TORY R. WALKER ENGINEERING

PRELIMINARY DRAINAGE REPORT

Colonnade Hotel

APN 282-141-32-00, 282-141-33-00, 282-141-34-00

Ramona, California

Record ID: PDS2023-STP-23-021

Preparation Date:

December 2, 2025

Prepared for:

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CHAPTER 1 - BACKGROUND

1.1 – Introduction

The purpose of this report is to summarize the preliminary hydrologic and hydraulic analyses of the proposed preliminary grading plan for the Colonnade Hotel project.

The Colonnade Hotel project proposes to rough grade APNs 282-141-32-00, 33-00, & 34-00 within the unincorporated community of Ramona, located within the County of San Diego. The site is bound by Main Street (Highway 67) to the southeast, and private roads Vermont Street, Julian Street and Letton Street to the northwest, southwest, and northeast, respectively.

This report analyzes the pre-project and post-project 100-year Rational Method peak flow rate one main discharge point associated with the project. To achieve no net increase in 100-year peak flow, the project proposes an underground detention facility. This preliminary study intentionally excludes hydraulic analysis of onsite inlets and storm drains (to be analyzed and reported at the engineering phase).

1.2 – Summary of Pre-Project Conditions

The existing site is largely disturbed and partially urbanized with a relatively flat surface gradient. The existing land cover is characterized as a combination of compacted dirt, gravel, hardscape, and small structure rooftops. The existing site hydrologic soil group (HSG) is predominantly mapped within Natural Resources Conservation Service (NRCS) Type "D" soils, with a small portion parallel to the frontage mapped as Type "C." The existing project site drainage behavior is characterized as sheet flow and shallow concentrated flow. The initial overland flow path begins at the northern side of the site to then travels southerly as shallow concentrated flow until reaching Main Street. The point of discharge for the subject site is located at an existing catch basin within the frontage-adjacent Main Street sump drop inlet, which drains to an underground 24-inch diameter reinforced concrete pipe (RCP) storm drain system that continues flowing to the southwest for approximately one mile before daylighting into an existing natural drainage course. The existing Main Street drop inlet and 36-inch diameter reinforced concrete pipe (RCP) underground storm drain system are within the California Department of Transportation (Caltrans) right-of-way. No offsite sources contribute run-on through the parcel limits.

The pre-project hydrology exhibit and hydrologic parameters are provided in Attachments 1 and 2, respectively. The project site is not located within a Federal

Emergency Management Agency (FEMA) Special Flood Hazard Area (SFHA). Refer to the National Flood Hazard Layer FIRMette provided in Attachment 9.

1.3 – Summary of Post-Project Conditions

The proposed site will be fully disturbed and urbanized and will remain a relatively flat surface gradient. The proposed land cover is characterized as a combination of landscape, decomposed granite, hardscape, asphaltic and Portland cement concrete drive aisles and parking, pool area, and rooftop. The proposed site HSG is conservatively assumed to be fully Type "D" soils. The proposed site drainage behavior is characterized as sheet flow, shallow concentrated flow, and piped flow. The initial overland flow path remains at the northern site of the site, then travels southeasterly as shallow concentrated flow until reaching an onsite catch basin and underground storm drain system that confluences with piped flows from the rest of the site. This centralized confluence point is upstream of a Modular Wetlands System (MWS) and downstream underground detention facility. Onsite flows will be treated then detained prior to joining with the same offsite storm drain system at the same point within Main Street as concentrated piped flow. The proposal to connect to the existing Main Street storm drain system by way of a new private storm drain connection will allow the project to maintain the same exact discharge point to the offsite underground storm drain system without relying upon surface drainage, as is the case in the existing condition. The proposed piped storm drain connection will ultimately result in less surface runoff reaching the existing sump drop inlet within the Caltrans right-of-way, which in turn, reduces ponding along Main Street and enhances public safety. Permission from Caltrans will be obtained to encroach into the existing storm drain system via the proposed storm drain connection.

The post-project hydrology exhibit and hydrologic parameters are provided in Attachments 1 and 2, respectively.

CHAPTER 2 – HYDROLOGIC ANALYSIS

2.1 – Rational Method

Advanced Engineering Software (AES) was used for computing the pre-project and post-project 100-year Rational Method peak flows. AES computes Rational Method storm runoff based upon the procedure set forth in the San Diego County Hydrology Manual (SDCHM).

The Rational Method analysis is summarized below. Rational Method calculations are provided in Attachment 3. Each peak at each time interval is equal to:

$$Q = CIA$$

Where: Q = peak discharge (cfs)
C = runoff coefficient, where:
$C = 0.90 \times (\%\ \text{Impervious}) + C_P \times (1 - \%\ \text{Impervious})$
I = average rainfall intensity, taken at the time of concentration (in/hr)
A = drainage area (ac)

2.1.1 Design Storms

The 100-year point precipitation depth was selected using The San Diego County Hydrology Manual Isopluvial Map. Point precipitation intensities for varying storm durations were input into AES to construct a rainfall intensity relationship for varying times of concentration. Per the SDCHM, the post-project 100-year peak flow is calculated using the 100-year storm and AMC II.

