.23 in
FLOOD VOLUME	1.04 acft
FLOOD VOLUME	45,432 cu-ft
REQUIRED STORAGE	0.90 acft
REQUIRED STORAGE	39,121 cu-ft
MAX WSEL	453.39 ft
PEAK FLOW RATE	18.44 cfs
TOTAL BASIN LOSSES	6,452 cu-ft
AVERAGE PERCOLATION RATE	35.84 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	10.19
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.99
UNIT TIME-PERCENT OF LAG	125.3
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.31
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	0.5	0.17	0.31	0.14	0.02	0.26	77	77	25,046	174	77	0	0.00	452.00
2	10	0.17	0.6	0.20	0.31	0.17	0.03	0.31	92	92	25,048	174	92	0	0.00	452.00
3	15	0.25	0.6	0.20	0.31	0.17	0.03	0.31	92	92	25,048	174	92	0	0.00	452.00
4	20	0.33	0.6	0.20	0.31	0.17	0.03	0.31	92	92	25,048	174	92	0	0.00	452.00
5	25	0.42	0.6	0.20	0.31	0.17	0.03	0.31	92	92	25,048	174	92	0	0.00	452.00
6	30	0.50	0.7	0.23	0.31	0.20	0.03	0.36	107	107	25,051	174	107	0	0.00	452.00
7	35	0.58	0.7	0.23	0.31	0.20	0.03	0.36	107	107	25,051	174	107	0	0.00	452.00
8	40	0.67	0.7	0.23	0.31	0.20	0.03	0.36	107	107	25,051	174	107	0	0.00	452.00
9	45	0.75	0.7	0.23	0.31	0.20	0.03	0.36	107	107	25,051	174	107	0	0.00	452.00
10	50	0.83	0.7	0.23	0.31	0.20	0.03	0.36	107	107	25,051	174	107	0	0.00	452.00
11	55	0.92	0.7	0.23	0.31	0.20	0.03	0.36	107	107	25,051	174	107	0	0.00	452.00
12	60	1.00	0.8	0.26	0.31	0.23	0.04	0.41	123	123	25,053	174	123	0	0.00	452.00
13	65	1.08	0.8	0.26	0.31	0.23	0.04	0.41	123	123	25,053	174	123	0	0.00	452.00
14	70	1.17	0.8	0.26	0.31	0.23	0.04	0.41	123	123	25,053	174	123	0	0.00	452.00
15	75	1.25	0.8	0.26	0.31	0.23	0.04	0.41	123	123	25,053	174	123	0	0.00	452.00
16	80	1.33	0.8	0.26	0.31	0.23	0.04	0.41	123	123	25,053	174	123	0	0.00	452.00
17	85	1.42	0.8	0.26	0.31	0.23	0.04	0.41	123	123	25,053	174	123	0	0.00	452.00
18	90	1.50	0.8	0.26	0.31	0.23	0.04	0.41	123	123	25,053	174	123	0	0.00	452.00
19	95	1.58	0.8	0.26	0.31	0.23	0.04	0.41	123	123	25,053	174	123	0	0.00	452.00
20	100	1.67	0.8	0.26	0.31	0.23	0.04	0.41	123	123	25,053	174	123	0	0.00	452.00
21	105	1.75	0.8	0.26	0.31	0.23	0.04	0.41	123	123	25,053	174	123	0	0.00	452.00
22	110	1.83	0.8	0.26	0.31	0.23	0.04	0.41	123	123	25,053	174	123	0	0.00	452.00
23	115	1.92	0.8	0.26	0.31	0.23	0.04	0.41	123	123	25,053	174	123	0	0.00	452.00
24	120	2.00	0.9	0.30	0.31	0.25	0.04	0.46	138	138	25,055	174	138	0	0.00	452.00

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	10.19
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.99
UNIT TIME-PERCENT OF LAG	125.3
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.31
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm Rain	Loss Rate		Effective Rain	Flood Hydrograph	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
	Minutes	Hours	Percent	in/hr	in/hr			Flow			Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
25	125	2.08	0.8	0.26	0.31	0.23	0.04	0.41	123	123	25,053	174	123	0	0.00	452.00
26	130	2.17	0.9	0.30	0.31	0.25	0.04	0.46	138	138	25,055	174	138	0	0.00	452.00
27	135	2.25	0.9	0.30	0.31	0.25	0.04	0.46	138	138	25,055	174	138	0	0.00	452.00
28	140	2.33	0.9	0.30	0.31	0.25	0.04	0.46	138	138	25,055	174	138	0	0.00	452.00
29	145	2.42	0.9	0.30	0.31	0.25	0.04	0.46	138	138	25,055	174	138	0	0.00	452.00
30	150	2.50	0.9	0.30	0.31	0.25	0.04	0.46	138	138	25,055	174	138	0	0.00	452.00
31	155	2.58	0.9	0.30	0.31	0.25	0.04	0.46	138	138	25,055	174	138	0	0.00	452.00
32	160	2.67	0.9	0.30	0.31	0.25	0.04	0.46	138	138	25,055	174	138	0	0.00	452.00
33	165	2.75	1.0	0.33	0.31	0.28	0.02	0.21	62	62	25,044	174	62	0	0.00	452.00
34	170	2.83	1.0	0.33	0.31	0.28	0.02	0.21	62	62	25,044	174	62	0	0.00	452.00
35	175	2.92	1.0	0.33	0.31	0.28	0.02	0.21	62	62	25,044	174	62	0	0.00	452.00
36	180	3.00	1.0	0.33	0.31	0.28	0.02	0.21	62	62	25,044	174	62	0	0.00	452.00
37	185	3.08	1.0	0.33	0.31	0.28	0.02	0.21	62	62	25,044	174	62	0	0.00	452.00
38	190	3.17	1.1	0.36	0.31	0.31	0.05	0.55	165	165	25,059	174	165	0	0.00	452.00
39	195	3.25	1.1	0.36	0.31	0.31	0.05	0.55	165	165	25,059	174	165	0	0.00	452.00
40	200	3.33	1.1	0.36	0.31	0.31	0.05	0.55	165	165	25,059	174	165	0	0.00	452.00
41	205	3.42	1.2	0.40	0.31	0.34	0.09	0.89	267	267	25,074	174	174	93	0.00	452.00
42	210	3.50	1.3	0.43	0.31	0.37	0.12	1.23	369	461	25,102	174	174	287	0.01	452.01
43	215	3.58	1.4	0.46	0.31	0.39	0.15	1.57	471	758	25,145	175	175	583	0.01	452.02
44	220	3.67	1.4	0.46	0.31	0.39	0.15	1.57	471	1,054	25,189	175	175	879	0.02	452.03
45	225	3.75	1.5	0.50	0.31	0.42	0.19	1.91	573	1,452	25,247	175	175	1,277	0.03	452.05
46	230	3.83	1.5	0.50	0.31	0.42	0.19	1.91	573	1,850	25,305	176	176	1,674	0.04	452.06
47	235	3.92	1.6	0.53	0.31	0.45	0.22	2.25	675	2,349	25,377	176	176	2,173	0.05	452.08
48	240	4.00	1.6	0.53	0.31	0.45	0.22	2.25	675	2,848	25,450	177	177	2,671	0.06	452.10
49	245	4.08	1.7	0.56	0.31	0.48	0.25	2.59	777	3,449	25,537	177	177	3,271	0.08	452.12
50	250	4.17	1.8	0.60	0.31	0.51	0.29	2.93	879	4,151	25,640	178	178	3,972	0.09	452.15

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	10.19
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.99
UNIT TIME-PERCENT OF LAG	125.3
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.31
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
51	255	4.25	1.9	0.63	0.31	0.53	0.32	3.27	981	4,954	25,757	179	179	4,775	0.11	452.18
52	260	4.33	2.0	0.66	0.31	0.56	0.35	3.61	1,083	5,859	25,888	180	180	5,679	0.13	452.21
53	265	4.42	2.1	0.70	0.31	0.59	0.38	3.95	1,186	6,864	26,035	181	181	6,684	0.15	452.25
54	270	4.50	2.1	0.70	0.31	0.59	0.38	3.95	1,186	7,869	26,181	182	182	7,687	0.18	452.28
55	275	4.58	2.2	0.73	0.31	0.62	0.42	4.29	1,288	8,975	26,343	183	183	8,792	0.20	452.33
56	280	4.67	2.3	0.76	0.31	0.65	0.45	4.63	1,390	10,182	26,518	184	184	9,998	0.23	452.37
57	285	4.75	2.4	0.79	0.31	0.68	0.48	4.97	1,492	11,490	26,709	185	185	11,304	0.26	452.42
58	290	4.83	2.4	0.79	0.31	0.68	0.48	4.97	1,492	12,796	26,899	187	187	12,609	0.29	452.47
59	295	4.92	2.5	0.83	0.31	0.70	0.52	5.31	1,594	14,203	27,104	188	188	14,015	0.32	452.52
60	300	5.00	2.6	0.86	0.31	0.73	0.55	5.65	1,696	15,711	27,324	190	190	15,521	0.36	452.58
61	305	5.08	3.1	1.03	0.31	0.87	0.72	7.36	2,207	17,728	27,618	192	192	17,536	0.40	452.65
62	310	5.17	3.6	1.19	0.31	1.01	0.88	9.06	2,717	20,253	27,986	194	194	20,059	0.46	452.74
63	315	5.25	3.9	1.29	0.31	1.10	0.98	10.08	3,023	23,082	28,398	197	197	22,885	0.53	452.85
64	320	5.33	4.2	1.39	0.31	1.18	1.08	11.10	3,330	26,215	28,854	200	200	26,015	0.60	452.96
65	325	5.42	4.7	1.56	0.31	1.32	1.25	12.80	3,840	29,855	29,345	204	204	29,651	0.68	453.09
66	330	5.50	5.6	1.85	0.31	1.58	1.54	**15.86**	**4,759**	34,410	29,947	208	208	34,202	0.79	453.23
67	335	5.58	1.9	0.63	0.31	0.53	0.32	3.27	981	35,184	30,050	209	209	**34,975**	**0.80**	**453.26**
68	340	5.67	0.9	0.30	0.31	0.25	0.04	0.46	138	35,113	30,040	209	209	34,904	0.80	453.26
69	345	5.75	0.6	0.20	0.31	0.17	0.03	0.31	92	34,996	30,025	209	209	34,788	0.80	453.25
70	350	5.83	0.5	0.17	0.31	0.14	0.02	0.26	77	34,864	30,007	208	208	34,656	0.80	453.25
71	355	5.92	0.3	0.10	0.31	0.08	0.01	0.15	46	34,702	29,986	208	208	34,494	0.79	453.24
72	360	6.00	0.2	0.07	0.31	0.06	0.01	0.10	31	34,524	29,962	208	208	34,316	0.79	453.24

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	2.76 in
RAINFALL VOLUME	102,102 cu-ft
SOIL LOSSES	57,155 cu-ft
EFFECTIVE RAIN	1.21 in
FLOOD VOLUME	1.03 acft
FLOOD VOLUME	44,947 cu-ft
REQUIRED STORAGE	0.80 acft
REQUIRED STORAGE	34,975 cu-ft
MAX WSEL	453.26 ft
PEAK FLOW RATE	15.86 cfs
TOTAL BASIN LOSSES	10,631 cu-ft
AVERAGE PERCOLATION RATE	29.53 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	10.19	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.16		
LAG TIME - MINUTES	3.99	C	0.00288	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	376%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
1	15	0.25	0.2	0.035	0.549	0.030	0.01	0.05	49	49	25,042	522	49	0	0.00	452.00
2	30	0.50	0.3	0.053	0.543	0.045	0.01	0.08	73	73	25,046	522	73	0	0.00	452.00
3	45	0.75	0.3	0.053	0.536	0.045	0.01	0.08	73	73	25,046	522	73	0	0.00	452.00
4	60	1.00	0.4	0.071	0.530	0.060	0.01	0.11	98	98	25,049	522	98	0	0.00	452.00
5	75	1.25	0.3	0.053	0.524	0.045	0.01	0.08	73	73	25,046	522	73	0	0.00	452.00
6	90	1.50	0.3	0.053	0.518	0.045	0.01	0.08	73	73	25,046	522	73	0	0.00	452.00
7	105	1.75	0.3	0.053	0.511	0.045	0.01	0.08	73	73	25,046	522	73	0	0.00	452.00
8	120	2.00	0.4	0.071	0.505	0.060	0.01	0.11	98	98	25,049	522	98	0	0.00	452.00
9	135	2.25	0.4	0.071	0.499	0.060	0.01	0.11	98	98	25,049	522	98	0	0.00	452.00
10	150	2.50	0.4	0.071	0.493	0.060	0.01	0.11	98	98	25,049	522	98	0	0.00	452.00
11	165	2.75	0.5	0.088	0.487	0.075	0.01	0.14	122	122	25,053	522	122	0	0.00	452.00
12	180	3.00	0.5	0.088	0.481	0.075	0.01	0.14	122	122	25,053	522	122	0	0.00	452.00
13	195	3.25	0.5	0.088	0.475	0.075	0.01	0.14	122	122	25,053	522	122	0	0.00	452.00
14	210	3.50	0.5	0.088	0.469	0.075	0.01	0.14	122	122	25,053	522	122	0	0.00	452.00
15	225	3.75	0.5	0.088	0.463	0.075	0.01	0.14	122	122	25,053	522	122	0	0.00	452.00
16	240	4.00	0.6	0.106	0.457	0.090	0.02	0.16	147	147	25,056	522	147	0	0.00	452.00
17	255	4.25	0.6	0.106	0.452	0.090	0.02	0.16	147	147	25,056	522	147	0	0.00	452.00
18	270	4.50	0.7	0.123	0.446	0.105	0.02	0.19	171	171	25,060	522	171	0	0.00	452.00
19	285	4.75	0.7	0.123	0.440	0.105	0.02	0.19	171	171	25,060	522	171	0	0.00	452.00
20	300	5.00	0.8	0.141	0.435	0.120	0.02	0.22	196	196	25,064	522	196	0	0.00	452.00
21	315	5.25	0.6	0.106	0.429	0.090	0.02	0.16	147	147	25,056	522	147	0	0.00	452.00
22	330	5.50	0.7	0.123	0.423	0.105	0.02	0.19	171	171	25,060	522	171	0	0.00	452.00
23	345	5.75	0.8	0.141	0.418	0.120	0.02	0.22	196	196	25,064	522	196	0	0.00	452.00
24	360	6.00	0.8	0.141	0.412	0.120	0.02	0.22	196	196	25,064	522	196	0	0.00	452.00
25	375	6.25	0.9	0.159	0.407	0.135	0.02	0.24	220	220	25,067	522	220	0	0.00	452.00
26	390	6.50	0.9	0.159	0.401	0.135	0.02	0.24	220	220	25,067	522	220	0	0.00	452.00
27	405	6.75	1.0	0.176	0.396	0.150	0.03	0.27	245	245	25,071	522	245	0	0.00	452.00
28	420	7.00	1.0	0.176	0.391	0.150	0.03	0.27	245	245	25,071	522	245	0	0.00	452.00
29	435	7.25	1.0	0.176	0.385	0.150	0.03	0.27	245	245	25,071	522	245	0	0.00	452.00
30	450	7.50	1.1	0.194	0.380	0.165	0.03	0.30	269	269	25,074	522	269	0	0.00	452.00
31	465	7.75	1.2	0.212	0.375	0.180	0.03	0.33	294	294	25,078	522	294	0	0.00	452.00
32	480	8.00	1.3	0.229	0.370	0.195	0.03	0.35	318	318	25,081	523	318	0	0.00	452.00
33	495	8.25	1.5	0.265	0.365	0.225	0.04	0.41	367	367	25,088	523	367	0	0.00	452.00
34	510	8.50	1.5	0.265	0.359	0.225	0.04	0.41	367	367	25,088	523	367	0	0.00	452.00
35	525	8.75	1.6	0.282	0.354	0.240	0.04	0.44	392	392	25,092	523	392	0	0.00	452.00
36	540	9.00	1.7	0.300	0.349	0.255	0.04	0.46	416	416	25,096	523	416	0	0.00	452.00
37	555	9.25	1.9	0.335	0.345	0.285	0.05	0.52	465	465	25,103	523	465	0	0.00	452.00
38	570	9.50	2.0	0.353	0.340	0.300	0.01	0.14	122	122	25,053	522	122	0	0.00	452.00
39	585	9.75	2.1	0.370	0.335	0.315	0.04	0.37	330	330	25,083	523	330	0	0.00	452.00
40	600	10.00	2.2	0.388	0.330	0.330	0.06	0.60	538	538	25,113	523	523	15	0.00	452.00
41	615	10.25	1.5	0.265	0.325	0.225	0.04	0.41	367	382	25,091	523	382	0	0.00	452.00
42	630	10.50	1.5	0.265	0.320	0.225	0.04	0.41	367	367	25,088	523	367	0	0.00	452.00
43	645	10.75	2.0	0.353	0.316	0.300	0.04	0.38	342	342	25,085	523	342	0	0.00	452.00

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	10.19	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.16		
LAG TIME - MINUTES	3.99	C	0.00288	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	376%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses Percolation Area	Maximum Percolation	Percolation Out	Total In Basin		Basin WSEL
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
44	660	11.00	2.0	0.353	0.311	0.300	0.04	0.43	385	385	25,091	523	385	0	0.00	452.00
45	675	11.25	1.9	0.335	0.307	0.285	0.03	0.29	264	264	25,073	522	264	0	0.00	452.00
46	690	11.50	1.9	0.335	0.302	0.285	0.03	0.34	306	306	25,080	522	306	0	0.00	452.00
47	705	11.75	1.7	0.300	0.298	0.255	0.00	0.02	21	21	25,038	522	21	0	0.00	452.00
48	720	12.00	1.8	0.318	0.293	0.270	0.02	0.25	225	225	25,068	522	225	0	0.00	452.00
49	735	12.25	2.5	0.441	0.289	0.375	0.15	1.56	1,408	1,408	25,240	526	526	882	0.02	452.03
50	750	12.50	2.6	0.459	0.284	0.390	0.17	1.79	1,611	2,493	25,398	529	529	1,963	0.05	452.07
51	765	12.75	2.8	0.494	0.280	0.420	0.21	2.20	1,977	3,940	25,609	534	534	3,407	0.08	452.13
52	780	13.00	2.9	0.512	0.276	0.435	0.24	2.42	2,179	5,585	25,849	539	539	5,047	0.12	452.19
53	795	13.25	3.4	0.600	0.272	0.510	0.33	3.37	3,033	8,080	26,212	546	546	7,534	0.17	452.28
54	810	13.50	3.4	0.600	0.268	0.510	0.33	**3.41**	**3,071**	10,605	26,580	554	554	10,051	0.23	452.37
55	825	13.75	2.3	0.406	0.264	0.345	0.14	1.46	1,314	11,365	26,691	556	556	10,809	0.25	452.40
56	840	14.00	2.3	0.406	0.260	0.345	0.15	1.50	1,351	12,161	26,807	558	558	11,602	0.27	452.43
57	855	14.25	2.7	0.476	0.256	0.405	0.22	2.27	2,041	13,643	27,023	563	563	13,080	0.30	452.48
58	870	14.50	2.6	0.459	0.252	0.390	0.21	2.13	1,913	14,993	27,219	567	567	14,426	0.33	452.53
59	885	14.75	2.6	0.459	0.248	0.390	0.21	2.17	1,949	16,375	27,421	571	571	15,804	0.36	452.59
60	900	15.00	2.5	0.441	0.244	0.375	0.20	2.02	1,821	17,625	27,603	575	575	17,050	0.39	452.63
61	915	15.25	2.4	0.423	0.240	0.360	0.18	1.88	1,692	18,742	27,765	578	578	18,164	0.42	452.67
62	930	15.50	2.3	0.406	0.237	0.345	0.17	1.74	1,563	19,727	27,909	581	581	19,146	0.44	452.71
63	945	15.75	1.9	0.335	0.233	0.285	0.10	1.05	944	20,090	27,962	583	583	19,507	0.45	452.72
64	960	16.00	1.9	0.335	0.230	0.285	0.11	1.09	977	20,484	28,019	584	584	**19,901**	**0.46**	**452.74**
65	975	16.25	0.4	0.071	0.226	0.060	0.01	0.11	98	19,999	27,948	582	582	19,416	0.45	452.72
66	990	16.50	0.4	0.071	0.223	0.060	0.01	0.11	98	19,514	27,878	581	581	18,933	0.43	452.70
67	1005	16.75	0.3	0.053	0.219	0.045	0.01	0.08	73	19,007	27,804	579	579	18,428	0.42	452.68
68	1020	17.00	0.3	0.053	0.216	0.045	0.01	0.08	73	18,501	27,730	578	578	17,923	0.41	452.66
69	1035	17.25	0.5	0.088	0.213	0.075	0.01	0.14	122	18,046	27,664	576	576	17,469	0.40	452.65
70	1050	17.50	0.5	0.088	0.209	0.075	0.01	0.14	122	17,592	27,598	575	575	17,017	0.39	452.63
71	1065	17.75	0.5	0.088	0.206	0.075	0.01	0.14	122	17,139	27,532	574	574	16,566	0.38	452.61
72	1080	18.00	0.4	0.071	0.203	0.060	0.01	0.11	98	16,663	27,463	572	572	16,091	0.37	452.60
73	1095	18.25	0.4	0.071	0.200	0.060	0.01	0.11	98	16,189	27,394	571	571	15,618	0.36	452.58
74	1110	18.50	0.4	0.071	0.197	0.060	0.01	0.11	98	15,716	27,325	569	569	15,147	0.35	452.56
75	1125	18.75	0.3	0.053	0.194	0.045	0.01	0.08	73	15,221	27,252	568	568	14,653	0.34	452.54
76	1140	19.00	0.2	0.035	0.192	0.030	0.01	0.05	49	14,702	27,177	566	566	14,136	0.32	452.52
77	1155	19.25	0.3	0.053	0.189	0.045	0.01	0.08	73	14,209	27,105	565	565	13,644	0.31	452.51
78	1170	19.50	0.4	0.071	0.186	0.060	0.01	0.11	98	13,742	27,037	563	563	13,179	0.30	452.49
79	1185	19.75	0.3	0.053	0.184	0.045	0.01	0.08	73	13,252	26,966	562	562	12,690	0.29	452.47
80	1200	20.00	0.2	0.035	0.181	0.030	0.01	0.05	49	12,739	26,891	560	560	12,179	0.28	452.45
81	1215	20.25	0.3	0.053	0.179	0.045	0.01	0.08	73	12,253	26,820	559	559	11,694	0.27	452.43
82	1230	20.50	0.3	0.053	0.177	0.045	0.01	0.08	73	11,767	26,749	557	557	11,210	0.26	452.42
83	1245	20.75	0.3	0.053	0.174	0.045	0.01	0.08	73	11,283	26,679	556	556	10,728	0.25	452.40
84	1260	21.00	0.2	0.035	0.172	0.030	0.01	0.05	49	10,777	26,605	554	554	10,222	0.23	452.38
85	1275	21.25	0.3	0.053	0.170	0.045	0.01	0.08	73	10,296	26,535	553	553	9,743	0.22	452.36
86	1290	21.50	0.2	0.035	0.168	0.030	0.01	0.05	49	9,792	26,462	551	551	9,241	0.21	452.34

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	10.19	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.16		
LAG TIME - MINUTES	3.99	C	0.00288	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	376%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
87	1305	21.75	0.3	0.053	0.166	0.045	0.01	0.08	73	9,314	26,392	550	550	8,764	0.20	452.32
88	1320	22.00	0.2	0.035	0.165	0.030	0.01	0.05	49	8,813	26,319	548	548	8,265	0.19	452.31
89	1335	22.25	0.3	0.053	0.163	0.045	0.01	0.08	73	8,338	26,250	547	547	7,791	0.18	452.29
90	1350	22.50	0.2	0.035	0.162	0.030	0.01	0.05	49	7,840	26,177	545	545	7,295	0.17	452.27
91	1365	22.75	0.2	0.035	0.160	0.030	0.01	0.05	49	7,344	26,105	544	544	6,800	0.16	452.25
92	1380	23.00	0.2	0.035	0.159	0.030	0.01	0.05	49	6,849	26,033	542	542	6,307	0.14	452.23
93	1395	23.25	0.2	0.035	0.158	0.030	0.01	0.05	49	6,356	25,961	541	541	5,815	0.13	452.22
94	1410	23.50	0.2	0.035	0.157	0.030	0.01	0.05	49	5,864	25,889	539	539	5,324	0.12	452.20
95	1425	23.75	0.2	0.035	0.156	0.030	0.01	0.05	49	5,373	25,818	538	538	4,835	0.11	452.18
96	1440	24.00	0.2	0.035	0.156	0.030	0.01	0.05	49	4,884	25,747	536	536	4,348	0.10	452.16

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	4.41 in
RAINFALL VOLUME	163,141 cu-ft
SOIL LOSSES	121,656 cu-ft
EFFECTIVE RAIN	1.12 in
FLOOD VOLUME	0.95 acft
FLOOD VOLUME	41,485 cu-ft
REQUIRED STORAGE	0.46 acft
REQUIRED STORAGE	19,901 cu-ft
MAX WSEL	452.74 ft
PEAK FLOW RATE	3.41 cfs
TOTAL BASIN LOSSES	37,137 cu-ft
AVERAGE PERCOLATION RATE	25.79 cf/min

BASIN VOLUME WORKSHEET

PROECT CORAL MOUNTAIN
JOB No. 2553
BASIN DESIGNATION: BASIN C

BASIN CHARACTERISTICS

CONTOUR ELEVATION	DEPTH		AREA		VOLUME		
	INCR (ft)	TOTAL (ft)	INCR (sf)	TOTAL (sf)	INCR (cuft)	TOTAL (cuft)	(acre-ft)
452	0	0		25,035	0	0	0.00
453	1	1	3,930	28,965	26,976	26,976	0.62
454	1	2	4,095	33,060	30,990	57,966	1.33

WHERE:

$$V = \frac{1}{3}(E_1 - E_2)\left(A_1 + A_2 + \sqrt{A_1 A_2}\right)$$

RCFCD SYNTHETIC UNIT HYDROGRAPH - SHORTCUT METHOD

DATA INPUT SHEET

DATE	March 30, 2020
WORKSHEET PREPARED BY:	DLS
PROJECT NAME	CORAL MOUNTAIN
PROJECT NUMBER	2553
CONCENTRATION POINT DESIGNATION	BASIN D
AREA DESIGNATION	DA-D
AMC NUMBER	2

Low Loss Conditions: X=Existing; D=Developed; BS=Retention

AREA DESIG	SOIL GROUP	TRIBUTARY AREAS	ACRES	LOW LOSS CONDITION	RI NUMBER	AMC II INFILTRATION RATE	IMPERVIOUS PERCENT
2	B	PAVING/HARDSCAPE	2.588	D	56	0.51	1.00
3	B	WATER FEATURE	2.323	D	56	0.51	1.00
1	B	COMMERCIAL	4.803	D	56	0.51	0.90
6	B	SF - HIGH DENSITY	7.637	D	56	0.51	0.50
9	B	LANDSCAPING	11.052	D	56	0.51	0.10

LENGTH OF WATERCOURSE (L)	780 ft
LENGTH TO POINT OPPOSITE CENTROID (Lca)	390 ft
ELEVATION OF HEADWATER	459.5 ft
ELEVATION OF CONCENTRATION POINT	453.0 ft
AVERAGE MANNINGS 'N' VALUE	0.02
STORM FREQUENCY (YEAR)	100
LOW LOSS RATE (Storm Events > 10 Years)	**85%**
POINT RAIN FROM NOAA ATLAS	**14**
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

BASIN CHARACTERISTICS:

ELEVATION	AREA
451.0 ft	101,190 sf
452.0 ft	112,495 sf
452.5 ft	135,570 sf

PERCOLATION RATE (in/hr)	0.0 in/hr
DRYWELL DATA	
NUMBER USED	
PERCOLATION RATE	
LOWEST FLOWLINE ELEVATION	
LOWEST PAD ELEVATION	

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 3/30/20

PHYSICAL DATA

[1] CONCENTRATION POINT	BASIN D
[2] AREA DESIGNATION	DA-D
[3] AREA - ACRES	28.403
[4] L-FEET	780
[5] L-MILES	0.148
[6] La-FEET	390.00
[7] La-MILES	0.074
[8] ELEVATION OF HEADWATER	459.5
[9] ELEVATION OF CONCENTRATION POINT	453
[10] H-FEET	6.5
[11] S-FEET/MILE	44.0
[12] S^0.5	6.63
[13] L*LCA/S^0.5	0.002
[14] AVERAGE MANNINGS 'N'	0.02
[15] LAG TIME-HOURS	0.04
[16] LAG TIME-MINUTES	2.5
[17] 100% OF LAG-MINUTES	2.5
[18] 200% OF LAG-MINUTES	5.0

RAINFALL DATA

[1] AMC	II
[2] FREQUENCY-YEARS	100
FROM NOAA ATLAS	**14**
[3] STORM DURATION:	Point Rain
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

STORM EVENT SUMMARY

STORM DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
RAINFALL VOLUME	(cu-ft)	148,469	220,641	284,565	**454,686**
SOIL LOSSES	(cu-ft)	28,994	85,691	152,510	**322,600**
EFFECTIVE RAIN	(in)	1.16	1.31	1.28	1.28
FLOOD VOLUME	(cu-ft)	119,475	**134,950**	132,055	132,086
	(acre-ft)	2.74	**3.10**	3.03	3.03
REQUIRED STORAGE	(cu-ft)	119,475	**134,950**	132,055	132,086
	(acre-ft)	2.74	**3.10**	3.03	3.03
FACTOR OF SAFETY		1.41	1.25	1.28	1.28
STORAGE PROVIDED	(cu-ft)	168,719			
	(acre-ft)	3.87			
PEAK FLOW	(cfs)	n/a	52.25	45.06	10.24
MAXIMUM WSEL	(ft)	452.10	**452.23**	452.20	452.20
DEPTH	(ft)	1.10	**1.23**	1.20	1.20
LOWEST FLOWLINE ELEVATION					
DIFFERENCE	(ft)				
LOWEST PAD ELEVATION					
DIFFERENCE	(ft)				
ESTIMATED TIME TO DEWATER BASIN Based on Total Flood Volume & Average Percolation Rate	(days)				

NOTE: PEAK FLOW FOR THE 1-HOUR STORM IS NOT REPRESENTATIVE. PER RCFCD PEAK DISCHARGES FROM THE 3-HOUR STORM SHOULD NORMALLY COMPARE WELL WITH RATIONAL PEAKS.

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM AMC II	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 3/30/20

AVERAGE ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA	AREA WEIGHTED AVERAGE	MAX AVERAGE ADJUSTED INFILTRATION RATE (in/hr)	LOW LOSS CONDITION	LOW LOSS RATE PER RCFC/2322	MIN AVERAGE ADJUSTED INFILTRATION RATE
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	2.588	0.091	0.0046	DEVELOPED	0.1000	0.0091
B	WATER FEATURE	56	0.51	100%	0.05	2.323	0.082	0.0042	DEVELOPED	0.1000	0.0082
B	COMMERCIAL	56	0.51	90%	0.10	4.803	0.169	0.0164	DEVELOPED	0.1800	0.0304
B	SF - HIGH DENSITY	56	0.51	50%	0.28	7.637	0.269	0.0754	DEVELOPED	0.5000	0.1344
B	LANDSCAPING	56	0.51	10%	0.46	11.052	0.389	0.1806	DEVELOPED	0.8200	0.3191
					SUM	28.403	SUM	0.2812			0.5012

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.140606334

C= 0.00260

$F_t = C(24-(T/60))^{1.55} + F_m$ = 0.00260 (24-(T/60))^1.55 + 0.14 in/hr

CONSTANT LOSS RATE (3 & 6 HOUR STORMS) = **0.2812**

LOW LOSS RATE = **0.8500**

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period, T=1 1/2 unit time for the second period, etc.

NOTE: Low loss rates established per RCFC/2322 (Dated: May-30-95)
For 10 Year Storms or Less
Undeveloped Condition: Low Loss = 90%
Developed Condition: Low Loss = 0.9 - (0.8 * %impervious)
Basin Site: Low Loss = 10%
For 100 Year Storm - Low Loss should be between 80% & 90% of the Rainfall Rate

RCFC & WCD
HYDROLOGY
MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

1-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	28.40
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.52
UNIT TIME-PERCENT OF LAG	198.4
TOTAL ADJUSTED STORM RAIN-INCHES	1.44
CONSTANT LOSS RATE-in/hr	0.28
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	3.6	0.62	0.28	0.53	0.34	9.76	2,929	2,929	101,500	0	0	2,929	0.07	451.03
2	10	0.17	4.2	0.73	0.28	0.62	0.44	12.73	3,820	6,748	101,904	0	0	6,748	0.15	451.06
3	15	0.25	4.4	0.76	0.28	0.65	0.48	13.72	4,116	10,865	102,340	0	0	10,865	0.25	451.10
4	20	0.33	4.6	0.79	0.28	0.68	0.51	14.71	4,413	15,278	102,807	0	0	15,278	0.35	451.14
5	25	0.42	5.0	0.86	0.28	0.73	0.58	16.69	5,007	20,285	103,337	0	0	20,285	0.47	451.19
6	30	0.50	5.6	0.97	0.28	0.82	0.69	19.66	5,898	26,183	103,962	0	0	26,183	0.60	451.25
7	35	0.58	6.4	1.11	0.28	0.94	0.82	23.62	7,086	33,269	104,712	0	0	33,269	0.76	451.31
8	40	0.67	8.1	1.40	0.28	1.19	1.12	32.03	9,610	42,879	105,729	0	0	42,879	0.98	451.40
9	45	0.75	13.1	2.26	0.28	1.92	1.98	56.78	17,033	59,912	107,532	0	0	59,912	1.38	451.56
10	50	0.83	34.5	5.96	0.28	5.07	5.68	**162.69**	**48,806**	108,718	113,212	0	0	108,718	2.50	452.02
11	55	0.92	6.7	1.16	0.28	0.98	0.88	25.10	7,531	116,249	116,019	0	0	116,249	2.67	452.08
12	60	1.00	3.8	0.66	0.28	0.56	0.38	10.75	3,226	119,475	117,221	0	0	**119,475**	**2.74**	**452.10**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	1.44 in
RAINFALL VOLUME	148,469 cu-ft
SOIL LOSSES	28,994 cu-ft
EFFECTIVE RAIN	1.16 in
FLOOD VOLUME	2.74 acft
FLOOD VOLUME	119,475 cu-ft
REQUIRED STORAGE	2.74
REQUIRED STORAGE	119,475 cu-ft
MAX WSEL	452.10 ft
PEAK FLOW RATE	162.69 cfs
TOTAL BASIN LOSSES	0 cu-ft
AVERAGE PERCOLATION RATE	0.00 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	28.40
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.52
UNIT TIME-PERCENT OF LAG	198.4
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.28
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain	in/hr		Rain	Hydrograph	In	Volume	Percolation	Maximum	Percolation			WSEL
				in/hr				Flow			Area	Percolation	Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
1	5	0.08	1.3	0.33	0.28	0.28	0.05	1.51	452	452	101,238	0	0	452	0.01	451.00
2	10	0.17	1.3	0.33	0.28	0.28	0.05	1.51	452	904	101,286	0	0	904	0.02	451.01
3	15	0.25	1.1	0.28	0.28	0.24	0.00	0.04	11	915	101,287	0	0	915	0.02	451.01
4	20	0.33	1.5	0.39	0.28	0.33	0.10	2.98	893	1,809	101,381	0	0	1,809	0.04	451.02
5	25	0.42	1.5	0.39	0.28	0.33	0.10	2.98	893	2,702	101,476	0	0	2,702	0.06	451.03
6	30	0.50	1.8	0.46	0.28	0.39	0.18	5.18	1,555	4,258	101,641	0	0	4,258	0.10	451.04
7	35	0.58	1.5	0.39	0.28	0.33	0.10	2.98	893	5,151	101,735	0	0	5,151	0.12	451.05
8	40	0.67	1.8	0.46	0.28	0.39	0.18	5.18	1,555	6,706	101,900	0	0	6,706	0.15	451.06
9	45	0.75	1.8	0.46	0.28	0.39	0.18	5.18	1,555	8,262	102,065	0	0	8,262	0.19	451.08
10	50	0.83	1.5	0.39	0.28	0.33	0.10	2.98	893	9,155	102,159	0	0	9,155	0.21	451.09
11	55	0.92	1.6	0.41	0.28	0.35	0.13	3.71	1,114	10,269	102,277	0	0	10,269	0.24	451.10
12	60	1.00	1.8	0.46	0.28	0.39	0.18	5.18	1,555	11,825	102,442	0	0	11,825	0.27	451.11
13	65	1.08	2.2	0.56	0.28	0.48	0.28	8.13	2,438	14,263	102,700	0	0	14,263	0.33	451.13
14	70	1.17	2.2	0.56	0.28	0.48	0.28	8.13	2,438	16,701	102,958	0	0	16,701	0.38	451.16
15	75	1.25	2.2	0.56	0.28	0.48	0.28	8.13	2,438	19,138	103,216	0	0	19,138	0.44	451.18
16	80	1.33	2.0	0.51	0.28	0.44	0.23	6.66	1,997	21,135	103,427	0	0	21,135	0.49	451.20
17	85	1.42	2.6	0.67	0.28	0.57	0.39	11.07	3,321	24,456	103,779	0	0	24,456	0.56	451.23
18	90	1.50	2.7	0.69	0.28	0.59	0.41	11.80	3,541	27,997	104,154	0	0	27,997	0.64	451.26
19	95	1.58	2.4	0.62	0.28	0.52	0.34	9.60	2,879	30,876	104,459	0	0	30,876	0.71	451.29
20	100	1.67	2.7	0.69	0.28	0.59	0.41	11.80	3,541	34,417	104,833	0	0	34,417	0.79	451.32
21	105	1.75	3.3	0.85	0.28	0.72	0.57	16.22	4,865	39,282	105,348	0	0	39,282	0.90	451.37
22	110	1.83	3.1	0.80	0.28	0.68	0.51	14.75	4,424	43,706	105,817	0	0	43,706	1.00	451.41
23	115	1.92	2.9	0.74	0.28	0.63	0.46	13.27	3,982	47,688	106,238	0	0	47,688	1.09	451.45
24	120	2.00	3.0	0.77	0.28	0.65	0.49	14.01	4,203	51,891	106,683	0	0	51,891	1.19	451.49
25	125	2.08	3.1	0.80	0.28	0.68	0.51	14.75	4,424	56,315	107,151	0	0	56,315	1.29	451.53