2.1.2 Soil Type and Land Cover

In accordance with the pre-project and post-project descriptions provided in Chapter 1, weighted runoff coefficients were established for both conditions. The post-project condition was assigned the following conservative assumptions for this preliminary analysis: (1) a 90% impervious value (the true site-specific imperviousness is no more than 85%), (2) the 800 square foot pool area has been included in the post-project acreage, and (3) the effect of volume-reducing significant site design BMPs (per the project-specific Stormwater Quality Management Plan) has been neglected. The Rational Method runoff coefficients are summarized in the table below:

Table 1: Rational Method Runoff Coefficient Summary

Condition	U/S Node	D/S Node	Area (acres)	Percent Impervious	C_p	Runoff Coefficient
Pre-Project	100	102	0.05	0%	0.35	0.35
	102	104	2.69	31%	0.34	0.52
Post-Project	100	102	0.07	90%	0.35	0.85
	102	104	0.80	90%	0.35	0.85
	106.1	106	1.87	90%	0.35	0.85

2.1.3 Peak Flow Summary

The Rational Method results are summarized in Table 2:

Table 2: 100-Year Rational Method Peak Flow Summary

Condition	Discharge Point	C	t_c (min)	Rainfall Intensity (I)	Area (acres)	Peak Velocity (fps)	Peak Flow (cfs)
Pre-Project	POC-1	0.35	10.7	5.25	2.74	1.35	7.44
Post-Project (Unmitigated)	POC-1	0.85	6.4	7.27	2.74	4.20	16.94
Post-Project (Mitigated)	POC-1	0.85	10.8	5.33	2.74	4.67	7.00

Based upon the Rational Method analysis, a two-fold increase in the 100-year peak flow rate is anticipated as a result of redevelopment. Therefore, an underground detention facility is proposed to attenuate the peak flow to a level that mimics the pre-project condition. The onsite detention analysis is described in the following section.

For preliminary purposes, entire property has been conservatively assumed to drain to the onsite storm drain system and its detention facility. This assumption allows for the most conservatively sized detention system possible due to the maximization of the inflow hydrograph volume.

2.2 – Rational Method Hydrograph

The unattenuated pre-project and post-project Rational Method Hydrographs were calculated following the procedure prescribed by SDCHM Section 6.2, as all drainage areas are less than one square mile in size. Hydrograph time series and parameter calculations are provided in Attachments 4 and 5.

The design objective was to attenuate the post-developed 100-year storm peak flow to a rate equal to or less than the pre-project condition at the southern discharge point. Pre-project and post-project hydrology maps are provided in Attachment 1. The pre-project and post-project drainage area parameters presented in Table 2 were used to construct the corresponding Rational Method hydrograph.

All watershed and hydrograph parameters were selected in a manner consistent with those used in the Rational Method analysis.

Hydrograph routing was completed using the Modified Puls Method in EPA SWMM for the 100-year storm event. A storage curve (depth vs. area) and a rating curve (depth vs. discharge) was developed to create the detention facility storage and flow control structure properties in SWMM. Hydraulic routing through the flow control riser begins at the invert of the lowest surface discharge outlet in the overflow riser and extends upward. The storage and rating curves are provided in Attachment 7.

The proposed detention facility is comprised of two main components: underground arch chamber storage (with gravel backfill) and a cleanout with several orifices and slots at varying elevations for flow control. The proposed flow control facility allows for the requisite level of flow control and conveyance of detained outflows flows to the designated discharge point in the same manner as the pre-project condition. Detailed outlet structure specifications are provided in Attachment 7. The general detention system specifications are provided in Table 3 below:

Table 3: Detention System Specifications

Surface Storage Area (sf)	Maximum Detention Depth (ft)	Total Static Detention Volume (cf)
10,308	3.50	18,272

Complete hydrograph and detention routing data are provided in Attachments 4 through 7. The hydrograph routing analyses are summarized in Figure 1 and Table 5 below:

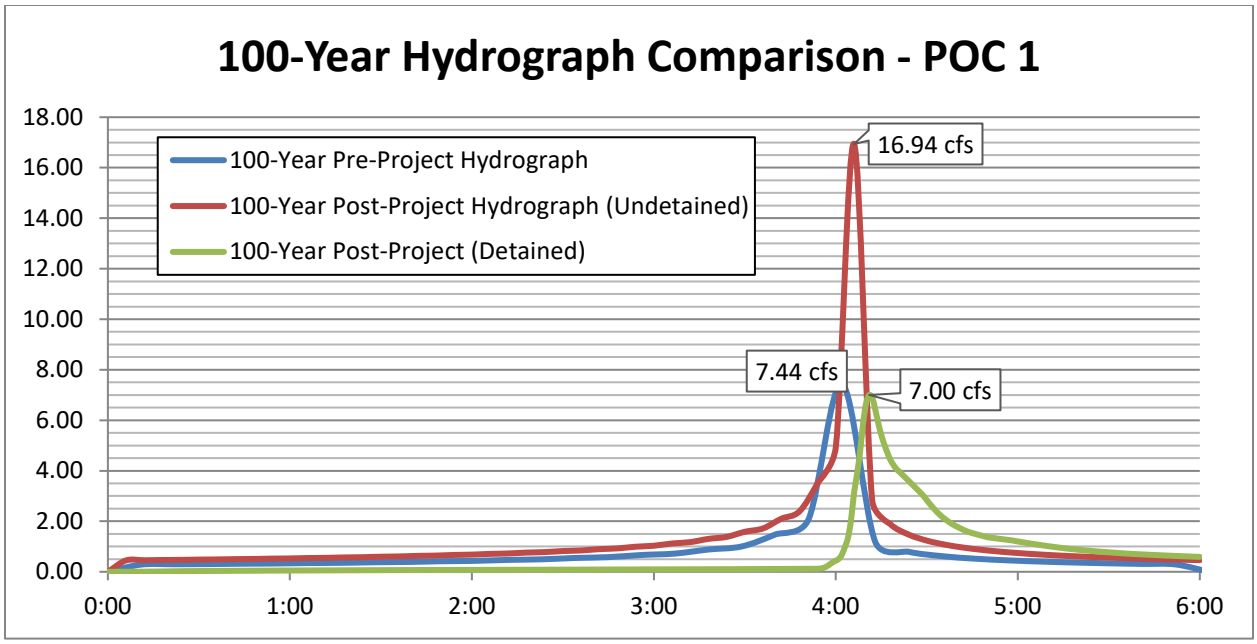


Figure 1: Hydrograph Comparison

Table 4: Rational Method Hydrograph Detention Summary

Storm Event	Peak Flow (cfs)			
	Pre-Development	Post-Development	Mitigated	% Pre-Development
100-yr, 6-hour	7.4	16.9	7.0	95%

When considering the differential between the pre-project and mitigated post-project 100-year 6-hour hydrographs, we find that the provided detention system reduces the outflow to a level approximately five percent lower than the pre-project condition peak flow.

Per the preliminary grading plan, there is a very small pervious area along the frontage (between the two proposed driveways) that slopes directly toward Main Street. This very small area (no greater than 0.10 acres) would bypass the onsite storm drain system and continue draining directly to the existing Main Street sump drop inlet. The estimated 100-year peak flow rate from this very small area is no greater than 0.30 cfs (assuming a pervious runoff coefficient of 0.35 and a 5-minute time of concentration rainfall intensity of 8.56 inches per hour). Therefore, with this small potential bypass area considered (and "double-counted"), the project still decreases the overall peak flow to the offsite system and reduces the amount of flow that reaches the Main Street sump drop inlet.

The proposed detention facility provides a level of flood protection that exceeds the drainage standard of care and the project is therefore not expected to result in adverse downstream impacts. Therefore, the proposed storm drain system and

detention facility allows the project to decrease the amount of surface runoff, which in turn, reduces potential for flooding on or offsite and will not exceed the capacity of existing offsite or planned onsite storm drain systems.

CHAPTER 3 – HYDRAULIC ANALYSIS

3.1 – Storm Drain Hydraulics

Onsite storm drain hydraulic calculations (beyond the underground detention facility routing) will be deferred to the engineering phase. For this preliminary analysis concurrent to the project planning phase, all onsite pipes were conservatively assigned a twelve-inch minimum diameter, and all drive aisle inlets are specified as SDRSD D-08 Type G-1 catch basins. All proposed inlets will be sized to the degree necessary to allow for full interception of their tributary area while providing sufficient freeboard to the proposed structure. The preliminary grading plan allows for an overland emergency escape path in the event any or all onsite inlets were to become inoperable. Similarly, the bypass hydraulics for the proprietary biofiltration unit will be detailed at the engineering phase. The proprietary biofiltration unit has been conceptualized to include an internal bypass weir, allowing flows exceeding the water quality flowrate to discharge into the downstream detention facility.

3.2 – Erosion and Siltation

The discharge point is comprised of non-erosive material (underground storm drain), so energy dissipation measures are not applicable for this site. Additionally, the project will be highly impervious and will continue to discharge to the existing offsite storm drain system at the same location at a rate that does not exceed the existing condition. Therefore, the project will not result in erosion or siltation on or offsite.

CHAPTER 4 – CONCLUSION

Our preliminary report and analyses satisfies CEQA requirements and demonstrates that the Colonnade Hotel project improves upon the existing local and regional drainage conditions, and is therefore not expected to:

1. Substantially alter the existing drainage pattern of the site or area in a manner which would result in substantial erosion or siltation onsite or offsite.

2. Substantially alter the existing drainage pattern of the site or area or substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite.

3. Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems.

4. Place housing within a 100-year flood hazard area as mapped on a Feder Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map, including County Floodplain Maps.

5. Place structures within a 100-year flood hazard area which would impede or redirect flood flows.

6. Expose people or structures to a significant risk of loss, injury or death involving flooding as a result of the failure of levee or dam.

CHAPTER 5 – DECLARATION OF RESPONSIBLE CHARGE

Declaration of Responsible Charge

I hereby declare that I am the Engineer of Work for this drainage report, that I have exercised responsible charge over the contents of the drainage report as defined in Section 6703 of the Business and Professions Code, and that the provided analyses are consistent with current standards.

I understand that the check of this report by the County of San Diego is confined to a review only and does not relieve me, as the Engineer of Work, of my responsibilities for maintaining the professional standard of care.

Alex J. Smith RCE C90082 12/2/2025
Date

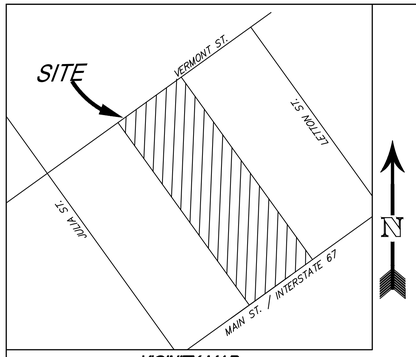
REFERENCES

1. San Diego County, Hydrology Manual, June 2003.
2. California Department of Transportation (Caltrans), Highway Design Manual, July 2020.
3. Federal Emergency Management Agency, National Flood Hazard Layer FIRMette, August 2023.