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	28.40
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.52
UNIT TIME-PERCENT OF LAG	198.4
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.28
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain	in/hr		Rain	Hydrograph	In	Volume	Percolation Area	Maximum Percolation	Percolation Out			WSEL
				in/hr	Max	Low	in/hr	Flow cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
			(Plate E-5.9)													
26	130	2.17	4.2	1.08	0.28	0.92	0.80	22.84	6,851	63,166	107,877	0	0	63,166	1.45	451.59
27	135	2.25	5.0	1.28	0.28	1.09	1.00	28.72	8,616	71,782	108,789	0	0	71,782	1.65	451.67
28	140	2.33	3.5	0.90	0.28	0.76	0.62	17.69	5,306	77,088	109,350	0	0	77,088	1.77	451.72
29	145	2.42	6.8	1.75	0.28	1.48	1.47	41.96	12,587	89,675	110,683	0	0	89,675	2.06	451.84
30	150	2.50	7.3	1.87	0.28	1.59	1.59	45.64	13,691	103,366	112,132	0	0	103,366	2.37	451.97
31	155	2.58	8.2	2.11	0.28	1.79	1.82	**52.25**	**15,676**	119,042	117,060	0	0	119,042	2.73	452.10
32	160	2.67	5.9	1.52	0.28	1.29	1.23	35.34	10,602	129,644	121,010	0	0	129,644	2.98	452.18
33	165	2.75	2.0	0.51	0.28	0.44	0.23	6.66	1,997	131,641	121,754	0	0	131,641	3.02	452.20
34	170	2.83	1.8	0.46	0.28	0.39	0.18	5.18	1,555	133,196	122,333	0	0	133,196	3.06	452.21
35	175	2.92	1.8	0.46	0.28	0.39	0.18	5.18	1,555	134,752	122,913	0	0	134,752	3.09	452.23
36	180	3.00	0.6	0.15	0.28	0.13	0.02	0.66	199	134,950	122,987	0	0	**134,950**	**3.10**	**452.23**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAIN	2.14 in
RAINFALL VOLUME	220,641 cu-ft
SOIL LOSSES	85,691 cu-ft
EFFECTIVE RAIN	1.31 in
FLOOD VOLUME	3.10 acft
FLOOD VOLUME	134,950 cu-ft
REQUIRED STORAGE	3.10 acft
REQUIRED STORAGE	134,950 cu-ft
MAX WSEL	452.23 ft
PEAK FLOW RATE	52.25 cfs
TOTAL BASIN LOSSES	0 cu-ft
AVERAGE PERCOLATION RATE	0.00 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	28.40
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.52
UNIT TIME-PERCENT OF LAG	198.4
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.28
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	0.5	0.17	0.28	0.14	0.02	0.71	213	213	101,213	0	0	213	0.00	451.00
2	10	0.17	0.6	0.20	0.28	0.17	0.03	0.85	256	470	101,240	0	0	470	0.01	451.00
3	15	0.25	0.6	0.20	0.28	0.17	0.03	0.85	256	726	101,267	0	0	726	0.02	451.01
4	20	0.33	0.6	0.20	0.28	0.17	0.03	0.85	256	982	101,294	0	0	982	0.02	451.01
5	25	0.42	0.6	0.20	0.28	0.17	0.03	0.85	256	1,238	101,321	0	0	1,238	0.03	451.01
6	30	0.50	0.7	0.23	0.28	0.20	0.03	1.00	299	1,537	101,353	0	0	1,537	0.04	451.01
7	35	0.58	0.7	0.23	0.28	0.20	0.03	1.00	299	1,835	101,384	0	0	1,835	0.04	451.02
8	40	0.67	0.7	0.23	0.28	0.20	0.03	1.00	299	2,134	101,416	0	0	2,134	0.05	451.02
9	45	0.75	0.7	0.23	0.28	0.20	0.03	1.00	299	2,433	101,448	0	0	2,433	0.06	451.02
10	50	0.83	0.7	0.23	0.28	0.20	0.03	1.00	299	2,732	101,479	0	0	2,732	0.06	451.03
11	55	0.92	0.7	0.23	0.28	0.20	0.03	1.00	299	3,031	101,511	0	0	3,031	0.07	451.03
12	60	1.00	0.8	0.26	0.28	0.23	0.04	1.14	341	3,372	101,547	0	0	3,372	0.08	451.03
13	65	1.08	0.8	0.26	0.28	0.23	0.04	1.14	341	3,714	101,583	0	0	3,714	0.09	451.03
14	70	1.17	0.8	0.26	0.28	0.23	0.04	1.14	341	4,055	101,619	0	0	4,055	0.09	451.04
15	75	1.25	0.8	0.26	0.28	0.23	0.04	1.14	341	4,397	101,655	0	0	4,397	0.10	451.04
16	80	1.33	0.8	0.26	0.28	0.23	0.04	1.14	341	4,738	101,692	0	0	4,738	0.11	451.04
17	85	1.42	0.8	0.26	0.28	0.23	0.04	1.14	341	5,079	101,728	0	0	5,079	0.12	451.05
18	90	1.50	0.8	0.26	0.28	0.23	0.04	1.14	341	5,421	101,764	0	0	5,421	0.12	451.05
19	95	1.58	0.8	0.26	0.28	0.23	0.04	1.14	341	5,762	101,800	0	0	5,762	0.13	451.05
20	100	1.67	0.8	0.26	0.28	0.23	0.04	1.14	341	6,104	101,836	0	0	6,104	0.14	451.06
21	105	1.75	0.8	0.26	0.28	0.23	0.04	1.14	341	6,445	101,872	0	0	6,445	0.15	451.06
22	110	1.83	0.8	0.26	0.28	0.23	0.04	1.14	341	6,787	101,908	0	0	6,787	0.16	451.06
23	115	1.92	0.8	0.26	0.28	0.23	0.04	1.14	341	7,128	101,945	0	0	7,128	0.16	451.07
24	120	2.00	0.9	0.30	0.28	0.25	0.02	0.48	145	7,273	101,960	0	0	7,273	0.17	451.07

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	28.40
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.52
UNIT TIME-PERCENT OF LAG	198.4
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.28
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
	Minutes	Hours	(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	Percolation Area sf	Maximum Percolation cu-ft	Percolation Out cu-ft	cu-ft	ac-ft	ft
25	125	2.08	0.8	0.26	0.28	0.23	0.04	1.14	341	7,615	101,996	0	0	7,615	0.17	451.07
26	130	2.17	0.9	0.30	0.28	0.25	0.02	0.48	145	7,760	102,011	0	0	7,760	0.18	451.07
27	135	2.25	0.9	0.30	0.28	0.25	0.02	0.48	145	7,905	102,027	0	0	7,905	0.18	451.07
28	140	2.33	0.9	0.30	0.28	0.25	0.02	0.48	145	8,050	102,042	0	0	8,050	0.18	451.08
29	145	2.42	0.9	0.30	0.28	0.25	0.02	0.48	145	8,194	102,057	0	0	8,194	0.19	451.08
30	150	2.50	0.9	0.30	0.28	0.25	0.02	0.48	145	8,339	102,073	0	0	8,339	0.19	451.08
31	155	2.58	0.9	0.30	0.28	0.25	0.02	0.48	145	8,484	102,088	0	0	8,484	0.19	451.08
32	160	2.67	0.9	0.30	0.28	0.25	0.02	0.48	145	8,629	102,103	0	0	8,629	0.20	451.08
33	165	2.75	1.0	0.33	0.28	0.28	0.05	1.43	429	9,059	102,149	0	0	9,059	0.21	451.08
34	170	2.83	1.0	0.33	0.28	0.28	0.05	1.43	429	9,488	102,194	0	0	9,488	0.22	451.09
35	175	2.92	1.0	0.33	0.28	0.28	0.05	1.43	429	9,918	102,240	0	0	9,918	0.23	451.09
36	180	3.00	1.0	0.33	0.28	0.28	0.05	1.43	429	10,347	102,285	0	0	10,347	0.24	451.10
37	185	3.08	1.0	0.33	0.28	0.28	0.05	1.43	429	10,777	102,331	0	0	10,777	0.25	451.10
38	190	3.17	1.1	0.36	0.28	0.31	0.08	2.38	714	11,491	102,406	0	0	11,491	0.26	451.11
39	195	3.25	1.1	0.36	0.28	0.31	0.08	2.38	714	12,205	102,482	0	0	12,205	0.28	451.11
40	200	3.33	1.1	0.36	0.28	0.31	0.08	2.38	714	12,919	102,558	0	0	12,919	0.30	451.12
41	205	3.42	1.2	0.40	0.28	0.34	0.12	3.33	999	13,917	102,663	0	0	13,917	0.32	451.13
42	210	3.50	1.3	0.43	0.28	0.37	0.15	4.28	1,283	15,201	102,799	0	0	15,201	0.35	451.14
43	215	3.58	1.4	0.46	0.28	0.39	0.18	5.23	1,568	16,768	102,965	0	0	16,768	0.38	451.16
44	220	3.67	1.4	0.46	0.28	0.39	0.18	5.23	1,568	18,336	103,131	0	0	18,336	0.42	451.17
45	225	3.75	1.5	0.50	0.28	0.42	0.22	6.17	1,852	20,188	103,327	0	0	20,188	0.46	451.19
46	230	3.83	1.5	0.50	0.28	0.42	0.22	6.17	1,852	22,041	103,523	0	0	22,041	0.51	451.21
47	235	3.92	1.6	0.53	0.28	0.45	0.25	7.12	2,137	24,178	103,749	0	0	24,178	0.56	451.23
48	240	4.00	1.6	0.53	0.28	0.45	0.25	7.12	2,137	26,315	103,976	0	0	26,315	0.60	451.25
49	245	4.08	1.7	0.56	0.28	0.48	0.28	8.07	2,421	28,736	104,232	0	0	28,736	0.66	451.27
50	250	4.17	1.8	0.60	0.28	0.51	0.31	9.02	2,706	31,442	104,518	0	0	31,442	0.72	451.29

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	28.40
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.52
UNIT TIME-PERCENT OF LAG	198.4
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.28
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
51	255	4.25	1.9	0.63	0.28	0.53	0.35	9.97	2,991	34,433	104,835	0	0	34,433	0.79	451.32
52	260	4.33	2.0	0.66	0.28	0.56	0.38	10.92	3,275	37,708	105,182	0	0	37,708	0.87	451.35
53	265	4.42	2.1	0.70	0.28	0.59	0.41	11.87	3,560	41,267	105,559	0	0	41,267	0.95	451.39
54	270	4.50	2.1	0.70	0.28	0.59	0.41	11.87	3,560	44,827	105,935	0	0	44,827	1.03	451.42
55	275	4.58	2.2	0.73	0.28	0.62	0.45	12.81	3,844	48,671	106,342	0	0	48,671	1.12	451.46
56	280	4.67	2.3	0.76	0.28	0.65	0.48	13.76	4,129	52,800	106,779	0	0	52,800	1.21	451.49
57	285	4.75	2.4	0.79	0.28	0.68	0.51	14.71	4,413	57,214	107,247	0	0	57,214	1.31	451.54
58	290	4.83	2.4	0.79	0.28	0.68	0.51	14.71	4,413	61,627	107,714	0	0	61,627	1.41	451.58
59	295	4.92	2.5	0.83	0.28	0.70	0.55	15.66	4,698	66,325	108,211	0	0	66,325	1.52	451.62
60	300	5.00	2.6	0.86	0.28	0.73	0.58	16.61	4,983	71,307	108,739	0	0	71,307	1.64	451.67
61	305	5.08	3.1	1.03	0.28	0.87	0.75	21.35	6,405	77,713	109,417	0	0	77,713	1.78	451.73
62	310	5.17	3.6	1.19	0.28	1.01	0.91	26.09	7,828	85,541	110,245	0	0	85,541	1.96	451.80
63	315	5.25	3.9	1.29	0.28	1.10	1.01	28.94	8,682	94,223	111,164	0	0	94,223	2.16	451.88
64	320	5.33	4.2	1.39	0.28	1.18	1.11	31.79	9,536	103,758	112,174	0	0	103,758	2.38	451.97
65	325	5.42	4.7	1.56	0.28	1.32	1.28	36.53	10,958	114,717	115,448	0	0	114,717	2.63	452.06
66	330	5.50	5.6	1.85	0.28	1.58	1.57	**45.06**	**13,519**	128,236	120,485	0	0	128,236	2.94	452.17
67	335	5.58	1.9	0.63	0.28	0.53	0.35	9.97	2,991	131,227	121,600	0	0	131,227	3.01	452.20
68	340	5.67	0.9	0.30	0.28	0.25	0.02	0.48	145	131,372	121,654	0	0	131,372	3.02	452.20
69	345	5.75	0.6	0.20	0.28	0.17	0.03	0.85	256	131,628	121,749	0	0	131,628	3.02	452.20
70	350	5.83	0.5	0.17	0.28	0.14	0.02	0.71	213	131,841	121,829	0	0	131,841	3.03	452.20
71	355	5.92	0.3	0.10	0.28	0.08	0.01	0.43	128	131,969	121,876	0	0	131,969	3.03	452.20
72	360	6.00	0.2	0.07	0.28	0.06	0.01	0.28	85	132,055	121,908	0	0	**132,055**	**3.03**	**452.20**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	2.76 in
RAINFALL VOLUME	284,565 cu-ft
SOIL LOSSES	152,510 cu-ft
EFFECTIVE RAIN	1.28 in
FLOOD VOLUME	3.03 acft
FLOOD VOLUME	132,055 cu-ft
REQUIRED STORAGE	3.03 acft
REQUIRED STORAGE	132,055 cu-ft
MAX WSEL	452.20 ft
PEAK FLOW RATE	45.06 cfs
TOTAL BASIN LOSSES	0 cu-ft
AVERAGE PERCOLATION RATE	0.00 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	28.40	VARIABLE LOSS RATE (AVG) IN/HR	
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.14
LAG TIME - MINUTES	2.52	C	0.00260
UNIT TIME-PERCENT OF LAG	595%	Low Loss Rate (percent)	85.00%
TOTAL ADJUSTED STORM RAIN (in)	4.41		

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	15	0.25	0.2	0.035	0.497	0.030	0.01	0.15	136	136	101,204	0	0	136	0.00	451.00
2	30	0.50	0.3	0.053	0.491	0.045	0.01	0.23	205	341	101,226	0	0	341	0.01	451.00
3	45	0.75	0.3	0.053	0.485	0.045	0.01	0.23	205	546	101,248	0	0	546	0.01	451.01
4	60	1.00	0.4	0.071	0.479	0.060	0.01	0.30	273	818	101,277	0	0	818	0.02	451.01
5	75	1.25	0.3	0.053	0.474	0.045	0.01	0.23	205	1,023	101,298	0	0	1,023	0.02	451.01
6	90	1.50	0.3	0.053	0.468	0.045	0.01	0.23	205	1,228	101,320	0	0	1,228	0.03	451.01
7	105	1.75	0.3	0.053	0.463	0.045	0.01	0.23	205	1,432	101,342	0	0	1,432	0.03	451.01
8	120	2.00	0.4	0.071	0.457	0.060	0.01	0.30	273	1,705	101,370	0	0	1,705	0.04	451.02
9	135	2.25	0.4	0.071	0.451	0.060	0.01	0.30	273	1,978	101,399	0	0	1,978	0.05	451.02
10	150	2.50	0.4	0.071	0.446	0.060	0.01	0.30	273	2,251	101,428	0	0	2,251	0.05	451.02
11	165	2.75	0.5	0.088	0.440	0.075	0.01	0.38	341	2,592	101,464	0	0	2,592	0.06	451.02
12	180	3.00	0.5	0.088	0.435	0.075	0.01	0.38	341	2,933	101,500	0	0	2,933	0.07	451.03
13	195	3.25	0.5	0.088	0.430	0.075	0.01	0.38	341	3,274	101,537	0	0	3,274	0.08	451.03
14	210	3.50	0.5	0.088	0.424	0.075	0.01	0.38	341	3,615	101,573	0	0	3,615	0.08	451.03
15	225	3.75	0.5	0.088	0.419	0.075	0.01	0.38	341	3,956	101,609	0	0	3,956	0.09	451.04
16	240	4.00	0.6	0.106	0.414	0.090	0.02	0.45	409	4,365	101,652	0	0	4,365	0.10	451.04
17	255	4.25	0.6	0.106	0.409	0.090	0.02	0.45	409	4,774	101,695	0	0	4,774	0.11	451.04
18	270	4.50	0.7	0.123	0.403	0.105	0.02	0.53	477	5,252	101,746	0	0	5,252	0.12	451.05
19	285	4.75	0.7	0.123	0.398	0.105	0.02	0.53	477	5,729	101,796	0	0	5,729	0.13	451.05
20	300	5.00	0.8	0.141	0.393	0.120	0.02	0.61	546	6,275	101,854	0	0	6,275	0.14	451.06
21	315	5.25	0.6	0.106	0.388	0.090	0.02	0.45	409	6,684	101,898	0	0	6,684	0.15	451.06
22	330	5.50	0.7	0.123	0.383	0.105	0.02	0.53	477	7,161	101,948	0	0	7,161	0.16	451.07
23	345	5.75	0.8	0.141	0.378	0.120	0.02	0.61	546	7,707	102,006	0	0	7,707	0.18	451.07
24	360	6.00	0.8	0.141	0.373	0.120	0.02	0.61	546	8,253	102,064	0	0	8,253	0.19	451.08
25	375	6.25	0.9	0.159	0.368	0.135	0.02	0.68	614	8,866	102,129	0	0	8,866	0.20	451.08
26	390	6.50	0.9	0.159	0.363	0.135	0.02	0.68	614	9,480	102,194	0	0	9,480	0.22	451.09
27	405	6.75	1.0	0.176	0.358	0.150	0.03	0.76	682	10,162	102,266	0	0	10,162	0.23	451.10
28	420	7.00	1.0	0.176	0.353	0.150	0.03	0.76	682	10,844	102,338	0	0	10,844	0.25	451.10
29	435	7.25	1.0	0.176	0.348	0.150	0.03	0.76	682	11,526	102,410	0	0	11,526	0.26	451.11
30	450	7.50	1.1	0.194	0.344	0.165	0.03	0.83	750	12,277	102,490	0	0	12,277	0.28	451.11
31	465	7.75	1.2	0.212	0.339	0.180	0.03	0.91	818	13,095	102,576	0	0	13,095	0.30	451.12
32	480	8.00	1.3	0.229	0.334	0.195	0.03	0.99	887	13,982	102,670	0	0	13,982	0.32	451.13
33	495	8.25	1.5	0.265	0.330	0.225	0.04	1.14	1,023	15,005	102,778	0	0	15,005	0.34	451.14
34	510	8.50	1.5	0.265	0.325	0.225	0.04	1.14	1,023	16,028	102,887	0	0	16,028	0.37	451.15
35	525	8.75	1.6	0.282	0.321	0.240	0.04	1.21	1,091	17,119	103,002	0	0	17,119	0.39	451.16
36	540	9.00	1.7	0.300	0.316	0.255	0.04	1.29	1,159	18,278	103,125	0	0	18,278	0.42	451.17
37	555	9.25	1.9	0.335	0.312	0.285	0.02	0.68	608	18,886	103,189	0	0	18,886	0.43	451.18
38	570	9.50	2.0	0.353	0.307	0.300	0.05	1.31	1,177	20,063	103,314	0	0	20,063	0.46	451.19
39	585	9.75	2.1	0.370	0.303	0.315	0.07	1.94	1,745	21,808	103,499	0	0	21,808	0.50	451.20
40	600	10.00	2.2	0.388	0.298	0.330	0.09	2.57	2,312	24,119	103,743	0	0	24,119	0.55	451.23
41	615	10.25	1.5	0.265	0.294	0.225	0.04	1.14	1,023	25,142	103,852	0	0	25,142	0.58	451.24
42	630	10.50	1.5	0.265	0.290	0.225	0.04	1.14	1,023	26,165	103,960	0	0	26,165	0.60	451.25
43	645	10.75	2.0	0.353	0.286	0.300	0.07	1.92	1,732	27,897	104,143	0	0	27,897	0.64	451.26

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	28.40	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	0.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.14		
LAG TIME - MINUTES	2.52	C	0.00260	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	595%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
44	660	11.00	2.0	0.353	0.281	0.300	0.07	2.04	1,840	29,737	104,338	0	0	29,737	0.68	451.28
45	675	11.25	1.9	0.335	0.277	0.285	0.06	1.66	1,492	31,229	104,496	0	0	31,229	0.72	451.29
46	690	11.50	1.9	0.335	0.273	0.285	0.06	1.77	1,597	32,826	104,665	0	0	32,826	0.75	451.31
47	705	11.75	1.7	0.300	0.269	0.255	0.03	0.88	792	33,618	104,749	0	0	33,618	0.77	451.31
48	720	12.00	1.8	0.318	0.265	0.270	0.05	1.50	1,350	34,968	104,892	0	0	34,968	0.80	451.33
49	735	12.25	2.5	0.441	0.261	0.375	0.18	5.15	4,635	39,603	105,382	0	0	39,603	0.91	451.37
50	750	12.50	2.6	0.459	0.257	0.390	0.20	5.77	5,190	44,793	105,932	0	0	44,793	1.03	451.42
51	765	12.75	2.8	0.494	0.253	0.420	0.24	6.89	6,199	50,992	106,588	0	0	50,992	1.17	451.48
52	780	13.00	2.9	0.512	0.250	0.435	0.26	7.50	6,752	57,744	107,303	0	0	57,744	1.33	451.54
53	795	13.25	3.4	0.600	0.246	0.510	0.35	10.14	9,123	66,868	108,269	0	0	66,868	1.54	451.63
54	810	13.50	3.4	0.600	0.242	0.510	0.36	**10.24**	**9,219**	76,087	109,244	0	0	76,087	1.75	451.71
55	825	13.75	2.3	0.406	0.238	0.345	0.17	4.79	4,312	80,399	109,701	0	0	80,399	1.85	451.75
56	840	14.00	2.3	0.406	0.235	0.345	0.17	4.90	4,406	84,805	110,167	0	0	84,805	1.95	451.79
57	855	14.25	2.7	0.476	0.231	0.405	0.25	7.02	6,317	91,122	110,836	0	0	91,122	2.09	451.85
58	870	14.50	2.6	0.459	0.228	0.390	0.23	6.61	5,953	97,075	111,466	0	0	97,075	2.23	451.91
59	885	14.75	2.6	0.459	0.224	0.390	0.23	6.71	6,043	103,118	112,106	0	0	103,118	2.37	451.97
60	900	15.00	2.5	0.441	0.221	0.375	0.22	6.31	5,677	108,794	113,241	0	0	108,794	2.50	452.02
61	915	15.25	2.4	0.423	0.217	0.360	0.21	5.90	5,309	114,103	115,219	0	0	114,103	2.62	452.06
62	930	15.50	2.3	0.406	0.214	0.345	0.19	5.49	4,940	119,044	117,060	0	0	119,044	2.73	452.10
63	945	15.75	1.9	0.335	0.211	0.285	0.12	3.56	3,206	122,249	118,254	0	0	122,249	2.81	452.12
64	960	16.00	1.9	0.335	0.208	0.285	0.13	3.65	3,289	125,538	119,480	0	0	125,538	2.88	452.15
65	975	16.25	0.4	0.071	0.204	0.060	0.01	0.30	273	125,811	119,582	0	0	125,811	2.89	452.15
66	990	16.50	0.4	0.071	0.201	0.060	0.01	0.30	273	126,084	119,683	0	0	126,084	2.89	452.16
67	1005	16.75	0.3	0.053	0.198	0.045	0.01	0.23	205	126,288	119,759	0	0	126,288	2.90	452.16
68	1020	17.00	0.3	0.053	0.195	0.045	0.01	0.23	205	126,493	119,836	0	0	126,493	2.90	452.16
69	1035	17.25	0.5	0.088	0.192	0.075	0.01	0.38	341	126,834	119,963	0	0	126,834	2.91	452.16
70	1050	17.50	0.5	0.088	0.189	0.075	0.01	0.38	341	127,175	120,090	0	0	127,175	2.92	452.16
71	1065	17.75	0.5	0.088	0.187	0.075	0.01	0.38	341	127,516	120,217	0	0	127,516	2.93	452.17
72	1080	18.00	0.4	0.071	0.184	0.060	0.01	0.30	273	127,789	120,319	0	0	127,789	2.93	452.17
73	1095	18.25	0.4	0.071	0.181	0.060	0.01	0.30	273	128,062	120,420	0	0	128,062	2.94	452.17
74	1110	18.50	0.4	0.071	0.178	0.060	0.01	0.30	273	128,334	120,522	0	0	128,334	2.95	452.17
75	1125	18.75	0.3	0.053	0.176	0.045	0.01	0.23	205	128,539	120,598	0	0	128,539	2.95	452.18
76	1140	19.00	0.2	0.035	0.173	0.030	0.01	0.15	136	128,675	120,649	0	0	128,675	2.95	452.18
77	1155	19.25	0.3	0.053	0.171	0.045	0.01	0.23	205	128,880	120,725	0	0	128,880	2.96	452.18
78	1170	19.50	0.4	0.071	0.169	0.060	0.01	0.30	273	129,153	120,827	0	0	129,153	2.96	452.18
79	1185	19.75	0.3	0.053	0.166	0.045	0.01	0.23	205	129,357	120,903	0	0	129,357	2.97	452.18
80	1200	20.00	0.2	0.035	0.164	0.030	0.01	0.15	136	129,494	120,954	0	0	129,494	2.97	452.18
81	1215	20.25	0.3	0.053	0.162	0.045	0.01	0.23	205	129,698	121,030	0	0	129,698	2.98	452.18
82	1230	20.50	0.3	0.053	0.160	0.045	0.01	0.23	205	129,903	121,106	0	0	129,903	2.98	452.19
83	1245	20.75	0.3	0.053	0.158	0.045	0.01	0.23	205	130,108	121,183	0	0	130,108	2.99	452.19
84	1260	21.00	0.2	0.035	0.156	0.030	0.01	0.15	136	130,244	121,233	0	0	130,244	2.99	452.19
85	1275	21.25	0.3	0.053	0.154	0.045	0.01	0.23	205	130,449	121,310	0	0	130,449	2.99	452.19
86	1290	21.50	0.2	0.035	0.152	0.030	0.01	0.15	136	130,585	121,361	0	0	130,585	3.00	452.19

RCFC & WCD
HYDROLOGY
MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	28.40	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	0.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.14		
LAG TIME - MINUTES	2.52	C	0.00260	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	595%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
87	1305	21.75	0.3	0.053	0.151	0.045	0.01	0.23	205	130,790	121,437	0	0	130,790	3.00	452.19
88	1320	22.00	0.2	0.035	0.149	0.030	0.01	0.15	136	130,926	121,488	0	0	130,926	3.01	452.19
89	1335	22.25	0.3	0.053	0.148	0.045	0.01	0.23	205	131,131	121,564	0	0	131,131	3.01	452.20
90	1350	22.50	0.2	0.035	0.146	0.030	0.01	0.15	136	131,267	121,615	0	0	131,267	3.01	452.20
91	1365	22.75	0.2	0.035	0.145	0.030	0.01	0.15	136	131,403	121,665	0	0	131,403	3.02	452.20
92	1380	23.00	0.2	0.035	0.144	0.030	0.01	0.15	136	131,540	121,716	0	0	131,540	3.02	452.20
93	1395	23.25	0.2	0.035	0.143	0.030	0.01	0.15	136	131,676	121,767	0	0	131,676	3.02	452.20
94	1410	23.50	0.2	0.035	0.142	0.030	0.01	0.15	136	131,813	121,818	0	0	131,813	3.03	452.20
95	1425	23.75	0.2	0.035	0.141	0.030	0.01	0.15	136	131,949	121,869	0	0	131,949	3.03	452.20
96	1440	24.00	0.2	0.035	0.141	0.030	0.01	0.15	136	132,086	121,920	0	0	**132,086**	**3.03**	**452.20**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	4.41 in
RAINFALL VOLUME	454,686 cu-ft
SOIL LOSSES	322,600 cu-ft
EFFECTIVE RAIN	1.28 in
FLOOD VOLUME	3.03 acft
FLOOD VOLUME	132,086 cu-ft
REQUIRED STORAGE	3.03 acft
REQUIRED STORAGE	132,086 cu-ft
MAX WSEL	452.20 ft
PEAK FLOW RATE	10.24 cfs
TOTAL BASIN LOSSES	0 cu-ft
AVERAGE PERCOLATION RATE	0.00 cf/min

BASIN VOLUME WORKSHEET

PROECT CORAL MOUNTAIN
JOB No. 2553
BASIN DESIGNATION: BASIN D

BASIN CHARACTERISTICS

CONTOUR ELEVATION	DEPTH		AREA		VOLUME		
	INCR (ft)	TOTAL (ft)	INCR (sf)	TOTAL (sf)	INCR (cuft)	TOTAL (cuft)	(acre-ft)
451	0	0		101,190	0	0	0.00
452	1	1	11,305	112,495	106,793	106,793	2.45
452.5	0.5	1.5	23,075	135,570	61,927	168,719	3.87

WHERE:

$$V = \frac{1}{3}(E_1 - E_2)\left(A_1 + A_2 + \sqrt{A_1 A_2}\right)$$

RCFCD SYNTHETIC UNIT HYDROGRAPH - SHORTCUT METHOD

DATA INPUT SHEET

DATE	March 30, 2020
WORKSHEET PREPARED BY:	DLS
PROJECT NAME	CORAL MOUNTAIN
PROJECT NUMBER	2553
CONCENTRATION POINT DESIGNATION	BASIN E
AREA DESIGNATION	DA-E
AMC NUMBER	2

Low Loss Conditions: X=Existing; D=Developed; BS=Retention

AREA DESIG	SOIL GROUP	TRIBUTARY AREAS	ACRES	LOW LOSS CONDITION	RI NUMBER	AMC II INFILTRATION RATE	IMPERVIOUS PERCENT
2	B	PAVING/HARDSCAPE	1.707	D	56	0.51	1.00
4	B	SF - LOW DENSITY	48.170	D	56	0.51	0.30
6	B	SF - HIGH DENSITY	4.271	D	56	0.51	0.50
9	B	LANDSCAPING	7.654	D	56	0.51	0.10

LENGTH OF WATERCOURSE (L)	1,560 ft
LENGTH TO POINT OPPOSITE CENTROID (Lca)	780 ft
ELEVATION OF HEADWATER	490.0 ft
ELEVATION OF CONCENTRATION POINT	455.0 ft
AVERAGE MANNINGS 'N' VALUE	0.02
STORM FREQUENCY (YEAR)	100
LOW LOSS RATE (Storm Events > 10 Years)	**85%**
POINT RAIN FROM NOAA ATLAS	**14**
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

BASIN CHARACTERISTICS:

ELEVATION	AREA
442.0 ft	224,555 sf
443.0 ft	231,980 sf
444.0 ft	239,460 sf
445.0 ft	247,000 sf
446.0 ft	254,595 sf
447.0 ft	262,250 sf

PERCOLATION RATE (in/hr)	1.0 in/hr
DRYWELL DATA	
NUMBER USED	
PERCOLATION RATE	
LOWEST FLOWLINE ELEVATION	
LOWEST PAD ELEVATION	

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 3/30/20

PHYSICAL DATA

[1] CONCENTRATION POINT	BASIN E
[2] AREA DESIGNATION	DA-E
[3] AREA - ACRES	61.802
[4] L-FEET	1560
[5] L-MILES	0.295
[6] La-FEET	780.00
[7] La-MILES	0.148
[8] ELEVATION OF HEADWATER	490
[9] ELEVATION OF CONCENTRATION POINT	455
[10] H-FEET	35
[11] S-FEET/MILE	118.5
[12] S^0.5	10.88
[13] L*LCA/S^0.5	0.004
[14] AVERAGE MANNINGS 'N'	0.02
[15] LAG TIME-HOURS	0.06
[16] LAG TIME-MINUTES	3.5
[17] 100% OF LAG-MINUTES	3.5
[18] 200% OF LAG-MINUTES	7.1

RAINFALL DATA

[1] AMC	II
[2] FREQUENCY-YEARS	100
FROM NOAA ATLAS	**14**
[3] STORM DURATION:	Point Rain
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

STORM EVENT SUMMARY

STORM DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
RAINFALL VOLUME	(cu-ft)	323,053	480,092	619,184	**989,349**
SOIL LOSSES	(cu-ft)	82,659	237,971	372,822	**769,875**
EFFECTIVE RAIN	(in)	1.07	1.08	1.10	0.98
FLOOD VOLUME	(cu-ft)	240,394	242,121	**246,363**	219,473
	(acre-ft)	5.52	5.56	**5.66**	5.04
REQUIRED STORAGE	(cu-ft)	**221,456**	193,888	172,408	59,359
	(acre-ft)	**5.08**	4.45	3.96	1.36
FACTOR OF SAFETY		5.49	6.27	7.06	20.49
STORAGE PROVIDED	(cu-ft)	1,216,389			
	(acre-ft)	27.92			
PEAK FLOW	(cfs)	n/a	108.26	92.62	17.61
MAXIMUM WSEL	(ft)	**442.97**	442.85	442.76	442.26
DEPTH	(ft)	**0.97**	0.85	0.76	0.26
LOWEST FLOWLINE ELEVATION					
DIFFERENCE	(ft)				
LOWEST PAD ELEVATION					
DIFFERENCE	(ft)				
ESTIMATED TIME TO DEWATER BASIN Based on Total Flood Volume & Average Percolation Rate	(days)	0.5	0.6	0.8	1.0

NOTE: PEAK FLOW FOR THE 1-HOUR STORM IS NOT REPRESENTATIVE. PER RCFCD PEAK DISCHARGES FROM THE 3-HOUR STORM SHOULD NORMALLY COMPARE WELL WITH RATIONAL PEAKS.

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM AMC II	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 3/30/20

AVERAGE ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA	AREA WEIGHTED AVERAGE	MAX AVERAGE ADJUSTED INFILTRATION RATE (in/hr)	LOW LOSS CONDITION	LOW LOSS RATE PER RCFC/2322	MIN AVERAGE ADJUSTED INFILTRATION RATE
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	1.707	0.028	0.0014	DEVELOPED	0.1000	0.0028
B	SF - LOW DENSITY	56	0.51	30%	0.37	48.170	0.779	0.2902	DEVELOPED	0.6600	0.5144
B	SF - HIGH DENSITY	56	0.51	50%	0.28	4.271	0.069	0.0194	DEVELOPED	0.5000	0.0346
B	LANDSCAPING	56	0.51	10%	0.46	7.654	0.124	0.0575	DEVELOPED	0.8200	0.1016
					SUM	61.802	SUM	0.3685			0.6533

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.184225307

C= 0.00341

$F_t = C(24-(T/60))^{1.55} + F_m$ = 0.00341 (24-(T/60))^1.55 + 0.18 in/hr

CONSTANT LOSS RATE (3 & 6 HOUR STORMS) = **0.3685**

LOW LOSS RATE = **0.8500**

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period, T=1 1/2 unit time for the second period, etc.

NOTE: Low loss rates established per RCFC/2322 (Dated: May-30-95)
For 10 Year Storms or Less
Undeveloped Condition: Low Loss = 90%
Developed Condition: Low Loss = 0.9 - (0.8 * %impervious)
Basin Site: Low Loss = 10%
For 100 Year Storm - Low Loss should be between 80% & 90% of the Rainfall Rate

RCFC & WCD
HYDROLOGY
MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

1-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	61.80
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.54
UNIT TIME-PERCENT OF LAG	141.4
TOTAL ADJUSTED STORM RAIN-INCHES	1.44
CONSTANT LOSS RATE-in/hr	0.37
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	3.6	0.62	0.37	0.53	0.25	15.81	4,742	4,742	224,709	1,560	1,560	3,181	0.07	442.01
2	10	0.17	4.2	0.73	0.37	0.62	0.36	22.27	6,680	9,861	224,876	1,562	1,562	8,299	0.19	442.04
3	15	0.25	4.4	0.76	0.37	0.65	0.39	24.42	7,326	15,626	225,063	1,563	1,563	14,063	0.32	442.06
4	20	0.33	4.6	0.79	0.37	0.68	0.43	26.57	7,972	22,035	225,272	1,564	1,564	20,470	0.47	442.09
5	25	0.42	5.0	0.86	0.37	0.73	0.50	30.88	9,264	29,735	225,522	1,566	1,566	28,169	0.65	442.12
6	30	0.50	5.6	0.97	0.37	0.82	0.60	37.34	11,203	39,371	225,836	1,568	1,568	37,803	0.87	442.17
7	35	0.58	6.4	1.11	0.37	0.94	0.74	45.96	13,787	51,590	226,233	1,571	1,571	50,019	1.15	442.22
8	40	0.67	8.1	1.40	0.37	1.19	1.03	64.26	19,279	69,298	226,809	1,575	1,575	67,723	1.55	442.30
9	45	0.75	13.1	2.26	0.37	1.92	1.90	118.11	35,432	103,155	227,911	1,583	1,583	101,572	2.33	442.44
10	50	0.83	34.5	5.96	0.37	5.07	5.59	**348.55**	**104,565**	206,137	231,260	1,606	1,606	204,531	4.70	442.90
11	55	0.92	6.7	1.16	0.37	0.98	0.79	49.19	14,756	219,287	231,688	1,609	1,609	217,678	5.00	442.95
12	60	1.00	3.8	0.66	0.37	0.56	0.29	17.96	5,388	223,066	231,811	1,610	1,610	**221,456**	**5.08**	**442.97**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY	
TOTAL RAINFALL	1.44 in
RAINFALL VOLUME	323,053 cu-ft
SOIL LOSSES	82,659 cu-ft
EFFECTIVE RAIN	1.07 in
FLOOD VOLUME	5.52 acft
FLOOD VOLUME	240,394 cu-ft
REQUIRED STORAGE	5.08
REQUIRED STORAGE	221,456 cu-ft
MAX WSEL	442.97 ft
PEAK FLOW RATE	348.55 cfs
TOTAL BASIN LOSSES	18,937 cu-ft
AVERAGE PERCOLATION RATE	315.62 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	61.80
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.54
UNIT TIME-PERCENT OF LAG	141.4
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.37
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm Rain	Loss Rate in/hr		Effective Rain	Flood Hydrograph	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
	Minutes	Hours	Percent	in/hr	Max	Low	in/hr	Flow cfs	cu-ft	cu-ft	Percolation Area sf	Maximum Percolation cu-ft	Percolation Out cu-ft	cu-ft	ac-ft	ft
			(Plate E-5.9)													
1	5	0.08	1.3	0.33	0.37	0.28	0.05	3.12	936	936	224,585	1,560	936	0	0.00	442.00
2	10	0.17	1.3	0.33	0.37	0.28	0.05	3.12	936	936	224,585	1,560	936	0	0.00	442.00
3	15	0.25	1.1	0.28	0.37	0.24	0.04	2.64	792	792	224,581	1,560	792	0	0.00	442.00
4	20	0.33	1.5	0.39	0.37	0.33	0.02	1.04	313	313	224,565	1,559	313	0	0.00	442.00
5	25	0.42	1.5	0.39	0.37	0.33	0.02	1.04	313	313	224,565	1,559	313	0	0.00	442.00
6	30	0.50	1.8	0.46	0.37	0.39	0.09	5.84	1,753	1,753	224,612	1,560	1,560	194	0.00	442.00
7	35	0.58	1.5	0.39	0.37	0.33	0.02	1.04	313	507	224,571	1,560	507	0	0.00	442.00
8	40	0.67	1.8	0.46	0.37	0.39	0.09	5.84	1,753	1,753	224,612	1,560	1,560	194	0.00	442.00
9	45	0.75	1.8	0.46	0.37	0.39	0.09	5.84	1,753	1,947	224,618	1,560	1,560	387	0.01	442.00
10	50	0.83	1.5	0.39	0.37	0.33	0.02	1.04	313	700	224,578	1,560	700	0	0.00	442.00
11	55	0.92	1.6	0.41	0.37	0.35	0.04	2.64	793	793	224,581	1,560	793	0	0.00	442.00
12	60	1.00	1.8	0.46	0.37	0.39	0.09	5.84	1,753	1,753	224,612	1,560	1,560	194	0.00	442.00
13	65	1.08	2.2	0.56	0.37	0.48	0.20	12.25	3,674	3,867	224,681	1,560	1,560	2,307	0.05	442.01
14	70	1.17	2.2	0.56	0.37	0.48	0.20	12.25	3,674	5,981	224,750	1,561	1,561	4,420	0.10	442.02
15	75	1.25	2.2	0.56	0.37	0.48	0.20	12.25	3,674	8,094	224,818	1,561	1,561	6,533	0.15	442.03
16	80	1.33	2.0	0.51	0.37	0.44	0.15	9.05	2,714	9,246	224,856	1,561	1,561	7,685	0.18	442.03
17	85	1.42	2.6	0.67	0.37	0.57	0.30	18.65	5,594	13,279	224,987	1,562	1,562	11,716	0.27	442.05
18	90	1.50	2.7	0.69	0.37	0.59	0.32	20.25	6,074	17,791	225,134	1,563	1,563	16,227	0.37	442.07
19	95	1.58	2.4	0.62	0.37	0.52	0.25	15.45	4,634	20,861	225,234	1,564	1,564	19,297	0.44	442.08
20	100	1.67	2.7	0.69	0.37	0.59	0.32	20.25	6,074	25,371	225,380	1,565	1,565	23,806	0.55	442.10
21	105	1.75	3.3	0.85	0.37	0.72	0.48	29.85	8,955	32,761	225,621	1,567	1,567	31,194	0.72	442.14
22	110	1.83	3.1	0.80	0.37	0.68	0.43	26.65	7,995	39,189	225,830	1,568	1,568	37,621	0.86	442.16
23	115	1.92	2.9	0.74	0.37	0.63	0.38	23.45	7,034	44,655	226,008	1,569	1,569	43,085	0.99	442.19
24	120	2.00	3.0	0.77	0.37	0.65	0.40	25.05	7,515	50,600	226,201	1,571	1,571	49,029	1.13	442.21
25	125	2.08	3.1	0.80	0.37	0.68	0.43	26.65	7,995	57,024	226,410	1,572	1,572	55,451	1.27	442.24

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	61.80
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.54
UNIT TIME-PERCENT OF LAG	141.4
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.37
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain	in/hr		Rain	Hydrograph	In	Volume	Percolation Area	Maximum Percolation	Percolation Out			WSEL
				in/hr	Max	Low	in/hr	Flow cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
			(Plate E-5.9)													
26	130	2.17	4.2	1.08	0.37	0.92	0.71	44.25	13,276	68,727	226,791	1,575	1,575	67,152	1.54	442.29
27	135	2.25	5.0	1.28	0.37	1.09	0.92	57.05	17,116	84,269	227,296	1,578	1,578	82,690	1.90	442.36
28	140	2.33	3.5	0.90	0.37	0.76	0.53	33.05	9,915	92,605	227,567	1,580	1,580	91,025	2.09	442.40
29	145	2.42	6.8	1.75	0.37	1.48	1.38	85.86	25,758	116,783	228,354	1,586	1,586	115,197	2.64	442.50
30	150	2.50	7.3	1.87	0.37	1.59	1.51	93.86	28,158	143,355	229,218	1,592	1,592	141,764	3.25	442.62
31	155	2.58	8.2	2.11	0.37	1.79	1.74	**108.26**	**32,479**	174,243	230,223	1,599	1,599	172,644	3.96	442.76
32	160	2.67	5.9	1.52	0.37	1.29	1.15	71.46	21,437	194,081	230,868	1,603	1,603	192,478	4.42	442.84
33	165	2.75	2.0	0.51	0.37	0.44	0.15	9.05	2,714	195,192	230,904	1,604	1,604	193,588	4.44	442.85
34	170	2.83	1.8	0.46	0.37	0.39	0.09	5.84	1,753	195,342	230,909	1,604	1,604	193,738	4.45	442.85
35	175	2.92	1.8	0.46	0.37	0.39	0.09	5.84	1,753	195,491	230,914	1,604	1,604	**193,888**	**4.45**	**442.85**
36	180	3.00	0.6	0.15	0.37	0.13	0.02	1.44	432	194,320	230,876	1,603	1,603	192,717	4.42	442.84