Attachment 1

Hydrology Exhibits

RATIONAL METHOD HYDROLOGY EXHIBIT
COLONNADE HOTEL
EXISTING CONDITION



VICINITY MAP

OWNER/APPLICANT

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CIVIL ENGINEER

PROJECTION ENGINEERING
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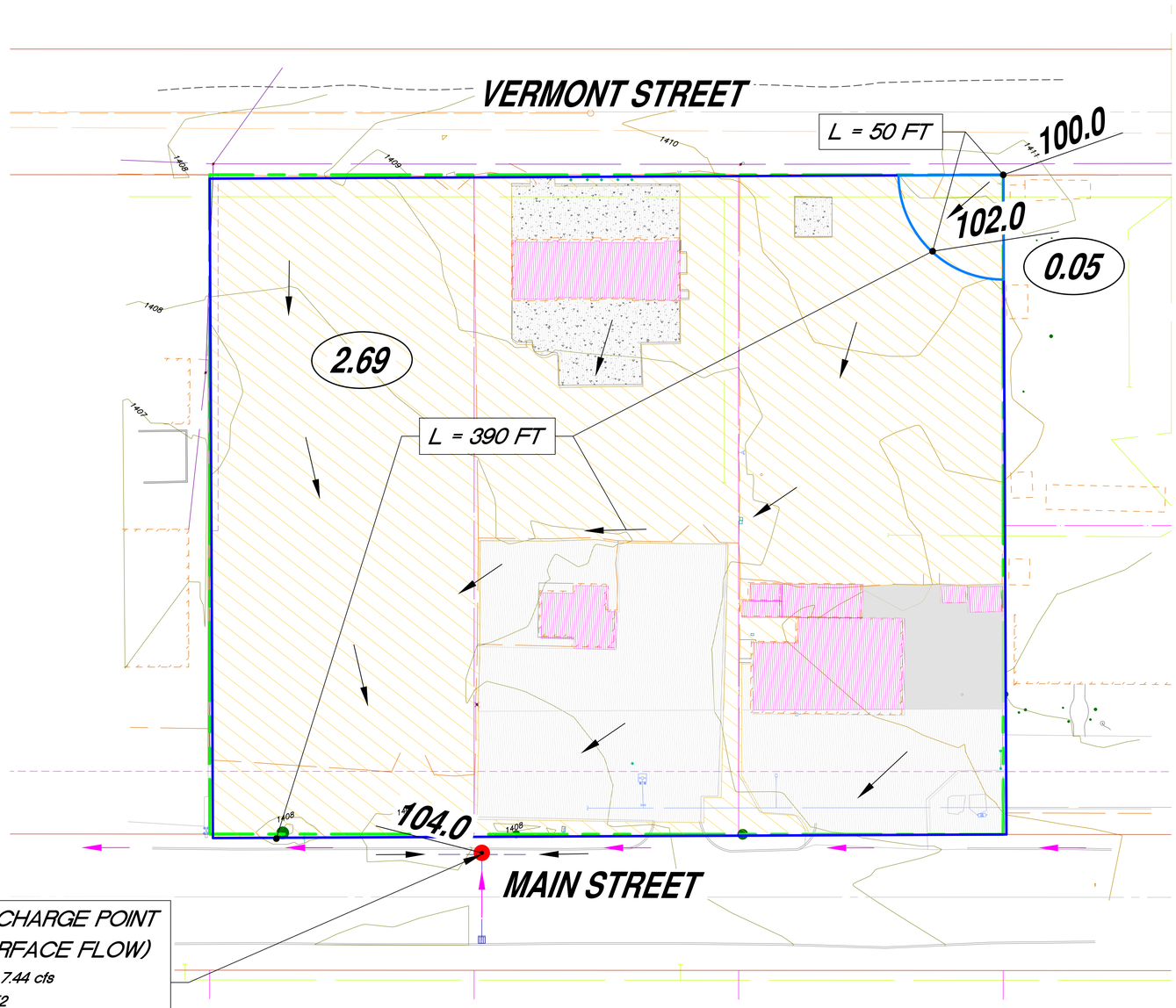
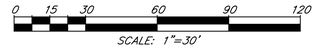
LEGEND

- DRAINAGE AREA
- 1410 — EXISTING CONTOUR LINE
- EXISTING CONCRETE/ASPHALT AREA
- EXISTING ROOFS/IMPERVIOUS AREA
- EXISTING COMPACTED AREA
- DISCHARGE POINT
- 100.0 — NODE
- 2.74 — AREA (AC)
- SURFACE FLOW ARROW
- SUBSURFACE FLOW ARROW



DISCHARGE POINT
(SURFACE FLOW)

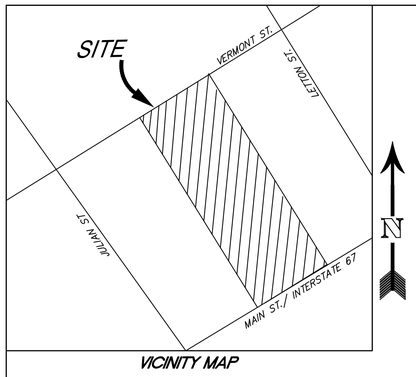
Q_{100} = 7.44 cfs
C=0.52
Tc= 10.7 (mins)
A=2.74 (acres)



SCALE: 1"=30'

COUNTY OF SAN DIEGO	
RATIONAL METHOD HYDROLOGY EXHIBIT COLONNADE HOTEL EXISTING CONDITION	1 OF 2 SHEETS

RATIONAL METHOD HYDROLOGY EXHIBIT
COLONNADE HOTEL
PROPOSED CONDITION



VICINITY MAP

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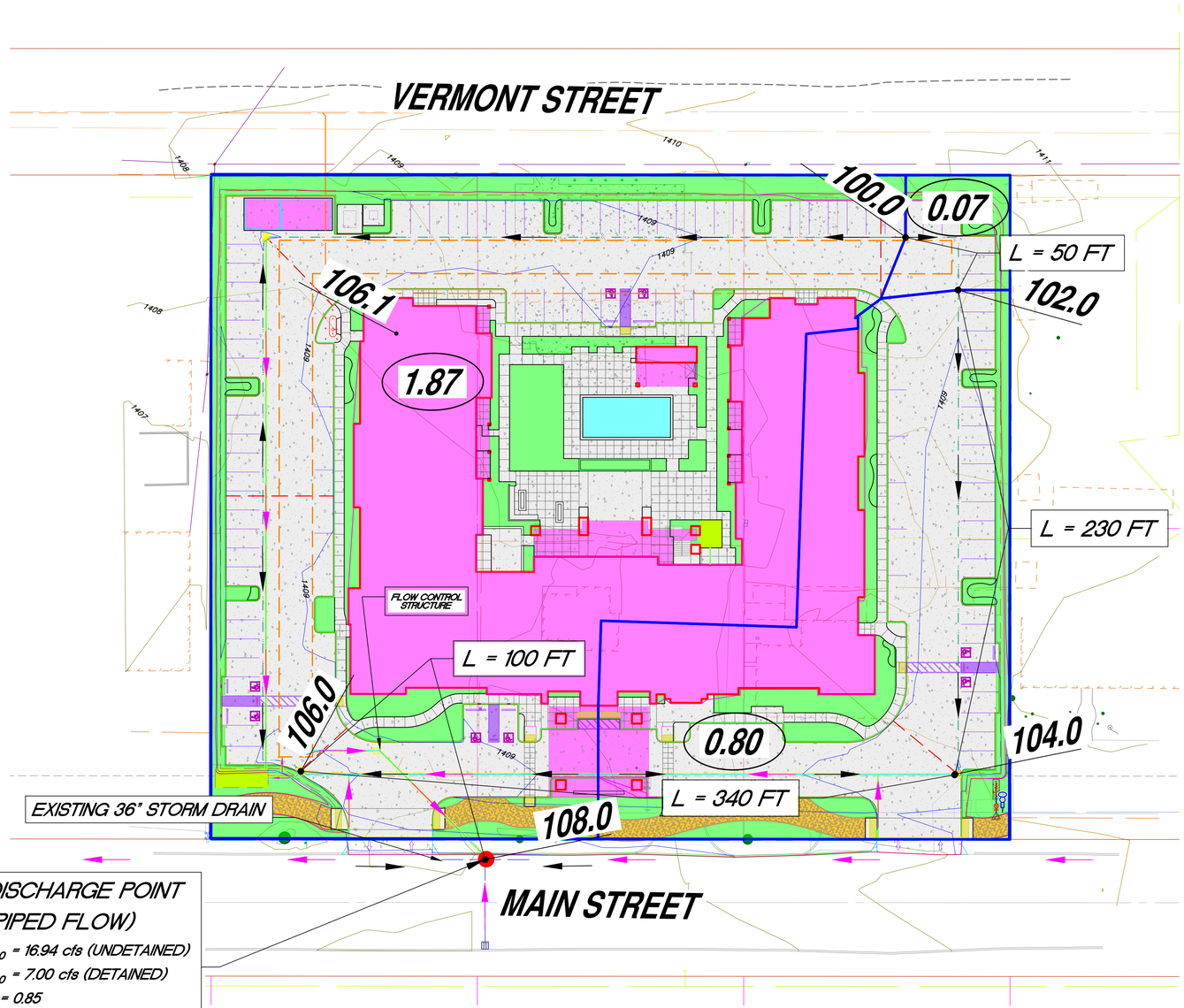
LEGEND

- DRAINAGE AREA
- UNDERGROUND DETENTION SYSTEM LIMITS
- 1410 — EXISTING CONTOUR LINE
- PROPOSED CONCRETE/ASPHALT AREA
- PROPOSED ROOFS/IMPERVIOUS AREA
- PROPOSED COMPACTED AREA
- PROPOSED LANDSCAPED AREA
- DISCHARGE POINT
- 100.0 — NODE
- (2.74) — AREA (AC)
- SURFACE FLOW ARROW
- SUBSURFACE FLOW ARROW



DISCHARGE POINT
(PIPED FLOW)

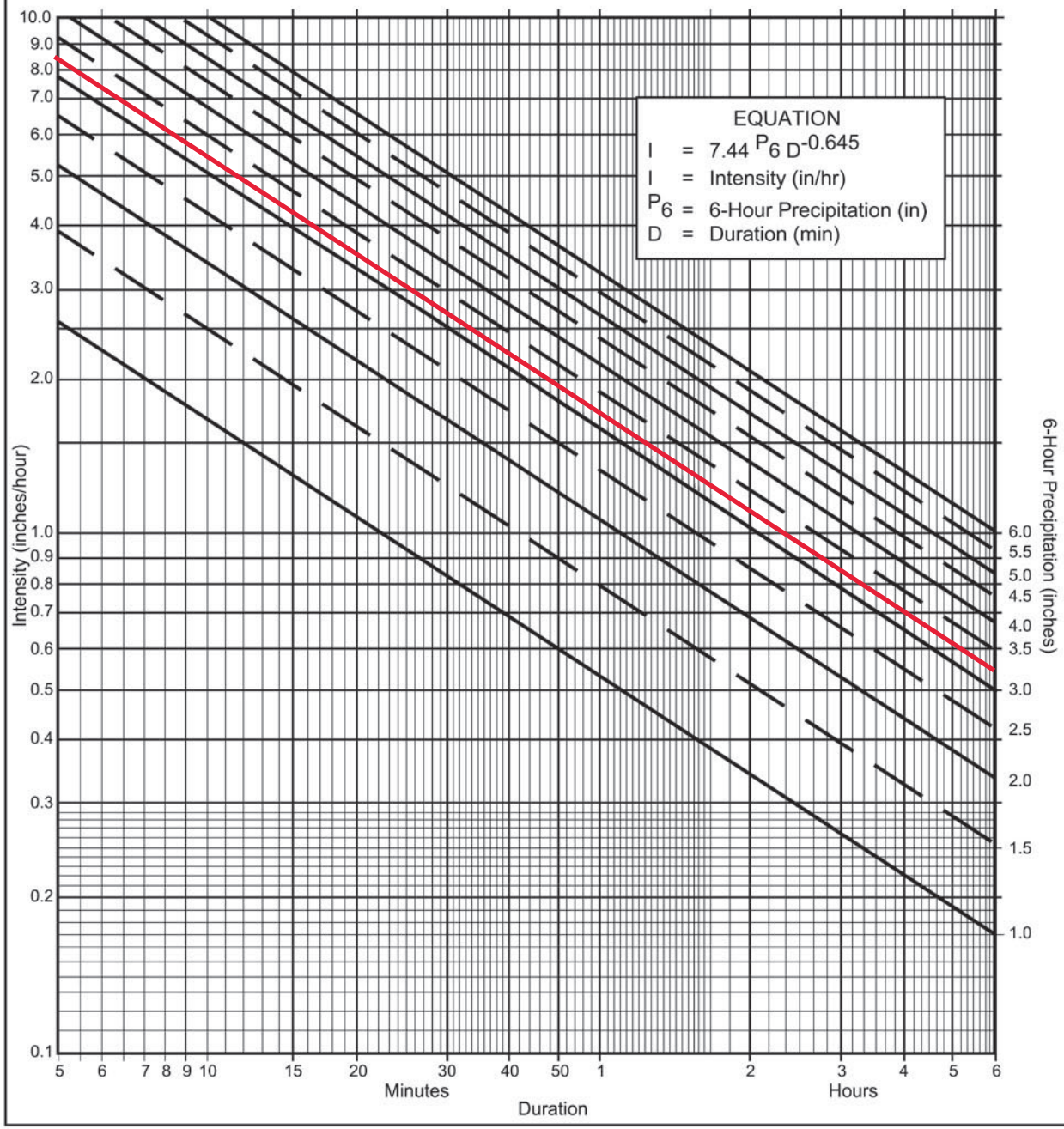
Q_{100} = 16.94 cfs (UNDETAINED)
Q_{100} = 7.00 cfs (DETAINED)
C = 0.85
Tc = 6.4 (mins)
A =2.74 (acres)