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAIN	2.14 in
RAINFALL VOLUME	480,092 cu-ft
SOIL LOSSES	237,971 cu-ft
EFFECTIVE RAIN	1.08 in
FLOOD VOLUME	5.56 acft
FLOOD VOLUME	242,121 cu-ft
REQUIRED STORAGE	4.45 acft
REQUIRED STORAGE	193,888 cu-ft
MAX WSEL	442.85 ft
PEAK FLOW RATE	108.26 cfs
TOTAL BASIN LOSSES	49,404 cu-ft
AVERAGE PERCOLATION RATE	274.47 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	61.80
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.54
UNIT TIME-PERCENT OF LAG	141.4
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.37
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	0.5	0.17	0.37	0.14	0.02	1.55	464	464	224,570	1,560	464	0	0.00	442.00
2	10	0.17	0.6	0.20	0.37	0.17	0.03	1.86	557	557	224,573	1,560	557	0	0.00	442.00
3	15	0.25	0.6	0.20	0.37	0.17	0.03	1.86	557	557	224,573	1,560	557	0	0.00	442.00
4	20	0.33	0.6	0.20	0.37	0.17	0.03	1.86	557	557	224,573	1,560	557	0	0.00	442.00
5	25	0.42	0.6	0.20	0.37	0.17	0.03	1.86	557	557	224,573	1,560	557	0	0.00	442.00
6	30	0.50	0.7	0.23	0.37	0.20	0.03	2.17	650	650	224,576	1,560	650	0	0.00	442.00
7	35	0.58	0.7	0.23	0.37	0.20	0.03	2.17	650	650	224,576	1,560	650	0	0.00	442.00
8	40	0.67	0.7	0.23	0.37	0.20	0.03	2.17	650	650	224,576	1,560	650	0	0.00	442.00
9	45	0.75	0.7	0.23	0.37	0.20	0.03	2.17	650	650	224,576	1,560	650	0	0.00	442.00
10	50	0.83	0.7	0.23	0.37	0.20	0.03	2.17	650	650	224,576	1,560	650	0	0.00	442.00
11	55	0.92	0.7	0.23	0.37	0.20	0.03	2.17	650	650	224,576	1,560	650	0	0.00	442.00
12	60	1.00	0.8	0.26	0.37	0.23	0.04	2.48	743	743	224,579	1,560	743	0	0.00	442.00
13	65	1.08	0.8	0.26	0.37	0.23	0.04	2.48	743	743	224,579	1,560	743	0	0.00	442.00
14	70	1.17	0.8	0.26	0.37	0.23	0.04	2.48	743	743	224,579	1,560	743	0	0.00	442.00
15	75	1.25	0.8	0.26	0.37	0.23	0.04	2.48	743	743	224,579	1,560	743	0	0.00	442.00
16	80	1.33	0.8	0.26	0.37	0.23	0.04	2.48	743	743	224,579	1,560	743	0	0.00	442.00
17	85	1.42	0.8	0.26	0.37	0.23	0.04	2.48	743	743	224,579	1,560	743	0	0.00	442.00
18	90	1.50	0.8	0.26	0.37	0.23	0.04	2.48	743	743	224,579	1,560	743	0	0.00	442.00
19	95	1.58	0.8	0.26	0.37	0.23	0.04	2.48	743	743	224,579	1,560	743	0	0.00	442.00
20	100	1.67	0.8	0.26	0.37	0.23	0.04	2.48	743	743	224,579	1,560	743	0	0.00	442.00
21	105	1.75	0.8	0.26	0.37	0.23	0.04	2.48	743	743	224,579	1,560	743	0	0.00	442.00
22	110	1.83	0.8	0.26	0.37	0.23	0.04	2.48	743	743	224,579	1,560	743	0	0.00	442.00
23	115	1.92	0.8	0.26	0.37	0.23	0.04	2.48	743	743	224,579	1,560	743	0	0.00	442.00
24	120	2.00	0.9	0.30	0.37	0.25	0.04	2.79	836	836	224,582	1,560	836	0	0.00	442.00

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	61.80
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.54
UNIT TIME-PERCENT OF LAG	141.4
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.37
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain	in/hr		Rain	Hydrograph	In	Volume	Percolation	Maximum	Percolation			WSEL
				in/hr	Max	Low	in/hr	Flow cfs	cu-ft	cu-ft	Area sf	Percolation cu-ft	Out cu-ft	cu-ft	ac-ft	ft
			(Plate E-5.9)													
25	125	2.08	0.8	0.26	0.37	0.23	0.04	2.48	743	743	224,579	1,560	743	0	0.00	442.00
26	130	2.17	0.9	0.30	0.37	0.25	0.04	2.79	836	836	224,582	1,560	836	0	0.00	442.00
27	135	2.25	0.9	0.30	0.37	0.25	0.04	2.79	836	836	224,582	1,560	836	0	0.00	442.00
28	140	2.33	0.9	0.30	0.37	0.25	0.04	2.79	836	836	224,582	1,560	836	0	0.00	442.00
29	145	2.42	0.9	0.30	0.37	0.25	0.04	2.79	836	836	224,582	1,560	836	0	0.00	442.00
30	150	2.50	0.9	0.30	0.37	0.25	0.04	2.79	836	836	224,582	1,560	836	0	0.00	442.00
31	155	2.58	0.9	0.30	0.37	0.25	0.04	2.79	836	836	224,582	1,560	836	0	0.00	442.00
32	160	2.67	0.9	0.30	0.37	0.25	0.04	2.79	836	836	224,582	1,560	836	0	0.00	442.00
33	165	2.75	1.0	0.33	0.37	0.28	0.05	3.10	929	929	224,585	1,560	929	0	0.00	442.00
34	170	2.83	1.0	0.33	0.37	0.28	0.05	3.10	929	929	224,585	1,560	929	0	0.00	442.00
35	175	2.92	1.0	0.33	0.37	0.28	0.05	3.10	929	929	224,585	1,560	929	0	0.00	442.00
36	180	3.00	1.0	0.33	0.37	0.28	0.05	3.10	929	929	224,585	1,560	929	0	0.00	442.00
37	185	3.08	1.0	0.33	0.37	0.28	0.05	3.10	929	929	224,585	1,560	929	0	0.00	442.00
38	190	3.17	1.1	0.36	0.37	0.31	0.05	3.41	1,022	1,022	224,588	1,560	1,022	0	0.00	442.00
39	195	3.25	1.1	0.36	0.37	0.31	0.05	3.41	1,022	1,022	224,588	1,560	1,022	0	0.00	442.00
40	200	3.33	1.1	0.36	0.37	0.31	0.05	3.41	1,022	1,022	224,588	1,560	1,022	0	0.00	442.00
41	205	3.42	1.2	0.40	0.37	0.34	0.03	1.81	542	542	224,573	1,560	542	0	0.00	442.00
42	210	3.50	1.3	0.43	0.37	0.37	0.06	3.87	1,161	1,161	224,593	1,560	1,161	0	0.00	442.00
43	215	3.58	1.4	0.46	0.37	0.39	0.10	5.93	1,780	1,780	224,613	1,560	1,560	221	0.01	442.00
44	220	3.67	1.4	0.46	0.37	0.39	0.10	5.93	1,780	2,001	224,620	1,560	1,560	441	0.01	442.00
45	225	3.75	1.5	0.50	0.37	0.42	0.13	8.00	2,400	2,841	224,647	1,560	1,560	1,280	0.03	442.01
46	230	3.83	1.5	0.50	0.37	0.42	0.13	8.00	2,400	3,680	224,675	1,560	1,560	2,120	0.05	442.01
47	235	3.92	1.6	0.53	0.37	0.45	0.16	10.06	3,019	5,138	224,722	1,561	1,561	3,578	0.08	442.02
48	240	4.00	1.6	0.53	0.37	0.45	0.16	10.06	3,019	6,597	224,770	1,561	1,561	5,036	0.12	442.02
49	245	4.08	1.7	0.56	0.37	0.48	0.19	12.13	3,638	8,674	224,837	1,561	1,561	7,112	0.16	442.03
50	250	4.17	1.8	0.60	0.37	0.51	0.23	14.19	4,257	11,369	224,925	1,562	1,562	9,807	0.23	442.04

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	61.80
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.54
UNIT TIME-PERCENT OF LAG	141.4
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.37
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
51	255	4.25	1.9	0.63	0.37	0.53	0.26	16.25	4,876	14,684	225,033	1,563	1,563	13,121	0.30	442.06
52	260	4.33	2.0	0.66	0.37	0.56	0.29	18.32	5,495	18,616	225,161	1,564	1,564	17,053	0.39	442.07
53	265	4.42	2.1	0.70	0.37	0.59	0.33	20.38	6,115	23,167	225,309	1,565	1,565	21,603	0.50	442.09
54	270	4.50	2.1	0.70	0.37	0.59	0.33	20.38	6,115	27,717	225,457	1,566	1,566	26,152	0.60	442.11
55	275	4.58	2.2	0.73	0.37	0.62	0.36	22.45	6,734	32,885	225,625	1,567	1,567	31,318	0.72	442.14
56	280	4.67	2.3	0.76	0.37	0.65	0.39	24.51	7,353	38,671	225,813	1,568	1,568	37,103	0.85	442.16
57	285	4.75	2.4	0.79	0.37	0.68	0.43	26.57	7,972	45,076	226,021	1,570	1,570	43,506	1.00	442.19
58	290	4.83	2.4	0.79	0.37	0.68	0.43	26.57	7,972	51,478	226,230	1,571	1,571	49,907	1.15	442.22
59	295	4.92	2.5	0.83	0.37	0.70	0.46	28.64	8,591	58,498	226,458	1,573	1,573	56,926	1.31	442.25
60	300	5.00	2.6	0.86	0.37	0.73	0.49	30.70	9,211	66,136	226,706	1,574	1,574	64,562	1.48	442.28
61	305	5.08	3.1	1.03	0.37	0.87	0.66	41.02	12,306	76,868	227,055	1,577	1,577	75,292	1.73	442.33
62	310	5.17	3.6	1.19	0.37	1.01	0.82	51.34	15,402	90,694	227,505	1,580	1,580	89,114	2.05	442.39
63	315	5.25	3.9	1.29	0.37	1.10	0.92	57.53	17,260	106,374	228,015	1,583	1,583	104,791	2.41	442.46
64	320	5.33	4.2	1.39	0.37	1.18	1.02	63.72	19,117	123,908	228,586	1,587	1,587	122,321	2.81	442.54
65	325	5.42	4.7	1.56	0.37	1.32	1.19	74.04	22,213	144,534	229,257	1,592	1,592	142,942	3.28	442.63
66	330	5.50	5.6	1.85	0.37	1.58	1.49	**92.62**	**27,786**	170,728	230,109	1,598	1,598	169,130	3.88	442.74
67	335	5.58	1.9	0.63	0.37	0.53	0.26	16.25	4,876	174,006	230,215	1,599	1,599	**172,408**	**3.96**	**442.76**
68	340	5.67	0.9	0.30	0.37	0.25	0.04	2.79	836	173,244	230,190	1,599	1,599	171,645	3.94	442.75
69	345	5.75	0.6	0.20	0.37	0.17	0.03	1.86	557	172,202	230,157	1,598	1,598	170,604	3.92	442.75
70	350	5.83	0.5	0.17	0.37	0.14	0.02	1.55	464	171,068	230,120	1,598	1,598	169,470	3.89	442.74
71	355	5.92	0.3	0.10	0.37	0.08	0.01	0.93	279	169,749	230,077	1,598	1,598	168,151	3.86	442.74
72	360	6.00	0.2	0.07	0.37	0.06	0.01	0.62	186	168,337	230,031	1,597	1,597	166,740	3.83	442.73

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	2.76 in
RAINFALL VOLUME	619,184 cu-ft
SOIL LOSSES	372,822 cu-ft
EFFECTIVE RAIN	1.10 in
FLOOD VOLUME	5.66 acft
FLOOD VOLUME	246,363 cu-ft
REQUIRED STORAGE	3.96 acft
REQUIRED STORAGE	172,408 cu-ft
MAX WSEL	442.76 ft
PEAK FLOW RATE	92.62 cfs
TOTAL BASIN LOSSES	79,623 cu-ft
AVERAGE PERCOLATION RATE	221.18 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	61.80	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.18		
LAG TIME - MINUTES	3.54	C	0.00341	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	424%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
1	15	0.25	0.2	0.035	0.651	0.030	0.01	0.33	297	297	224,565	4,678	297	0	0.00	442.00
2	30	0.50	0.3	0.053	0.643	0.045	0.01	0.49	445	445	224,569	4,679	445	0	0.00	442.00
3	45	0.75	0.3	0.053	0.636	0.045	0.01	0.49	445	445	224,569	4,679	445	0	0.00	442.00
4	60	1.00	0.4	0.071	0.628	0.060	0.01	0.66	594	594	224,574	4,679	594	0	0.00	442.00
5	75	1.25	0.3	0.053	0.621	0.045	0.01	0.49	445	445	224,569	4,679	445	0	0.00	442.00
6	90	1.50	0.3	0.053	0.613	0.045	0.01	0.49	445	445	224,569	4,679	445	0	0.00	442.00
7	105	1.75	0.3	0.053	0.606	0.045	0.01	0.49	445	445	224,569	4,679	445	0	0.00	442.00
8	120	2.00	0.4	0.071	0.599	0.060	0.01	0.66	594	594	224,574	4,679	594	0	0.00	442.00
9	135	2.25	0.4	0.071	0.591	0.060	0.01	0.66	594	594	224,574	4,679	594	0	0.00	442.00
10	150	2.50	0.4	0.071	0.584	0.060	0.01	0.66	594	594	224,574	4,679	594	0	0.00	442.00
11	165	2.75	0.5	0.088	0.577	0.075	0.01	0.82	742	742	224,579	4,679	742	0	0.00	442.00
12	180	3.00	0.5	0.088	0.570	0.075	0.01	0.82	742	742	224,579	4,679	742	0	0.00	442.00
13	195	3.25	0.5	0.088	0.563	0.075	0.01	0.82	742	742	224,579	4,679	742	0	0.00	442.00
14	210	3.50	0.5	0.088	0.556	0.075	0.01	0.82	742	742	224,579	4,679	742	0	0.00	442.00
15	225	3.75	0.5	0.088	0.549	0.075	0.01	0.82	742	742	224,579	4,679	742	0	0.00	442.00
16	240	4.00	0.6	0.106	0.542	0.090	0.02	0.99	890	890	224,584	4,679	890	0	0.00	442.00
17	255	4.25	0.6	0.106	0.535	0.090	0.02	0.99	890	890	224,584	4,679	890	0	0.00	442.00
18	270	4.50	0.7	0.123	0.528	0.105	0.02	1.15	1,039	1,039	224,589	4,679	1,039	0	0.00	442.00
19	285	4.75	0.7	0.123	0.522	0.105	0.02	1.15	1,039	1,039	224,589	4,679	1,039	0	0.00	442.00
20	300	5.00	0.8	0.141	0.515	0.120	0.02	1.32	1,187	1,187	224,594	4,679	1,187	0	0.00	442.00
21	315	5.25	0.6	0.106	0.508	0.090	0.02	0.99	890	890	224,584	4,679	890	0	0.00	442.00
22	330	5.50	0.7	0.123	0.502	0.105	0.02	1.15	1,039	1,039	224,589	4,679	1,039	0	0.00	442.00
23	345	5.75	0.8	0.141	0.495	0.120	0.02	1.32	1,187	1,187	224,594	4,679	1,187	0	0.00	442.00
24	360	6.00	0.8	0.141	0.489	0.120	0.02	1.32	1,187	1,187	224,594	4,679	1,187	0	0.00	442.00
25	375	6.25	0.9	0.159	0.482	0.135	0.02	1.48	1,336	1,336	224,598	4,679	1,336	0	0.00	442.00
26	390	6.50	0.9	0.159	0.476	0.135	0.02	1.48	1,336	1,336	224,598	4,679	1,336	0	0.00	442.00
27	405	6.75	1.0	0.176	0.469	0.150	0.03	1.65	1,484	1,484	224,603	4,679	1,484	0	0.00	442.00
28	420	7.00	1.0	0.176	0.463	0.150	0.03	1.65	1,484	1,484	224,603	4,679	1,484	0	0.00	442.00
29	435	7.25	1.0	0.176	0.457	0.150	0.03	1.65	1,484	1,484	224,603	4,679	1,484	0	0.00	442.00
30	450	7.50	1.1	0.194	0.450	0.165	0.03	1.81	1,632	1,632	224,608	4,679	1,632	0	0.00	442.00
31	465	7.75	1.2	0.212	0.444	0.180	0.03	1.98	1,781	1,781	224,613	4,679	1,781	0	0.00	442.00
32	480	8.00	1.3	0.229	0.438	0.195	0.03	2.14	1,929	1,929	224,618	4,680	1,929	0	0.00	442.00
33	495	8.25	1.5	0.265	0.432	0.225	0.04	2.47	2,226	2,226	224,627	4,680	2,226	0	0.00	442.00
34	510	8.50	1.5	0.265	0.426	0.225	0.04	2.47	2,226	2,226	224,627	4,680	2,226	0	0.00	442.00
35	525	8.75	1.6	0.282	0.420	0.240	0.04	2.64	2,374	2,374	224,632	4,680	2,374	0	0.00	442.00
36	540	9.00	1.7	0.300	0.414	0.255	0.04	2.80	2,523	2,523	224,637	4,680	2,523	0	0.00	442.00
37	555	9.25	1.9	0.335	0.408	0.285	0.05	3.13	2,820	2,820	224,647	4,680	2,820	0	0.00	442.00
38	570	9.50	2.0	0.353	0.402	0.300	0.05	3.30	2,968	2,968	224,652	4,680	2,968	0	0.00	442.00
39	585	9.75	2.1	0.370	0.397	0.315	0.06	3.46	3,116	3,116	224,656	4,680	3,116	0	0.00	442.00
40	600	10.00	2.2	0.388	0.391	0.330	0.06	3.63	3,265	3,265	224,661	4,680	3,265	0	0.00	442.00
41	615	10.25	1.5	0.265	0.385	0.225	0.04	2.47	2,226	2,226	224,627	4,680	2,226	0	0.00	442.00
42	630	10.50	1.5	0.265	0.380	0.225	0.04	2.47	2,226	2,226	224,627	4,680	2,226	0	0.00	442.00
43	645	10.75	2.0	0.353	0.374	0.300	0.05	3.30	2,968	2,968	224,652	4,680	2,968	0	0.00	442.00

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	61.80	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.18		
LAG TIME - MINUTES	3.54	C	0.00341	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	424%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
44	660	11.00	2.0	0.353	0.369	0.300	0.05	3.30	2,968	2,968	224,652	4,680	2,968	0	0.00	442.00
45	675	11.25	1.9	0.335	0.363	0.285	0.05	3.13	2,820	2,820	224,647	4,680	2,820	0	0.00	442.00
46	690	11.50	1.9	0.335	0.358	0.285	0.05	3.13	2,820	2,820	224,647	4,680	2,820	0	0.00	442.00
47	705	11.75	1.7	0.300	0.353	0.255	0.04	2.80	2,523	2,523	224,637	4,680	2,523	0	0.00	442.00
48	720	12.00	1.8	0.318	0.347	0.270	0.05	2.97	2,671	2,671	224,642	4,680	2,671	0	0.00	442.00
49	735	12.25	2.5	0.441	0.342	0.375	0.10	6.16	5,540	5,540	224,735	4,682	4,682	858	0.02	442.00
50	750	12.50	2.6	0.459	0.337	0.390	0.12	7.57	6,817	7,675	224,805	4,683	4,683	2,992	0.07	442.01
51	765	12.75	2.8	0.494	0.332	0.420	0.16	10.09	9,080	12,072	224,948	4,686	4,686	7,385	0.17	442.03
52	780	13.00	2.9	0.512	0.327	0.435	0.18	11.50	10,350	17,735	225,132	4,690	4,690	13,045	0.30	442.06
53	795	13.25	3.4	0.600	0.322	0.510	0.28	17.30	15,574	28,619	225,486	4,698	4,698	23,921	0.55	442.10
54	810	13.50	3.4	0.600	0.317	0.510	0.28	**17.61**	**15,848**	39,769	225,849	4,705	4,705	35,064	0.80	442.15
55	825	13.75	2.3	0.406	0.312	0.345	0.09	5.82	5,235	40,299	225,866	4,706	4,706	35,593	0.82	442.16
56	840	14.00	2.3	0.406	0.308	0.345	0.10	6.11	5,502	41,095	225,892	4,706	4,706	36,389	0.84	442.16
57	855	14.25	2.7	0.476	0.303	0.405	0.17	10.80	9,722	46,111	226,055	4,709	4,709	41,401	0.95	442.18
58	870	14.50	2.6	0.459	0.298	0.390	0.16	9.99	8,992	50,393	226,194	4,712	4,712	45,681	1.05	442.20
59	885	14.75	2.6	0.459	0.294	0.390	0.16	10.28	9,248	54,929	226,342	4,715	4,715	50,214	1.15	442.22
60	900	15.00	2.5	0.441	0.289	0.375	0.15	9.46	8,511	58,724	226,465	4,718	4,718	54,006	1.24	442.24
61	915	15.25	2.4	0.423	0.285	0.360	0.14	8.63	7,770	61,776	226,565	4,720	4,720	57,056	1.31	442.25
62	930	15.50	2.3	0.406	0.280	0.345	0.13	7.81	7,025	64,080	226,639	4,722	4,722	**59,359**	**1.36**	**442.26**
63	945	15.75	1.9	0.335	0.276	0.285	0.06	3.68	3,308	62,666	226,593	4,721	4,721	57,946	1.33	442.25
64	960	16.00	1.9	0.335	0.272	0.285	0.06	3.94	3,544	61,490	226,555	4,720	4,720	56,770	1.30	442.25
65	975	16.25	0.4	0.071	0.268	0.060	0.01	0.66	594	57,364	226,421	4,717	4,717	52,647	1.21	442.23
66	990	16.50	0.4	0.071	0.264	0.060	0.01	0.66	594	53,240	226,287	4,714	4,714	48,526	1.11	442.21
67	1005	16.75	0.3	0.053	0.260	0.045	0.01	0.49	445	48,971	226,148	4,711	4,711	44,260	1.02	442.19
68	1020	17.00	0.3	0.053	0.256	0.045	0.01	0.49	445	44,705	226,009	4,709	4,709	39,997	0.92	442.18
69	1035	17.25	0.5	0.088	0.252	0.075	0.01	0.82	742	40,739	225,880	4,706	4,706	36,033	0.83	442.16
70	1050	17.50	0.5	0.088	0.248	0.075	0.01	0.82	742	36,775	225,751	4,703	4,703	32,072	0.74	442.14
71	1065	17.75	0.5	0.088	0.244	0.075	0.01	0.82	742	32,814	225,622	4,700	4,700	28,113	0.65	442.12
72	1080	18.00	0.4	0.071	0.241	0.060	0.01	0.66	594	28,707	225,489	4,698	4,698	24,009	0.55	442.11
73	1095	18.25	0.4	0.071	0.237	0.060	0.01	0.66	594	24,603	225,355	4,695	4,695	19,908	0.46	442.09
74	1110	18.50	0.4	0.071	0.234	0.060	0.01	0.66	594	20,501	225,222	4,692	4,692	15,809	0.36	442.07
75	1125	18.75	0.3	0.053	0.230	0.045	0.01	0.49	445	16,254	225,084	4,689	4,689	11,565	0.27	442.05
76	1140	19.00	0.2	0.035	0.227	0.030	0.01	0.33	297	11,862	224,941	4,686	4,686	7,176	0.16	442.03
77	1155	19.25	0.3	0.053	0.224	0.045	0.01	0.49	445	7,621	224,803	4,683	4,683	2,938	0.07	442.01
78	1170	19.50	0.4	0.071	0.221	0.060	0.01	0.66	594	3,531	224,670	4,681	3,531	0	0.00	442.00
79	1185	19.75	0.3	0.053	0.218	0.045	0.01	0.49	445	445	224,569	4,679	445	0	0.00	442.00
80	1200	20.00	0.2	0.035	0.215	0.030	0.01	0.33	297	297	224,565	4,678	297	0	0.00	442.00
81	1215	20.25	0.3	0.053	0.212	0.045	0.01	0.49	445	445	224,569	4,679	445	0	0.00	442.00
82	1230	20.50	0.3	0.053	0.209	0.045	0.01	0.49	445	445	224,569	4,679	445	0	0.00	442.00
83	1245	20.75	0.3	0.053	0.207	0.045	0.01	0.49	445	445	224,569	4,679	445	0	0.00	442.00
84	1260	21.00	0.2	0.035	0.204	0.030	0.01	0.33	297	297	224,565	4,678	297	0	0.00	442.00
85	1275	21.25	0.3	0.053	0.202	0.045	0.01	0.49	445	445	224,569	4,679	445	0	0.00	442.00
86	1290	21.50	0.2	0.035	0.199	0.030	0.01	0.33	297	297	224,565	4,678	297	0	0.00	442.00

RCFC & WCD
HYDROLOGY
MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	61.80	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.18		
LAG TIME - MINUTES	3.54	C	0.00341	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	424%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
87	1305	21.75	0.3	0.053	0.197	0.045	0.01	0.49	445	445	224,569	4,679	445	0	0.00	442.00
88	1320	22.00	0.2	0.035	0.195	0.030	0.01	0.33	297	297	224,565	4,678	297	0	0.00	442.00
89	1335	22.25	0.3	0.053	0.193	0.045	0.01	0.49	445	445	224,569	4,679	445	0	0.00	442.00
90	1350	22.50	0.2	0.035	0.191	0.030	0.01	0.33	297	297	224,565	4,678	297	0	0.00	442.00
91	1365	22.75	0.2	0.035	0.190	0.030	0.01	0.33	297	297	224,565	4,678	297	0	0.00	442.00
92	1380	23.00	0.2	0.035	0.188	0.030	0.01	0.33	297	297	224,565	4,678	297	0	0.00	442.00
93	1395	23.25	0.2	0.035	0.187	0.030	0.01	0.33	297	297	224,565	4,678	297	0	0.00	442.00
94	1410	23.50	0.2	0.035	0.186	0.030	0.01	0.33	297	297	224,565	4,678	297	0	0.00	442.00
95	1425	23.75	0.2	0.035	0.185	0.030	0.01	0.33	297	297	224,565	4,678	297	0	0.00	442.00
96	1440	24.00	0.2	0.035	0.184	0.030	0.01	0.33	297	297	224,565	4,678	297	0	0.00	442.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	4.41 in
RAINFALL VOLUME	989,349 cu-ft
SOIL LOSSES	769,875 cu-ft
EFFECTIVE RAIN	0.98 in
FLOOD VOLUME	5.04 acft
FLOOD VOLUME	219,473 cu-ft
REQUIRED STORAGE	1.36 acft
REQUIRED STORAGE	59,359 cu-ft
MAX WSEL	442.26 ft
PEAK FLOW RATE	17.61 cfs
TOTAL BASIN LOSSES	219,473 cu-ft
AVERAGE PERCOLATION RATE	152.41 cf/min

BASIN VOLUME WORKSHEET

PROECT CORAL MOUNTAIN
JOB No. 2553
BASIN DESIGNATION: BASIN E

BASIN CHARACTERISTICS

CONTOUR ELEVATION	DEPTH		AREA		VOLUME		
	INCR (ft)	TOTAL (ft)	INCR (sf)	TOTAL (sf)	INCR (cuft)	TOTAL (cuft)	(acre-ft)
442	0	0		224,555	0	0	0.00
443	1	1	7,425	231,980	228,257	228,257	5.24
444	1	2	7,480	239,460	235,710	463,968	10.65
445	1	3	7,540	247,000	243,220	707,188	16.23
446	1	4	7,595	254,595	250,788	957,976	21.99
447	1	5	7,655	262,250	258,413	1,216,389	27.92

WHERE:

$$V = \frac{1}{3}(E_1 - E_2)\left(A_1 + A_2 + \sqrt{A_1 A_2}\right)$$

RCFCD SYNTHETIC UNIT HYDROGRAPH - SHORTCUT METHOD

DATA INPUT SHEET

DATE:	March 30, 2020
WORKSHEET PREPARED BY:	DLS
PROJECT NAME	CORAL MOUNTAIN
PROJECT NUMBER	2553
CONCENTRATION POINT DESIGNATION	FUTURE BASIN
AREA DESIGNATION	DA-F
AMC NUMBER	2

Low Loss Conditions: X=Existing; D=Developed; BS=Retention

AREA DESIG	SOIL GROUP	TRIBUTARY AREAS	ACRES	LOW LOSS CONDITION	RI NUMBER	AMC II INFILTRATION RATE	IMPERVIOUS PERCENT
2	B	PAVING/HARDSCAPE	0.353	D	56	0.51	1.00
4	B	SF - LOW DENSITY	42.760	D	56	0.51	0.30
9	B	LANDSCAPING	1.698	D	56	0.51	0.10

LENGTH OF WATERCOURSE (L)	2,000 ft
LENGTH TO POINT OPPOSITE CENTROID (Lca)	1,000 ft
ELEVATION OF HEADWATER	467.0 ft
ELEVATION OF CONCENTRATION POINT	455.0 ft
AVERAGE MANNINGS 'N' VALUE	0.02
STORM FREQUENCY (YEAR)	100
LOW LOSS RATE (For Storms Greater Than 10 Years)	85%
POINT RAIN FROM NOAA ATLAS	**14**
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 3/30/20

PHYSICAL DATA

[1] CONCENTRATION POINT	FUTURE BASIN
[2] AREA DESIGNATION	DA-F
[3] AREA - ACRES	44.811
[4] L-FEET	2000
[5] L-MILES	0.379
[6] La-FEET	1000.00
[7] La-MILES	0.189
[8] ELEVATION OF HEADWATER	467
[9] ELEVATION OF CONCENTRATION POINT	455
[10] H-FEET	12
[11] S-FEET/MILE	31.7
[12] S^0.5	5.63
[13] L*LCA/S^0.5	0.013
[14] AVERAGE MANNINGS 'N'	0.02
[15] LAG TIME-HOURS	0.09
[16] LAG TIME-MINUTES	5.5
[17] 100% OF LAG-MINUTES	5.5
[18] 200% OF LAG-MINUTES	11.0

RAINFALL DATA

[1] AMC	II
[2] FREQUENCY-YEARS	100
NOAA ATLAS	**14**
[3] DURATION:	Point Rain
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

STORM EVENT SUMMARY

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
TOTAL RAINFALL	(in)	1.44	2.14	2.76	4.41
RAINFALL VOLUME	(cuft)	234,237	348,102	448,954	717,351
SOIL LOSSES	(cuft)	60,714	174,628	272,079	560,808
EFFECTIVE RAIN	(in)	1.07	1.07	1.09	0.96
FLOOD VOLUME	(cu-ft) (acre-ft)	173,523 3.98	173,475 3.98	176,875 4.06	156,543 3.59
PEAK FLOW	(cfs)	N/A	78.28	66.94	12.58

NOTE: PEAK FLOW FOR THE 1-HOUR STORM IS NOT REPRESENTATIVE. PER RCFCD PEAK DISCHARGES FROM THE 3-HOUR STORM SHOULD NORMALLY COMPARE WELL WITH RATIONAL PEAKS.

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM AMC II	PROJECT:	CORAL MOUNTAIN		
		Job No.:	2553		
		BY:	DLS	DATE:	3/30/20

AVERAGE ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA	AREA WEIGHTED AVERAGE	MAX AVERAGE ADJUSTED INFILTRATION RATE (in/hr)	LOW LOSS CONDITION	LOW LOSS RATE PER RCFC/2322 (in/hr)	MIN AVERAGE ADJUSTED INFILTRATION RATE (in/hr)
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	0.353	0.008	0.0004	DEVELOPED	0.1000	0.0008
B	SF - LOW DENSITY	56	0.51	30%	0.37	42.760	0.954	0.3553	DEVELOPED	0.6600	0.6298
B	LANDSCAPING	56	0.51	10%	0.46	1.698	0.038	0.0176	DEVELOPED	0.8200	0.0311
					SUM	44.811	SUM	0.3732			0.6617

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.18662374

C= 0.00346

Ft=C(24-(T/60))^1.55 = 0.00346 (24-(T/60))^1.55 + **0.19** in/hr

CONSTANT LOSS RATE (3 & 6 HOUR STORMS) = **0.3732** in/hr

LOW LOSS RATE = **0.8500** in/hr

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period, T=1 1/2 unit time for the second period, etc.

NOTE: Low loss rates established per RCFC/2322 (Dated: May-30-95)
For 10 Year Storms or Less
Undeveloped Condition: Low Loss = 90%
Developed Condition: Low Loss = 0.9 - (0.8 * %impervious)
Basin Site: Low Loss = 10%
For 100 Year Storm - Low Loss should be between 80% & 90% of the Rainfall Rate

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 1-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	44.81
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	5.49
UNIT TIME-PERCENT OF LAG	91.1
TOTAL ADJUSTED STORM RAIN-INCHES	1.44
CONSTANT LOSS RATE-in/hr	0.37
LOW LOSS RATE - PERCENT	85%

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs
1	5	0.08	3.6	0.62	0.37	0.53	0.25	11.24
2	10	0.17	4.2	0.73	0.37	0.62	0.35	15.93
3	15	0.25	4.4	0.76	0.37	0.65	0.39	17.49
4	20	0.33	4.6	0.79	0.37	0.68	0.42	19.05
5	25	0.42	5.0	0.86	0.37	0.73	0.49	22.17
6	30	0.50	5.6	0.97	0.37	0.82	0.59	26.86
7	35	0.58	6.4	1.11	0.37	0.94	0.73	33.11
8	40	0.67	8.1	1.40	0.37	1.19	1.03	46.38
9	45	0.75	13.1	2.26	0.37	1.92	1.89	85.42
10	50	0.83	34.5	5.96	0.37	5.07	5.59	**252.51**
11	55	0.92	6.7	1.16	0.37	0.98	0.78	35.45
12	60	1.00	3.8	0.66	0.37	0.56	0.28	12.80

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL (in)	1.44
RAINFALL VOLUME (cuft)	234,237
SOIL LOSSES (cuft)	60,714
EFFECTIVE RAIN (in)	1.07
FLOOD VOLUME (acft)	3.98
FLOOD VOLUME (cuft)	173,523
PEAK FLOW RATE (cfs)	252.51

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 3-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	44.81	
UNIT TIME-MINUTES	5	
LAG TIME - MINUTES	5.49	
UNIT TIME-PERCENT OF LAG	91.1	
TOTAL ADJUSTED STORM RAIN-INCHES	2.14	
CONSTANT LOSS RATE-in/hr		0.37
LOW LOSS RATE - PERCENT		85%

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs
1	5	0.08	1.3	0.33	0.37	0.28	0.05	2.26
2	10	0.17	1.3	0.33	0.37	0.28	0.05	2.26
3	15	0.25	1.1	0.28	0.37	0.24	0.04	1.91
4	20	0.33	1.5	0.39	0.37	0.33	0.01	0.54
5	25	0.42	1.5	0.39	0.37	0.33	0.01	0.54
6	30	0.50	1.8	0.46	0.37	0.39	0.09	4.02
7	35	0.58	1.5	0.39	0.37	0.33	0.01	0.54
8	40	0.67	1.8	0.46	0.37	0.39	0.09	4.02
9	45	0.75	1.8	0.46	0.37	0.39	0.09	4.02
10	50	0.83	1.5	0.39	0.37	0.33	0.01	0.54
11	55	0.92	1.6	0.41	0.37	0.35	0.04	1.70
12	60	1.00	1.8	0.46	0.37	0.39	0.09	4.02
13	65	1.08	2.2	0.56	0.37	0.48	0.19	8.66
14	70	1.17	2.2	0.56	0.37	0.48	0.19	8.66
15	75	1.25	2.2	0.56	0.37	0.48	0.19	8.66
16	80	1.33	2.0	0.51	0.37	0.44	0.14	6.34
17	85	1.42	2.6	0.67	0.37	0.57	0.29	13.30
18	90	1.50	2.7	0.69	0.37	0.59	0.32	14.46
19	95	1.58	2.4	0.62	0.37	0.52	0.24	10.98
20	100	1.67	2.7	0.69	0.37	0.59	0.32	14.46
21	105	1.75	3.3	0.85	0.37	0.72	0.47	21.43
22	110	1.83	3.1	0.80	0.37	0.68	0.42	19.11
23	115	1.92	2.9	0.74	0.37	0.63	0.37	16.78
24	120	2.00	3.0	0.77	0.37	0.65	0.40	17.95
25	125	2.08	3.1	0.80	0.37	0.68	0.42	19.11
26	130	2.17	4.2	1.08	0.37	0.92	0.71	31.87
27	135	2.25	5.0	1.28	0.37	1.09	0.91	41.15
28	140	2.33	3.5	0.90	0.37	0.76	0.53	23.75
29	145	2.42	6.8	1.75	0.37	1.48	1.37	62.04
30	150	2.50	7.3	1.87	0.37	1.59	1.50	67.84
31	155	2.58	8.2	2.11	0.37	1.79	1.73	**78.28**
32	160	2.67	5.9	1.52	0.37	1.29	1.14	51.60
33	165	2.75	2.0	0.51	0.37	0.44	0.14	6.34
34	170	2.83	1.8	0.46	0.37	0.39	0.09	4.02
35	175	2.92	1.8	0.46	0.37	0.39	0.09	4.02
36	180	3.00	0.6	0.15	0.37	0.13	0.02	1.04

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL (in)	2.14
RAINFALL VOLUME (cuft)	348,102
SOIL LOSSES (cuft)	174,628
EFFECTIVE RAIN (in)	1.07
FLOOD VOLUME (acft)	3.98
FLOOD VOLUME (cuft)	173,475
PEAK FLOW RATE (cfs)	78.28

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 6-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	44.81
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	5.49
UNIT TIME-PERCENT OF LAG	91.1
TOTAL ADJUSTED STORM RAIN-INCHES	2.76
CONSTANT LOSS RATE-in/hr	0.373
LOW LOSS RATE - PERCENT	85%

Unit Time Period	Time		Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow
	Minutes	Hours	(Plate E-5.9)		Max	Low	in/hr	cfs
1	5	0.08	0.5	0.166	0.37	0.14	0.02	1.12
2	10	0.17	0.6	0.199	0.37	0.17	0.03	1.35
3	15	0.25	0.6	0.199	0.37	0.17	0.03	1.35
4	20	0.33	0.6	0.199	0.37	0.17	0.03	1.35
5	25	0.42	0.6	0.199	0.37	0.17	0.03	1.35
6	30	0.50	0.7	0.232	0.37	0.20	0.03	1.57
7	35	0.58	0.7	0.232	0.37	0.20	0.03	1.57
8	40	0.67	0.7	0.232	0.37	0.20	0.03	1.57
9	45	0.75	0.7	0.232	0.37	0.20	0.03	1.57
10	50	0.83	0.7	0.232	0.37	0.20	0.03	1.57
11	55	0.92	0.7	0.232	0.37	0.20	0.03	1.57
12	60	1.00	0.8	0.265	0.37	0.23	0.04	1.80
13	65	1.08	0.8	0.265	0.37	0.23	0.04	1.80
14	70	1.17	0.8	0.265	0.37	0.23	0.04	1.80
15	75	1.25	0.8	0.265	0.37	0.23	0.04	1.80
16	80	1.33	0.8	0.265	0.37	0.23	0.04	1.80
17	85	1.42	0.8	0.265	0.37	0.23	0.04	1.80
18	90	1.50	0.8	0.265	0.37	0.23	0.04	1.80
19	95	1.58	0.8	0.265	0.37	0.23	0.04	1.80
20	100	1.67	0.8	0.265	0.37	0.23	0.04	1.80
21	105	1.75	0.8	0.265	0.37	0.23	0.04	1.80
22	110	1.83	0.8	0.265	0.37	0.23	0.04	1.80
23	115	1.92	0.8	0.265	0.37	0.23	0.04	1.80
24	120	2.00	0.9	0.298	0.37	0.25	0.04	2.02
25	125	2.08	0.8	0.265	0.37	0.23	0.04	1.80
26	130	2.17	0.9	0.298	0.37	0.25	0.04	2.02
27	135	2.25	0.9	0.298	0.37	0.25	0.04	2.02
28	140	2.33	0.9	0.298	0.37	0.25	0.04	2.02
29	145	2.42	0.9	0.298	0.37	0.25	0.04	2.02
30	150	2.50	0.9	0.298	0.37	0.25	0.04	2.02
31	155	2.58	0.9	0.298	0.37	0.25	0.04	2.02
32	160	2.67	0.9	0.298	0.37	0.25	0.04	2.02
33	165	2.75	1.0	0.331	0.37	0.28	0.05	2.24
34	170	2.83	1.0	0.331	0.37	0.28	0.05	2.24
35	175	2.92	1.0	0.331	0.37	0.28	0.05	2.24
36	180	3.00	1.0	0.331	0.37	0.28	0.05	2.24
37	185	3.08	1.0	0.331	0.37	0.28	0.05	2.24
38	190	3.17	1.1	0.364	0.37	0.31	0.05	2.47
39	195	3.25	1.1	0.364	0.37	0.31	0.05	2.47
40	200	3.33	1.1	0.364	0.37	0.31	0.05	2.47
41	205	3.42	1.2	0.397	0.37	0.34	0.02	1.09
42	210	3.50	1.3	0.431	0.37	0.37	0.06	2.59
43	215	3.58	1.4	0.464	0.37	0.39	0.09	4.09
44	220	3.67	1.4	0.464	0.37	0.39	0.09	4.09
45	225	3.75	1.5	0.497	0.37	0.42	0.12	5.58
46	230	3.83	1.5	0.497	0.37	0.42	0.12	5.58
47	235	3.92	1.6	0.530	0.37	0.45	0.16	7.08
48	240	4.00	1.6	0.530	0.37	0.45	0.16	7.08
49	245	4.08	1.7	0.563	0.37	0.48	0.19	8.58
50	250	4.17	1.8	0.596	0.37	0.51	0.22	10.07
51	255	4.25	1.9	0.629	0.37	0.53	0.26	11.57
52	260	4.33	2.0	0.662	0.37	0.56	0.29	13.07
53	265	4.42	2.1	0.696	0.37	0.59	0.32	14.56
54	270	4.50	2.1	0.696	0.37	0.59	0.32	14.56

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 6-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	44.81
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	5.49
UNIT TIME-PERCENT OF LAG	91.1
TOTAL ADJUSTED STORM RAIN-INCHES	2.76
CONSTANT LOSS RATE-in/hr	0.373
LOW LOSS RATE - PERCENT	85%

Unit Time Period	Time		Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow
	Minutes	Hours	(Plate E-5.9)		Max	Low	in/hr	cfs
55	275	4.58	2.2	0.729	0.37	0.62	0.36	16.06
56	280	4.67	2.3	0.762	0.37	0.65	0.39	17.55
57	285	4.75	2.4	0.795	0.37	0.68	0.42	19.05
58	290	4.83	2.4	0.795	0.37	0.68	0.42	19.05
59	295	4.92	2.5	0.828	0.37	0.70	0.45	20.55
60	300	5.00	2.6	0.861	0.37	0.73	0.49	22.04
61	305	5.08	3.1	1.027	0.37	0.87	0.65	29.53
62	310	5.17	3.6	1.192	0.37	1.01	0.82	37.01
63	315	5.25	3.9	1.292	0.37	1.10	0.92	41.50
64	320	5.33	4.2	1.391	0.37	1.18	1.02	45.99
65	325	5.42	4.7	1.557	0.37	1.32	1.18	53.47
66	330	5.50	5.6	1.855	0.37	1.58	1.48	**66.94**
67	335	5.58	1.9	0.629	0.37	0.53	0.26	11.57
68	340	5.67	0.9	0.298	0.37	0.25	0.04	2.02
69	345	5.75	0.6	0.199	0.37	0.17	0.03	1.35
70	350	5.83	0.5	0.166	0.37	0.14	0.02	1.12
71	355	5.92	0.3	0.099	0.37	0.08	0.01	0.67
72	360	6.00	0.2	0.066	0.37	0.06	0.01	0.45

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL (in)	2.76
RAINFALL VOLUME (cuft)	448,954
SOIL LOSSES (cuft)	272,079
EFFECTIVE RAIN (in)	1.09
FLOOD VOLUME (acft)	4.06
FLOOD VOLUME (cuft)	176,875
PEAK FLOW RATE (cfs)	66.94

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 24-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE: BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	44.811	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.3732
LAG TIME - MINUTES	5.49	MINIMUM LOSS RATE (for var. loss) - in/hr	0.187
UNIT TIME-PERCENT OF LAG	273.3	LOW LOSS RATE - DECIMAL	0.85
TOTAL ADJUSTED STORM RAIN-INCHES	4.41	C	0.00346

Unit Time Period	Time		Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain in/hr	Flood Hydrograph Flow cfs
	Minutes	Hours	(Plate E-5.9)		Max	Low		
1	15	0.25	0.2	0.035	0.659	0.030	0.005	0.24
2	30	0.50	0.3	0.053	0.651	0.045	0.008	0.36
3	45	0.75	0.3	0.053	0.644	0.045	0.008	0.36
4	60	1.00	0.4	0.071	0.636	0.060	0.011	0.48
5	75	1.25	0.3	0.053	0.629	0.045	0.008	0.36
6	90	1.50	0.3	0.053	0.621	0.045	0.008	0.36
7	105	1.75	0.3	0.053	0.614	0.045	0.008	0.36
8	120	2.00	0.4	0.071	0.607	0.060	0.011	0.48
9	135	2.25	0.4	0.071	0.599	0.060	0.011	0.48
10	150	2.50	0.4	0.071	0.592	0.060	0.011	0.48
11	165	2.75	0.5	0.088	0.585	0.075	0.013	0.60
12	180	3.00	0.5	0.088	0.577	0.075	0.013	0.60
13	195	3.25	0.5	0.088	0.570	0.075	0.013	0.60
14	210	3.50	0.5	0.088	0.563	0.075	0.013	0.60
15	225	3.75	0.5	0.088	0.556	0.075	0.013	0.60
16	240	4.00	0.6	0.106	0.549	0.090	0.016	0.72
17	255	4.25	0.6	0.106	0.542	0.090	0.016	0.72
18	270	4.50	0.7	0.123	0.535	0.105	0.019	0.84
19	285	4.75	0.7	0.123	0.528	0.105	0.019	0.84
20	300	5.00	0.8	0.141	0.522	0.120	0.021	0.96
21	315	5.25	0.6	0.106	0.515	0.090	0.016	0.72
22	330	5.50	0.7	0.123	0.508	0.105	0.019	0.84
23	345	5.75	0.8	0.141	0.501	0.120	0.021	0.96
24	360	6.00	0.8	0.141	0.495	0.120	0.021	0.96
25	375	6.25	0.9	0.159	0.488	0.135	0.024	1.08
26	390	6.50	0.9	0.159	0.482	0.135	0.024	1.08
27	405	6.75	1.0	0.176	0.475	0.150	0.026	1.20
28	420	7.00	1.0	0.176	0.469	0.150	0.026	1.20
29	435	7.25	1.0	0.176	0.463	0.150	0.026	1.20
30	450	7.50	1.1	0.194	0.456	0.165	0.029	1.32
31	465	7.75	1.2	0.212	0.450	0.180	0.032	1.43
32	480	8.00	1.3	0.229	0.444	0.195	0.034	1.55
33	495	8.25	1.5	0.265	0.438	0.225	0.040	1.79
34	510	8.50	1.5	0.265	0.432	0.225	0.040	1.79
35	525	8.75	1.6	0.282	0.425	0.240	0.042	1.91
36	540	9.00	1.7	0.300	0.419	0.255	0.045	2.03
37	555	9.25	1.9	0.335	0.414	0.285	0.050	2.27
38	570	9.50	2.0	0.353	0.408	0.300	0.053	2.39
39	585	9.75	2.1	0.370	0.402	0.315	0.056	2.51
40	600	10.00	2.2	0.388	0.396	0.330	0.058	2.63
41	615	10.25	1.5	0.265	0.390	0.225	0.040	1.79
42	630	10.50	1.5	0.265	0.385	0.225	0.040	1.79
43	645	10.75	2.0	0.353	0.379	0.300	0.053	2.39
44	660	11.00	2.0	0.353	0.374	0.300	0.053	2.39
45	675	11.25	1.9	0.335	0.368	0.285	0.050	2.27
46	690	11.50	1.9	0.335	0.363	0.285	0.050	2.27
47	705	11.75	1.7	0.300	0.357	0.255	0.045	2.03
48	720	12.00	1.8	0.318	0.352	0.270	0.048	2.15
49	735	12.25	2.5	0.441	0.347	0.375	0.094	4.26
50	750	12.50	2.6	0.459	0.341	0.390	0.117	5.29
51	765	12.75	2.8	0.494	0.336	0.420	0.158	7.12
52	780	13.00	2.9	0.512	0.331	0.435	0.180	8.15
53	795	13.25	3.4	0.600	0.326	0.510	0.273	12.36
54	810	13.50	3.4	0.600	0.321	0.510	0.278	**12.58**
55	825	13.75	2.3	0.406	0.316	0.345	0.089	4.03
56	840	14.00	2.3	0.406	0.312	0.345	0.094	4.25
57	855	14.25	2.7	0.476	0.307	0.405	0.169	7.65
58	870	14.50	2.6	0.459	0.302	0.390	0.156	7.07
59	885	14.75	2.6	0.459	0.298	0.390	0.161	7.28
60	900	15.00	2.5	0.441	0.293	0.375	0.148	6.69
61	915	15.25	2.4	0.423	0.289	0.360	0.135	6.09
62	930	15.50	2.3	0.406	0.284	0.345	0.122	5.49
63	945	15.75	1.9	0.335	0.280	0.285	0.055	2.50

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 24-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE: BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	44.811	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.3732
LAG TIME - MINUTES	5.49	MINIMUM LOSS RATE (for var. loss) - in/hr	0.187
UNIT TIME-PERCENT OF LAG	273.3	LOW LOSS RATE - DECIMAL	0.85
TOTAL ADJUSTED STORM RAIN-INCHES	4.41	C	0.00346

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs
64	960	16.00	1.9	0.335	0.276	0.285	0.060	2.70
65	975	16.25	0.4	0.071	0.271	0.060	0.011	0.48
66	990	16.50	0.4	0.071	0.267	0.060	0.011	0.48
67	1005	16.75	0.3	0.053	0.263	0.045	0.008	0.36
68	1020	17.00	0.3	0.053	0.259	0.045	0.008	0.36
69	1035	17.25	0.5	0.088	0.255	0.075	0.013	0.60
70	1050	17.50	0.5	0.088	0.251	0.075	0.013	0.60
71	1065	17.75	0.5	0.088	0.248	0.075	0.013	0.60
72	1080	18.00	0.4	0.071	0.244	0.060	0.011	0.48
73	1095	18.25	0.4	0.071	0.240	0.060	0.011	0.48
74	1110	18.50	0.4	0.071	0.237	0.060	0.011	0.48
75	1125	18.75	0.3	0.053	0.233	0.045	0.008	0.36
76	1140	19.00	0.2	0.035	0.230	0.030	0.005	0.24
77	1155	19.25	0.3	0.053	0.227	0.045	0.008	0.36
78	1170	19.50	0.4	0.071	0.224	0.060	0.011	0.48
79	1185	19.75	0.3	0.053	0.221	0.045	0.008	0.36
80	1200	20.00	0.2	0.035	0.218	0.030	0.005	0.24
81	1215	20.25	0.3	0.053	0.215	0.045	0.008	0.36
82	1230	20.50	0.3	0.053	0.212	0.045	0.008	0.36
83	1245	20.75	0.3	0.053	0.209	0.045	0.008	0.36
84	1260	21.00	0.2	0.035	0.207	0.030	0.005	0.24
85	1275	21.25	0.3	0.053	0.204	0.045	0.008	0.36
86	1290	21.50	0.2	0.035	0.202	0.030	0.005	0.24
87	1305	21.75	0.3	0.053	0.200	0.045	0.008	0.36
88	1320	22.00	0.2	0.035	0.198	0.030	0.005	0.24
89	1335	22.25	0.3	0.053	0.196	0.045	0.008	0.36
90	1350	22.50	0.2	0.035	0.194	0.030	0.005	0.24
91	1365	22.75	0.2	0.035	0.192	0.030	0.005	0.24
92	1380	23.00	0.2	0.035	0.191	0.030	0.005	0.24
93	1395	23.25	0.2	0.035	0.189	0.030	0.005	0.24
94	1410	23.50	0.2	0.035	0.188	0.030	0.005	0.24
95	1425	23.75	0.2	0.035	0.187	0.030	0.005	0.24
96	1440	24.00	0.2	0.035	0.187	0.030	0.005	0.24

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL (in)	4.41
RAINFALL VOLUME (cuft)	717,351
SOIL LOSSES (cuft)	560,808
EFFECTIVE RAIN (in)	0.96
FLOOD VOLUME (acft)	3.59
FLOOD VOLUME (cuft)	156,543
PEAK FLOW (cfs)	12.58

RCFCD SYNTHETIC UNIT HYDROGRAPH - SHORTCUT METHOD

DATA INPUT SHEET

DATE:	March 30, 2020
WORKSHEET PREPARED BY:	DLS
PROJECT NAME	CORAL MOUNTAIN
PROJECT NUMBER	2553
CONCENTRATION POINT DESIGNATION	FUTURE BASIN
AREA DESIGNATION	DA-G
AMC NUMBER	2

Low Loss Conditions: X=Existing; D=Developed; BS=Retention

AREA DESIG	SOIL GROUP	TRIBUTARY AREAS	ACRES	LOW LOSS CONDITION	RI NUMBER	AMC II INFILTRATION RATE	IMPERVIOUS PERCENT
2	B	PAVING/HARDSCAPE	0.316	D	56	0.51	1.00
4	B	SF - LOW DENSITY	33.880	D	56	0.51	0.30
9	B	LANDSCAPING	1.546	D	56	0.51	0.10

LENGTH OF WATERCOURSE (L)	
LENGTH TO POINT OPPOSITE CENTROID (Lca)	
ELEVATION OF HEADWATER	
ELEVATION OF CONCENTRATION POINT	
AVERAGE MANNINGS 'N' VALUE	
STORM FREQUENCY (YEAR)	100
LOW LOSS RATE (For Storms Greater Than 10 Years)	85%
POINT RAIN FROM NOAA ATLAS	**14**
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 3/30/20

PHYSICAL DATA

[1] CONCENTRATION POINT	FUTURE BASIN
[2] AREA DESIGNATION	DA-G
[3] AREA - ACRES	35.742
[4] L-FEET	0
[5] L-MILES	0.000
[6] La-FEET	0.00
[7] La-MILES	0.000
[8] ELEVATION OF HEADWATER	0
[9] ELEVATION OF CONCENTRATION POINT	0
[10] H-FEET	0
[11] S-FEET/MILE	#DIV/0!
[12] S^0.5	#DIV/0!
[13] L*LCA/S^0.5	#DIV/0!
[14] AVERAGE MANNINGS 'N'	0
[15] LAG TIME-HOURS	#DIV/0!
[16] LAG TIME-MINUTES	#DIV/0!
[17] 100% OF LAG-MINUTES	#DIV/0!
[18] 200% OF LAG-MINUTES	#DIV/0!

RAINFALL DATA

[1] AMC	II
[2] FREQUENCY-YEARS	100
NOAA ATLAS	**14**
[3] DURATION:	Point Rain
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

STORM EVENT SUMMARY

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
TOTAL RAINFALL	(in)	1.44	2.14	2.76	4.41
RAINFALL VOLUME	(cuft)	186,831	277,652	358,093	572,171
SOIL LOSSES	(cuft)	48,450	139,349	217,068	447,389
EFFECTIVE RAIN	(in)	1.07	1.07	1.09	0.96
FLOOD VOLUME	(cu-ft)	138,381	138,303	141,025	124,782
	(acre-ft)	3.18	3.17	3.24	2.86
PEAK FLOW	(cfs)	N/A	62.43	53.39	10.03

NOTE: PEAK FLOW FOR THE 1-HOUR STORM IS NOT REPRESENTATIVE. PER RCFCD PEAK DISCHARGES FROM THE 3-HOUR STORM SHOULD NORMALLY COMPARE WELL WITH RATIONAL PEAKS.

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM AMC II	PROJECT:	CORAL MOUNTAIN		
		Job No.:	2553		
		BY:	DLS	DATE:	3/30/20

AVERAGE ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA	AREA WEIGHTED AVERAGE	MAX AVERAGE ADJUSTED INFILTRATION RATE (in/hr)	LOW LOSS CONDITION	LOW LOSS RATE PER RCFC/2322 (in/hr)	MIN AVERAGE ADJUSTED INFILTRATION RATE (in/hr)
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	0.316	0.009	0.0005	DEVELOPED	0.1000	0.0009
B	SF - LOW DENSITY	56	0.51	30%	0.37	33.880	0.948	0.3529	DEVELOPED	0.6600	0.6256
B	LANDSCAPING	56	0.51	10%	0.46	1.546	0.043	0.0201	DEVELOPED	0.8200	0.0355
					SUM	35.742	SUM	0.3734			0.6620

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.18671505

C= 0.00346

Ft=C(24-(T/60))^1.55 = 0.00346 (24-(T/60))^1.55 + **0.19** in/hr

CONSTANT LOSS RATE (3 & 6 HOUR STORMS) = **0.3734** in/hr

LOW LOSS RATE = **0.8500** in/hr

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period, T=1 1/2 unit time for the second period, etc.

NOTE: Low loss rates established per RCFC/2322 (Dated: May-30-95)
For 10 Year Storms or Less
Undeveloped Condition: Low Loss = 90%
Developed Condition: Low Loss = 0.9 - (0.8 * %impervious)
Basin Site: Low Loss = 10%
For 100 Year Storm - Low Loss should be between 80% & 90% of the Rainfall Rate

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 1-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	35.74
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	#DIV/0!
UNIT TIME-PERCENT OF LAG	#DIV/0!
TOTAL ADJUSTED STORM RAIN-INCHES	1.44
CONSTANT LOSS RATE-in/hr	0.37
LOW LOSS RATE - PERCENT	85%

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs
1	5	0.08	3.6	0.62	0.37	0.53	0.25	8.96
2	10	0.17	4.2	0.73	0.37	0.62	0.35	12.70
3	15	0.25	4.4	0.76	0.37	0.65	0.39	13.94
4	20	0.33	4.6	0.79	0.37	0.68	0.42	15.19
5	25	0.42	5.0	0.86	0.37	0.73	0.49	17.68
6	30	0.50	5.6	0.97	0.37	0.82	0.59	21.42
7	35	0.58	6.4	1.11	0.37	0.94	0.73	26.40
8	40	0.67	8.1	1.40	0.37	1.19	1.03	36.99
9	45	0.75	13.1	2.26	0.37	1.92	1.89	68.12
10	50	0.83	34.5	5.96	0.37	5.07	5.59	**201.40**
11	55	0.92	6.7	1.16	0.37	0.98	0.78	28.27
12	60	1.00	3.8	0.66	0.37	0.56	0.28	10.21

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL (in)	1.44
RAINFALL VOLUME (cuft)	186,831
SOIL LOSSES (cuft)	48,450
EFFECTIVE RAIN (in)	1.07
FLOOD VOLUME (acft)	3.18
FLOOD VOLUME (cuft)	138,381
PEAK FLOW RATE (cfs)	201.40

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 3-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	35.74
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	#DIV/0!
UNIT TIME-PERCENT OF LAG	#DIV/0!
TOTAL ADJUSTED STORM RAIN-INCHES	2.14
CONSTANT LOSS RATE-in/hr	0.37
LOW LOSS RATE - PERCENT	85%

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs
1	5	0.08	1.3	0.33	0.37	0.28	0.05	1.80
2	10	0.17	1.3	0.33	0.37	0.28	0.05	1.80
3	15	0.25	1.1	0.28	0.37	0.24	0.04	1.53
4	20	0.33	1.5	0.39	0.37	0.33	0.01	0.42
5	25	0.42	1.5	0.39	0.37	0.33	0.01	0.42
6	30	0.50	1.8	0.46	0.37	0.39	0.09	3.20
7	35	0.58	1.5	0.39	0.37	0.33	0.01	0.42
8	40	0.67	1.8	0.46	0.37	0.39	0.09	3.20
9	45	0.75	1.8	0.46	0.37	0.39	0.09	3.20
10	50	0.83	1.5	0.39	0.37	0.33	0.01	0.42
11	55	0.92	1.6	0.41	0.37	0.35	0.04	1.35
12	60	1.00	1.8	0.46	0.37	0.39	0.09	3.20
13	65	1.08	2.2	0.56	0.37	0.48	0.19	6.90
14	70	1.17	2.2	0.56	0.37	0.48	0.19	6.90
15	75	1.25	2.2	0.56	0.37	0.48	0.19	6.90
16	80	1.33	2.0	0.51	0.37	0.44	0.14	5.05
17	85	1.42	2.6	0.67	0.37	0.57	0.29	10.60
18	90	1.50	2.7	0.69	0.37	0.59	0.32	11.53
19	95	1.58	2.4	0.62	0.37	0.52	0.24	8.75
20	100	1.67	2.7	0.69	0.37	0.59	0.32	11.53
21	105	1.75	3.3	0.85	0.37	0.72	0.47	17.08
22	110	1.83	3.1	0.80	0.37	0.68	0.42	15.23
23	115	1.92	2.9	0.74	0.37	0.63	0.37	13.38
24	120	2.00	3.0	0.77	0.37	0.65	0.40	14.31
25	125	2.08	3.1	0.80	0.37	0.68	0.42	15.23
26	130	2.17	4.2	1.08	0.37	0.92	0.71	25.41
27	135	2.25	5.0	1.28	0.37	1.09	0.91	32.82
28	140	2.33	3.5	0.90	0.37	0.76	0.53	18.93
29	145	2.42	6.8	1.75	0.37	1.48	1.37	49.48
30	150	2.50	7.3	1.87	0.37	1.59	1.50	54.10
31	155	2.58	8.2	2.11	0.37	1.79	1.73	**62.43**
32	160	2.67	5.9	1.52	0.37	1.29	1.14	41.15
33	165	2.75	2.0	0.51	0.37	0.44	0.14	5.05
34	170	2.83	1.8	0.46	0.37	0.39	0.09	3.20
35	175	2.92	1.8	0.46	0.37	0.39	0.09	3.20
36	180	3.00	0.6	0.15	0.37	0.13	0.02	0.83

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL (in)	2.14
RAINFALL VOLUME (cuft)	277,652
SOIL LOSSES (cuft)	139,349
EFFECTIVE RAIN (in)	1.07
FLOOD VOLUME (acft)	3.17
FLOOD VOLUME (cuft)	138,303
PEAK FLOW RATE (cfs)	62.43

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 6-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	35.74
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	#DIV/0!
UNIT TIME-PERCENT OF LAG	#DIV/0!
TOTAL ADJUSTED STORM RAIN-INCHES	2.76
CONSTANT LOSS RATE-in/hr	0.373
LOW LOSS RATE - PERCENT	85%

Unit Time Period	Time		Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow
	Minutes	Hours	(Plate E-5.9)		Max	Low	in/hr	cfs
1	5	0.08	0.5	0.166	0.37	0.14	0.02	0.90
2	10	0.17	0.6	0.199	0.37	0.17	0.03	1.07
3	15	0.25	0.6	0.199	0.37	0.17	0.03	1.07
4	20	0.33	0.6	0.199	0.37	0.17	0.03	1.07
5	25	0.42	0.6	0.199	0.37	0.17	0.03	1.07
6	30	0.50	0.7	0.232	0.37	0.20	0.03	1.25
7	35	0.58	0.7	0.232	0.37	0.20	0.03	1.25
8	40	0.67	0.7	0.232	0.37	0.20	0.03	1.25
9	45	0.75	0.7	0.232	0.37	0.20	0.03	1.25
10	50	0.83	0.7	0.232	0.37	0.20	0.03	1.25
11	55	0.92	0.7	0.232	0.37	0.20	0.03	1.25
12	60	1.00	0.8	0.265	0.37	0.23	0.04	1.43
13	65	1.08	0.8	0.265	0.37	0.23	0.04	1.43
14	70	1.17	0.8	0.265	0.37	0.23	0.04	1.43
15	75	1.25	0.8	0.265	0.37	0.23	0.04	1.43
16	80	1.33	0.8	0.265	0.37	0.23	0.04	1.43
17	85	1.42	0.8	0.265	0.37	0.23	0.04	1.43
18	90	1.50	0.8	0.265	0.37	0.23	0.04	1.43
19	95	1.58	0.8	0.265	0.37	0.23	0.04	1.43
20	100	1.67	0.8	0.265	0.37	0.23	0.04	1.43
21	105	1.75	0.8	0.265	0.37	0.23	0.04	1.43
22	110	1.83	0.8	0.265	0.37	0.23	0.04	1.43
23	115	1.92	0.8	0.265	0.37	0.23	0.04	1.43
24	120	2.00	0.9	0.298	0.37	0.25	0.04	1.61
25	125	2.08	0.8	0.265	0.37	0.23	0.04	1.43
26	130	2.17	0.9	0.298	0.37	0.25	0.04	1.61
27	135	2.25	0.9	0.298	0.37	0.25	0.04	1.61
28	140	2.33	0.9	0.298	0.37	0.25	0.04	1.61
29	145	2.42	0.9	0.298	0.37	0.25	0.04	1.61
30	150	2.50	0.9	0.298	0.37	0.25	0.04	1.61
31	155	2.58	0.9	0.298	0.37	0.25	0.04	1.61
32	160	2.67	0.9	0.298	0.37	0.25	0.04	1.61
33	165	2.75	1.0	0.331	0.37	0.28	0.05	1.79
34	170	2.83	1.0	0.331	0.37	0.28	0.05	1.79
35	175	2.92	1.0	0.331	0.37	0.28	0.05	1.79
36	180	3.00	1.0	0.331	0.37	0.28	0.05	1.79
37	185	3.08	1.0	0.331	0.37	0.28	0.05	1.79
38	190	3.17	1.1	0.364	0.37	0.31	0.05	1.97
39	195	3.25	1.1	0.364	0.37	0.31	0.05	1.97
40	200	3.33	1.1	0.364	0.37	0.31	0.05	1.97
41	205	3.42	1.2	0.397	0.37	0.34	0.02	0.87
42	210	3.50	1.3	0.431	0.37	0.37	0.06	2.06
43	215	3.58	1.4	0.464	0.37	0.39	0.09	3.25
44	220	3.67	1.4	0.464	0.37	0.39	0.09	3.25
45	225	3.75	1.5	0.497	0.37	0.42	0.12	4.45
46	230	3.83	1.5	0.497	0.37	0.42	0.12	4.45
47	235	3.92	1.6	0.530	0.37	0.45	0.16	5.64
48	240	4.00	1.6	0.530	0.37	0.45	0.16	5.64
49	245	4.08	1.7	0.563	0.37	0.48	0.19	6.83
50	250	4.17	1.8	0.596	0.37	0.51	0.22	8.03
51	255	4.25	1.9	0.629	0.37	0.53	0.26	9.22
52	260	4.33	2.0	0.662	0.37	0.56	0.29	10.41
53	265	4.42	2.1	0.696	0.37	0.59	0.32	11.61
54	270	4.50	2.1	0.696	0.37	0.59	0.32	11.61

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 6-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	35.74
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	#DIV/0!
UNIT TIME-PERCENT OF LAG	#DIV/0!
TOTAL ADJUSTED STORM RAIN-INCHES	2.76
CONSTANT LOSS RATE-in/hr	0.373
LOW LOSS RATE - PERCENT	85%

Unit Time Period	Time		Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow
	Minutes	Hours	(Plate E-5.9)		Max	Low	in/hr	cfs
55	275	4.58	2.2	0.729	0.37	0.62	0.36	12.80
56	280	4.67	2.3	0.762	0.37	0.65	0.39	14.00
57	285	4.75	2.4	0.795	0.37	0.68	0.42	15.19
58	290	4.83	2.4	0.795	0.37	0.68	0.42	15.19
59	295	4.92	2.5	0.828	0.37	0.70	0.45	16.38
60	300	5.00	2.6	0.861	0.37	0.73	0.49	17.58
61	305	5.08	3.1	1.027	0.37	0.87	0.65	23.54
62	310	5.17	3.6	1.192	0.37	1.01	0.82	29.51
63	315	5.25	3.9	1.292	0.37	1.10	0.92	33.09
64	320	5.33	4.2	1.391	0.37	1.18	1.02	36.67
65	325	5.42	4.7	1.557	0.37	1.32	1.18	42.64
66	330	5.50	5.6	1.855	0.37	1.58	1.48	**53.39**
67	335	5.58	1.9	0.629	0.37	0.53	0.26	9.22
68	340	5.67	0.9	0.298	0.37	0.25	0.04	1.61
69	345	5.75	0.6	0.199	0.37	0.17	0.03	1.07
70	350	5.83	0.5	0.166	0.37	0.14	0.02	0.90
71	355	5.92	0.3	0.099	0.37	0.08	0.01	0.54
72	360	6.00	0.2	0.066	0.37	0.06	0.01	0.36

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL (in)	2.76
RAINFALL VOLUME (cuft)	358,093
SOIL LOSSES (cuft)	217,068
EFFECTIVE RAIN (in)	1.09
FLOOD VOLUME (acft)	3.24
FLOOD VOLUME (cuft)	141,025
PEAK FLOW RATE (cfs)	53.39

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 24-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE: BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	35.742	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.3734
LAG TIME - MINUTES	#DIV/0!	MINIMUM LOSS RATE (for var. loss) - in/hr	0.187
UNIT TIME-PERCENT OF LAG	#DIV/0!	LOW LOSS RATE - DECIMAL	0.85
TOTAL ADJUSTED STORM RAIN-INCHES	4.41	C	0.00346

Unit Time Period	Time		Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain in/hr	Flood Hydrograph Flow cfs
	Minutes	Hours	(Plate E-5.9)		Max	Low		
1	15	0.25	0.2	0.035	0.659	0.030	0.005	0.19
2	30	0.50	0.3	0.053	0.652	0.045	0.008	0.29
3	45	0.75	0.3	0.053	0.644	0.045	0.008	0.29
4	60	1.00	0.4	0.071	0.637	0.060	0.011	0.38
5	75	1.25	0.3	0.053	0.629	0.045	0.008	0.29
6	90	1.50	0.3	0.053	0.622	0.045	0.008	0.29
7	105	1.75	0.3	0.053	0.614	0.045	0.008	0.29
8	120	2.00	0.4	0.071	0.607	0.060	0.011	0.38
9	135	2.25	0.4	0.071	0.599	0.060	0.011	0.38
10	150	2.50	0.4	0.071	0.592	0.060	0.011	0.38
11	165	2.75	0.5	0.088	0.585	0.075	0.013	0.48
12	180	3.00	0.5	0.088	0.578	0.075	0.013	0.48
13	195	3.25	0.5	0.088	0.571	0.075	0.013	0.48
14	210	3.50	0.5	0.088	0.564	0.075	0.013	0.48
15	225	3.75	0.5	0.088	0.556	0.075	0.013	0.48
16	240	4.00	0.6	0.106	0.549	0.090	0.016	0.57
17	255	4.25	0.6	0.106	0.542	0.090	0.016	0.57
18	270	4.50	0.7	0.123	0.536	0.105	0.019	0.67
19	285	4.75	0.7	0.123	0.529	0.105	0.019	0.67
20	300	5.00	0.8	0.141	0.522	0.120	0.021	0.76
21	315	5.25	0.6	0.106	0.515	0.090	0.016	0.57
22	330	5.50	0.7	0.123	0.508	0.105	0.019	0.67
23	345	5.75	0.8	0.141	0.502	0.120	0.021	0.76
24	360	6.00	0.8	0.141	0.495	0.120	0.021	0.76
25	375	6.25	0.9	0.159	0.489	0.135	0.024	0.86
26	390	6.50	0.9	0.159	0.482	0.135	0.024	0.86
27	405	6.75	1.0	0.176	0.476	0.150	0.026	0.95
28	420	7.00	1.0	0.176	0.469	0.150	0.026	0.95
29	435	7.25	1.0	0.176	0.463	0.150	0.026	0.95
30	450	7.50	1.1	0.194	0.456	0.165	0.029	1.05
31	465	7.75	1.2	0.212	0.450	0.180	0.032	1.14
32	480	8.00	1.3	0.229	0.444	0.195	0.034	1.24
33	495	8.25	1.5	0.265	0.438	0.225	0.040	1.43
34	510	8.50	1.5	0.265	0.432	0.225	0.040	1.43
35	525	8.75	1.6	0.282	0.426	0.240	0.042	1.53
36	540	9.00	1.7	0.300	0.420	0.255	0.045	1.62
37	555	9.25	1.9	0.335	0.414	0.285	0.050	1.81
38	570	9.50	2.0	0.353	0.408	0.300	0.053	1.91
39	585	9.75	2.1	0.370	0.402	0.315	0.056	2.00
40	600	10.00	2.2	0.388	0.396	0.330	0.058	2.10
41	615	10.25	1.5	0.265	0.391	0.225	0.040	1.43
42	630	10.50	1.5	0.265	0.385	0.225	0.040	1.43
43	645	10.75	2.0	0.353	0.379	0.300	0.053	1.91
44	660	11.00	2.0	0.353	0.374	0.300	0.053	1.91
45	675	11.25	1.9	0.335	0.368	0.285	0.050	1.81
46	690	11.50	1.9	0.335	0.363	0.285	0.050	1.81
47	705	11.75	1.7	0.300	0.357	0.255	0.045	1.62
48	720	12.00	1.8	0.318	0.352	0.270	0.048	1.72
49	735	12.25	2.5	0.441	0.347	0.375	0.094	3.39
50	750	12.50	2.6	0.459	0.342	0.390	0.117	4.22
51	765	12.75	2.8	0.494	0.337	0.420	0.157	5.67
52	780	13.00	2.9	0.512	0.331	0.435	0.180	6.49
53	795	13.25	3.4	0.600	0.326	0.510	0.273	9.85
54	810	13.50	3.4	0.600	0.321	0.510	0.278	**10.03**
55	825	13.75	2.3	0.406	0.317	0.345	0.089	3.21
56	840	14.00	2.3	0.406	0.312	0.345	0.094	3.39
57	855	14.25	2.7	0.476	0.307	0.405	0.169	6.10
58	870	14.50	2.6	0.459	0.302	0.390	0.156	5.63
59	885	14.75	2.6	0.459	0.298	0.390	0.161	5.80
60	900	15.00	2.5	0.441	0.293	0.375	0.148	5.33
61	915	15.25	2.4	0.423	0.289	0.360	0.135	4.85
62	930	15.50	2.3	0.406	0.284	0.345	0.121	4.38
63	945	15.75	1.9	0.335	0.280	0.285	0.055	1.99

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 24-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE: BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	35.742	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.3734
LAG TIME - MINUTES	#DIV/0!	MINIMUM LOSS RATE (for var. loss) - in/hr	0.187
UNIT TIME-PERCENT OF LAG	#DIV/0!	LOW LOSS RATE - DECIMAL	0.85
TOTAL ADJUSTED STORM RAIN-INCHES	4.41	C	0.00346

Unit Time Period	Time		Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain in/hr	Flood Hydrograph Flow cfs
	Minutes	Hours	(Plate E-5.9)		Max	Low		
64	960	16.00	1.9	0.335	0.276	0.285	0.060	2.15
65	975	16.25	0.4	0.071	0.271	0.060	0.011	0.38
66	990	16.50	0.4	0.071	0.267	0.060	0.011	0.38
67	1005	16.75	0.3	0.053	0.263	0.045	0.008	0.29
68	1020	17.00	0.3	0.053	0.259	0.045	0.008	0.29
69	1035	17.25	0.5	0.088	0.255	0.075	0.013	0.48
70	1050	17.50	0.5	0.088	0.252	0.075	0.013	0.48
71	1065	17.75	0.5	0.088	0.248	0.075	0.013	0.48
72	1080	18.00	0.4	0.071	0.244	0.060	0.011	0.38
73	1095	18.25	0.4	0.071	0.241	0.060	0.011	0.38
74	1110	18.50	0.4	0.071	0.237	0.060	0.011	0.38
75	1125	18.75	0.3	0.053	0.234	0.045	0.008	0.29
76	1140	19.00	0.2	0.035	0.230	0.030	0.005	0.19
77	1155	19.25	0.3	0.053	0.227	0.045	0.008	0.29
78	1170	19.50	0.4	0.071	0.224	0.060	0.011	0.38
79	1185	19.75	0.3	0.053	0.221	0.045	0.008	0.29
80	1200	20.00	0.2	0.035	0.218	0.030	0.005	0.19
81	1215	20.25	0.3	0.053	0.215	0.045	0.008	0.29
82	1230	20.50	0.3	0.053	0.212	0.045	0.008	0.29
83	1245	20.75	0.3	0.053	0.209	0.045	0.008	0.29
84	1260	21.00	0.2	0.035	0.207	0.030	0.005	0.19
85	1275	21.25	0.3	0.053	0.204	0.045	0.008	0.29
86	1290	21.50	0.2	0.035	0.202	0.030	0.005	0.19
87	1305	21.75	0.3	0.053	0.200	0.045	0.008	0.29
88	1320	22.00	0.2	0.035	0.198	0.030	0.005	0.19
89	1335	22.25	0.3	0.053	0.196	0.045	0.008	0.29
90	1350	22.50	0.2	0.035	0.194	0.030	0.005	0.19
91	1365	22.75	0.2	0.035	0.192	0.030	0.005	0.19
92	1380	23.00	0.2	0.035	0.191	0.030	0.005	0.19
93	1395	23.25	0.2	0.035	0.190	0.030	0.005	0.19
94	1410	23.50	0.2	0.035	0.188	0.030	0.005	0.19
95	1425	23.75	0.2	0.035	0.187	0.030	0.005	0.19
96	1440	24.00	0.2	0.035	0.187	0.030	0.005	0.19

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL (in)	4.41
RAINFALL VOLUME (cuft)	572,171
SOIL LOSSES (cuft)	447,389
EFFECTIVE RAIN (in)	0.96
FLOOD VOLUME (acft)	2.86
FLOOD VOLUME (cuft)	124,782
PEAK FLOW (cfs)	10.03

RCFCD SYNTHETIC UNIT HYDROGRAPH - SHORTCUT METHOD

DATA INPUT SHEET

DATE:	March 30, 2020
WORKSHEET PREPARED BY:	DLS
PROJECT NAME	CORAL MOUNTAIN
PROJECT NUMBER	2553
CONCENTRATION POINT DESIGNATION	FUTURE BASIN
AREA DESIGNATION	DA-H
AMC NUMBER	2

Low Loss Conditions: X=Existing; D=Developed; BS=Retention

AREA DESIG	SOIL GROUP	TRIBUTARY AREAS	ACRES	LOW LOSS CONDITION	RI NUMBER	AMC II INFILTRATION RATE	IMPERVIOUS PERCENT
1	B	COMMERCIAL	7.118	D	56	0.51	0.90
2	B	PAVING/HARDSCAPE	0.000	D	56	0.51	1.00
9	B	LANDSCAPING	0.000	D	56	0.51	0.10

LENGTH OF WATERCOURSE (L)	
LENGTH TO POINT OPPOSITE CENTROID (Lca)	
ELEVATION OF HEADWATER	
ELEVATION OF CONCENTRATION POINT	
AVERAGE MANNINGS 'N' VALUE	
STORM FREQUENCY (YEAR)	100
LOW LOSS RATE (For Storms Greater Than 10 Years)	85%
POINT RAIN FROM NOAA ATLAS	**14**
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 3/30/20

PHYSICAL DATA

[1] CONCENTRATION POINT	FUTURE BASIN
[2] AREA DESIGNATION	DA-H
[3] AREA - ACRES	7.118
[4] L-FEET	0
[5] L-MILES	0.000
[6] La-FEET	0.00
[7] La-MILES	0.000
[8] ELEVATION OF HEADWATER	0
[9] ELEVATION OF CONCENTRATION POINT	0
[10] H-FEET	0
[11] S-FEET/MILE	#DIV/0!
[12] S^0.5	#DIV/0!
[13] L*LCA/S^0.5	#DIV/0!
[14] AVERAGE MANNINGS 'N'	0
[15] LAG TIME-HOURS	#DIV/0!
[16] LAG TIME-MINUTES	#DIV/0!
[17] 100% OF LAG-MINUTES	#DIV/0!
[18] 200% OF LAG-MINUTES	#DIV/0!

RAINFALL DATA

[1] AMC	II
[2] FREQUENCY-YEARS	100
NOAA ATLAS	**14**
[3] DURATION:	Point Rain
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

STORM EVENT SUMMARY

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
TOTAL RAINFALL	(in)	1.44	2.14	2.76	4.41
RAINFALL VOLUME	(cuft)	37,207	55,294	71,314	113,948
SOIL LOSSES	(cuft)	2,504	7,511	14,935	46,429
EFFECTIVE RAIN	(in)	1.34	1.85	2.18	2.61
FLOOD VOLUME	(cu-ft)	34,704	47,783	56,379	67,518
	(acre-ft)	0.80	1.10	1.29	1.55
PEAK FLOW	(cfs)	N/A	14.42	12.62	3.71

NOTE: PEAK FLOW FOR THE 1-HOUR STORM IS NOT REPRESENTATIVE. PER RCFCD PEAK DISCHARGES FROM THE 3-HOUR STORM SHOULD NORMALLY COMPARE WELL WITH RATIONAL PEAKS.

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM AMC II	PROJECT:	CORAL MOUNTAIN		
		Job No.:	2553		
		BY:	DLS	DATE:	3/30/20

AVERAGE ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA	AREA WEIGHTED AVERAGE	MAX AVERAGE ADJUSTED INFILTRATION RATE (in/hr)	LOW LOSS CONDITION	LOW LOSS RATE PER RCFC/2322 (in/hr)	MIN AVERAGE ADJUSTED INFILTRATION RATE (in/hr)
B	COMMERCIAL	56	0.51	90%	0.10	7.118	1.000	0.0969	DEVELOPED	0.1800	0.1800
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	0.000	0.000	0.0000	DEVELOPED	0.1000	0.0000
B	LANDSCAPING	56	0.51	10%	0.46	0.000	0.000	0.0000	DEVELOPED	0.8200	0.0000
					SUM	7.118	SUM	0.0969			0.1800

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.04845

C= 0.00090

Ft=C(24-(T/60))^1.55 = 0.00090 (24-(T/60))^1.55 + **0.05** in/hr

CONSTANT LOSS RATE (3 & 6 HOUR STORMS) = **0.0969** in/hr

LOW LOSS RATE = **0.8500** in/hr

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period, T=1 1/2 unit time for the second period, etc.