0 15 30 60 90 120
SCALE: 1"=30'

COUNTY OF SAN DIEGO	
RATIONAL METHOD HYDROLOGY EXHIBIT COLONNADE HOTEL PROPOSED CONDITION	2 OF 2 SHEETS

Attachment 2

Hydrologic Parameters



Directions for Application:

(1) From precipitation maps determine 6 hr and 24 hr amounts for the selected frequency. These maps are included in the County Hydrology Manual (10, 50, and 100 yr maps included in the Design and Procedure Manual).

(2) Adjust 6 hr precipitation (if necessary) so that it is within the range of 45% to 65% of the 24 hr precipitation (not applicaple to Desert).

(3) Plot 6 hr precipitation on the right side of the chart.

(4) Draw a line through the point parallel to the plotted lines.

(5) This line is the intensity-duration curve for the location being analyzed.

Application Form:

(a) Selected frequency 100 year

(b) P_6 = 3.25 in., P_{24} = 5.75, $\frac{P_6}{P_{24}}$ = 57 %(2)

(c) Adjusted P_6(2) = 3.25 in.

(d) t_x = _____ min.

(e) I = _____ in./hr.

Note: This chart replaces the Intensity-Duration-Frequency curves used since 1965.

P6	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
Duration	I	I	I	I	I	I	I	I	I	I	I
5	2.63	3.95	5.27	6.59	7.90	9.22	10.54	11.86	13.17	14.49	15.81
7	2.12	3.18	4.24	5.30	6.36	7.42	8.48	9.54	10.60	11.66	12.72
10	1.68	2.53	3.37	4.21	5.05	5.90	6.74	7.58	8.42	9.27	10.11
15	1.30	1.95	2.59	3.24	3.89	4.54	5.19	5.84	6.49	7.13	7.78
20	1.08	1.62	2.15	2.69	3.23	3.77	4.31	4.85	5.39	5.93	6.46
25	0.93	1.40	1.87	2.33	2.80	3.27	3.73	4.20	4.67	5.13	5.60
30	0.83	1.24	1.66	2.07	2.49	2.90	3.32	3.73	4.15	4.56	4.98
40	0.69	1.03	1.38	1.72	2.07	2.41	2.76	3.10	3.45	3.79	4.13
50	0.60	0.90	1.19	1.49	1.79	2.09	2.39	2.69	2.98	3.28	3.58
60	0.53	0.80	1.06	1.33	1.59	1.86	2.12	2.39	2.65	2.92	3.18
90	0.41	0.61	0.82	1.02	1.23	1.43	1.63	1.84	2.04	2.25	2.45
120	0.34	0.51	0.68	0.85	1.02	1.19	1.36	1.53	1.70	1.87	2.04
150	0.29	0.44	0.59	0.73	0.88	1.03	1.18	1.32	1.47	1.62	1.76
180	0.26	0.39	0.52	0.65	0.78	0.91	1.04	1.18	1.31	1.44	1.57
240	0.22	0.33	0.43	0.54	0.65	0.76	0.87	0.98	1.08	1.19	1.30
300	0.19	0.28	0.38	0.47	0.56	0.66	0.75	0.85	0.94	1.03	1.13
360	0.17	0.25	0.33	0.42	0.50	0.58	0.67	0.75	0.84	0.92	1.00