NOTE: Low loss rates established per RCFC/2322 (Dated: May-30-95)
For 10 Year Storms or Less
Undeveloped Condition: Low Loss = 90%
Developed Condition: Low Loss = 0.9 - (0.8 * %impervious)
Basin Site: Low Loss = 10%
For 100 Year Storm - Low Loss should be between 80% & 90% of the Rainfall Rate

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 1-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	7.12
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	#DIV/0!
UNIT TIME-PERCENT OF LAG	#DIV/0!
TOTAL ADJUSTED STORM RAIN-INCHES	1.44
CONSTANT LOSS RATE-in/hr	0.10
LOW LOSS RATE - PERCENT	85%

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs
1	5	0.08	3.6	0.62	0.10	0.53	0.53	3.77
2	10	0.17	4.2	0.73	0.10	0.62	0.63	4.51
3	15	0.25	4.4	0.76	0.10	0.65	0.66	4.76
4	20	0.33	4.6	0.79	0.10	0.68	0.70	5.01
5	25	0.42	5.0	0.86	0.10	0.73	0.77	5.51
6	30	0.50	5.6	0.97	0.10	0.82	0.87	6.25
7	35	0.58	6.4	1.11	0.10	0.94	1.01	7.24
8	40	0.67	8.1	1.40	0.10	1.19	1.30	9.35
9	45	0.75	13.1	2.26	0.10	1.92	2.17	15.55
10	50	0.83	34.5	5.96	0.10	5.07	5.86	**42.09**
11	55	0.92	6.7	1.16	0.10	0.98	1.06	7.61
12	60	1.00	3.8	0.66	0.10	0.56	0.56	4.02

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL (in)	1.44
RAINFALL VOLUME (cuft)	37,207
SOIL LOSSES (cuft)	2,504
EFFECTIVE RAIN (in)	1.34
FLOOD VOLUME (acft)	0.80
FLOOD VOLUME (cuft)	34,704
PEAK FLOW RATE (cfs)	42.09

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 3-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	7.12
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	#DIV/0!
UNIT TIME-PERCENT OF LAG	#DIV/0!
TOTAL ADJUSTED STORM RAIN-INCHES	2.14
CONSTANT LOSS RATE-in/hr	0.10
LOW LOSS RATE - PERCENT	85%

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs
1	5	0.08	1.3	0.33	0.10	0.28	0.24	1.70
2	10	0.17	1.3	0.33	0.10	0.28	0.24	1.70
3	15	0.25	1.1	0.28	0.10	0.24	0.19	1.33
4	20	0.33	1.5	0.39	0.10	0.33	0.29	2.07
5	25	0.42	1.5	0.39	0.10	0.33	0.29	2.07
6	30	0.50	1.8	0.46	0.10	0.39	0.37	2.62
7	35	0.58	1.5	0.39	0.10	0.33	0.29	2.07
8	40	0.67	1.8	0.46	0.10	0.39	0.37	2.62
9	45	0.75	1.8	0.46	0.10	0.39	0.37	2.62
10	50	0.83	1.5	0.39	0.10	0.33	0.29	2.07
11	55	0.92	1.6	0.41	0.10	0.35	0.31	2.25
12	60	1.00	1.8	0.46	0.10	0.39	0.37	2.62
13	65	1.08	2.2	0.56	0.10	0.48	0.47	3.36
14	70	1.17	2.2	0.56	0.10	0.48	0.47	3.36
15	75	1.25	2.2	0.56	0.10	0.48	0.47	3.36
16	80	1.33	2.0	0.51	0.10	0.44	0.42	2.99
17	85	1.42	2.6	0.67	0.10	0.57	0.57	4.10
18	90	1.50	2.7	0.69	0.10	0.59	0.60	4.28
19	95	1.58	2.4	0.62	0.10	0.52	0.52	3.73
20	100	1.67	2.7	0.69	0.10	0.59	0.60	4.28
21	105	1.75	3.3	0.85	0.10	0.72	0.75	5.39
22	110	1.83	3.1	0.80	0.10	0.68	0.70	5.02
23	115	1.92	2.9	0.74	0.10	0.63	0.65	4.65
24	120	2.00	3.0	0.77	0.10	0.65	0.67	4.83
25	125	2.08	3.1	0.80	0.10	0.68	0.70	5.02
26	130	2.17	4.2	1.08	0.10	0.92	0.98	7.05
27	135	2.25	5.0	1.28	0.10	1.09	1.19	8.52
28	140	2.33	3.5	0.90	0.10	0.76	0.80	5.76
29	145	2.42	6.8	1.75	0.10	1.48	1.65	11.84
30	150	2.50	7.3	1.87	0.10	1.59	1.78	12.76
31	155	2.58	8.2	2.11	0.10	1.79	2.01	**14.42**
32	160	2.67	5.9	1.52	0.10	1.29	1.42	10.18
33	165	2.75	2.0	0.51	0.10	0.44	0.42	2.99
34	170	2.83	1.8	0.46	0.10	0.39	0.37	2.62
35	175	2.92	1.8	0.46	0.10	0.39	0.37	2.62
36	180	3.00	0.6	0.15	0.10	0.13	0.06	0.41

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL (in)	2.14
RAINFALL VOLUME (cuft)	55,294
SOIL LOSSES (cuft)	7,511
EFFECTIVE RAIN (in)	1.85
FLOOD VOLUME (acft)	1.10
FLOOD VOLUME (cuft)	47,783
PEAK FLOW RATE (cfs)	14.42

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 6-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	7.12
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	#DIV/0!
UNIT TIME-PERCENT OF LAG	#DIV/0!
TOTAL ADJUSTED STORM RAIN-INCHES	2.76
CONSTANT LOSS RATE-in/hr	0.097
LOW LOSS RATE - PERCENT	85%

Unit Time Period	Time		Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow
	Minutes	Hours	(Plate E-5.9)		Max	Low	in/hr	cfs
1	5	0.08	0.5	0.166	0.10	0.14	0.07	0.49
2	10	0.17	0.6	0.199	0.10	0.17	0.10	0.73
3	15	0.25	0.6	0.199	0.10	0.17	0.10	0.73
4	20	0.33	0.6	0.199	0.10	0.17	0.10	0.73
5	25	0.42	0.6	0.199	0.10	0.17	0.10	0.73
6	30	0.50	0.7	0.232	0.10	0.20	0.13	0.97
7	35	0.58	0.7	0.232	0.10	0.20	0.13	0.97
8	40	0.67	0.7	0.232	0.10	0.20	0.13	0.97
9	45	0.75	0.7	0.232	0.10	0.20	0.13	0.97
10	50	0.83	0.7	0.232	0.10	0.20	0.13	0.97
11	55	0.92	0.7	0.232	0.10	0.20	0.13	0.97
12	60	1.00	0.8	0.265	0.10	0.23	0.17	1.21
13	65	1.08	0.8	0.265	0.10	0.23	0.17	1.21
14	70	1.17	0.8	0.265	0.10	0.23	0.17	1.21
15	75	1.25	0.8	0.265	0.10	0.23	0.17	1.21
16	80	1.33	0.8	0.265	0.10	0.23	0.17	1.21
17	85	1.42	0.8	0.265	0.10	0.23	0.17	1.21
18	90	1.50	0.8	0.265	0.10	0.23	0.17	1.21
19	95	1.58	0.8	0.265	0.10	0.23	0.17	1.21
20	100	1.67	0.8	0.265	0.10	0.23	0.17	1.21
21	105	1.75	0.8	0.265	0.10	0.23	0.17	1.21
22	110	1.83	0.8	0.265	0.10	0.23	0.17	1.21
23	115	1.92	0.8	0.265	0.10	0.23	0.17	1.21
24	120	2.00	0.9	0.298	0.10	0.25	0.20	1.44
25	125	2.08	0.8	0.265	0.10	0.23	0.17	1.21
26	130	2.17	0.9	0.298	0.10	0.25	0.20	1.44
27	135	2.25	0.9	0.298	0.10	0.25	0.20	1.44
28	140	2.33	0.9	0.298	0.10	0.25	0.20	1.44
29	145	2.42	0.9	0.298	0.10	0.25	0.20	1.44
30	150	2.50	0.9	0.298	0.10	0.25	0.20	1.44
31	155	2.58	0.9	0.298	0.10	0.25	0.20	1.44
32	160	2.67	0.9	0.298	0.10	0.25	0.20	1.44
33	165	2.75	1.0	0.331	0.10	0.28	0.23	1.68
34	170	2.83	1.0	0.331	0.10	0.28	0.23	1.68
35	175	2.92	1.0	0.331	0.10	0.28	0.23	1.68
36	180	3.00	1.0	0.331	0.10	0.28	0.23	1.68
37	185	3.08	1.0	0.331	0.10	0.28	0.23	1.68
38	190	3.17	1.1	0.364	0.10	0.31	0.27	1.92
39	195	3.25	1.1	0.364	0.10	0.31	0.27	1.92
40	200	3.33	1.1	0.364	0.10	0.31	0.27	1.92
41	205	3.42	1.2	0.397	0.10	0.34	0.30	2.16
42	210	3.50	1.3	0.431	0.10	0.37	0.33	2.39
43	215	3.58	1.4	0.464	0.10	0.39	0.37	2.63
44	220	3.67	1.4	0.464	0.10	0.39	0.37	2.63
45	225	3.75	1.5	0.497	0.10	0.42	0.40	2.87
46	230	3.83	1.5	0.497	0.10	0.42	0.40	2.87
47	235	3.92	1.6	0.530	0.10	0.45	0.43	3.11
48	240	4.00	1.6	0.530	0.10	0.45	0.43	3.11
49	245	4.08	1.7	0.563	0.10	0.48	0.47	3.35
50	250	4.17	1.8	0.596	0.10	0.51	0.50	3.58
51	255	4.25	1.9	0.629	0.10	0.53	0.53	3.82
52	260	4.33	2.0	0.662	0.10	0.56	0.57	4.06
53	265	4.42	2.1	0.696	0.10	0.59	0.60	4.30
54	270	4.50	2.1	0.696	0.10	0.59	0.60	4.30

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 6-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	7.12
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	#DIV/0!
UNIT TIME-PERCENT OF LAG	#DIV/0!
TOTAL ADJUSTED STORM RAIN-INCHES	2.76
CONSTANT LOSS RATE-in/hr	0.097
LOW LOSS RATE - PERCENT	85%

Unit Time Period	Time		Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow
	Minutes	Hours	(Plate E-5.9)		Max	Low	in/hr	cfs
55	275	4.58	2.2	0.729	0.10	0.62	0.63	4.53
56	280	4.67	2.3	0.762	0.10	0.65	0.66	4.77
57	285	4.75	2.4	0.795	0.10	0.68	0.70	5.01
58	290	4.83	2.4	0.795	0.10	0.68	0.70	5.01
59	295	4.92	2.5	0.828	0.10	0.70	0.73	5.25
60	300	5.00	2.6	0.861	0.10	0.73	0.76	5.49
61	305	5.08	3.1	1.027	0.10	0.87	0.93	6.67
62	310	5.17	3.6	1.192	0.10	1.01	1.10	7.86
63	315	5.25	3.9	1.292	0.10	1.10	1.19	8.58
64	320	5.33	4.2	1.391	0.10	1.18	1.29	9.29
65	325	5.42	4.7	1.557	0.10	1.32	1.46	10.48
66	330	5.50	5.6	1.855	0.10	1.58	1.76	**12.62**
67	335	5.58	1.9	0.629	0.10	0.53	0.53	3.82
68	340	5.67	0.9	0.298	0.10	0.25	0.20	1.44
69	345	5.75	0.6	0.199	0.10	0.17	0.10	0.73
70	350	5.83	0.5	0.166	0.10	0.14	0.07	0.49
71	355	5.92	0.3	0.099	0.10	0.08	0.00	0.02
72	360	6.00	0.2	0.066	0.10	0.06	0.01	0.07

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL (in)	2.76
RAINFALL VOLUME (cuft)	71,314
SOIL LOSSES (cuft)	14,935
EFFECTIVE RAIN (in)	2.18
FLOOD VOLUME (acft)	1.29
FLOOD VOLUME (cuft)	56,379
PEAK FLOW RATE (cfs)	12.62

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 24-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE: BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	7.118	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.0969
LAG TIME - MINUTES	#DIV/0!	MINIMUM LOSS RATE (for var. loss) - in/hr	0.048
UNIT TIME-PERCENT OF LAG	#DIV/0!	LOW LOSS RATE - DECIMAL	0.85
TOTAL ADJUSTED STORM RAIN-INCHES	4.41	C	0.00090

Unit Time Period	Time		Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain in/hr	Flood Hydrograph Flow cfs
	Minutes	Hours	(Plate E-5.9)		Max	Low		
1	15	0.25	0.2	0.035	0.171	0.030	0.005	0.04
2	30	0.50	0.3	0.053	0.169	0.045	0.008	0.06
3	45	0.75	0.3	0.053	0.167	0.045	0.008	0.06
4	60	1.00	0.4	0.071	0.165	0.060	0.011	0.08
5	75	1.25	0.3	0.053	0.163	0.045	0.008	0.06
6	90	1.50	0.3	0.053	0.161	0.045	0.008	0.06
7	105	1.75	0.3	0.053	0.159	0.045	0.008	0.06
8	120	2.00	0.4	0.071	0.157	0.060	0.011	0.08
9	135	2.25	0.4	0.071	0.156	0.060	0.011	0.08
10	150	2.50	0.4	0.071	0.154	0.060	0.011	0.08
11	165	2.75	0.5	0.088	0.152	0.075	0.013	0.09
12	180	3.00	0.5	0.088	0.150	0.075	0.013	0.09
13	195	3.25	0.5	0.088	0.148	0.075	0.013	0.09
14	210	3.50	0.5	0.088	0.146	0.075	0.013	0.09
15	225	3.75	0.5	0.088	0.144	0.075	0.013	0.09
16	240	4.00	0.6	0.106	0.143	0.090	0.016	0.11
17	255	4.25	0.6	0.106	0.141	0.090	0.016	0.11
18	270	4.50	0.7	0.123	0.139	0.105	0.019	0.13
19	285	4.75	0.7	0.123	0.137	0.105	0.019	0.13
20	300	5.00	0.8	0.141	0.135	0.120	0.006	0.04
21	315	5.25	0.6	0.106	0.134	0.090	0.016	0.11
22	330	5.50	0.7	0.123	0.132	0.105	0.019	0.13
23	345	5.75	0.8	0.141	0.130	0.120	0.011	0.08
24	360	6.00	0.8	0.141	0.128	0.120	0.013	0.09
25	375	6.25	0.9	0.159	0.127	0.135	0.032	0.23
26	390	6.50	0.9	0.159	0.125	0.135	0.034	0.24
27	405	6.75	1.0	0.176	0.123	0.150	0.053	0.38
28	420	7.00	1.0	0.176	0.122	0.150	0.055	0.39
29	435	7.25	1.0	0.176	0.120	0.150	0.056	0.40
30	450	7.50	1.1	0.194	0.118	0.165	0.076	0.54
31	465	7.75	1.2	0.212	0.117	0.180	0.095	0.68
32	480	8.00	1.3	0.229	0.115	0.195	0.114	0.82
33	495	8.25	1.5	0.265	0.114	0.225	0.151	1.08
34	510	8.50	1.5	0.265	0.112	0.225	0.153	1.10
35	525	8.75	1.6	0.282	0.110	0.240	0.172	1.23
36	540	9.00	1.7	0.300	0.109	0.255	0.191	1.37
37	555	9.25	1.9	0.335	0.107	0.285	0.228	1.63
38	570	9.50	2.0	0.353	0.106	0.300	0.247	1.77
39	585	9.75	2.1	0.370	0.104	0.315	0.266	1.91
40	600	10.00	2.2	0.388	0.103	0.330	0.285	2.05
41	615	10.25	1.5	0.265	0.101	0.225	0.163	1.17
42	630	10.50	1.5	0.265	0.100	0.225	0.165	1.18
43	645	10.75	2.0	0.353	0.098	0.300	0.254	1.83
44	660	11.00	2.0	0.353	0.097	0.300	0.256	1.84
45	675	11.25	1.9	0.335	0.096	0.285	0.240	1.72
46	690	11.50	1.9	0.335	0.094	0.285	0.241	1.73
47	705	11.75	1.7	0.300	0.093	0.255	0.207	1.49
48	720	12.00	1.8	0.318	0.091	0.270	0.226	1.62
49	735	12.25	2.5	0.441	0.090	0.375	0.351	2.52
50	750	12.50	2.6	0.459	0.089	0.390	0.370	2.66
51	765	12.75	2.8	0.494	0.087	0.420	0.407	2.92
52	780	13.00	2.9	0.512	0.086	0.435	0.426	3.05
53	795	13.25	3.4	0.600	0.085	0.510	0.515	3.70
54	810	13.50	3.4	0.600	0.083	0.510	0.516	**3.71**
55	825	13.75	2.3	0.406	0.082	0.345	0.324	2.32
56	840	14.00	2.3	0.406	0.081	0.345	0.325	2.33
57	855	14.25	2.7	0.476	0.080	0.405	0.397	2.85
58	870	14.50	2.6	0.459	0.078	0.390	0.380	2.73
59	885	14.75	2.6	0.459	0.077	0.390	0.381	2.74
60	900	15.00	2.5	0.441	0.076	0.375	0.365	2.62
61	915	15.25	2.4	0.423	0.075	0.360	0.348	2.50
62	930	15.50	2.3	0.406	0.074	0.345	0.332	2.38
63	945	15.75	1.9	0.335	0.073	0.285	0.263	1.88

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 24-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE: BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	7.118	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.0969
LAG TIME - MINUTES	#DIV/0!	MINIMUM LOSS RATE (for var. loss) - in/hr	0.048
UNIT TIME-PERCENT OF LAG	#DIV/0!	LOW LOSS RATE - DECIMAL	0.85
TOTAL ADJUSTED STORM RAIN-INCHES	4.41	C	0.00090

Unit Time Period	Time		Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain in/hr	Flood Hydrograph Flow cfs
	Minutes	Hours	(Plate E-5.9)		Max	Low		
64	960	16.00	1.9	0.335	0.072	0.285	0.264	1.89
65	975	16.25	0.4	0.071	0.070	0.060	0.000	0.00
66	990	16.50	0.4	0.071	0.069	0.060	0.001	0.01
67	1005	16.75	0.3	0.053	0.068	0.045	0.008	0.06
68	1020	17.00	0.3	0.053	0.067	0.045	0.008	0.06
69	1035	17.25	0.5	0.088	0.066	0.075	0.022	0.16
70	1050	17.50	0.5	0.088	0.065	0.075	0.023	0.16
71	1065	17.75	0.5	0.088	0.064	0.075	0.024	0.17
72	1080	18.00	0.4	0.071	0.063	0.060	0.007	0.05
73	1095	18.25	0.4	0.071	0.062	0.060	0.008	0.06
74	1110	18.50	0.4	0.071	0.061	0.060	0.009	0.07
75	1125	18.75	0.3	0.053	0.061	0.045	0.008	0.06
76	1140	19.00	0.2	0.035	0.060	0.030	0.005	0.04
77	1155	19.25	0.3	0.053	0.059	0.045	0.008	0.06
78	1170	19.50	0.4	0.071	0.058	0.060	0.012	0.09
79	1185	19.75	0.3	0.053	0.057	0.045	0.008	0.06
80	1200	20.00	0.2	0.035	0.057	0.030	0.005	0.04
81	1215	20.25	0.3	0.053	0.056	0.045	0.008	0.06
82	1230	20.50	0.3	0.053	0.055	0.045	0.008	0.06
83	1245	20.75	0.3	0.053	0.054	0.045	0.008	0.06
84	1260	21.00	0.2	0.035	0.054	0.030	0.005	0.04
85	1275	21.25	0.3	0.053	0.053	0.045	0.008	0.06
86	1290	21.50	0.2	0.035	0.052	0.030	0.005	0.04
87	1305	21.75	0.3	0.053	0.052	0.045	0.001	0.01
88	1320	22.00	0.2	0.035	0.051	0.030	0.005	0.04
89	1335	22.25	0.3	0.053	0.051	0.045	0.002	0.02
90	1350	22.50	0.2	0.035	0.050	0.030	0.005	0.04
91	1365	22.75	0.2	0.035	0.050	0.030	0.005	0.04
92	1380	23.00	0.2	0.035	0.050	0.030	0.005	0.04
93	1395	23.25	0.2	0.035	0.049	0.030	0.005	0.04
94	1410	23.50	0.2	0.035	0.049	0.030	0.005	0.04
95	1425	23.75	0.2	0.035	0.049	0.030	0.005	0.04
96	1440	24.00	0.2	0.035	0.048	0.030	0.005	0.04

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL (in)	4.41
RAINFALL VOLUME (cuft)	113,948
SOIL LOSSES (cuft)	46,429
EFFECTIVE RAIN (in)	2.61
FLOOD VOLUME (acft)	1.55
FLOOD VOLUME (cuft)	67,518
PEAK FLOW (cfs)	3.71

RCFCD SYNTHETIC UNIT HYDROGRAPH - SHORTCUT METHOD

DATA INPUT SHEET

DATE:	March 30, 2020
WORKSHEET PREPARED BY:	DLS
PROJECT NAME	CORAL MOUNTAIN
PROJECT NUMBER	2553
CONCENTRATION POINT DESIGNATION	FUTURE BASIN
AREA DESIGNATION	DA-I
AMC NUMBER	2

Low Loss Conditions: X=Existing; D=Developed; BS=Retention

AREA DESIG	SOIL GROUP	TRIBUTARY AREAS	ACRES	LOW LOSS CONDITION	RI NUMBER	AMC II INFILTRATION RATE	IMPERVIOUS PERCENT
2	B	PAVING/HARDSCAPE	0.470	D	56	0.51	1.00
4	B	SF - LOW DENSITY	47.890	D	56	0.51	0.30
9	B	LANDSCAPING	3.269	D	56	0.51	0.10

LENGTH OF WATERCOURSE (L)	
LENGTH TO POINT OPPOSITE CENTROID (Lca)	
ELEVATION OF HEADWATER	
ELEVATION OF CONCENTRATION POINT	
AVERAGE MANNINGS 'N' VALUE	
STORM FREQUENCY (YEAR)	100
LOW LOSS RATE (For Storms Greater Than 10 Years)	85%
POINT RAIN FROM NOAA ATLAS	**14**
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 3/30/20

PHYSICAL DATA

[1] CONCENTRATION POINT	FUTURE BASIN
[2] AREA DESIGNATION	DA-I
[3] AREA - ACRES	51.629
[4] L-FEET	0
[5] L-MILES	0.000
[6] La-FEET	0.00
[7] La-MILES	0.000
[8] ELEVATION OF HEADWATER	0
[9] ELEVATION OF CONCENTRATION POINT	0
[10] H-FEET	0
[11] S-FEET/MILE	#DIV/0!
[12] S^0.5	#DIV/0!
[13] L*LCA/S^0.5	#DIV/0!
[14] AVERAGE MANNINGS 'N'	0
[15] LAG TIME-HOURS	#DIV/0!
[16] LAG TIME-MINUTES	#DIV/0!
[17] 100% OF LAG-MINUTES	#DIV/0!
[18] 200% OF LAG-MINUTES	#DIV/0!

RAINFALL DATA

[1] AMC	II
[2] FREQUENCY-YEARS	100
NOAA ATLAS	**14**
[3] DURATION:	Point Rain
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

STORM EVENT SUMMARY

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
TOTAL RAINFALL	(in)	1.44	2.14	2.76	4.41
RAINFALL VOLUME	(cuft)	269,876	401,066	517,263	826,496
SOIL LOSSES	(cuft)	70,315	202,167	314,294	647,343
EFFECTIVE RAIN	(in)	1.06	1.06	1.08	0.96
FLOOD VOLUME	(cu-ft)	199,561	198,899	202,969	179,153
	(acre-ft)	4.58	4.57	4.66	4.11
PEAK FLOW	(cfs)	N/A	90.09	77.02	14.41

NOTE: PEAK FLOW FOR THE 1-HOUR STORM IS NOT REPRESENTATIVE. PER RCFCD PEAK DISCHARGES FROM THE 3-HOUR STORM SHOULD NORMALLY COMPARE WELL WITH RATIONAL PEAKS.

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM AMC II	PROJECT:	CORAL MOUNTAIN		
		Job No.:	2553		
		BY:	DLS	DATE:	3/30/20

AVERAGE ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA	AREA WEIGHTED AVERAGE	MAX AVERAGE ADJUSTED INFILTRATION RATE (in/hr)	LOW LOSS CONDITION	LOW LOSS RATE PER RCFC/2322 (in/hr)	MIN AVERAGE ADJUSTED INFILTRATION RATE (in/hr)
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	0.470	0.009	0.0005	DEVELOPED	0.1000	0.0009
B	SF - LOW DENSITY	56	0.51	30%	0.37	47.890	0.928	0.3453	DEVELOPED	0.6600	0.6122
B	LANDSCAPING	56	0.51	10%	0.46	3.269	0.063	0.0294	DEVELOPED	0.8200	0.0519
					SUM	51.629	SUM	0.3752			0.6650

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.187593793

C= 0.00347

Ft=C(24-(T/60))^1.55 = 0.00347 (24-(T/60))^1.55 + **0.19** in/hr

CONSTANT LOSS RATE (3 & 6 HOUR STORMS) = **0.3752** in/hr

LOW LOSS RATE = **0.8500** in/hr

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period, T=1 1/2 unit time for the second period, etc.

NOTE: Low loss rates established per RCFC/2322 (Dated: May-30-95)
For 10 Year Storms or Less
Undeveloped Condition: Low Loss = 90%
Developed Condition: Low Loss = 0.9 - (0.8 * %impervious)
Basin Site: Low Loss = 10%
For 100 Year Storm - Low Loss should be between 80% & 90% of the Rainfall Rate

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 1-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	51.63
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	#DIV/0!
UNIT TIME-PERCENT OF LAG	#DIV/0!
TOTAL ADJUSTED STORM RAIN-INCHES	1.44
CONSTANT LOSS RATE-in/hr	0.38
LOW LOSS RATE - PERCENT	85%

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs
1	5	0.08	3.6	0.62	0.38	0.53	0.25	12.85
2	10	0.17	4.2	0.73	0.38	0.62	0.35	18.25
3	15	0.25	4.4	0.76	0.38	0.65	0.39	20.05
4	20	0.33	4.6	0.79	0.38	0.68	0.42	21.85
5	25	0.42	5.0	0.86	0.38	0.73	0.49	25.45
6	30	0.50	5.6	0.97	0.38	0.82	0.59	30.84
7	35	0.58	6.4	1.11	0.38	0.94	0.73	38.04
8	40	0.67	8.1	1.40	0.38	1.19	1.02	53.33
9	45	0.75	13.1	2.26	0.38	1.92	1.89	98.31
10	50	0.83	34.5	5.96	0.38	5.07	5.59	**290.83**
11	55	0.92	6.7	1.16	0.38	0.98	0.78	40.74
12	60	1.00	3.8	0.66	0.38	0.56	0.28	14.65

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL (in)	1.44
RAINFALL VOLUME (cuft)	269,876
SOIL LOSSES (cuft)	70,315
EFFECTIVE RAIN (in)	1.06
FLOOD VOLUME (acft)	4.58
FLOOD VOLUME (cuft)	199,561
PEAK FLOW RATE (cfs)	290.83

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 3-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	51.63
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	#DIV/0!
UNIT TIME-PERCENT OF LAG	#DIV/0!
TOTAL ADJUSTED STORM RAIN-INCHES	2.14
CONSTANT LOSS RATE-in/hr	0.38
LOW LOSS RATE - PERCENT	85%

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs
1	5	0.08	1.3	0.33	0.38	0.28	0.05	2.61
2	10	0.17	1.3	0.33	0.38	0.28	0.05	2.61
3	15	0.25	1.1	0.28	0.38	0.24	0.04	2.21
4	20	0.33	1.5	0.39	0.38	0.33	0.01	0.52
5	25	0.42	1.5	0.39	0.38	0.33	0.01	0.52
6	30	0.50	1.8	0.46	0.38	0.39	0.09	4.53
7	35	0.58	1.5	0.39	0.38	0.33	0.01	0.52
8	40	0.67	1.8	0.46	0.38	0.39	0.09	4.53
9	45	0.75	1.8	0.46	0.38	0.39	0.09	4.53
10	50	0.83	1.5	0.39	0.38	0.33	0.01	0.52
11	55	0.92	1.6	0.41	0.38	0.35	0.04	1.86
12	60	1.00	1.8	0.46	0.38	0.39	0.09	4.53
13	65	1.08	2.2	0.56	0.38	0.48	0.19	9.88
14	70	1.17	2.2	0.56	0.38	0.48	0.19	9.88
15	75	1.25	2.2	0.56	0.38	0.48	0.19	9.88
16	80	1.33	2.0	0.51	0.38	0.44	0.14	7.21
17	85	1.42	2.6	0.67	0.38	0.57	0.29	15.23
18	90	1.50	2.7	0.69	0.38	0.59	0.32	16.56
19	95	1.58	2.4	0.62	0.38	0.52	0.24	12.55
20	100	1.67	2.7	0.69	0.38	0.59	0.32	16.56
21	105	1.75	3.3	0.85	0.38	0.72	0.47	24.59
22	110	1.83	3.1	0.80	0.38	0.68	0.42	21.91
23	115	1.92	2.9	0.74	0.38	0.63	0.37	19.24
24	120	2.00	3.0	0.77	0.38	0.65	0.40	20.57
25	125	2.08	3.1	0.80	0.38	0.68	0.42	21.91
26	130	2.17	4.2	1.08	0.38	0.92	0.70	36.62
27	135	2.25	5.0	1.28	0.38	1.09	0.91	47.31
28	140	2.33	3.5	0.90	0.38	0.76	0.52	27.26
29	145	2.42	6.8	1.75	0.38	1.48	1.37	71.38
30	150	2.50	7.3	1.87	0.38	1.59	1.50	78.06
31	155	2.58	8.2	2.11	0.38	1.79	1.73	**90.09**
32	160	2.67	5.9	1.52	0.38	1.29	1.14	59.34
33	165	2.75	2.0	0.51	0.38	0.44	0.14	7.21
34	170	2.83	1.8	0.46	0.38	0.39	0.09	4.53
35	175	2.92	1.8	0.46	0.38	0.39	0.09	4.53
36	180	3.00	0.6	0.15	0.38	0.13	0.02	1.20

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL (in)	2.14
RAINFALL VOLUME (cuft)	401,066
SOIL LOSSES (cuft)	202,167
EFFECTIVE RAIN (in)	1.06
FLOOD VOLUME (acft)	4.57
FLOOD VOLUME (cuft)	198,899
PEAK FLOW RATE (cfs)	90.09

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 6-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	51.63
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	#DIV/0!
UNIT TIME-PERCENT OF LAG	#DIV/0!
TOTAL ADJUSTED STORM RAIN-INCHES	2.76
CONSTANT LOSS RATE-in/hr	0.375
LOW LOSS RATE - PERCENT	85%

Unit Time Period	Time		Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow
	Minutes	Hours	(Plate E-5.9)		Max	Low	in/hr	cfs
1	5	0.08	0.5	0.166	0.38	0.14	0.02	1.29
2	10	0.17	0.6	0.199	0.38	0.17	0.03	1.55
3	15	0.25	0.6	0.199	0.38	0.17	0.03	1.55
4	20	0.33	0.6	0.199	0.38	0.17	0.03	1.55
5	25	0.42	0.6	0.199	0.38	0.17	0.03	1.55
6	30	0.50	0.7	0.232	0.38	0.20	0.03	1.81
7	35	0.58	0.7	0.232	0.38	0.20	0.03	1.81
8	40	0.67	0.7	0.232	0.38	0.20	0.03	1.81
9	45	0.75	0.7	0.232	0.38	0.20	0.03	1.81
10	50	0.83	0.7	0.232	0.38	0.20	0.03	1.81
11	55	0.92	0.7	0.232	0.38	0.20	0.03	1.81
12	60	1.00	0.8	0.265	0.38	0.23	0.04	2.07
13	65	1.08	0.8	0.265	0.38	0.23	0.04	2.07
14	70	1.17	0.8	0.265	0.38	0.23	0.04	2.07
15	75	1.25	0.8	0.265	0.38	0.23	0.04	2.07
16	80	1.33	0.8	0.265	0.38	0.23	0.04	2.07
17	85	1.42	0.8	0.265	0.38	0.23	0.04	2.07
18	90	1.50	0.8	0.265	0.38	0.23	0.04	2.07
19	95	1.58	0.8	0.265	0.38	0.23	0.04	2.07
20	100	1.67	0.8	0.265	0.38	0.23	0.04	2.07
21	105	1.75	0.8	0.265	0.38	0.23	0.04	2.07
22	110	1.83	0.8	0.265	0.38	0.23	0.04	2.07
23	115	1.92	0.8	0.265	0.38	0.23	0.04	2.07
24	120	2.00	0.9	0.298	0.38	0.25	0.04	2.33
25	125	2.08	0.8	0.265	0.38	0.23	0.04	2.07
26	130	2.17	0.9	0.298	0.38	0.25	0.04	2.33
27	135	2.25	0.9	0.298	0.38	0.25	0.04	2.33
28	140	2.33	0.9	0.298	0.38	0.25	0.04	2.33
29	145	2.42	0.9	0.298	0.38	0.25	0.04	2.33
30	150	2.50	0.9	0.298	0.38	0.25	0.04	2.33
31	155	2.58	0.9	0.298	0.38	0.25	0.04	2.33
32	160	2.67	0.9	0.298	0.38	0.25	0.04	2.33
33	165	2.75	1.0	0.331	0.38	0.28	0.05	2.59
34	170	2.83	1.0	0.331	0.38	0.28	0.05	2.59
35	175	2.92	1.0	0.331	0.38	0.28	0.05	2.59
36	180	3.00	1.0	0.331	0.38	0.28	0.05	2.59
37	185	3.08	1.0	0.331	0.38	0.28	0.05	2.59
38	190	3.17	1.1	0.364	0.38	0.31	0.05	2.84
39	195	3.25	1.1	0.364	0.38	0.31	0.05	2.84
40	200	3.33	1.1	0.364	0.38	0.31	0.05	2.84
41	205	3.42	1.2	0.397	0.38	0.34	0.02	1.16
42	210	3.50	1.3	0.431	0.38	0.37	0.06	2.88
43	215	3.58	1.4	0.464	0.38	0.39	0.09	4.61
44	220	3.67	1.4	0.464	0.38	0.39	0.09	4.61
45	225	3.75	1.5	0.497	0.38	0.42	0.12	6.33
46	230	3.83	1.5	0.497	0.38	0.42	0.12	6.33
47	235	3.92	1.6	0.530	0.38	0.45	0.15	8.06
48	240	4.00	1.6	0.530	0.38	0.45	0.15	8.06
49	245	4.08	1.7	0.563	0.38	0.48	0.19	9.78
50	250	4.17	1.8	0.596	0.38	0.51	0.22	11.50
51	255	4.25	1.9	0.629	0.38	0.53	0.25	13.23
52	260	4.33	2.0	0.662	0.38	0.56	0.29	14.95
53	265	4.42	2.1	0.696	0.38	0.59	0.32	16.68
54	270	4.50	2.1	0.696	0.38	0.59	0.32	16.68

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 6-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	51.63
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	#DIV/0!
UNIT TIME-PERCENT OF LAG	#DIV/0!
TOTAL ADJUSTED STORM RAIN-INCHES	2.76
CONSTANT LOSS RATE-in/hr	0.375
LOW LOSS RATE - PERCENT	85%

Unit Time Period	Time		Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow
	Minutes	Hours	(Plate E-5.9)		Max	Low	in/hr	cfs
55	275	4.58	2.2	0.729	0.38	0.62	0.35	18.40
56	280	4.67	2.3	0.762	0.38	0.65	0.39	20.12
57	285	4.75	2.4	0.795	0.38	0.68	0.42	21.85
58	290	4.83	2.4	0.795	0.38	0.68	0.42	21.85
59	295	4.92	2.5	0.828	0.38	0.70	0.45	23.57
60	300	5.00	2.6	0.861	0.38	0.73	0.49	25.30
61	305	5.08	3.1	1.027	0.38	0.87	0.65	33.92
62	310	5.17	3.6	1.192	0.38	1.01	0.82	42.54
63	315	5.25	3.9	1.292	0.38	1.10	0.92	47.71
64	320	5.33	4.2	1.391	0.38	1.18	1.02	52.88
65	325	5.42	4.7	1.557	0.38	1.32	1.18	61.51
66	330	5.50	5.6	1.855	0.38	1.58	1.48	**77.02**
67	335	5.58	1.9	0.629	0.38	0.53	0.25	13.23
68	340	5.67	0.9	0.298	0.38	0.25	0.04	2.33
69	345	5.75	0.6	0.199	0.38	0.17	0.03	1.55
70	350	5.83	0.5	0.166	0.38	0.14	0.02	1.29
71	355	5.92	0.3	0.099	0.38	0.08	0.01	0.78
72	360	6.00	0.2	0.066	0.38	0.06	0.01	0.52

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL (in)	2.76
RAINFALL VOLUME (cuft)	517,263
SOIL LOSSES (cuft)	314,294
EFFECTIVE RAIN (in)	1.08
FLOOD VOLUME (acft)	4.66
FLOOD VOLUME (cuft)	202,969
PEAK FLOW RATE (cfs)	77.02

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 24-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE: BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	51.629	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.3752
LAG TIME - MINUTES	#DIV/0!	MINIMUM LOSS RATE (for var. loss) - in/hr	0.188
UNIT TIME-PERCENT OF LAG	#DIV/0!	LOW LOSS RATE - DECIMAL	0.85
TOTAL ADJUSTED STORM RAIN-INCHES	4.41	C	0.00347

Unit Time Period	Time		Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain in/hr	Flood Hydrograph Flow cfs
	Minutes	Hours	(Plate E-5.9)		Max	Low		
1	15	0.25	0.2	0.035	0.663	0.030	0.005	0.28
2	30	0.50	0.3	0.053	0.655	0.045	0.008	0.41
3	45	0.75	0.3	0.053	0.647	0.045	0.008	0.41
4	60	1.00	0.4	0.071	0.640	0.060	0.011	0.55
5	75	1.25	0.3	0.053	0.632	0.045	0.008	0.41
6	90	1.50	0.3	0.053	0.625	0.045	0.008	0.41
7	105	1.75	0.3	0.053	0.617	0.045	0.008	0.41
8	120	2.00	0.4	0.071	0.610	0.060	0.011	0.55
9	135	2.25	0.4	0.071	0.602	0.060	0.011	0.55
10	150	2.50	0.4	0.071	0.595	0.060	0.011	0.55
11	165	2.75	0.5	0.088	0.588	0.075	0.013	0.69
12	180	3.00	0.5	0.088	0.580	0.075	0.013	0.69
13	195	3.25	0.5	0.088	0.573	0.075	0.013	0.69
14	210	3.50	0.5	0.088	0.566	0.075	0.013	0.69
15	225	3.75	0.5	0.088	0.559	0.075	0.013	0.69
16	240	4.00	0.6	0.106	0.552	0.090	0.016	0.83
17	255	4.25	0.6	0.106	0.545	0.090	0.016	0.83
18	270	4.50	0.7	0.123	0.538	0.105	0.019	0.96
19	285	4.75	0.7	0.123	0.531	0.105	0.019	0.96
20	300	5.00	0.8	0.141	0.524	0.120	0.021	1.10
21	315	5.25	0.6	0.106	0.518	0.090	0.016	0.83
22	330	5.50	0.7	0.123	0.511	0.105	0.019	0.96
23	345	5.75	0.8	0.141	0.504	0.120	0.021	1.10
24	360	6.00	0.8	0.141	0.497	0.120	0.021	1.10
25	375	6.25	0.9	0.159	0.491	0.135	0.024	1.24
26	390	6.50	0.9	0.159	0.484	0.135	0.024	1.24
27	405	6.75	1.0	0.176	0.478	0.150	0.026	1.38
28	420	7.00	1.0	0.176	0.471	0.150	0.026	1.38
29	435	7.25	1.0	0.176	0.465	0.150	0.026	1.38
30	450	7.50	1.1	0.194	0.459	0.165	0.029	1.52
31	465	7.75	1.2	0.212	0.452	0.180	0.032	1.65
32	480	8.00	1.3	0.229	0.446	0.195	0.034	1.79
33	495	8.25	1.5	0.265	0.440	0.225	0.040	2.07
34	510	8.50	1.5	0.265	0.434	0.225	0.040	2.07
35	525	8.75	1.6	0.282	0.428	0.240	0.042	2.20
36	540	9.00	1.7	0.300	0.422	0.255	0.045	2.34
37	555	9.25	1.9	0.335	0.416	0.285	0.050	2.62
38	570	9.50	2.0	0.353	0.410	0.300	0.053	2.75
39	585	9.75	2.1	0.370	0.404	0.315	0.056	2.89
40	600	10.00	2.2	0.388	0.398	0.330	0.058	3.03
41	615	10.25	1.5	0.265	0.392	0.225	0.040	2.07
42	630	10.50	1.5	0.265	0.387	0.225	0.040	2.07
43	645	10.75	2.0	0.353	0.381	0.300	0.053	2.75
44	660	11.00	2.0	0.353	0.375	0.300	0.053	2.75
45	675	11.25	1.9	0.335	0.370	0.285	0.050	2.62
46	690	11.50	1.9	0.335	0.364	0.285	0.050	2.62
47	705	11.75	1.7	0.300	0.359	0.255	0.045	2.34
48	720	12.00	1.8	0.318	0.354	0.270	0.048	2.48
49	735	12.25	2.5	0.441	0.348	0.375	0.093	4.82
50	750	12.50	2.6	0.459	0.343	0.390	0.115	6.01
51	765	12.75	2.8	0.494	0.338	0.420	0.156	8.11
52	780	13.00	2.9	0.512	0.333	0.435	0.179	9.30
53	795	13.25	3.4	0.600	0.328	0.510	0.272	14.15
54	810	13.50	3.4	0.600	0.323	0.510	0.277	**14.41**
55	825	13.75	2.3	0.406	0.318	0.345	0.088	4.56
56	840	14.00	2.3	0.406	0.313	0.345	0.092	4.81
57	855	14.25	2.7	0.476	0.308	0.405	0.168	8.74
58	870	14.50	2.6	0.459	0.304	0.390	0.155	8.06
59	885	14.75	2.6	0.459	0.299	0.390	0.160	8.30
60	900	15.00	2.5	0.441	0.295	0.375	0.146	7.62
61	915	15.25	2.4	0.423	0.290	0.360	0.133	6.94
62	930	15.50	2.3	0.406	0.286	0.345	0.120	6.25
63	945	15.75	1.9	0.335	0.281	0.285	0.054	2.81

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 24-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE: BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	51.629	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.3752
LAG TIME - MINUTES	#DIV/0!	MINIMUM LOSS RATE (for var. loss) - in/hr	0.188
UNIT TIME-PERCENT OF LAG	#DIV/0!	LOW LOSS RATE - DECIMAL	0.85
TOTAL ADJUSTED STORM RAIN-INCHES	4.41	C	0.00347

Unit Time Period	Time		Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain in/hr	Flood Hydrograph Flow cfs
	Minutes	Hours	(Plate E-5.9)		Max	Low		
64	960	16.00	1.9	0.335	0.277	0.285	0.058	3.03
65	975	16.25	0.4	0.071	0.273	0.060	0.011	0.55
66	990	16.50	0.4	0.071	0.269	0.060	0.011	0.55
67	1005	16.75	0.3	0.053	0.264	0.045	0.008	0.41
68	1020	17.00	0.3	0.053	0.260	0.045	0.008	0.41
69	1035	17.25	0.5	0.088	0.257	0.075	0.013	0.69
70	1050	17.50	0.5	0.088	0.253	0.075	0.013	0.69
71	1065	17.75	0.5	0.088	0.249	0.075	0.013	0.69
72	1080	18.00	0.4	0.071	0.245	0.060	0.011	0.55
73	1095	18.25	0.4	0.071	0.242	0.060	0.011	0.55
74	1110	18.50	0.4	0.071	0.238	0.060	0.011	0.55
75	1125	18.75	0.3	0.053	0.235	0.045	0.008	0.41
76	1140	19.00	0.2	0.035	0.231	0.030	0.005	0.28
77	1155	19.25	0.3	0.053	0.228	0.045	0.008	0.41
78	1170	19.50	0.4	0.071	0.225	0.060	0.011	0.55
79	1185	19.75	0.3	0.053	0.222	0.045	0.008	0.41
80	1200	20.00	0.2	0.035	0.219	0.030	0.005	0.28
81	1215	20.25	0.3	0.053	0.216	0.045	0.008	0.41
82	1230	20.50	0.3	0.053	0.213	0.045	0.008	0.41
83	1245	20.75	0.3	0.053	0.210	0.045	0.008	0.41
84	1260	21.00	0.2	0.035	0.208	0.030	0.005	0.28
85	1275	21.25	0.3	0.053	0.205	0.045	0.008	0.41
86	1290	21.50	0.2	0.035	0.203	0.030	0.005	0.28
87	1305	21.75	0.3	0.053	0.201	0.045	0.008	0.41
88	1320	22.00	0.2	0.035	0.199	0.030	0.005	0.28
89	1335	22.25	0.3	0.053	0.197	0.045	0.008	0.41
90	1350	22.50	0.2	0.035	0.195	0.030	0.005	0.28
91	1365	22.75	0.2	0.035	0.193	0.030	0.005	0.28
92	1380	23.00	0.2	0.035	0.192	0.030	0.005	0.28
93	1395	23.25	0.2	0.035	0.190	0.030	0.005	0.28
94	1410	23.50	0.2	0.035	0.189	0.030	0.005	0.28
95	1425	23.75	0.2	0.035	0.188	0.030	0.005	0.28
96	1440	24.00	0.2	0.035	0.188	0.030	0.005	0.28

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL (in)	4.41
RAINFALL VOLUME (cuft)	826,496
SOIL LOSSES (cuft)	647,343
EFFECTIVE RAIN (in)	0.96
FLOOD VOLUME (acft)	4.11
FLOOD VOLUME (cuft)	179,153
PEAK FLOW (cfs)	14.41

RCFCD SYNTHETIC UNIT HYDROGRAPH - SHORTCUT METHOD

DATA INPUT SHEET

DATE	March 30, 2020
WORKSHEET PREPARED BY:	DLS
PROJECT NAME	CORAL MOUNTAIN
PROJECT NUMBER	2553
CONCENTRATION POINT DESIGNATION	BASIN B
AREA DESIGNATION	OFF-SITE NORTH
AMC NUMBER	2

Low Loss Conditions: X=Existing; D=Developed; BS=Retention

AREA DESIG	SOIL GROUP	TRIBUTARY AREAS	ACRES	LOW LOSS CONDITION	RI NUMBER	AMC II INFILTRATION RATE	IMPERVIOUS PERCENT
2	B	PAVING/HARDSCAPE	5.754	D	56	0.51	1.00
9	B	LANDSCAPING	5.950	D	56	0.51	0.10

LENGTH OF WATERCOURSE (L)	3,950 ft
LENGTH TO POINT OPPOSITE CENTROID (Lca)	1,975 ft
ELEVATION OF HEADWATER	462.3 ft
ELEVATION OF CONCENTRATION POINT	442.0 ft
AVERAGE MANNINGS 'N' VALUE	0.02
STORM FREQUENCY (YEAR)	100
LOW LOSS RATE (Storm Events > 10 Years)	**85%**
POINT RAIN FROM NOAA ATLAS	**14**
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

BASIN CHARACTERISTICS:

ELEVATION	AREA
438.0 ft	21,900 sf
439.0 ft	27,300 sf
440.0 ft	31,405 sf
441.0 ft	36,785 sf
442.0 ft	41,185 sf

PERCOLATION RATE (in/hr)	1.0 in/hr
DRYWELL DATA	
NUMBER USED	
PERCOLATION RATE	
LOWEST FLOWLINE ELEVATION	
LOWEST PAD ELEVATION	

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 3/30/20

PHYSICAL DATA

[1] CONCENTRATION POINT	BASIN B
[2] AREA DESIGNATION	OFF-SITE NORTH
[3] AREA - ACRES	11.704
[4] L-FEET	3950
[5] L-MILES	0.748
[6] La-FEET	1975.00
[7] La-MILES	0.374
[8] ELEVATION OF HEADWATER	462.3
[9] ELEVATION OF CONCENTRATION POINT	442
[10] H-FEET	20.3
[11] S-FEET/MILE	27.1
[12] S^0.5	5.21
[13] L*LCA/S^0.5	0.054
[14] AVERAGE MANNINGS 'N'	0.02
[15] LAG TIME-HOURS	0.16
[16] LAG TIME-MINUTES	9.5
[17] 100% OF LAG-MINUTES	9.5
[18] 200% OF LAG-MINUTES	19.0

RAINFALL DATA

[1] AMC	II
[2] FREQUENCY-YEARS	100
FROM NOAA ATLAS	**14**
[3] STORM DURATION:	Point Rain
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

STORM EVENT SUMMARY

STORM DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
RAINFALL VOLUME	(cu-ft)	61,179	90,919	117,260	**187,362**
SOIL LOSSES	(cu-ft)	11,089	32,807	61,345	**128,299**
EFFECTIVE RAIN	(in)	1.18	1.37	1.32	1.39
FLOOD VOLUME	(cu-ft)	50,090	58,112	55,916	**59,063**
	(acre-ft)	1.15	1.33	1.28	**1.36**
REQUIRED STORAGE	(cu-ft)	47,956	**51,905**	47,036	34,787
	(acre-ft)	1.10	**1.19**	1.08	0.80
FACTOR OF SAFETY		2.65	2.44	2.70	3.65
STORAGE PROVIDED	(cu-ft)	126,903			
	(acre-ft)	2.91			
PEAK FLOW	(cfs)	n/a	21.77	18.81	4.43
MAXIMUM WSEL	(ft)	439.80	**439.93**	439.77	439.35
DEPTH	(ft)	1.80	**1.93**	1.77	1.35
LOWEST FLOWLINE ELEVATION					
DIFFERENCE	(ft)				
LOWEST PAD ELEVATION					
DIFFERENCE	(ft)				
ESTIMATED TIME TO DEWATER BASIN Based on Total Flood Volume & Average Percolation Rate	(days)	1.0	1.1	1.5	1.5

NOTE: PEAK FLOW FOR THE 1-HOUR STORM IS NOT REPRESENTATIVE. PER RCFCD PEAK DISCHARGES FROM THE 3-HOUR STORM SHOULD NORMALLY COMPARE WELL WITH RATIONAL PEAKS.

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM AMC II	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 3/30/20

AVERAGE ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA	AREA WEIGHTED AVERAGE	MAX AVERAGE ADJUSTED INFILTRATION RATE (in/hr)	LOW LOSS CONDITION	LOW LOSS RATE PER RCFC/2322	MIN AVERAGE ADJUSTED INFILTRATION RATE
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	5.754	0.492	0.0251	DEVELOPED	0.1000	0.0492
B	LANDSCAPING	56	0.51	10%	0.46	5.950	0.508	0.2359	DEVELOPED	0.8200	0.4169
					SUM	11.704	SUM	0.2610			0.4660

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.130504486

C= 0.00242

$F_t = C(24-(T/60))^{1.55} + F_m$ = 0.00242 (24-(T/60))^1.55 + 0.13 in/hr

CONSTANT LOSS RATE (3 & 6 HOUR STORMS) = **0.2610**

LOW LOSS RATE = **0.8500**

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period, T=1 1/2 unit time for the second period, etc.

NOTE: Low loss rates established per RCFC/2322 (Dated: May-30-95)
For 10 Year Storms or Less
Undeveloped Condition: Low Loss = 90%
Developed Condition: Low Loss = 0.9 - (0.8 * %impervious)
Basin Site: Low Loss = 10%
For 100 Year Storm - Low Loss should be between 80% & 90% of the Rainfall Rate

RCFC & WCD
HYDROLOGY
MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

1-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	11.70
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	9.48
UNIT TIME-PERCENT OF LAG	52.7
TOTAL ADJUSTED STORM RAIN-INCHES	1.44
CONSTANT LOSS RATE-in/hr	0.26
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	3.6	0.62	0.26	0.53	0.36	4.26	1,278	1,278	22,181	154	154	1,124	0.03	438.05
2	10	0.17	4.2	0.73	0.26	0.62	0.46	5.48	1,645	2,770	22,509	156	156	2,613	0.06	438.11
3	15	0.25	4.4	0.76	0.26	0.65	0.50	5.89	1,768	4,381	22,864	159	159	4,222	0.10	438.17
4	20	0.33	4.6	0.79	0.26	0.68	0.53	6.30	1,890	6,113	23,245	161	161	5,951	0.14	438.24
5	25	0.42	5.0	0.86	0.26	0.73	0.60	7.12	2,135	8,086	23,679	164	164	7,922	0.18	438.32
6	30	0.50	5.6	0.97	0.26	0.82	0.71	8.34	2,502	10,424	24,193	168	168	10,256	0.24	438.42
7	35	0.58	6.4	1.11	0.26	0.94	0.84	9.97	2,991	13,247	24,814	172	172	13,075	0.30	438.53
8	40	0.67	8.1	1.40	0.26	1.19	1.14	13.44	4,031	17,106	25,663	178	178	16,928	0.39	438.69
9	45	0.75	13.1	2.26	0.26	1.92	2.00	23.63	7,090	24,018	27,183	189	189	23,830	0.55	438.97
10	50	0.83	34.5	5.96	0.26	5.07	5.70	**67.28**	**20,183**	44,012	30,024	208	208	43,804	1.01	439.66
11	55	0.92	6.7	1.16	0.26	0.98	0.90	10.58	3,175	46,979	30,439	211	211	46,767	1.07	439.76
12	60	1.00	3.8	0.66	0.26	0.56	0.40	4.67	1,401	48,168	30,606	213	213	**47,956**	**1.10**	**439.80**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY	
TOTAL RAINFALL	1.44 in
RAINFALL VOLUME	61,179 cu-ft
SOIL LOSSES	11,089 cu-ft
EFFECTIVE RAIN	1.18 in
FLOOD VOLUME	1.15 acft
FLOOD VOLUME	50,090 cu-ft
REQUIRED STORAGE	1.10
REQUIRED STORAGE	47,956 cu-ft
MAX WSEL	439.80 ft
PEAK FLOW RATE	67.28 cfs
TOTAL BASIN LOSSES	2,135 cu-ft
AVERAGE PERCOLATION RATE	35.58 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	11.70
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	9.48
UNIT TIME-PERCENT OF LAG	52.7
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.26
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm Rain	Loss Rate in/hr		Effective Rain	Flood Hydrograph	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
	Minutes	Hours	Percent	in/hr	Max	Low	in/hr	Flow cfs	cu-ft	cu-ft	Percolation Area sf	Maximum Percolation cu-ft	Percolation Out cu-ft	cu-ft	ac-ft	ft
			(Plate E-5.9)													
1	5	0.08	1.3	0.33	0.26	0.28	0.07	0.86	258	258	21,957	152	152	105	0.00	438.00
2	10	0.17	1.3	0.33	0.26	0.28	0.07	0.86	258	363	21,980	153	153	211	0.00	438.01
3	15	0.25	1.1	0.28	0.26	0.24	0.02	0.25	76	287	21,963	153	153	134	0.00	438.01
4	20	0.33	1.5	0.39	0.26	0.33	0.12	1.47	440	574	22,026	153	153	421	0.01	438.02
5	25	0.42	1.5	0.39	0.26	0.33	0.12	1.47	440	861	22,089	153	153	707	0.02	438.03
6	30	0.50	1.8	0.46	0.26	0.39	0.20	2.37	712	1,420	22,212	154	154	1,265	0.03	438.05
7	35	0.58	1.5	0.39	0.26	0.33	0.12	1.47	440	1,705	22,275	155	155	1,550	0.04	438.06
8	40	0.67	1.8	0.46	0.26	0.39	0.20	2.37	712	2,263	22,398	156	156	2,107	0.05	438.09
9	45	0.75	1.8	0.46	0.26	0.39	0.20	2.37	712	2,820	22,520	156	156	2,663	0.06	438.11
10	50	0.83	1.5	0.39	0.26	0.33	0.12	1.47	440	3,103	22,583	157	157	2,946	0.07	438.12
11	55	0.92	1.6	0.41	0.26	0.35	0.15	1.77	531	3,477	22,665	157	157	3,319	0.08	438.14
12	60	1.00	1.8	0.46	0.26	0.39	0.20	2.37	712	4,032	22,787	158	158	3,874	0.09	438.16
13	65	1.08	2.2	0.56	0.26	0.48	0.30	3.59	1,076	4,950	22,989	160	160	4,790	0.11	438.20
14	70	1.17	2.2	0.56	0.26	0.48	0.30	3.59	1,076	5,866	23,190	161	161	5,705	0.13	438.23
15	75	1.25	2.2	0.56	0.26	0.48	0.30	3.59	1,076	6,781	23,392	162	162	6,619	0.15	438.27
16	80	1.33	2.0	0.51	0.26	0.44	0.25	2.98	894	7,513	23,553	164	164	7,350	0.17	438.30
17	85	1.42	2.6	0.67	0.26	0.57	0.41	4.80	1,440	8,789	23,833	166	166	8,624	0.20	438.35
18	90	1.50	2.7	0.69	0.26	0.59	0.43	5.10	1,531	10,155	24,134	168	168	9,987	0.23	438.41
19	95	1.58	2.4	0.62	0.26	0.52	0.36	4.19	1,258	11,245	24,373	169	169	11,076	0.25	438.45
20	100	1.67	2.7	0.69	0.26	0.59	0.43	5.10	1,531	12,606	24,673	171	171	12,435	0.29	438.51
21	105	1.75	3.3	0.85	0.26	0.72	0.59	6.92	2,076	14,511	25,092	174	174	14,337	0.33	438.58
22	110	1.83	3.1	0.80	0.26	0.68	0.54	6.31	1,894	16,232	25,470	177	177	16,055	0.37	438.65
23	115	1.92	2.9	0.74	0.26	0.63	0.48	5.71	1,713	17,767	25,808	179	179	17,588	0.40	438.72
24	120	2.00	3.0	0.77	0.26	0.65	0.51	6.01	1,803	19,391	26,165	182	182	19,210	0.44	438.78
25	125	2.08	3.1	0.80	0.26	0.68	0.54	6.31	1,894	21,104	26,542	184	184	20,920	0.48	438.85

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	11.70
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	9.48
UNIT TIME-PERCENT OF LAG	52.7
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.26
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate in/hr		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent (Plate E-5.9)	Rain in/hr	Max	Low	Rain in/hr	Hydrograph Flow cfs	In cu-ft	Volume cu-ft	Percolation Area sf	Maximum Percolation cu-ft	Percolation Out cu-ft	cu-ft	ac-ft	WSEL ft
26	130	2.17	4.2	1.08	0.26	0.92	0.82	9.65	2,895	23,814	27,138	188	188	23,626	0.54	438.96
27	135	2.25	5.0	1.28	0.26	1.09	1.02	12.07	3,622	27,248	27,678	192	192	27,056	0.62	439.09
28	140	2.33	3.5	0.90	0.26	0.76	0.64	7.53	2,258	29,314	27,967	194	194	29,119	0.67	439.16
29	145	2.42	6.8	1.75	0.26	1.48	1.49	17.53	5,258	34,378	28,676	199	199	34,179	0.78	439.33
30	150	2.50	7.3	1.87	0.26	1.59	1.61	19.04	5,713	39,892	29,447	204	204	39,687	0.91	439.52
31	155	2.58	8.2	2.11	0.26	1.79	1.84	**21.77**	**6,531**	46,219	30,333	211	211	46,008	1.06	439.73
32	160	2.67	5.9	1.52	0.26	1.29	1.25	14.80	4,440	50,448	30,925	215	215	50,233	1.15	439.88
33	165	2.75	2.0	0.51	0.26	0.44	0.25	2.98	894	51,128	31,020	215	215	50,912	1.17	439.90
34	170	2.83	1.8	0.46	0.26	0.39	0.20	2.37	712	51,625	31,089	216	216	51,409	1.18	439.92
35	175	2.92	1.8	0.46	0.26	0.39	0.20	2.37	712	52,121	31,159	216	216	**51,905**	**1.19**	**439.93**
36	180	3.00	0.6	0.15	0.26	0.13	0.02	0.27	82	51,987	31,140	216	216	51,770	1.19	439.93

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAIN	2.14 in
RAINFALL VOLUME	90,919 cu-ft
SOIL LOSSES	32,807 cu-ft
EFFECTIVE RAIN	1.37 in
FLOOD VOLUME	1.33 acft
FLOOD VOLUME	58,112 cu-ft
REQUIRED STORAGE	1.19 acft
REQUIRED STORAGE	51,905 cu-ft
MAX WSEL	439.93 ft
PEAK FLOW RATE	21.77 cfs
TOTAL BASIN LOSSES	6,342 cu-ft
AVERAGE PERCOLATION RATE	35.23 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	11.70
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	9.48
UNIT TIME-PERCENT OF LAG	52.7
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.26
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses			Total In Basin		Basin WSEL ft
	Minutes	Hours	(Plate E-5.9)		Max	Low					Percolation Area sf	Maximum Percolation cu-ft	Percolation Out cu-ft	cu-ft	ac-ft	
1	5	0.08	0.5	0.17	0.26	0.14	0.02	0.29	88	88	21,919	152	88	0	0.00	438.00
2	10	0.17	0.6	0.20	0.26	0.17	0.03	0.35	106	106	21,923	152	106	0	0.00	438.00
3	15	0.25	0.6	0.20	0.26	0.17	0.03	0.35	106	106	21,923	152	106	0	0.00	438.00
4	20	0.33	0.6	0.20	0.26	0.17	0.03	0.35	106	106	21,923	152	106	0	0.00	438.00
5	25	0.42	0.6	0.20	0.26	0.17	0.03	0.35	106	106	21,923	152	106	0	0.00	438.00
6	30	0.50	0.7	0.23	0.26	0.20	0.03	0.41	123	123	21,927	152	123	0	0.00	438.00
7	35	0.58	0.7	0.23	0.26	0.20	0.03	0.41	123	123	21,927	152	123	0	0.00	438.00
8	40	0.67	0.7	0.23	0.26	0.20	0.03	0.41	123	123	21,927	152	123	0	0.00	438.00
9	45	0.75	0.7	0.23	0.26	0.20	0.03	0.41	123	123	21,927	152	123	0	0.00	438.00
10	50	0.83	0.7	0.23	0.26	0.20	0.03	0.41	123	123	21,927	152	123	0	0.00	438.00
11	55	0.92	0.7	0.23	0.26	0.20	0.03	0.41	123	123	21,927	152	123	0	0.00	438.00
12	60	1.00	0.8	0.26	0.26	0.23	0.00	0.05	14	14	21,903	152	14	0	0.00	438.00
13	65	1.08	0.8	0.26	0.26	0.23	0.00	0.05	14	14	21,903	152	14	0	0.00	438.00
14	70	1.17	0.8	0.26	0.26	0.23	0.00	0.05	14	14	21,903	152	14	0	0.00	438.00
15	75	1.25	0.8	0.26	0.26	0.23	0.00	0.05	14	14	21,903	152	14	0	0.00	438.00
16	80	1.33	0.8	0.26	0.26	0.23	0.00	0.05	14	14	21,903	152	14	0	0.00	438.00
17	85	1.42	0.8	0.26	0.26	0.23	0.00	0.05	14	14	21,903	152	14	0	0.00	438.00
18	90	1.50	0.8	0.26	0.26	0.23	0.00	0.05	14	14	21,903	152	14	0	0.00	438.00
19	95	1.58	0.8	0.26	0.26	0.23	0.00	0.05	14	14	21,903	152	14	0	0.00	438.00
20	100	1.67	0.8	0.26	0.26	0.23	0.00	0.05	14	14	21,903	152	14	0	0.00	438.00
21	105	1.75	0.8	0.26	0.26	0.23	0.00	0.05	14	14	21,903	152	14	0	0.00	438.00
22	110	1.83	0.8	0.26	0.26	0.23	0.00	0.05	14	14	21,903	152	14	0	0.00	438.00
23	115	1.92	0.8	0.26	0.26	0.23	0.00	0.05	14	14	21,903	152	14	0	0.00	438.00
24	120	2.00	0.9	0.30	0.26	0.25	0.04	0.44	131	131	21,929	152	131	0	0.00	438.00

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	11.70
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	9.48
UNIT TIME-PERCENT OF LAG	52.7
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.26
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
25	125	2.08	0.8	0.26	0.26	0.23	0.00	0.05	14	14	21,903	152	14	0	0.00	438.00
26	130	2.17	0.9	0.30	0.26	0.25	0.04	0.44	131	131	21,929	152	131	0	0.00	438.00
27	135	2.25	0.9	0.30	0.26	0.25	0.04	0.44	131	131	21,929	152	131	0	0.00	438.00
28	140	2.33	0.9	0.30	0.26	0.25	0.04	0.44	131	131	21,929	152	131	0	0.00	438.00
29	145	2.42	0.9	0.30	0.26	0.25	0.04	0.44	131	131	21,929	152	131	0	0.00	438.00
30	150	2.50	0.9	0.30	0.26	0.25	0.04	0.44	131	131	21,929	152	131	0	0.00	438.00
31	155	2.58	0.9	0.30	0.26	0.25	0.04	0.44	131	131	21,929	152	131	0	0.00	438.00
32	160	2.67	0.9	0.30	0.26	0.25	0.04	0.44	131	131	21,929	152	131	0	0.00	438.00
33	165	2.75	1.0	0.33	0.26	0.28	0.07	0.83	249	249	21,955	152	152	96	0.00	438.00
34	170	2.83	1.0	0.33	0.26	0.28	0.07	0.83	249	345	21,976	153	153	192	0.00	438.01
35	175	2.92	1.0	0.33	0.26	0.28	0.07	0.83	249	440	21,997	153	153	288	0.01	438.01
36	180	3.00	1.0	0.33	0.26	0.28	0.07	0.83	249	536	22,018	153	153	383	0.01	438.02
37	185	3.08	1.0	0.33	0.26	0.28	0.07	0.83	249	632	22,039	153	153	479	0.01	438.02
38	190	3.17	1.1	0.36	0.26	0.31	0.10	1.22	366	845	22,086	153	153	691	0.02	438.03
39	195	3.25	1.1	0.36	0.26	0.31	0.10	1.22	366	1,057	22,132	154	154	903	0.02	438.04
40	200	3.33	1.1	0.36	0.26	0.31	0.10	1.22	366	1,269	22,179	154	154	1,115	0.03	438.05
41	205	3.42	1.2	0.40	0.26	0.34	0.14	1.61	483	1,598	22,251	155	155	1,443	0.03	438.06
42	210	3.50	1.3	0.43	0.26	0.37	0.17	2.00	600	2,044	22,350	155	155	1,889	0.04	438.08
43	215	3.58	1.4	0.46	0.26	0.39	0.20	2.39	718	2,606	22,473	156	156	2,450	0.06	438.10
44	220	3.67	1.4	0.46	0.26	0.39	0.20	2.39	718	3,168	22,597	157	157	3,011	0.07	438.12
45	225	3.75	1.5	0.50	0.26	0.42	0.24	2.78	835	3,846	22,746	158	158	3,688	0.08	438.15
46	230	3.83	1.5	0.50	0.26	0.42	0.24	2.78	835	4,522	22,895	159	159	4,363	0.10	438.18
47	235	3.92	1.6	0.53	0.26	0.45	0.27	3.17	952	5,315	23,069	160	160	5,155	0.12	438.21
48	240	4.00	1.6	0.53	0.26	0.45	0.27	3.17	952	6,107	23,243	161	161	5,946	0.14	438.24
49	245	4.08	1.7	0.56	0.26	0.48	0.30	3.56	1,069	7,015	23,443	163	163	6,852	0.16	438.28
50	250	4.17	1.8	0.60	0.26	0.51	0.34	3.96	1,187	8,039	23,668	164	164	7,875	0.18	438.32

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	11.70
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	9.48
UNIT TIME-PERCENT OF LAG	52.7
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.26
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
51	255	4.25	1.9	0.63	0.26	0.53	0.37	4.35	1,304	9,179	23,919	166	166	9,012	0.21	438.37
52	260	4.33	2.0	0.66	0.26	0.56	0.40	4.74	1,421	10,434	24,195	168	168	10,266	0.24	438.42
53	265	4.42	2.1	0.70	0.26	0.59	0.43	5.13	1,538	11,804	24,496	170	170	11,634	0.27	438.47
54	270	4.50	2.1	0.70	0.26	0.59	0.43	5.13	1,538	13,172	24,797	172	172	13,000	0.30	438.53
55	275	4.58	2.2	0.73	0.26	0.62	0.47	5.52	1,656	14,656	25,124	174	174	14,481	0.33	438.59
56	280	4.67	2.3	0.76	0.26	0.65	0.50	5.91	1,773	16,254	25,475	177	177	16,077	0.37	438.65
57	285	4.75	2.4	0.79	0.26	0.68	0.53	6.30	1,890	17,967	25,852	180	180	17,788	0.41	438.72
58	290	4.83	2.4	0.79	0.26	0.68	0.53	6.30	1,890	19,678	26,228	182	182	19,496	0.45	438.79
59	295	4.92	2.5	0.83	0.26	0.70	0.57	6.69	2,007	21,503	26,630	185	185	21,318	0.49	438.87
60	300	5.00	2.6	0.86	0.26	0.73	0.60	7.08	2,125	23,443	27,056	188	188	23,255	0.53	438.95
61	305	5.08	3.1	1.03	0.26	0.87	0.77	9.04	2,711	25,966	27,498	191	191	25,775	0.59	439.04
62	310	5.17	3.6	1.19	0.26	1.01	0.93	10.99	3,297	29,072	27,933	194	194	28,878	0.66	439.15
63	315	5.25	3.9	1.29	0.26	1.10	1.03	12.16	3,649	32,527	28,417	197	197	32,330	0.74	439.27
64	320	5.33	4.2	1.39	0.26	1.18	1.13	13.34	4,001	36,331	28,949	201	201	36,130	0.83	439.39
65	325	5.42	4.7	1.56	0.26	1.32	1.30	15.29	4,587	40,717	29,563	205	205	40,512	0.93	439.54
66	330	5.50	5.6	1.85	0.26	1.58	1.59	**18.81**	**5,642**	46,154	30,324	211	211	45,944	1.05	439.73
67	335	5.58	1.9	0.63	0.26	0.53	0.37	4.35	1,304	47,247	30,477	212	212	**47,036**	**1.08**	**439.77**
68	340	5.67	0.9	0.30	0.26	0.25	0.04	0.44	131	47,167	30,466	212	212	46,956	1.08	439.76
69	345	5.75	0.6	0.20	0.26	0.17	0.03	0.35	106	47,061	30,451	211	211	46,850	1.08	439.76
70	350	5.83	0.5	0.17	0.26	0.14	0.02	0.29	88	46,938	30,433	211	211	46,726	1.07	439.76
71	355	5.92	0.3	0.10	0.26	0.08	0.01	0.18	53	46,779	30,411	211	211	46,568	1.07	439.75
72	360	6.00	0.2	0.07	0.26	0.06	0.01	0.12	35	46,603	30,387	211	211	46,392	1.07	439.74

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	2.76 in
RAINFALL VOLUME	117,260 cu-ft
SOIL LOSSES	61,345 cu-ft
EFFECTIVE RAIN	1.32 in
FLOOD VOLUME	1.28 acft
FLOOD VOLUME	55,916 cu-ft
REQUIRED STORAGE	1.08 acft
REQUIRED STORAGE	47,036 cu-ft
MAX WSEL	439.77 ft
PEAK FLOW RATE	18.81 cfs
TOTAL BASIN LOSSES	9,524 cu-ft
AVERAGE PERCOLATION RATE	26.45 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	11.70	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.13		
LAG TIME - MINUTES	9.48	C	0.00242	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	158%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
1	15	0.25	0.2	0.035	0.461	0.030	0.01	0.06	56	56	21,912	457	56	0	0.00	438.00
2	30	0.50	0.3	0.053	0.456	0.045	0.01	0.09	84	84	21,919	457	84	0	0.00	438.00
3	45	0.75	0.3	0.053	0.450	0.045	0.01	0.09	84	84	21,919	457	84	0	0.00	438.00
4	60	1.00	0.4	0.071	0.445	0.060	0.01	0.12	112	112	21,925	457	112	0	0.00	438.00
5	75	1.25	0.3	0.053	0.440	0.045	0.01	0.09	84	84	21,919	457	84	0	0.00	438.00
6	90	1.50	0.3	0.053	0.434	0.045	0.01	0.09	84	84	21,919	457	84	0	0.00	438.00
7	105	1.75	0.3	0.053	0.429	0.045	0.01	0.09	84	84	21,919	457	84	0	0.00	438.00
8	120	2.00	0.4	0.071	0.424	0.060	0.01	0.12	112	112	21,925	457	112	0	0.00	438.00
9	135	2.25	0.4	0.071	0.419	0.060	0.01	0.12	112	112	21,925	457	112	0	0.00	438.00
10	150	2.50	0.4	0.071	0.414	0.060	0.01	0.12	112	112	21,925	457	112	0	0.00	438.00
11	165	2.75	0.5	0.088	0.409	0.075	0.01	0.16	141	141	21,931	457	141	0	0.00	438.00
12	180	3.00	0.5	0.088	0.404	0.075	0.01	0.16	141	141	21,931	457	141	0	0.00	438.00
13	195	3.25	0.5	0.088	0.399	0.075	0.01	0.16	141	141	21,931	457	141	0	0.00	438.00
14	210	3.50	0.5	0.088	0.394	0.075	0.01	0.16	141	141	21,931	457	141	0	0.00	438.00
15	225	3.75	0.5	0.088	0.389	0.075	0.01	0.16	141	141	21,931	457	141	0	0.00	438.00
16	240	4.00	0.6	0.106	0.384	0.090	0.02	0.19	169	169	21,937	457	169	0	0.00	438.00
17	255	4.25	0.6	0.106	0.379	0.090	0.02	0.19	169	169	21,937	457	169	0	0.00	438.00
18	270	4.50	0.7	0.123	0.374	0.105	0.02	0.22	197	197	21,943	457	197	0	0.00	438.00
19	285	4.75	0.7	0.123	0.370	0.105	0.02	0.22	197	197	21,943	457	197	0	0.00	438.00
20	300	5.00	0.8	0.141	0.365	0.120	0.02	0.25	225	225	21,949	457	225	0	0.00	438.00
21	315	5.25	0.6	0.106	0.360	0.090	0.02	0.19	169	169	21,937	457	169	0	0.00	438.00
22	330	5.50	0.7	0.123	0.355	0.105	0.02	0.22	197	197	21,943	457	197	0	0.00	438.00
23	345	5.75	0.8	0.141	0.351	0.120	0.02	0.25	225	225	21,949	457	225	0	0.00	438.00
24	360	6.00	0.8	0.141	0.346	0.120	0.02	0.25	225	225	21,949	457	225	0	0.00	438.00
25	375	6.25	0.9	0.159	0.341	0.135	0.02	0.28	253	253	21,956	457	253	0	0.00	438.00
26	390	6.50	0.9	0.159	0.337	0.135	0.02	0.28	253	253	21,956	457	253	0	0.00	438.00
27	405	6.75	1.0	0.176	0.332	0.150	0.03	0.31	281	281	21,962	458	281	0	0.00	438.00
28	420	7.00	1.0	0.176	0.328	0.150	0.03	0.31	281	281	21,962	458	281	0	0.00	438.00
29	435	7.25	1.0	0.176	0.323	0.150	0.03	0.31	281	281	21,962	458	281	0	0.00	438.00
30	450	7.50	1.1	0.194	0.319	0.165	0.03	0.34	309	309	21,968	458	309	0	0.00	438.00
31	465	7.75	1.2	0.212	0.315	0.180	0.03	0.37	337	337	21,974	458	337	0	0.00	438.00
32	480	8.00	1.3	0.229	0.310	0.195	0.03	0.41	365	365	21,980	458	365	0	0.00	438.00
33	495	8.25	1.5	0.265	0.306	0.225	0.04	0.47	422	422	21,993	458	422	0	0.00	438.00
34	510	8.50	1.5	0.265	0.302	0.225	0.04	0.47	422	422	21,993	458	422	0	0.00	438.00
35	525	8.75	1.6	0.282	0.298	0.240	0.04	0.50	450	450	21,999	458	450	0	0.00	438.00
36	540	9.00	1.7	0.300	0.293	0.255	0.01	0.08	69	69	21,915	457	69	0	0.00	438.00
37	555	9.25	1.9	0.335	0.289	0.285	0.05	0.54	488	488	22,007	458	458	30	0.00	438.00
38	570	9.50	2.0	0.353	0.285	0.300	0.07	0.80	719	749	22,065	460	460	289	0.01	438.01
39	585	9.75	2.1	0.370	0.281	0.315	0.09	1.06	950	1,239	22,173	462	462	777	0.02	438.03
40	600	10.00	2.2	0.388	0.277	0.330	0.11	1.31	1,180	1,958	22,331	465	465	1,492	0.03	438.06
41	615	10.25	1.5	0.265	0.273	0.225	0.04	0.47	422	1,914	22,321	465	465	1,449	0.03	438.06
42	630	10.50	1.5	0.265	0.269	0.225	0.04	0.47	422	1,871	22,311	465	465	1,406	0.03	438.06
43	645	10.75	2.0	0.353	0.265	0.300	0.09	1.04	932	2,337	22,414	467	467	1,870	0.04	438.08

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	11.70	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.13		
LAG TIME - MINUTES	9.48	C	0.00242	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	158%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
44	660	11.00	2.0	0.353	0.261	0.300	0.09	1.08	973	2,843	22,525	469	469	2,374	0.05	438.10
45	675	11.25	1.9	0.335	0.257	0.285	0.08	0.92	826	3,200	22,604	471	471	2,729	0.06	438.11
46	690	11.50	1.9	0.335	0.254	0.285	0.08	0.96	867	3,596	22,691	473	473	3,123	0.07	438.13
47	705	11.75	1.7	0.300	0.250	0.255	0.05	0.59	532	3,655	22,704	473	473	3,182	0.07	438.13
48	720	12.00	1.8	0.318	0.246	0.270	0.07	0.84	759	3,941	22,767	474	474	3,466	0.08	438.14
49	735	12.25	2.5	0.441	0.242	0.375	0.20	2.34	2,109	5,575	23,126	482	482	5,094	0.12	438.21
50	750	12.50	2.6	0.459	0.239	0.390	0.22	2.59	2,335	7,429	23,534	490	490	6,938	0.16	438.28
51	765	12.75	2.8	0.494	0.235	0.420	0.26	3.05	2,748	9,686	24,031	501	501	9,186	0.21	438.37
52	780	13.00	2.9	0.512	0.232	0.435	0.28	3.30	2,973	12,159	24,574	512	512	11,647	0.27	438.47
53	795	13.25	3.4	0.600	0.228	0.510	0.37	4.39	3,947	15,593	25,330	528	528	15,066	0.35	438.61
54	810	13.50	3.4	0.600	0.225	0.510	0.38	**4.43**	**3,984**	19,049	26,090	544	544	18,506	0.42	438.75
55	825	13.75	2.3	0.406	0.221	0.345	0.18	2.18	1,959	20,465	26,401	550	550	19,915	0.46	438.81
56	840	14.00	2.3	0.406	0.218	0.345	0.19	2.22	1,995	21,909	26,719	557	557	21,353	0.49	438.87
57	855	14.25	2.7	0.476	0.215	0.405	0.26	3.09	2,779	24,132	27,208	567	567	23,565	0.54	438.96
58	870	14.50	2.6	0.459	0.211	0.390	0.25	2.92	2,627	26,192	27,530	574	574	25,619	0.59	439.04
59	885	14.75	2.6	0.459	0.208	0.390	0.25	2.96	2,661	28,280	27,822	580	580	27,700	0.64	439.11
60	900	15.00	2.5	0.441	0.205	0.375	0.24	2.79	2,508	30,208	28,092	585	585	29,623	0.68	439.17
61	915	15.25	2.4	0.423	0.202	0.360	0.22	2.62	2,354	31,976	28,339	590	590	31,386	0.72	439.23
62	930	15.50	2.3	0.406	0.199	0.345	0.21	2.44	2,199	33,585	28,565	595	595	32,990	0.76	439.29
63	945	15.75	1.9	0.335	0.196	0.285	0.14	1.65	1,482	34,472	28,689	598	598	33,874	0.78	439.32
64	960	16.00	1.9	0.335	0.193	0.285	0.14	1.68	1,514	35,388	28,817	600	600	**34,787**	**0.80**	**439.35**
65	975	16.25	0.4	0.071	0.190	0.060	0.01	0.12	112	34,900	28,749	599	599	34,301	0.79	439.33
66	990	16.50	0.4	0.071	0.187	0.060	0.01	0.12	112	34,413	28,680	598	598	33,816	0.78	439.32
67	1005	16.75	0.3	0.053	0.184	0.045	0.01	0.09	84	33,900	28,609	596	596	33,304	0.76	439.30
68	1020	17.00	0.3	0.053	0.181	0.045	0.01	0.09	84	33,388	28,537	595	595	32,794	0.75	439.28
69	1035	17.25	0.5	0.088	0.178	0.075	0.01	0.16	141	32,934	28,473	593	593	32,341	0.74	439.27
70	1050	17.50	0.5	0.088	0.176	0.075	0.01	0.16	141	32,482	28,410	592	592	31,890	0.73	439.25
71	1065	17.75	0.5	0.088	0.173	0.075	0.01	0.16	141	32,030	28,347	591	591	31,440	0.72	439.23
72	1080	18.00	0.4	0.071	0.171	0.060	0.01	0.12	112	31,552	28,280	589	589	30,963	0.71	439.22
73	1095	18.25	0.4	0.071	0.168	0.060	0.01	0.12	112	31,075	28,213	588	588	30,487	0.70	439.20
74	1110	18.50	0.4	0.071	0.166	0.060	0.01	0.12	112	30,600	28,147	586	586	30,014	0.69	439.19
75	1125	18.75	0.3	0.053	0.163	0.045	0.01	0.09	84	30,098	28,076	585	585	29,513	0.68	439.17
76	1140	19.00	0.2	0.035	0.161	0.030	0.01	0.06	56	29,569	28,002	583	583	28,986	0.67	439.15
77	1155	19.25	0.3	0.053	0.159	0.045	0.01	0.09	84	29,070	27,933	582	582	28,488	0.65	439.13
78	1170	19.50	0.4	0.071	0.156	0.060	0.01	0.12	112	28,601	27,867	581	581	28,020	0.64	439.12
79	1185	19.75	0.3	0.053	0.154	0.045	0.01	0.09	84	28,104	27,797	579	579	27,525	0.63	439.10
80	1200	20.00	0.2	0.035	0.152	0.030	0.01	0.06	56	27,581	27,724	578	578	27,004	0.62	439.08
81	1215	20.25	0.3	0.053	0.150	0.045	0.01	0.09	84	27,088	27,655	576	576	26,512	0.61	439.07
82	1230	20.50	0.3	0.053	0.148	0.045	0.01	0.09	84	26,596	27,586	575	575	26,022	0.60	439.05
83	1245	20.75	0.3	0.053	0.146	0.045	0.01	0.09	84	26,106	27,518	573	573	25,533	0.59	439.03
84	1260	21.00	0.2	0.035	0.145	0.030	0.01	0.06	56	25,589	27,445	572	572	25,017	0.57	439.02
85	1275	21.25	0.3	0.053	0.143	0.045	0.01	0.09	84	25,101	27,377	570	570	24,531	0.56	439.00
86	1290	21.50	0.2	0.035	0.141	0.030	0.01	0.06	56	24,587	27,305	569	569	24,018	0.55	438.98