Intensity-Duration Design Chart - Template

FIGURE 3-1

Table 3-1
RUNOFF COEFFICIENTS FOR URBAN AREAS

Land Use		Runoff Coefficient "C"				
			Soil Type			
NRCS Elements	County Elements	% IMPER.	A	B	C	D
Undisturbed Natural Terrain (Natural)	Permanent Open Space	0*	0.20	0.25	0.30	0.35
Low Density Residential (LDR)	Residential, 1.0 DU/A or less	10	0.27	0.32	0.36	0.41
Low Density Residential (LDR)	Residential, 2.0 DU/A or less	20	0.34	0.38	0.42	0.46
Low Density Residential (LDR)	Residential, 2.9 DU/A or less	25	0.38	0.41	0.45	0.49
Medium Density Residential (MDR)	Residential, 4.3 DU/A or less	30	0.41	0.45	0.48	0.52
Medium Density Residential (MDR)	Residential, 7.3 DU/A or less	40	0.48	0.51	0.54	0.57
Medium Density Residential (MDR)	Residential, 10.9 DU/A or less	45	0.52	0.54	0.57	0.60
Medium Density Residential (MDR)	Residential, 14.5 DU/A or less	50	0.55	0.58	0.60	0.63
High Density Residential (HDR)	Residential, 24.0 DU/A or less	65	0.66	0.67	0.69	0.71
High Density Residential (HDR)	Residential, 43.0 DU/A or less	80	0.76	0		0.79
Commercial/Industrial (N. Com)	Neighborhood Commercial	80	0.76	0		0.79
Commercial/Industrial (G. Com)	General Commercial	85	0.80	0		0.82
Commercial/Industrial (O.P. Com)	Office Professional/Commercial	90	0.83	0		0.85
Commercial/Industrial (Limited I.)	Limited Industrial	90	0.83	0		0.85
Commercial/Industrial (General I.)	General Industrial	95	0.87	0.87	0.87	0.87

AVERAGE PRE-PROJECT RUNOFF COEFFICIENT
C = 0.517
31% IMPERVIOUS
12% HSG TYPE C
88% HSG TYPE D

*The values associated with 0% impervious may be used for direct calculation of the runoff coefficient as described in Section 3.1.2 (representing the pervious runoff coefficient, Cp, for the soil type), or for areas that will remain undisturbed in perpetuity. Justification must be given that the area will remain natural forever (e.g., the area is located in Cleveland National Forest).
DU/A = dwelling units per acre
NRCS = National Resources Conservation Service

Table 3-1
RUNOFF COEFFICIENTS FOR URBAN AREAS

Land Use		Runoff Coefficient "C"				
			Soil Type			
NRCS Elements	County Elements	% IMPER.	A	B	C	D
Undisturbed Natural Terrain (Natural)	Permanent Open Space	0*	0.20	0.25	0.30	0.35
Low Density Residential (LDR)	Residential, 1.0 DU/A or less	10	0.27	0.32	0.36	0.41
Low Density Residential (LDR)	Residential, 2.0 DU/A or less	20	0.34	0.38	0.42	0.46
Low Density Residential (LDR)	Residential, 2.9 DU/A or less	25	0.38	0.41	0.45	0.49
Medium Density Residential (MDR)	Residential, 4.3 DU/A or less	30	0.41	0.45	0.48	0.52
Medium Density Residential (MDR)	Residential, 7.3 DU/A or less	40	0.48	0.51	0.54	0.57
Medium Density Residential (MDR)	Residential, 10.9 DU/A or less	45	0.52	0.54	0.57	0.60
Medium Density Residential (MDR)	Residential, 14.5 DU/A or less	50	0.55	0.58	0.60	0.63
High Density Residential (HDR)	Residential, 24.0 DU/A or less	65	0.66	0.67	0.69	0.71
High Density Residential (HDR)	Residential, 43.0 DU/A or less	80	0.76	0.77	0.78	0.79
Commercial/Industrial (N. Com)	Neighborhood Commercial	80	0.76	0.77	0.78	0.79
Commercial/Industrial (G. Com)	General Commercial	85	0.80	0.80	0.81	0.82
Commercial/Industrial (O.P. Com)	Office Professional/Commercial	90	0.83	0.84	0.84	0.85
Commercial/Industrial (Limited I.)	Limited Industrial	90	0.83	0.84	0.84	0.85
Commercial/Industrial (General I.)	General Industrial	95	0.87	0.87	0.87	0.87

*The values associated with 0% impervious may be used for direct calculation of the runoff coefficient as described in Section 3.1.2 (representing the pervious runoff coefficient, Cp, for the soil type), or for areas that will remain undisturbed in perpetuity. Justification must be given that the area will remain natural forever (e.g., the area is located in Cleveland National Forest).
DU/A = dwelling units per acre
NRCS = National Resources Conservation Service

AVERAGE POST-PROJECT RUNOFF COEFFICIENT
C = 0.85
90% IMPERVIOUS
100% HSG TYPE D

County of San Diego Hydrology Manual

Rainfall Isopluvials

100 Year Rainfall Event - 6 Hours

Isopluvial (inches)

PROJECT SITE
P6 = 3.25 INCHES

Orange County
Riverside County
Imperial County
Pacific Ocean
Mexico
S.D. COUNTY
SD

OCEANSIDE
VISTA
CARLSBAD
ESCONDIDO
ENCINITAS
SOLANA BEACH
DEL MAR
POWAY
SANTEE
SAN DIEGO
EL CAJON
LA MESA
LEMON GROVE
CORONADO
CHULA VISTA
IMPERIAL BEACH

117°30' 117°15' 117°00' 116°45' 116°30' 116°15'
33°30' 33°15' 33°00' 32°45' 32°30'

DPW GIS
Department of Public Works
Geographic Information Services

SanGIS
We Have San Diego Covered!