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	11.70	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.13		
LAG TIME - MINUTES	9.48	C	0.00242	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	158%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
87	1305	21.75	0.3	0.053	0.140	0.045	0.01	0.09	84	24,103	27,201	567	567	23,536	0.54	438.96
88	1320	22.00	0.2	0.035	0.138	0.030	0.01	0.06	56	23,592	27,089	564	564	23,028	0.53	438.94
89	1335	22.25	0.3	0.053	0.137	0.045	0.01	0.09	84	23,112	26,984	562	562	22,550	0.52	438.92
90	1350	22.50	0.2	0.035	0.136	0.030	0.01	0.06	56	22,606	26,872	560	560	22,046	0.51	438.90
91	1365	22.75	0.2	0.035	0.134	0.030	0.01	0.06	56	22,103	26,762	558	558	21,545	0.49	438.88
92	1380	23.00	0.2	0.035	0.133	0.030	0.01	0.06	56	21,601	26,651	555	555	21,046	0.48	438.86
93	1395	23.25	0.2	0.035	0.132	0.030	0.01	0.06	56	21,102	26,542	553	553	20,549	0.47	438.84
94	1410	23.50	0.2	0.035	0.132	0.030	0.01	0.06	56	20,605	26,432	551	551	20,055	0.46	438.82
95	1425	23.75	0.2	0.035	0.131	0.030	0.01	0.06	56	20,111	26,324	548	548	19,563	0.45	438.80
96	1440	24.00	0.2	0.035	0.131	0.030	0.01	0.06	56	19,619	26,215	546	546	19,073	0.44	438.78

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	4.41 in
RAINFALL VOLUME	187,362 cu-ft
SOIL LOSSES	128,299 cu-ft
EFFECTIVE RAIN	1.39 in
FLOOD VOLUME	1.36 acft
FLOOD VOLUME	59,063 cu-ft
REQUIRED STORAGE	0.80 acft
REQUIRED STORAGE	34,787 cu-ft
MAX WSEL	439.35 ft
PEAK FLOW RATE	4.43 cfs
TOTAL BASIN LOSSES	39,990 cu-ft
AVERAGE PERCOLATION RATE	27.77 cf/min

BASIN VOLUME WORKSHEET

PROECT CORAL MOUNTAIN
JOB No. 2553
BASIN DESIGNATION: BASIN B

BASIN CHARACTERISTICS

CONTOUR ELEVATION	DEPTH		AREA		VOLUME		
	INCR (ft)	TOTAL (ft)	INCR (sf)	TOTAL (sf)	INCR (cuft)	TOTAL (cuft)	(acre-ft)
438	0	0		21,900	0	0	0.00
439	1	1	5,400	27,300	24,550	24,550	0.56
440	1	2	4,105	31,405	29,329	53,879	1.24
441	1	3	5,380	36,785	34,060	87,939	2.02
442	1	4	4,400	41,185	38,964	126,903	2.91

WHERE:

$$V = \frac{1}{3}(E_1 - E_2)\left(A_1 + A_2 + \sqrt{A_1 A_2}\right)$$

RCFCD SYNTHETIC UNIT HYDROGRAPH - SHORTCUT METHOD

DATA INPUT SHEET

DATE	March 30, 2020
WORKSHEET PREPARED BY:	DLS
PROJECT NAME	CORAL MOUNTAIN
PROJECT NUMBER	2553
CONCENTRATION POINT DESIGNATION	BASIN B
AREA DESIGNATION	OFF-SITE SOUTH
AMC NUMBER	2

Low Loss Conditions: X=Existing; D=Developed; BS=Retention

AREA DESIG	SOIL GROUP	TRIBUTARY AREAS	ACRES	LOW LOSS CONDITION	RI NUMBER	AMC II INFILTRATION RATE	IMPERVIOUS PERCENT
2	B	PAVING/HARDSCAPE	4.014	D	56	0.51	1.00
9	B	LANDSCAPING	1.687	D	56	0.51	0.10

LENGTH OF WATERCOURSE (L)	4,250 ft
LENGTH TO POINT OPPOSITE CENTROID (Lca)	2,125 ft
ELEVATION OF HEADWATER	490.9 ft
ELEVATION OF CONCENTRATION POINT	440.7 ft
AVERAGE MANNINGS 'N' VALUE	0.02
STORM FREQUENCY (YEAR)	100
LOW LOSS RATE (Storm Events > 10 Years)	**85%**
POINT RAIN FROM NOAA ATLAS	**14**
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

BASIN CHARACTERISTICS:

ELEVATION	AREA
436.0 ft	30,335 sf
437.0 ft	37,775 sf
438.0 ft	42,190 sf
439.0 ft	45,895 sf
440.0 ft	49,625 sf
441.0 ft	54,215 sf

PERCOLATION RATE (in/hr)	1.0 in/hr
DRYWELL DATA	
NUMBER USED	
PERCOLATION RATE	
LOWEST FLOWLINE ELEVATION	
LOWEST PAD ELEVATION	

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 3/30/20

PHYSICAL DATA

[1] CONCENTRATION POINT	BASIN B
[2] AREA DESIGNATION	OFF-SITE SOUTH
[3] AREA - ACRES	5.701
[4] L-FEET	4250
[5] L-MILES	0.805
[6] La-FEET	2125.00
[7] La-MILES	0.402
[8] ELEVATION OF HEADWATER	490.9
[9] ELEVATION OF CONCENTRATION POINT	440.7
[10] H-FEET	50.2
[11] S-FEET/MILE	62.4
[12] S^0.5	7.90
[13] L*LCA/S^0.5	0.041
[14] AVERAGE MANNINGS 'N'	0.02
[15] LAG TIME-HOURS	0.14
[16] LAG TIME-MINUTES	8.6
[17] 100% OF LAG-MINUTES	8.6
[18] 200% OF LAG-MINUTES	17.1

RAINFALL DATA

[1] AMC	II
[2] FREQUENCY-YEARS	100
FROM NOAA ATLAS	**14**
[3] STORM DURATION:	Point Rain
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

STORM EVENT SUMMARY

STORM DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
RAINFALL VOLUME	(cu-ft)	29,800	44,287	57,117	**91,264**
SOIL LOSSES	(cu-ft)	3,585	10,683	21,044	**50,595**
EFFECTIVE RAIN	(in)	1.27	1.62	1.74	1.97
FLOOD VOLUME	(cu-ft)	26,215	33,604	36,073	**40,668**
	(acre-ft)	0.60	0.77	0.83	**0.93**
REQUIRED STORAGE	(cu-ft)	23,515	**25,738**	23,414	16,515
	(acre-ft)	0.54	**0.59**	0.54	0.38
FACTOR OF SAFETY		9.25	8.46	9.29	13.18
STORAGE PROVIDED	(cu-ft)	217,630			
	(acre-ft)	5.00			
PEAK FLOW	(cfs)	n/a	11.11	9.67	2.59
MAXIMUM WSEL	(ft)	436.69	**436.76**	436.69	436.49
DEPTH	(ft)	0.69	**0.76**	0.69	0.49
LOWEST FLOWLINE ELEVATION					
DIFFERENCE	(ft)				
LOWEST PAD ELEVATION					
DIFFERENCE	(ft)				
ESTIMATED TIME TO DEWATER BASIN Based on Total Flood Volume & Average Percolation Rate	(days)	0.4	0.5	0.7	1.0

NOTE: PEAK FLOW FOR THE 1-HOUR STORM IS NOT REPRESENTATIVE. PER RCFCD PEAK DISCHARGES FROM THE 3-HOUR STORM SHOULD NORMALLY COMPARE WELL WITH RATIONAL PEAKS.

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM AMC II	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 3/30/20

AVERAGE ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA	AREA WEIGHTED AVERAGE	MAX AVERAGE ADJUSTED INFILTRATION RATE (in/hr)	LOW LOSS CONDITION	LOW LOSS RATE PER RCFC/2322	MIN AVERAGE ADJUSTED INFILTRATION RATE
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	4.014	0.704	0.0359	DEVELOPED	0.1000	0.0704
B	LANDSCAPING	56	0.51	10%	0.46	1.687	0.296	0.1373	DEVELOPED	0.8200	0.2426
					SUM	5.701		SUM	0.1732		0.3131

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.08662083

C= 0.00160

$F_t = C(24-(T/60))^{1.55} + F_m$ = 0.00160 (24-(T/60))^1.55 + 0.09 in/hr

CONSTANT LOSS RATE (3 & 6 HOUR STORMS) = **0.1732**

LOW LOSS RATE = **0.8500**

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period, T=1 1/2 unit time for the second period, etc.

NOTE: Low loss rates established per RCFC/2322 (Dated: May-30-95)
For 10 Year Storms or Less
Undeveloped Condition: Low Loss = 90%
Developed Condition: Low Loss = 0.9 - (0.8 * %impervious)
Basin Site: Low Loss = 10%
For 100 Year Storm - Low Loss should be between 80% & 90% of the Rainfall Rate

RCFC & WCD
HYDROLOGY
MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

1-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	5.70
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	8.56
UNIT TIME-PERCENT OF LAG	58.4
TOTAL ADJUSTED STORM RAIN-INCHES	1.44
CONSTANT LOSS RATE-in/hr	0.17
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	3.6	0.62	0.17	0.53	0.45	2.58	774	774	30,504	212	212	562	0.01	436.02
2	10	0.17	4.2	0.73	0.17	0.62	0.55	3.18	953	1,515	30,667	213	213	1,302	0.03	436.04
3	15	0.25	4.4	0.76	0.17	0.65	0.59	3.37	1,012	2,315	30,842	214	214	2,100	0.05	436.06
4	20	0.33	4.6	0.79	0.17	0.68	0.62	3.57	1,072	3,172	31,029	215	215	2,957	0.07	436.09
5	25	0.42	5.0	0.86	0.17	0.73	0.69	3.97	1,191	4,148	31,243	217	217	3,931	0.09	436.12
6	30	0.50	5.6	0.97	0.17	0.82	0.79	4.57	1,370	5,301	31,495	219	219	5,083	0.12	436.15
7	35	0.58	6.4	1.11	0.17	0.94	0.93	5.36	1,608	6,691	31,800	221	221	6,470	0.15	436.19
8	40	0.67	8.1	1.40	0.17	1.19	1.23	7.05	2,115	8,585	32,214	224	224	8,362	0.19	436.25
9	45	0.75	13.1	2.26	0.17	1.92	2.09	12.02	3,605	11,967	32,955	229	229	11,738	0.27	436.35
10	50	0.83	34.5	5.96	0.17	5.07	5.79	**33.27**	**9,982**	21,720	35,090	244	244	21,476	0.49	436.63
11	55	0.92	6.7	1.16	0.17	0.98	0.98	5.66	1,698	23,174	35,408	246	246	22,928	0.53	436.67
12	60	1.00	3.8	0.66	0.17	0.56	0.48	2.78	834	23,762	35,537	247	247	**23,515**	**0.54**	**436.69**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY	
TOTAL RAINFALL	1.44 in
RAINFALL VOLUME	29,800 cu-ft
SOIL LOSSES	3,585 cu-ft
EFFECTIVE RAIN	1.27 in
FLOOD VOLUME	0.60 acft
FLOOD VOLUME	26,215 cu-ft
REQUIRED STORAGE	0.54
REQUIRED STORAGE	23,515 cu-ft
MAX WSEL	436.69 ft
PEAK FLOW RATE	33.27 cfs
TOTAL BASIN LOSSES	2,700 cu-ft
AVERAGE PERCOLATION RATE	45.00 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	5.70
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	8.56
UNIT TIME-PERCENT OF LAG	58.4
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.17
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm Rain	Loss Rate in/hr		Effective Rain	Flood Hydrograph	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
	Minutes	Hours	Percent	in/hr	Max	Low	in/hr	Flow cfs	cu-ft	cu-ft	Percolation Area sf	Maximum Percolation cu-ft	Percolation Out cu-ft	cu-ft	ac-ft	ft
			(Plate E-5.9)													
1	5	0.08	1.3	0.33	0.17	0.28	0.16	0.92	277	277	30,396	211	211	66	0.00	436.00
2	10	0.17	1.3	0.33	0.17	0.28	0.16	0.92	277	343	30,410	211	211	132	0.00	436.00
3	15	0.25	1.1	0.28	0.17	0.24	0.11	0.63	188	320	30,405	211	211	109	0.00	436.00
4	20	0.33	1.5	0.39	0.17	0.33	0.21	1.22	366	474	30,439	211	211	263	0.01	436.01
5	25	0.42	1.5	0.39	0.17	0.33	0.21	1.22	366	629	30,473	212	212	417	0.01	436.01
6	30	0.50	1.8	0.46	0.17	0.39	0.29	1.66	498	915	30,535	212	212	703	0.02	436.02
7	35	0.58	1.5	0.39	0.17	0.33	0.21	1.22	366	1,069	30,569	212	212	857	0.02	436.03
8	40	0.67	1.8	0.46	0.17	0.39	0.29	1.66	498	1,355	30,632	213	213	1,142	0.03	436.03
9	45	0.75	1.8	0.46	0.17	0.39	0.29	1.66	498	1,641	30,694	213	213	1,427	0.03	436.04
10	50	0.83	1.5	0.39	0.17	0.33	0.21	1.22	366	1,793	30,728	213	213	1,580	0.04	436.05
11	55	0.92	1.6	0.41	0.17	0.35	0.24	1.37	410	1,989	30,771	214	214	1,776	0.04	436.05
12	60	1.00	1.8	0.46	0.17	0.39	0.29	1.66	498	2,274	30,833	214	214	2,060	0.05	436.06
13	65	1.08	2.2	0.56	0.17	0.48	0.39	2.25	676	2,736	30,934	215	215	2,521	0.06	436.07
14	70	1.17	2.2	0.56	0.17	0.48	0.39	2.25	676	3,196	31,035	216	216	2,981	0.07	436.09
15	75	1.25	2.2	0.56	0.17	0.48	0.39	2.25	676	3,656	31,135	216	216	3,440	0.08	436.10
16	80	1.33	2.0	0.51	0.17	0.44	0.34	1.96	587	4,027	31,217	217	217	3,810	0.09	436.11
17	85	1.42	2.6	0.67	0.17	0.57	0.49	2.84	853	4,663	31,356	218	218	4,445	0.10	436.13
18	90	1.50	2.7	0.69	0.17	0.59	0.52	2.99	897	5,342	31,504	219	219	5,123	0.12	436.15
19	95	1.58	2.4	0.62	0.17	0.52	0.44	2.55	764	5,888	31,624	220	220	5,668	0.13	436.17
20	100	1.67	2.7	0.69	0.17	0.59	0.52	2.99	897	6,565	31,772	221	221	6,344	0.15	436.19
21	105	1.75	3.3	0.85	0.17	0.72	0.67	3.88	1,163	7,507	31,978	222	222	7,285	0.17	436.21
22	110	1.83	3.1	0.80	0.17	0.68	0.62	3.58	1,074	8,359	32,165	223	223	8,136	0.19	436.24
23	115	1.92	2.9	0.74	0.17	0.63	0.57	3.29	986	9,121	32,332	225	225	8,897	0.20	436.26
24	120	2.00	3.0	0.77	0.17	0.65	0.60	3.43	1,030	9,927	32,508	226	226	9,701	0.22	436.29
25	125	2.08	3.1	0.80	0.17	0.68	0.62	3.58	1,074	10,775	32,694	227	227	10,548	0.24	436.31

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	5.70
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	8.56
UNIT TIME-PERCENT OF LAG	58.4
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.17
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain	in/hr		Rain	Hydrograph	In	Volume	Percolation Area	Maximum Percolation	Percolation Out			WSEL
				in/hr	Max	Low	in/hr	Flow cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
			(Plate E-5.9)													
26	130	2.17	4.2	1.08	0.17	0.92	0.91	5.20	1,561	12,109	32,986	229	229	11,880	0.27	436.35
27	135	2.25	5.0	1.28	0.17	1.09	1.11	6.39	1,916	13,796	33,355	232	232	13,564	0.31	436.40
28	140	2.33	3.5	0.90	0.17	0.76	0.73	4.17	1,251	14,815	33,578	233	233	14,582	0.33	436.43
29	145	2.42	6.8	1.75	0.17	1.48	1.57	9.04	2,713	17,295	34,121	237	237	17,058	0.39	436.50
30	150	2.50	7.3	1.87	0.17	1.59	1.70	9.78	2,934	19,992	34,711	241	241	19,751	0.45	436.58
31	155	2.58	8.2	2.11	0.17	1.79	1.93	**11.11**	**3,333**	23,084	35,388	246	246	22,838	0.52	436.67
32	160	2.67	5.9	1.52	0.17	1.29	1.34	7.71	2,314	25,152	35,841	249	249	24,903	0.57	436.73
33	165	2.75	2.0	0.51	0.17	0.44	0.34	1.96	587	25,490	35,915	249	249	25,241	0.58	436.74
34	170	2.83	1.8	0.46	0.17	0.39	0.29	1.66	498	25,739	35,969	250	250	25,489	0.59	436.75
35	175	2.92	1.8	0.46	0.17	0.39	0.29	1.66	498	25,988	36,024	250	250	**25,738**	**0.59**	**436.76**
36	180	3.00	0.6	0.15	0.17	0.13	0.02	0.13	40	25,777	35,978	250	250	25,528	0.59	436.75

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAIN	2.14 in
RAINFALL VOLUME	44,287 cu-ft
SOIL LOSSES	10,683 cu-ft
EFFECTIVE RAIN	1.62 in
FLOOD VOLUME	0.77 acft
FLOOD VOLUME	33,604 cu-ft
REQUIRED STORAGE	0.59 acft
REQUIRED STORAGE	25,738 cu-ft
MAX WSEL	436.76 ft
PEAK FLOW RATE	11.11 cfs
TOTAL BASIN LOSSES	8,076 cu-ft
AVERAGE PERCOLATION RATE	44.87 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	5.70
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	8.56
UNIT TIME-PERCENT OF LAG	58.4
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.17
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses			Total In Basin		Basin WSEL ft
	Minutes	Hours	(Plate E-5.9)		Max	Low					Percolation Area sf	Maximum Percolation cu-ft	Percolation Out cu-ft	cu-ft	ac-ft	
1	5	0.08	0.5	0.17	0.17	0.14	0.02	0.14	43	43	30,344	211	43	0	0.00	436.00
2	10	0.17	0.6	0.20	0.17	0.17	0.03	0.15	44	44	30,345	211	44	0	0.00	436.00
3	15	0.25	0.6	0.20	0.17	0.17	0.03	0.15	44	44	30,345	211	44	0	0.00	436.00
4	20	0.33	0.6	0.20	0.17	0.17	0.03	0.15	44	44	30,345	211	44	0	0.00	436.00
5	25	0.42	0.6	0.20	0.17	0.17	0.03	0.15	44	44	30,345	211	44	0	0.00	436.00
6	30	0.50	0.7	0.23	0.17	0.20	0.06	0.34	101	101	30,357	211	101	0	0.00	436.00
7	35	0.58	0.7	0.23	0.17	0.20	0.06	0.34	101	101	30,357	211	101	0	0.00	436.00
8	40	0.67	0.7	0.23	0.17	0.20	0.06	0.34	101	101	30,357	211	101	0	0.00	436.00
9	45	0.75	0.7	0.23	0.17	0.20	0.06	0.34	101	101	30,357	211	101	0	0.00	436.00
10	50	0.83	0.7	0.23	0.17	0.20	0.06	0.34	101	101	30,357	211	101	0	0.00	436.00
11	55	0.92	0.7	0.23	0.17	0.20	0.06	0.34	101	101	30,357	211	101	0	0.00	436.00
12	60	1.00	0.8	0.26	0.17	0.23	0.09	0.53	158	158	30,370	211	158	0	0.00	436.00
13	65	1.08	0.8	0.26	0.17	0.23	0.09	0.53	158	158	30,370	211	158	0	0.00	436.00
14	70	1.17	0.8	0.26	0.17	0.23	0.09	0.53	158	158	30,370	211	158	0	0.00	436.00
15	75	1.25	0.8	0.26	0.17	0.23	0.09	0.53	158	158	30,370	211	158	0	0.00	436.00
16	80	1.33	0.8	0.26	0.17	0.23	0.09	0.53	158	158	30,370	211	158	0	0.00	436.00
17	85	1.42	0.8	0.26	0.17	0.23	0.09	0.53	158	158	30,370	211	158	0	0.00	436.00
18	90	1.50	0.8	0.26	0.17	0.23	0.09	0.53	158	158	30,370	211	158	0	0.00	436.00
19	95	1.58	0.8	0.26	0.17	0.23	0.09	0.53	158	158	30,370	211	158	0	0.00	436.00
20	100	1.67	0.8	0.26	0.17	0.23	0.09	0.53	158	158	30,370	211	158	0	0.00	436.00
21	105	1.75	0.8	0.26	0.17	0.23	0.09	0.53	158	158	30,370	211	158	0	0.00	436.00
22	110	1.83	0.8	0.26	0.17	0.23	0.09	0.53	158	158	30,370	211	158	0	0.00	436.00
23	115	1.92	0.8	0.26	0.17	0.23	0.09	0.53	158	158	30,370	211	158	0	0.00	436.00
24	120	2.00	0.9	0.30	0.17	0.25	0.12	0.72	215	215	30,382	211	211	4	0.00	436.00

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	5.70
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	8.56
UNIT TIME-PERCENT OF LAG	58.4
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.17
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
	Minutes	Hours	(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	Percolation Area sf	Maximum Percolation cu-ft	Percolation Out cu-ft	cu-ft	ac-ft	ft
25	125	2.08	0.8	0.26	0.17	0.23	0.09	0.53	158	162	30,371	211	162	0	0.00	436.00
26	130	2.17	0.9	0.30	0.17	0.25	0.12	0.72	215	215	30,382	211	211	4	0.00	436.00
27	135	2.25	0.9	0.30	0.17	0.25	0.12	0.72	215	220	30,383	211	211	9	0.00	436.00
28	140	2.33	0.9	0.30	0.17	0.25	0.12	0.72	215	224	30,384	211	211	13	0.00	436.00
29	145	2.42	0.9	0.30	0.17	0.25	0.12	0.72	215	228	30,385	211	211	17	0.00	436.00
30	150	2.50	0.9	0.30	0.17	0.25	0.12	0.72	215	232	30,386	211	211	21	0.00	436.00
31	155	2.58	0.9	0.30	0.17	0.25	0.12	0.72	215	237	30,387	211	211	26	0.00	436.00
32	160	2.67	0.9	0.30	0.17	0.25	0.12	0.72	215	241	30,388	211	211	30	0.00	436.00
33	165	2.75	1.0	0.33	0.17	0.28	0.16	0.91	272	302	30,401	211	211	91	0.00	436.00
34	170	2.83	1.0	0.33	0.17	0.28	0.16	0.91	272	364	30,415	211	211	152	0.00	436.00
35	175	2.92	1.0	0.33	0.17	0.28	0.16	0.91	272	425	30,428	211	211	214	0.00	436.01
36	180	3.00	1.0	0.33	0.17	0.28	0.16	0.91	272	486	30,441	211	211	275	0.01	436.01
37	185	3.08	1.0	0.33	0.17	0.28	0.16	0.91	272	547	30,455	211	211	336	0.01	436.01
38	190	3.17	1.1	0.36	0.17	0.31	0.19	1.10	330	665	30,481	212	212	453	0.01	436.01
39	195	3.25	1.1	0.36	0.17	0.31	0.19	1.10	330	783	30,506	212	212	571	0.01	436.02
40	200	3.33	1.1	0.36	0.17	0.31	0.19	1.10	330	901	30,532	212	212	689	0.02	436.02
41	205	3.42	1.2	0.40	0.17	0.34	0.22	1.29	387	1,075	30,570	212	212	863	0.02	436.03
42	210	3.50	1.3	0.43	0.17	0.37	0.26	1.48	444	1,307	30,621	213	213	1,094	0.03	436.03
43	215	3.58	1.4	0.46	0.17	0.39	0.29	1.67	501	1,595	30,684	213	213	1,382	0.03	436.04
44	220	3.67	1.4	0.46	0.17	0.39	0.29	1.67	501	1,883	30,747	214	214	1,669	0.04	436.05
45	225	3.75	1.5	0.50	0.17	0.42	0.32	1.86	558	2,227	30,823	214	214	2,013	0.05	436.06
46	230	3.83	1.5	0.50	0.17	0.42	0.32	1.86	558	2,571	30,898	215	215	2,357	0.05	436.07
47	235	3.92	1.6	0.53	0.17	0.45	0.36	2.05	615	2,972	30,986	215	215	2,756	0.06	436.08
48	240	4.00	1.6	0.53	0.17	0.45	0.36	2.05	615	3,372	31,073	216	216	3,156	0.07	436.09
49	245	4.08	1.7	0.56	0.17	0.48	0.39	2.24	672	3,828	31,173	216	216	3,612	0.08	436.11
50	250	4.17	1.8	0.60	0.17	0.51	0.42	2.43	729	4,341	31,285	217	217	4,124	0.09	436.12

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	5.70
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	8.56
UNIT TIME-PERCENT OF LAG	58.4
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.17
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
51	255	4.25	1.9	0.63	0.17	0.53	0.46	2.62	786	4,910	31,410	218	218	4,692	0.11	436.14
52	260	4.33	2.0	0.66	0.17	0.56	0.49	2.81	844	5,536	31,547	219	219	5,316	0.12	436.16
53	265	4.42	2.1	0.70	0.17	0.59	0.52	3.00	901	6,217	31,696	220	220	5,997	0.14	436.18
54	270	4.50	2.1	0.70	0.17	0.59	0.52	3.00	901	6,898	31,845	221	221	6,677	0.15	436.20
55	275	4.58	2.2	0.73	0.17	0.62	0.56	3.19	958	7,634	32,006	222	222	7,412	0.17	436.22
56	280	4.67	2.3	0.76	0.17	0.65	0.59	3.38	1,015	8,427	32,180	223	223	8,204	0.19	436.24
57	285	4.75	2.4	0.79	0.17	0.68	0.62	3.57	1,072	9,276	32,366	225	225	9,051	0.21	436.27
58	290	4.83	2.4	0.79	0.17	0.68	0.62	3.57	1,072	10,123	32,551	226	226	9,897	0.23	436.29
59	295	4.92	2.5	0.83	0.17	0.70	0.65	3.76	1,129	11,026	32,749	227	227	10,799	0.25	436.32
60	300	5.00	2.6	0.86	0.17	0.73	0.69	3.95	1,186	11,985	32,959	229	229	11,756	0.27	436.35
61	305	5.08	3.1	1.03	0.17	0.87	0.85	4.91	1,472	13,228	33,231	231	231	12,997	0.30	436.38
62	310	5.17	3.6	1.19	0.17	1.01	1.02	5.86	1,757	14,755	33,565	233	233	14,522	0.33	436.43
63	315	5.25	3.9	1.29	0.17	1.10	1.12	6.43	1,929	16,450	33,936	236	236	16,215	0.37	436.48
64	320	5.33	4.2	1.39	0.17	1.18	1.22	7.00	2,100	18,315	34,344	239	239	18,076	0.41	436.53
65	325	5.42	4.7	1.56	0.17	1.32	1.38	7.95	2,386	20,462	34,814	242	242	20,220	0.46	436.59
66	330	5.50	5.6	1.85	0.17	1.58	1.68	**9.67**	**2,900**	23,120	35,396	246	246	22,874	0.53	436.67
67	335	5.58	1.9	0.63	0.17	0.53	0.46	2.62	786	23,661	35,515	247	247	**23,414**	**0.54**	**436.69**
68	340	5.67	0.9	0.30	0.17	0.25	0.12	0.72	215	23,629	35,508	247	247	23,383	0.54	436.69
69	345	5.75	0.6	0.20	0.17	0.17	0.03	0.15	44	23,427	35,463	246	246	23,181	0.53	436.68
70	350	5.83	0.5	0.17	0.17	0.14	0.02	0.14	43	23,223	35,419	246	246	22,977	0.53	436.68
71	355	5.92	0.3	0.10	0.17	0.08	0.01	0.09	26	23,003	35,371	246	246	22,758	0.52	436.67
72	360	6.00	0.2	0.07	0.17	0.06	0.01	0.06	17	22,775	35,321	245	245	22,529	0.52	436.66

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	2.76 in
RAINFALL VOLUME	57,117 cu-ft
SOIL LOSSES	21,044 cu-ft
EFFECTIVE RAIN	1.74 in
FLOOD VOLUME	0.83 acft
FLOOD VOLUME	36,073 cu-ft
REQUIRED STORAGE	0.54 acft
REQUIRED STORAGE	23,414 cu-ft
MAX WSEL	436.69 ft
PEAK FLOW RATE	9.67 cfs
TOTAL BASIN LOSSES	13,544 cu-ft
AVERAGE PERCOLATION RATE	37.62 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	5.70	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.09		
LAG TIME - MINUTES	8.56	C	0.00160	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	175%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
1	15	0.25	0.2	0.035	0.306	0.030	0.01	0.03	27	27	30,341	632	27	0	0.00	436.00
2	30	0.50	0.3	0.053	0.302	0.045	0.01	0.05	41	41	30,344	632	41	0	0.00	436.00
3	45	0.75	0.3	0.053	0.299	0.045	0.01	0.05	41	41	30,344	632	41	0	0.00	436.00
4	60	1.00	0.4	0.071	0.295	0.060	0.01	0.06	55	55	30,347	632	55	0	0.00	436.00
5	75	1.25	0.3	0.053	0.292	0.045	0.01	0.05	41	41	30,344	632	41	0	0.00	436.00
6	90	1.50	0.3	0.053	0.288	0.045	0.01	0.05	41	41	30,344	632	41	0	0.00	436.00
7	105	1.75	0.3	0.053	0.285	0.045	0.01	0.05	41	41	30,344	632	41	0	0.00	436.00
8	120	2.00	0.4	0.071	0.282	0.060	0.01	0.06	55	55	30,347	632	55	0	0.00	436.00
9	135	2.25	0.4	0.071	0.278	0.060	0.01	0.06	55	55	30,347	632	55	0	0.00	436.00
10	150	2.50	0.4	0.071	0.275	0.060	0.01	0.06	55	55	30,347	632	55	0	0.00	436.00
11	165	2.75	0.5	0.088	0.271	0.075	0.01	0.08	68	68	30,350	632	68	0	0.00	436.00
12	180	3.00	0.5	0.088	0.268	0.075	0.01	0.08	68	68	30,350	632	68	0	0.00	436.00
13	195	3.25	0.5	0.088	0.265	0.075	0.01	0.08	68	68	30,350	632	68	0	0.00	436.00
14	210	3.50	0.5	0.088	0.261	0.075	0.01	0.08	68	68	30,350	632	68	0	0.00	436.00
15	225	3.75	0.5	0.088	0.258	0.075	0.01	0.08	68	68	30,350	632	68	0	0.00	436.00
16	240	4.00	0.6	0.106	0.255	0.090	0.02	0.09	82	82	30,353	632	82	0	0.00	436.00
17	255	4.25	0.6	0.106	0.252	0.090	0.02	0.09	82	82	30,353	632	82	0	0.00	436.00
18	270	4.50	0.7	0.123	0.248	0.105	0.02	0.11	96	96	30,356	632	96	0	0.00	436.00
19	285	4.75	0.7	0.123	0.245	0.105	0.02	0.11	96	96	30,356	632	96	0	0.00	436.00
20	300	5.00	0.8	0.141	0.242	0.120	0.02	0.12	110	110	30,359	632	110	0	0.00	436.00
21	315	5.25	0.6	0.106	0.239	0.090	0.02	0.09	82	82	30,353	632	82	0	0.00	436.00
22	330	5.50	0.7	0.123	0.236	0.105	0.02	0.11	96	96	30,356	632	96	0	0.00	436.00
23	345	5.75	0.8	0.141	0.233	0.120	0.02	0.12	110	110	30,359	632	110	0	0.00	436.00
24	360	6.00	0.8	0.141	0.230	0.120	0.02	0.12	110	110	30,359	632	110	0	0.00	436.00
25	375	6.25	0.9	0.159	0.227	0.135	0.02	0.14	123	123	30,362	633	123	0	0.00	436.00
26	390	6.50	0.9	0.159	0.224	0.135	0.02	0.14	123	123	30,362	633	123	0	0.00	436.00
27	405	6.75	1.0	0.176	0.221	0.150	0.03	0.15	137	137	30,365	633	137	0	0.00	436.00
28	420	7.00	1.0	0.176	0.218	0.150	0.03	0.15	137	137	30,365	633	137	0	0.00	436.00
29	435	7.25	1.0	0.176	0.215	0.150	0.03	0.15	137	137	30,365	633	137	0	0.00	436.00
30	450	7.50	1.1	0.194	0.212	0.165	0.03	0.17	151	151	30,368	633	151	0	0.00	436.00
31	465	7.75	1.2	0.212	0.209	0.180	0.00	0.02	15	15	30,338	632	15	0	0.00	436.00
32	480	8.00	1.3	0.229	0.206	0.195	0.02	0.13	121	121	30,361	633	121	0	0.00	436.00
33	495	8.25	1.5	0.265	0.203	0.225	0.06	0.35	318	318	30,405	633	318	0	0.00	436.00
34	510	8.50	1.5	0.265	0.200	0.225	0.06	0.37	333	333	30,408	633	333	0	0.00	436.00
35	525	8.75	1.6	0.282	0.197	0.240	0.08	0.49	438	438	30,431	634	438	0	0.00	436.00
36	540	9.00	1.7	0.300	0.195	0.255	0.11	0.60	544	544	30,454	634	544	0	0.00	436.00
37	555	9.25	1.9	0.335	0.192	0.285	0.14	0.82	741	741	30,497	635	635	106	0.00	436.00
38	570	9.50	2.0	0.353	0.189	0.300	0.16	0.94	846	952	30,543	636	636	316	0.01	436.01
39	585	9.75	2.1	0.370	0.187	0.315	0.18	1.06	952	1,267	30,612	638	638	629	0.01	436.02
40	600	10.00	2.2	0.388	0.184	0.330	0.20	1.17	1,057	1,686	30,704	640	640	1,046	0.02	436.03
41	615	10.25	1.5	0.265	0.181	0.225	0.08	0.48	432	1,478	30,659	639	639	839	0.02	436.02
42	630	10.50	1.5	0.265	0.179	0.225	0.09	0.49	445	1,285	30,616	638	638	647	0.01	436.02
43	645	10.75	2.0	0.353	0.176	0.300	0.18	1.02	915	1,562	30,677	639	639	923	0.02	436.03

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	5.70	VARIABLE LOSS RATE (AVG) IN/HR	
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.09
LAG TIME - MINUTES	8.56	C	0.00160
UNIT TIME-PERCENT OF LAG	175%	Low Loss Rate (percent)	85.00%
TOTAL ADJUSTED STORM RAIN (in)	4.41		

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
44	660	11.00	2.0	0.353	0.173	0.300	0.18	1.03	928	1,851	30,740	640	640	1,210	0.03	436.04
45	675	11.25	1.9	0.335	0.171	0.285	0.16	0.94	850	2,061	30,786	641	641	1,419	0.03	436.04
46	690	11.50	1.9	0.335	0.168	0.285	0.17	0.96	863	2,283	30,835	642	642	1,640	0.04	436.05
47	705	11.75	1.7	0.300	0.166	0.255	0.13	0.77	694	2,334	30,846	643	643	1,691	0.04	436.05
48	720	12.00	1.8	0.318	0.163	0.270	0.15	0.89	798	2,489	30,880	643	643	1,845	0.04	436.05
49	735	12.25	2.5	0.441	0.161	0.375	0.28	1.61	1,449	3,295	31,056	647	647	2,648	0.06	436.08
50	750	12.50	2.6	0.459	0.158	0.390	0.30	1.73	1,553	4,200	31,255	651	651	3,549	0.08	436.10
51	765	12.75	2.8	0.494	0.156	0.420	0.34	1.94	1,748	5,297	31,495	656	656	4,641	0.11	436.14
52	780	13.00	2.9	0.512	0.154	0.435	0.36	2.06	1,851	6,492	31,756	662	662	5,830	0.13	436.17
53	795	13.25	3.4	0.600	0.151	0.510	0.45	2.58	2,319	8,150	32,119	669	669	7,481	0.17	436.22
54	810	13.50	3.4	0.600	0.149	0.510	0.45	**2.59**	**2,331**	9,812	32,483	677	677	9,135	0.21	436.27
55	825	13.75	2.3	0.406	0.147	0.345	0.26	1.49	1,339	10,475	32,628	680	680	9,795	0.22	436.29
56	840	14.00	2.3	0.406	0.145	0.345	0.26	1.50	1,351	11,145	32,775	683	683	10,463	0.24	436.31
57	855	14.25	2.7	0.476	0.142	0.405	0.33	1.92	1,727	12,190	33,003	688	688	11,502	0.26	436.34
58	870	14.50	2.6	0.459	0.140	0.390	0.32	1.83	1,647	13,149	33,214	692	692	12,458	0.29	436.37
59	885	14.75	2.6	0.459	0.138	0.390	0.32	1.84	1,658	14,116	33,425	696	696	13,419	0.31	436.39
60	900	15.00	2.5	0.441	0.136	0.375	0.30	1.75	1,578	14,997	33,618	700	700	14,297	0.33	436.42
61	915	15.25	2.4	0.423	0.134	0.360	0.29	1.66	1,497	15,794	33,793	704	704	15,090	0.35	436.44
62	930	15.50	2.3	0.406	0.132	0.345	0.27	1.57	1,417	16,507	33,949	707	707	15,800	0.36	436.46
63	945	15.75	1.9	0.335	0.130	0.285	0.21	1.18	1,062	16,862	34,026	709	709	16,153	0.37	436.48
64	960	16.00	1.9	0.335	0.128	0.285	0.21	1.19	1,072	17,226	34,106	711	711	**16,515**	**0.38**	**436.49**
65	975	16.25	0.4	0.071	0.126	0.060	0.01	0.06	55	16,570	33,962	708	708	15,862	0.36	436.47
66	990	16.50	0.4	0.071	0.124	0.060	0.01	0.06	55	15,917	33,819	705	705	15,213	0.35	436.45
67	1005	16.75	0.3	0.053	0.122	0.045	0.01	0.05	41	15,254	33,674	702	702	14,552	0.33	436.43
68	1020	17.00	0.3	0.053	0.120	0.045	0.01	0.05	41	14,593	33,530	699	699	13,895	0.32	436.41
69	1035	17.25	0.5	0.088	0.118	0.075	0.01	0.08	68	13,963	33,392	696	696	13,267	0.30	436.39
70	1050	17.50	0.5	0.088	0.117	0.075	0.01	0.08	68	13,336	33,254	693	693	12,643	0.29	436.37
71	1065	17.75	0.5	0.088	0.115	0.075	0.01	0.08	68	12,712	33,118	690	690	12,022	0.28	436.35
72	1080	18.00	0.4	0.071	0.113	0.060	0.01	0.06	55	12,076	32,979	687	687	11,389	0.26	436.34
73	1095	18.25	0.4	0.071	0.112	0.060	0.01	0.06	55	11,444	32,840	684	684	10,760	0.25	436.32
74	1110	18.50	0.4	0.071	0.110	0.060	0.01	0.06	55	10,815	32,702	681	681	10,133	0.23	436.30
75	1125	18.75	0.3	0.053	0.108	0.045	0.01	0.05	41	10,174	32,562	678	678	9,496	0.22	436.28
76	1140	19.00	0.2	0.035	0.107	0.030	0.01	0.03	27	9,523	32,420	675	675	8,848	0.20	436.26
77	1155	19.25	0.3	0.053	0.105	0.045	0.01	0.05	41	8,889	32,281	673	673	8,217	0.19	436.24
78	1170	19.50	0.4	0.071	0.104	0.060	0.01	0.06	55	8,271	32,146	670	670	7,602	0.17	436.22
79	1185	19.75	0.3	0.053	0.102	0.045	0.01	0.05	41	7,643	32,008	667	667	6,976	0.16	436.21
80	1200	20.00	0.2	0.035	0.101	0.030	0.01	0.03	27	7,003	31,868	664	664	6,339	0.15	436.19
81	1215	20.25	0.3	0.053	0.100	0.045	0.01	0.05	41	6,380	31,732	661	661	5,719	0.13	436.17
82	1230	20.50	0.3	0.053	0.098	0.045	0.01	0.05	41	5,760	31,596	658	658	5,102	0.12	436.15
83	1245	20.75	0.3	0.053	0.097	0.045	0.01	0.05	41	5,143	31,461	655	655	4,488	0.10	436.13
84	1260	21.00	0.2	0.035	0.096	0.030	0.01	0.03	27	4,515	31,323	653	653	3,863	0.09	436.11
85	1275	21.25	0.3	0.053	0.095	0.045	0.01	0.05	41	3,904	31,190	650	650	3,254	0.07	436.10
86	1290	21.50	0.2	0.035	0.094	0.030	0.01	0.03	27	3,281	31,053	647	647	2,634	0.06	436.08

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	5.70	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.09		
LAG TIME - MINUTES	8.56	C	0.00160	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	175%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
87	1305	21.75	0.3	0.053	0.093	0.045	0.01	0.05	41	2,675	30,921	644	644	2,031	0.05	436.06
88	1320	22.00	0.2	0.035	0.092	0.030	0.01	0.03	27	2,059	30,786	641	641	1,417	0.03	436.04
89	1335	22.25	0.3	0.053	0.091	0.045	0.01	0.05	41	1,458	30,654	639	639	820	0.02	436.02
90	1350	22.50	0.2	0.035	0.090	0.030	0.01	0.03	27	847	30,520	636	636	211	0.00	436.01
91	1365	22.75	0.2	0.035	0.089	0.030	0.01	0.03	27	239	30,387	633	239	0	0.00	436.00
92	1380	23.00	0.2	0.035	0.089	0.030	0.01	0.03	27	27	30,341	632	27	0	0.00	436.00
93	1395	23.25	0.2	0.035	0.088	0.030	0.01	0.03	27	27	30,341	632	27	0	0.00	436.00
94	1410	23.50	0.2	0.035	0.087	0.030	0.01	0.03	27	27	30,341	632	27	0	0.00	436.00
95	1425	23.75	0.2	0.035	0.087	0.030	0.01	0.03	27	27	30,341	632	27	0	0.00	436.00
96	1440	24.00	0.2	0.035	0.087	0.030	0.01	0.03	27	27	30,341	632	27	0	0.00	436.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	4.41 in
RAINFALL VOLUME	91,264 cu-ft
SOIL LOSSES	50,595 cu-ft
EFFECTIVE RAIN	1.97 in
FLOOD VOLUME	0.93 acft
FLOOD VOLUME	40,668 cu-ft
REQUIRED STORAGE	0.38 acft
REQUIRED STORAGE	16,515 cu-ft
MAX WSEL	436.49 ft
PEAK FLOW RATE	2.59 cfs
TOTAL BASIN LOSSES	40,668 cu-ft
AVERAGE PERCOLATION RATE	28.24 cf/min

BASIN VOLUME WORKSHEET

PROECT CORAL MOUNTAIN
JOB No. 2553
BASIN DESIGNATION: BASIN B

BASIN CHARACTERISTICS

CONTOUR ELEVATION	DEPTH		AREA		VOLUME		
	INCR (ft)	TOTAL (ft)	INCR (sf)	TOTAL (sf)	INCR (cuft)	TOTAL (cuft)	(acre-ft)
436	0	0		30,335	0	0	0.00
437	1	1	7,440	37,775	33,987	33,987	0.78
438	1	2	4,415	42,190	39,962	73,949	1.70
439	1	3	3,705	45,895	44,030	117,979	2.71
440	1	4	3,730	49,625	47,748	165,727	3.80
441	1	5	4,590	54,215	51,903	217,630	5.00

WHERE:

$$V = \frac{1}{3}(E_1 - E_2)\left(A_1 + A_2 + \sqrt{A_1 A_2}\right)$$

Appendix G

Riverside County Whitewater River Region WQMP Worksheets

Whitewater Watershed

BMP Design Volume, V_{BMP} & Design Flow Rate, Q_{BMP} (Rev. 06-2014)

Legend: Required Entries / Calculated Cells

Company Name	MSA Consulting, Inc	Date	March 30, 2020
Designed By	DLS	County/City Case No.	
Company Project Number/Name	CORAL MOUNTAIN - MSA JOB #2553		
Drainage Area Number/Name	DRAINAGE AREA 'A'		

Enter the Area Tributary to this Feature (A_{TRIB}) — A_{TRIB} = 162.745 acres

Determine the Impervious Area Ratio

Determine the Impervious Area Within A_{TRIB} (A_{IMP}) — A_{IMP} = 39.291 acres

Calculate the Impervious Area Ratio (I_F)

$I_F = A_{IMP}/A_{TRIB}$ — I_F = 0.24

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

Use the following equation based on the WEF/ASCE Method

$C_{BMP} = 0.858I_f^3 - 0.78I_f^2 + 0.774I_f + 0.04$ — C_{BMP} = 0.19

Determine Design Storage Volume, V_{BMP}

Calculate V_U, the 80% Unit Storage Volume $V_U = 0.40 \times C_{BMP}$ — V_U = 0.08 (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} = 45,719 ft^3

BMP Design Flow Rate, Q_{BMP}

$Q_{BMP} = C_{BMP} \times I \times A_{TRIB}$ — Q_{BMP} = 6.30 ft^3/s

I = Design Rainfall Intensity, 0.2 in/hr

Notes:

Whitewater Watershed

BMP Design Volume, V_{BMP} & Design Flow Rate, Q_{BMP} (Rev. 06-2014)

Legend: Required Entries / Calculated Cells

Company Name	MSA Consulting, Inc	Date	March 30, 2020
Designed By	DLS	County/City Case No.	
Company Project Number/Name	CORAL MOUNTAIN - MSA JOB #2553		
Drainage Area Number/Name	DRAINAGE AREA 'B'		

Enter the Area Tributary to this Feature (A_{TRIB}) — A_{TRIB} = 41.586 acres

Determine the Impervious Area Ratio

Determine the Impervious Area Within A_{TRIB} (A_{IMP}) — A_{IMP} = 17.518 acres

Calculate the Impervious Area Ratio (I_F)

$I_F = A_{IMP}/A_{TRIB}$ — I_F = 0.42

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

Use the following equation based on the WEF/ASCE Method

$C_{BMP} = 0.858I_f^3 - 0.78I_f^2 + 0.774I_f + 0.04$ — C_{BMP} = 0.29

Determine Design Storage Volume, V_{BMP}

Calculate V_U, the 80% Unit Storage Volume $V_U = 0.40 \times C_{BMP}$ — V_U = 0.12 (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} = 17,618 ft^3

BMP Design Flow Rate, Q_{BMP}

$Q_{BMP} = C_{BMP} \times I \times A_{TRIB}$ — Q_{BMP} = 2.43 ft^3/s

I = Design Rainfall Intensity, 0.2 in/hr

Notes:

Whitewater Watershed

BMP Design Volume, V_{BMP} & Design Flow Rate, Q_{BMP} (Rev. 06-2014)

Legend: Required Entries / Calculated Cells

Company Name	MSA Consulting, Inc	Date	March 30, 2020
Designed By	DLS	County/City Case No.	
Company Project Number/Name	CORAL MOUNTAIN - MSA JOB #2553		
Drainage Area Number/Name	DRAINAGE AREA 'C'		

Enter the Area Tributary to this Feature (A_{TRIB}) — A_{TRIB} = 10.191 acres

Determine the Impervious Area Ratio

Determine the Impervious Area Within A_{TRIB} (A_{IMP}) — A_{IMP} = 4.420 acres

Calculate the Impervious Area Ratio (I_F)

$I_F = A_{IMP}/A_{TRIB}$ — I_F = 0.43

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

Use the following equation based on the WEF/ASCE Method

$C_{BMP} = 0.858I_f^3 - 0.78I_f^2 + 0.774I_f + 0.04$ — C_{BMP} = 0.30

Determine Design Storage Volume, V_{BMP}

Calculate V_U, the 80% Unit Storage Volume $V_U = 0.40 \times C_{BMP}$ — V_U = 0.12 (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} = 4,424 ft^3

BMP Design Flow Rate, Q_{BMP}

$Q_{BMP} = C_{BMP} \times I \times A_{TRIB}$ — Q_{BMP} = 0.61 ft^3/s

I = Design Rainfall Intensity, 0.2 in/hr

Notes:

Whitewater Watershed

BMP Design Volume, V_{BMP} & Design Flow Rate, Q_{BMP} (Rev. 06-2014)

Legend: Required Entries / Calculated Cells

Company Name	MSA Consulting, Inc	Date	March 30, 2020
Designed By	DLS	County/City Case No.	
Company Project Number/Name	CORAL MOUNTAIN - MSA JOB #2553		
Drainage Area Number/Name	DRAINAGE AREA 'D'		

Enter the Area Tributary to this Feature (A_{TRIB}) — A_{TRIB} = 28.403 acres

Determine the Impervious Area Ratio

Determine the Impervious Area Within A_{TRIB} (A_{IMP}) — A_{IMP} = 14.157 acres

Calculate the Impervious Area Ratio (I_F)

$I_F = A_{IMP}/A_{TRIB}$ — I_F = 0.50

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

Use the following equation based on the WEF/ASCE Method

$C_{BMP} = 0.858I_f^3 - 0.78I_f^2 + 0.774I_f + 0.04$ — C_{BMP} = 0.34

Determine Design Storage Volume, V_{BMP}

Calculate V_U, the 80% Unit Storage Volume $V_U = 0.40 \times C_{BMP}$ — V_U = 0.14 (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} = 13,950 ft^3

BMP Design Flow Rate, Q_{BMP}

$Q_{BMP} = C_{BMP} \times I \times A_{TRIB}$ — Q_{BMP} = 1.92 ft^3/s

I = Design Rainfall Intensity, 0.2 in/hr

Notes:

Whitewater Watershed

BMP Design Volume, V_{BMP} & Design Flow Rate, Q_{BMP} (Rev. 06-2014)

Legend: Required Entries / Calculated Cells

Company Name	MSA Consulting, Inc	Date	February 28, 2020
Designed By	DLS	County/City Case No.	
Company Project Number/Name	THE WAVE - MSA JOB #2553		
Drainage Area Number/Name	DRAINAGE AREA 'E'		

Enter the Area Tributary to this Feature (A_{TRIB}) — A_{TRIB} = 61.802 acres

Determine the Impervious Area Ratio

Determine the Impervious Area Within A_{TRIB} (A_{IMP}) — A_{IMP} = 19.059 acres

Calculate the Impervious Area Ratio (I_F)

$I_F = A_{IMP}/A_{TRIB}$ — I_F = 0.31

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

Use the following equation based on the WEF/ASCE Method

$C_{BMP} = 0.858I_f^3 - 0.78I_f^2 + 0.774I_f + 0.04$ — C_{BMP} = 0.23

Determine Design Storage Volume, V_{BMP}

Calculate V_U, the 80% Unit Storage Volume $V_U = 0.40 \times C_{BMP}$ — V_U = 0.09 (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} = 20,610 ft^3

BMP Design Flow Rate, Q_{BMP}

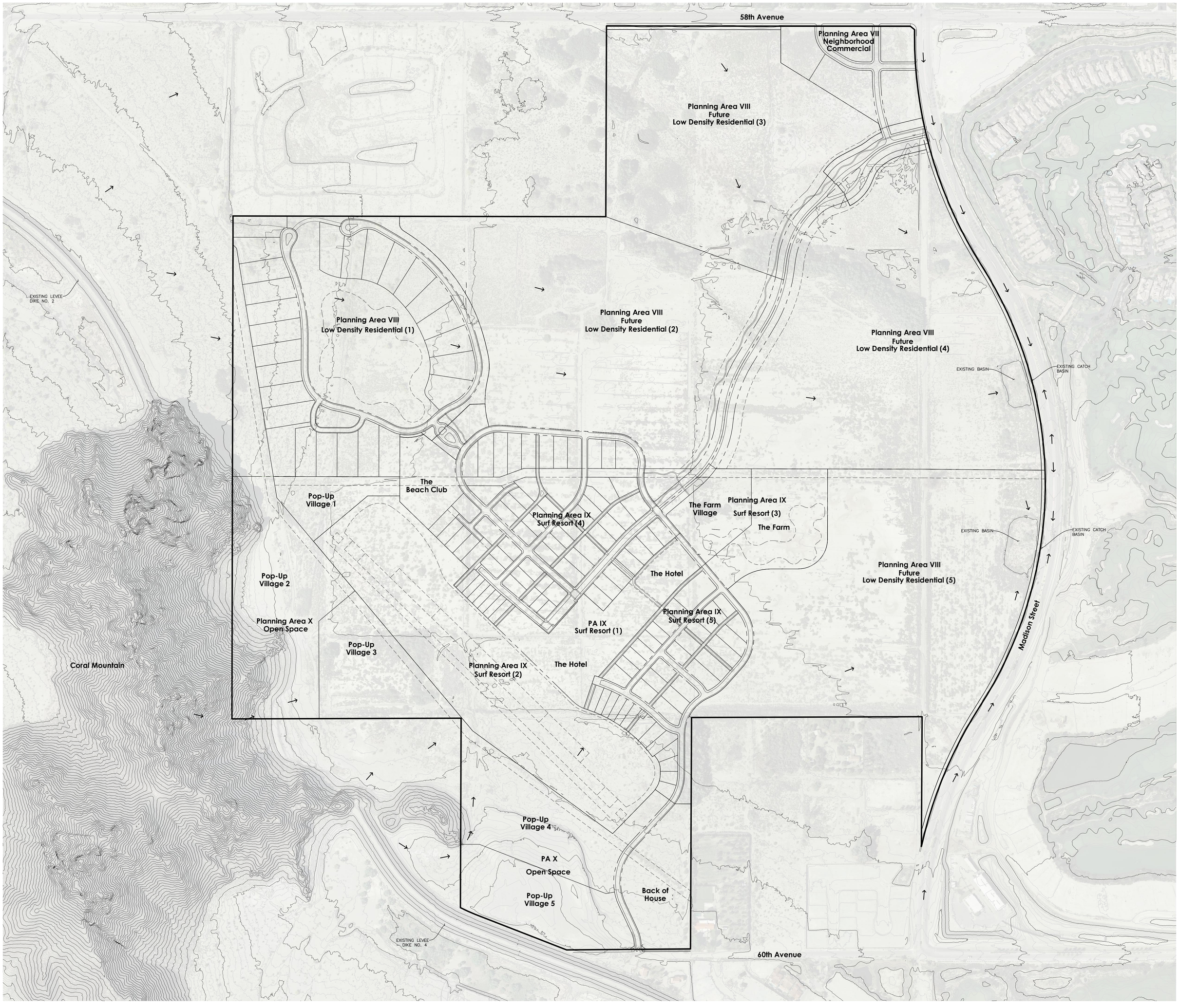
$Q_{BMP} = C_{BMP} \times I \times A_{TRIB}$ — Q_{BMP} = 2.84 ft^3/s

I = Design Rainfall Intensity, 0.2 in/hr

Notes:

Appendix H

Existing Topography Exhibit
Synthetic Unit Hydrograph Exhibits



NORTH

0' 200' 400' 600' 800'

SCALE 1"=200'

MSA CONSULTING, INC.

> PLANNING > CIVIL ENGINEERING > LAND SURVEYING

34200 Bob Hope Drive, Rancho Mirage, CA 92270

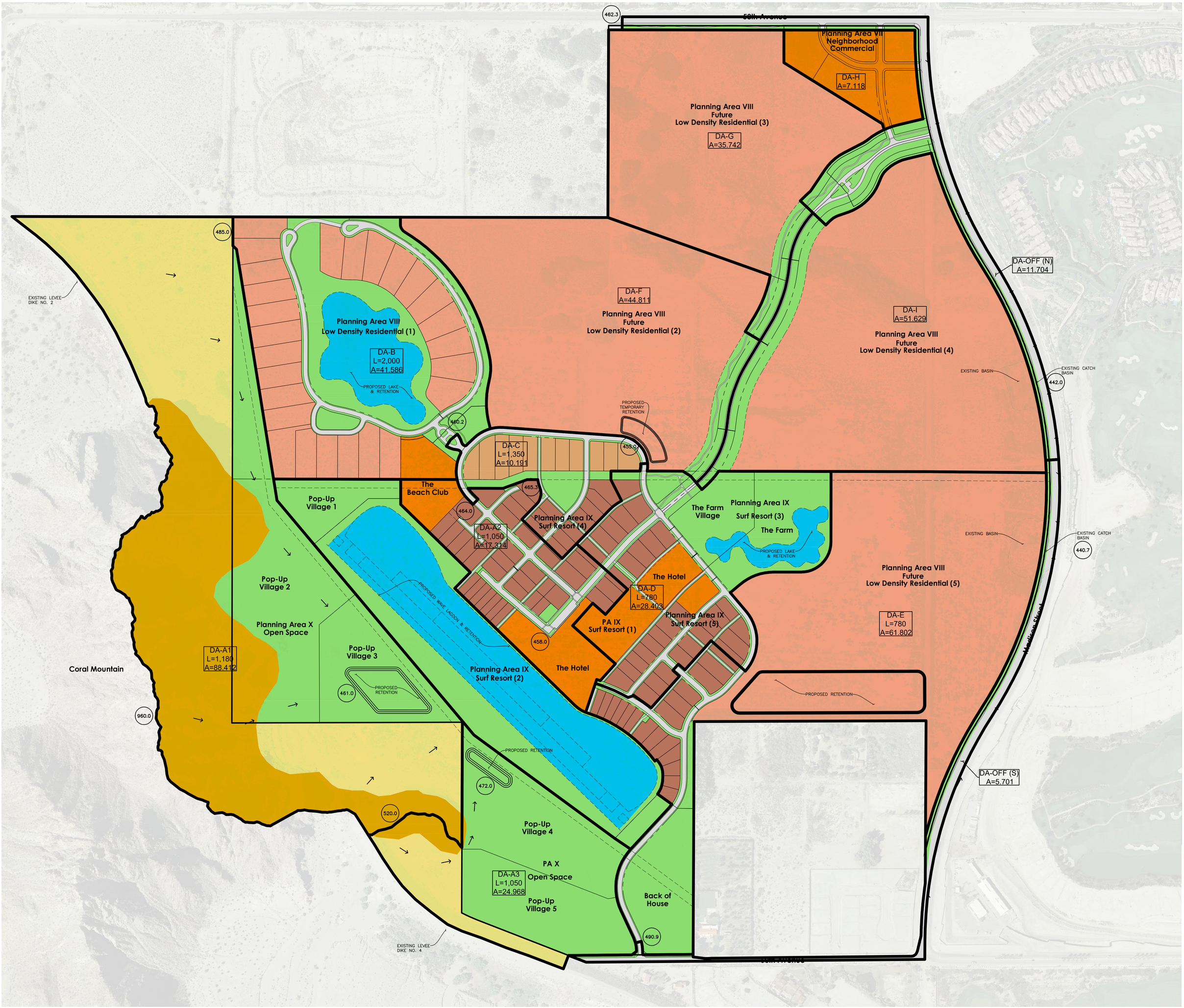
760.320.9811 **msaconsultinginc.com**

OCTOBER 2019

CITY OF LA QUINTA
TTM 37815 - CORAL MOUNTAIN
EXISTING TOPOGRAPHIC EXHIBIT

DESIGN BY	DLS
DRAWN BY	DLS
CHECK BY	MSR

SHEET 1 OF 1 SHEETS



LAND USE LEGEND

- ROCK OUTCROPPING
- EXISTING OPEN BRUSH – POOR
- IMPERVIOUS (PAVING/HARDSCAPE)
- IMPERVIOUS (WATER FEATURE)
- COMMERCIAL
- SINGLE FAMILY RESIDENTIAL – LOW DENSITY
- SINGLE FAMILY RESIDENTIAL – MEDIUM DENSITY
- SINGLE FAMILY RESIDENTIAL – HIGH DENSITY
- OPEN SPACE (LANDSCAPE/RETENTION)

HYDROLOGIC AREA RECONCILIATION

ROCK OUT–OUTCROPPING	35.652	AC	
EXISTING OPEN BRUSH – POOR	35.233	AC	
IMPERVIOUS (STREETS/WALKS)	11.552	AC	
IMPERVIOUS (WATER FEATURE)	27.445	AC	
SFR – LOW DENSITY	193.047	AC	
SFR – MEDIUM DENSITY	4.092	AC	
SFR – HIGH DENSITY	22.208	AC	
OPEN SPACE (LANDSCAPE)	95.642	AC	
TOTAL ON–SITE HYDROLOGIC AREA	444.027	AC	
OFF–SITE			
IMPERVIOUS (STREETS/WALKS)	9.768	AC	
OPEN SPACE (LANDSCAPE)	5.701	AC	
TOTAL OFF–SITE HYDROLOGIC AREA	17.405	AC	
TOTAL HYDROLOGIC AREA	461.432	AC	
SURVEY BOUNDARY	384.389	AC	
AREA ADD:	77.080	AC	OFF–SITE TRIBUTARY
AREA SUBTRACT:	0.037	AC	
TOTAL AREA – RECONCILED	461.432	AC	

PRELIMINARY WQMP SUMMARY

DRAINAGE AREA	TOTAL AREA (acres)	IMPERVIOUS AREA (acres)	DESIGN VOLUME (cu–ft)	DESIGN FLOW (cfs)	STORAGE PROVIDED (cu–ft)
DA–A	162.745	39.291	45,719	6.30	3,178,217
DA–B	41.586	17.518	17,618	2.43	292,016
DA–C	10.191	4.420	4,424	0.61	57,966
DA–D	28.403	14.157	13,950	1.92	168,719
DA–E	61.802	19.059	20,610	2.84	1,216,389

LEGEND

- DRAINAGE DIRECTION
- TRIBUTARY DRAINAGE AREA BOUNDARY
- XX / L-XX / A-XX — DRAINAGE SUB–AREA ID / FLOW TRAVEL LENGTH (FT) / AREA (AC)

NORTH

0' 200' 400' 600' 800'

SCALE 1"=200'

FEBRUARY 2020

MSA CONSULTING, INC.
> PLANNING > CIVIL ENGINEERING > LAND SURVEYING
34200 Bob Hope Drive, Rancho Mirage, CA 92270
760.320.9811 msaconsultinginc.com

CITY OF LA QUINTA
TTM 37815 - CORAL MOUNTAIN
RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD (SHORTCUT METHOD)
DEVELOPED CONDITION HYDROLOGY EXHIBIT

DESIGN BY	DLS
DRAWN BY	DLS
CHECK BY	MSR
SHEET	1 OF 2 SHEETS

DRAINAGE AREA 'A1'

PROPOSED LAND USE SUMMARY

LAND USE	OFF-SITE AREA (acres)	RI NUMBER	AMC II INFILTRATION RATE (in/hr)	IMPERVIOUS DECIMAL PERCENT
ROCK OUT-CROPPING	34.384	93	0.09	5.0
EXISTING OPEN BRUSH	30.363	76	0.29	5.0
OPEN SPACE	23.665	56	0.51	10.0
TOTAL	88.412			

STORM EVENT SUMMARY – 10 YEAR EVENT

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	0.46	0.41	0.39	0.28
FLOOD VOLUME	(cu-ft) (acre-ft)	**147,065** **3.38**	130,384 2.99	126,548 2.91	90,475 2.08
STORAGE PROVIDED	(cu-ft) (acre-ft)	154,781 3.55			
PEAK FLOW	(cfs)	N/A	70.45	58.94	7.64
MAXIMUM WSEL DEPTH	(ft) (ft)	**460.83** **1.83**	460.50 1.50	460.29 1.29	459.27 0.27

BASIN VOLUME SUMMARY

CONTOUR ELEVATION (ft)	BASIN DEPTH (ft)	CONTOUR AREA (sf)	TOTAL VOLUME (cu-ft)	TOTAL VOLUME (acre-ft)
459	0.0	65,765	0.00	0.00
460	1.0	77,310	71,460	1.64
461	2.0	89,480	154,781	3.55

DRAINAGE AREA 'A2'

PROPOSED LAND USE SUMMARY

LAND USE	OFF-SITE AREA (acres)	RI NUMBER	AMC II INFILTRATION RATE (in/hr)	IMPERVIOUS DECIMAL PERCENT
STREETS/WALKS	2.071	56	0.51	100.0
COMMERCIAL	5.752	56	0.51	90.0
RESIDENTIAL – HIGH DENSITY	8.141	56	0.51	50.0
OPEN SPACE	1.350	56	0.51	10.0
TOTAL	17.314			

STORM EVENT SUMMARY – 10 YEAR EVENT

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	0.50	0.55	0.73	1.06
FLOOD VOLUME	(cu-ft) (acre-ft)	31,653 0.73	34,498 0.79	45,742 1.05	**66,464** **1.53**
PEAK FLOW	(cfs)	N/A	14.61	12.35	2.19

DRAINAGE AREA 'A3'

PROPOSED LAND USE SUMMARY

LAND USE	OFF-SITE AREA (acres)	RI NUMBER	AMC II INFILTRATION RATE (in/hr)	IMPERVIOUS DECIMAL PERCENT
ROCK OUT-CROPPING	1.268	93	0.09	5.0
EXISTING OPEN BRUSH	4.879	76	0.29	5.0
STREETS/WALKS	0.011	56	0.51	100.0
OPEN SPACE	18.819	56	0.51	10.0
TOTAL	24.968			

STORM EVENT SUMMARY – 10 YEAR EVENT

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	0.73	0.29	0.30	0.36
FLOOD VOLUME	(cu-ft) (acre-ft)	30,473 0.70	26,411 0.61	26,879 0.62	**32,470** **0.75**
STORAGE PROVIDED	(cu-ft) (acre-ft)	34,217 0.79			
PEAK FLOW	(cfs)	N/A	15.98	12.73	1.23
MAXIMUM WSEL DEPTH	(ft) (ft)	**469.82** **1.82**	469.45 1.45	469.33 1.33	469.02 1.02

BASIN VOLUME SUMMARY

CONTOUR ELEVATION (ft)	BASIN DEPTH (ft)	CONTOUR AREA (sf)	TOTAL VOLUME (cu-ft)	TOTAL VOLUME (acre-ft)
468	0.0	10,730	0.00	0.00
469	1.0	17,060	13,773	0.32
470	2.0	24,025	34,217	0.79

DRAINAGE AREA 'A'

PROPOSED LAND USE SUMMARY

LAND USE	OFF-SITE AREA (acres)	RI NUMBER	AMC II INFILTRATION RATE (in/hr)	IMPERVIOUS DECIMAL PERCENT
ROCK OUT-CROPPING	35.652	93	0.09	5.0
EXISTING OPEN BRUSH	35.233	76	0.29	5.0
STREETS/WALKS	2.082	56	0.51	100.0
WATER FEATURE	18.699	56	0.51	100.0
COMMERCIAL	5.752	56	0.51	90.0
RESIDENTIAL – HIGH DENSITY	8.141	56	0.51	50.0
OPEN SPACE	57.186	56	0.51	10.0
TOTAL	162.745			

STORM EVENT SUMMARY – 100 YEAR EVENT

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	1.17	1.35	1.34	1.36
FLOOD VOLUME	(cu-ft) (acre-ft)	693,659 15.92	799,746 18.36	789,971 18.14	**803,730** **18.45**
STORAGE PROVIDED	(cu-ft) (acre-ft)	3,178,217 72.96			
PEAK FLOW	(cfs)	N/A	301.94	260.74	60.87
MAXIMUM WSEL DEPTH	(ft) (ft)	452.09 1.09	452.26 1.26	452.24 1.24	**452.26** **1.26**

BASIN VOLUME SUMMARY

CONTOUR ELEVATION (ft)	BASIN DEPTH (ft)	CONTOUR AREA (sf)	TOTAL VOLUME (cu-ft)	TOTAL VOLUME (acre-ft)
451	0.0	548,486	0.00	0.00
456	1.0	726,985	3,178,217	72.96

DRAINAGE AREA 'B'

PROPOSED LAND USE SUMMARY

LAND USE	OFF-SITE AREA (acres)	RI NUMBER	AMC II INFILTRATION RATE (in/hr)	IMPERVIOUS DECIMAL PERCENT
STREETS/WALKS	2.581	56	0.51	100.0
WATER FEATURE	6.423	56	0.51	100.0
COMMERCIAL	1.483	56	0.51	90.0
RESIDENTIAL – LOW DENSITY	20.347	56	0.51	30.0
OPEN SPACE	10.759	56	0.51	10.0
TOTAL	41.586			

STORM EVENT SUMMARY – 100 YEAR EVENT

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	1.12	1.21	1.20	1.10
FLOOD VOLUME	(cu-ft) (acre-ft)	169,568 3.89	**182,917** **4.20**	180,867 4.15	166,219 3.82
STORAGE PROVIDED	(cu-ft) (acre-ft)	292,016 6.70			
PEAK FLOW	(cfs)	N/A	75.02	64.49	13.72
MAXIMUM WSEL DEPTH	(ft) (ft)	458.58 0.58	**458.63** **0.63**	458.62 0.62	458.57 0.57

BASIN VOLUME SUMMARY

CONTOUR ELEVATION (ft)	BASIN DEPTH (ft)	CONTOUR AREA (sf)	TOTAL VOLUME (cu-ft)	TOTAL VOLUME (acre-ft)
458	0.0	279,800	0.00	0.00
459	1.0	304,405	292,016	6.70

DRAINAGE AREA 'C'

PROPOSED LAND USE SUMMARY

LAND USE	OFF-SITE AREA (acres)	RI NUMBER	AMC II INFILTRATION RATE (in/hr)	IMPERVIOUS DECIMAL PERCENT
STREETS/WALKS	1.455	56	0.51	100.0
RESIDENTIAL – MEDIUM DENSITY	4.092	56	0.51	40.0
RESIDENTIAL – HIGH DENSITY	2.159	56	0.51	50.0
OPEN SPACE	2.485	56	0.51	10.0
TOTAL	10.191			

STORM EVENT SUMMARY – 100 YEAR EVENT

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	1.13	1.23	1.21	1.12
FLOOD VOLUME	(cu-ft) (acre-ft)	41,768 0.96	**45,432** **1.04**	44,947 1.03	41,485 0.95
STORAGE PROVIDED	(cu-ft) (acre-ft)	57,966 1.33			
PEAK FLOW	(cfs)	N/A	18.44	15.86	3.41
MAXIMUM WSEL DEPTH	(ft) (ft)	**453.40** **1.40**	453.39 1.39	453.26 1.26	452.74 0.74

BASIN VOLUME SUMMARY

CONTOUR ELEVATION (ft)	BASIN DEPTH (ft)	CONTOUR AREA (sf)	TOTAL VOLUME (cu-ft)	TOTAL VOLUME (acre-ft)
452	0.0	25,035	0.00	0.00
453	1.0	28,965	26,976	0.62
454	2.0	33,060	57,966	1.33

DRAINAGE AREA 'D'

PROPOSED LAND USE SUMMARY

LAND USE	OFF-SITE AREA (acres)	RI NUMBER	AMC II INFILTRATION RATE (in/hr)	IMPERVIOUS DECIMAL PERCENT
STREETS/WALKS	2.588	56	0.51	100.0
WATER FEATURE	2.323	56	0.51	100.0
COMMERCIAL	4.803	56	0.51	90.0
RESIDENTIAL – HIGH DENSITY	7.637	56	0.51	50.0
OPEN SPACE	11.052	56	0.51	10.0
TOTAL	28.403			

STORM EVENT SUMMARY – 100 YEAR EVENT

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	1.16	1.31	1.27	1.26
FLOOD VOLUME	(cu-ft) (acre-ft)	119,475 2.74	**134,950** **3.10**	1.28 132,055	1.28 132,086
STORAGE PROVIDED	(cu-ft) (acre-ft)	168,719 3.87			
PEAK FLOW	(cfs)	N/A	52.25	45.06	3.03
MAXIMUM WSEL DEPTH	(ft) (ft)	452.10 1.10	**452.23** **1.23**	452.20 1.20	10.24 452.20

BASIN VOLUME SUMMARY

CONTOUR ELEVATION (ft)	BASIN DEPTH (ft)	CONTOUR AREA (sf)	TOTAL VOLUME (cu-ft)	TOTAL VOLUME (acre-ft)
451	0.0	101,190	0.00	0.00
452	1.0	112,495	106,793	2.45
452.5	1.5	135,570	168,719	3.87

DRAINAGE AREA 'E'

PROPOSED LAND USE SUMMARY

LAND USE	OFF-SITE AREA (acres)	RI NUMBER	AMC II INFILTRATION RATE (in/hr)	IMPERVIOUS DECIMAL PERCENT
STREETS/WALKS	1.707	56	0.51	100.0
RESIDENTIAL – LOW DENSITY	48.170	56	0.51	30.0
RESIDENTIAL – HIGH DENSITY	4.271	56	0.51	50.0
OPEN SPACE	7.654	56	0.51	10.0
TOTAL	61.802			

STORM EVENT SUMMARY – 100 YEAR EVENT

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	1.07	1.08	1.10	0.98
FLOOD VOLUME	(cu-ft) (acre-ft)	240,394 5.52	242,121 5.56	**246,363** **5.66**	219,473 5.04
STORAGE PROVIDED	(cu-ft) (acre-ft)	1,216,389 27.92			
PEAK FLOW	(cfs)	N/A	108.26	92.62	17.61
MAXIMUM WSEL DEPTH	(ft) (ft)	**442.97** **0.97**	442.85 0.85	442.76 0.76	442.26 0.26

BASIN VOLUME SUMMARY

CONTOUR ELEVATION (ft)	BASIN DEPTH (ft)	CONTOUR AREA (sf)	TOTAL VOLUME (cu-ft)	TOTAL VOLUME (acre-ft)
442	0.0	224,555	0.00	0.00
443	1.0	231,980	228,257	5.24
444	2.0	239,460	463,968	10.65
445	3.0	247,000	707,188	16.23
446	4.0	254,595	957,976	21.99
447	5.0	262,250	1,216,389	27.92

DRAINAGE AREA 'F'

PROPOSED LAND USE SUMMARY

LAND USE	OFF-SITE AREA (acres)	RI NUMBER	AMC II INFILTRATION RATE (in/hr)	IMPERVIOUS DECIMAL PERCENT
STREETS/WALKS	0.353	56	0.51	100.0
RESIDENTIAL – LOW DENSITY	42.760	56	0.51	30.0
OPEN SPACE	1.698	56	0.51	10.0
TOTAL	44.811			

STORM EVENT SUMMARY – 100 YEAR EVENT

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	1.07	1.07	1.09	0.96
FLOOD VOLUME	(cu-ft) (acre-ft)	173,523 3.98	173,475 3.98	**176,875** **4.06**	156,543 3.59
PEAK FLOW	(cfs)	N/A	78.28	66.94	12.58

DRAINAGE AREA 'G'

PROPOSED LAND USE SUMMARY

LAND USE	OFF-SITE AREA (acres)	RI NUMBER	AMC II INFILTRATION RATE (in/hr)	IMPERVIOUS DECIMAL PERCENT
STREETS/WALKS	0.316	56	0.51	100.0
RESIDENTIAL – LOW DENSITY	33.880	56	0.51	30.0
OPEN SPACE	1.546	56	0.51	10.0
TOTAL	35.742			

STORM EVENT SUMMARY – 100 YEAR EVENT

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	1.07	1.07	1.09	0.96
FLOOD VOLUME	(cu-ft) (acre-ft)	138,381 3.18	138,303 3.17	**141,025** **3.24**	124,782 2.86
PEAK FLOW	(cfs)	N/A	62.43	53.39	10.03

DRAINAGE AREA 'H'

PROPOSED LAND USE SUMMARY

LAND USE	OFF-SITE AREA (acres)	RI NUMBER	AMC II INFILTRATION RATE (in/hr)	IMPERVIOUS DECIMAL PERCENT
COMMERCIAL	7.118	56	0.51	90.0
TOTAL	7.118			

STORM EVENT SUMMARY – 100 YEAR EVENT

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	1.34	1.85	2.18	2.61
FLOOD VOLUME	(cu-ft) (acre-ft)	34,704 0.80	47,483 1.10	**56,379** **1.29**	67,518 1.55
PEAK FLOW	(cfs)	N/A	14.42	12.62	3.71

DRAINAGE AREA 'I'

PROPOSED LAND USE SUMMARY

LAND USE	OFF-SITE AREA (acres)	RI NUMBER	AMC II INFILTRATION RATE (in/hr)	IMPERVIOUS DECIMAL PERCENT
STREETS/WALKS	0.470	56	0.51	100.0
RESIDENTIAL – LOW DENSITY	47.890	56	0.51	30.0
OPEN SPACE	3.269	56	0.51	10.0
TOTAL	51.629			

STORM EVENT SUMMARY – 100 YEAR EVENT

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	1.06	1.06	1.08	0.96
FLOOD VOLUME	(cu-ft) (acre-ft)	199,561 4.58	198,899 4.57	**202,969** **4.66**	179,153 4.11
PEAK FLOW	(cfs)	N/A	90.09	77.02	14.41

DRAINAGE AREA OFF-SITE NORTH

PROPOSED LAND USE SUMMARY

LAND USE	OFF-SITE AREA (acres)	RI NUMBER	AMC II INFILTRATION RATE (in/hr)	IMPERVIOUS DECIMAL PERCENT
STREETS/WALKS	5.754	56	0.51	100.0
OPEN SPACE	5.950	56	0.51	10.0
TOTAL	11.704			

STORM EVENT SUMMARY – 100 YEAR EVENT

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	1.18	1.37	1.32	1.39
FLOOD VOLUME	(cu-ft) (acre-ft)	50,090 1.15	58,112 1.33	55,916 1.28	**59,063** **1.36**
STORAGE PROVIDED	(cu-ft) (acre-ft)	126,903 2.91			
PEAK FLOW	(cfs)	N/A	21.77	18.81	4.43
MAXIMUM WSEL DEPTH	(ft) (ft)	439.80 1.80	**439.93** **1.93**	439.77 1.77	439.35 1.35

BASIN VOLUME SUMMARY

CONTOUR ELEVATION (ft)	BASIN DEPTH (ft)	CONTOUR AREA (sf)	TOTAL VOLUME (cu-ft)	TOTAL VOLUME (acre-ft)
438	0.0	21,900	0.00	0.00
439	1.0	27,300	24,550	0.56
440	2.0	31,405	53,879	1.24
441	3.0	36,785	87,939	2.02
442	4.0	41,185	126,903	2.91

DRAINAGE AREA OFF-SITE SOUTH

PROPOSED LAND USE SUMMARY

LAND USE	OFF-SITE AREA (acres)	RI NUMBER	AMC II INFILTRATION RATE (in/hr)	IMPERVIOUS DECIMAL PERCENT
STREETS/WALKS	4.014	56	0.51	100.0
OPEN SPACE	1.687	56	0.51	10.0
TOTAL	5.701			

STORM EVENT SUMMARY – 100 YEAR EVENT

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	1.27	1.62	1.74	1.97
FLOOD VOLUME	(cu-ft) (acre-ft)	26,215 0.60	33,604 0.77	36,073 0.83	**40,668** **0.93**
STORAGE PROVIDED	(cu-ft) (acre-ft)	126,903 2.91			
PEAK FLOW	(cfs)	N/A	11.11	9.67	2.59
MAXIMUM WSEL DEPTH	(ft) (ft)	436.69 0.69	**436.76** **0.76**	436.69 0.69	436.49 0.49

BASIN VOLUME SUMMARY

CONTOUR ELEVATION (ft)	BASIN DEPTH (ft)	CONTOUR AREA (sf)	TOTAL VOLUME (cu-ft)	TOTAL VOLUME (acre-ft)
436	0.0	30,335	0.00	0.00
437	1.0	37,775	33,987	0.78
438	2.0	42,190	73,949	1.70
439	3.0	45,895	117,979	2.71
440	4.0	49,625	165,727	3.80
441	5.0	54,215	217,630	5.00

FEBRUARY 2020

MSA CONSULTING, INC.
> PLANNING > CIVIL ENGINEERING > LAND SURVEYING
34200 Bob Hope Drive, Rancho Mirage, CA 92270
760.320.9811 msaconsultinginc.com

CITY OF LA QUINTA
TTM 37815 - CORAL MOUNTAIN
PROPOSED LAND USE, FLOOD VOLUME AND BASIN VOLUME SUMMARIES

DESIGN BY	DLS
DRAWN BY	DLS
CHECK BY	MSR
SHEET	2
OF	2
SHEETS	