N W E S

3 0 3 Miles

County of San Diego Hydrology Manual

Rainfall Isopluvials

100 Year Rainfall Event - 24 Hours

Isopluvial (inches)

PROJECT SITE
P24 = 5.75 INCHES

Orange County
Riverside County
Imperial County
Mexico
Pacific Ocean

OCEANSIDE
VISTA
CARLSBAD
ESCONDIDO
ENCINITAS
SOLANA BEACH
DEL MAR
POWAY
S.D. COUNTY
SANTEE
SAN DIEGO
EL CAJON
LA MESA
LEMON GROVE
CORONADO
CHULA VISTA
IMPERIAL BEACH
SD

117°30' 117°15' 117°00' 116°45' 116°30' 116°15'
33°30' 33°15' 33°00' 32°45' 32°30'

DPW GIS
Department of Public Works
Geographic Information Services

SanGIS
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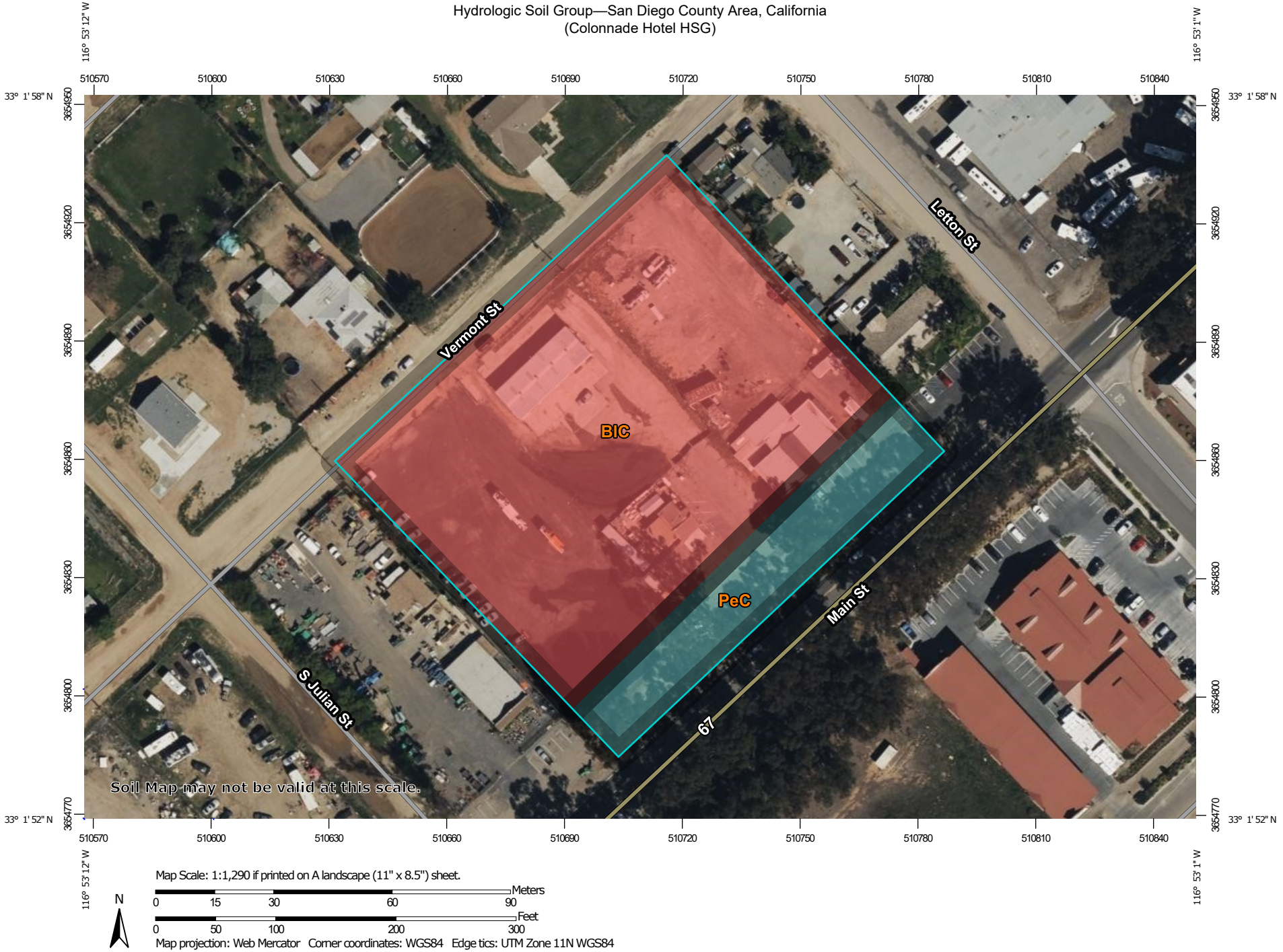
N W E S

3 0 3 Miles

Hydrologic Soil Group—San Diego County Area, California
(Colonnade Hotel HSG)



Map Scale: 1:1,290 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 15 30 60 90

Feet
0 50 100 200 300

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: San Diego County Area, California
Survey Area Data: Version 18, Sep 14, 2022

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

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

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BIC	Bonsall sandy loam, 2 to 9 percent slopes	D	2.4	82.6%
PeC	Placentia sandy loam, 2 to 9 percent slopes, warm MAAT, MLRA 19	C	0.5	17.4%
Totals for Area of Interest			**2.9**	**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

Attachment 3

AES Rational Method Output

```
****************************************************************************

            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                         2003,1985,1981 HYDROLOGY MANUAL
          (c) Copyright 1982-2016 Advanced Engineering Software (aes)
              Ver. 23.0 Release Date: 07/01/2016  License ID 1532

                              Analysis prepared by:




 ************************* DESCRIPTION OF STUDY *************************
* COLONNADE HOTEL                                                      *
* PRE-PROJECT CONDITION                                                *
*                                                                      *
 ************************************************************************

  FILE NAME: COLON.DAT
  TIME/DATE OF STUDY: 09:31 06/30/2023
----------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
----------------------------------------------------------------------------
  2003 SAN DIEGO MANUAL CRITERIA

  USER SPECIFIED STORM EVENT(YEAR) = 100.00
  6-HOUR DURATION PRECIPITATION (INCHES) =   3.250
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: USE MODIFIED RATIONAL METHOD PROCEDURES FOR CONFLUENCE ANALYSIS
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ======= ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

****************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    102.00 IS CODE =  22
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  USER SPECIFIED Tc(MIN.) =    5.000
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.563
  SUBAREA RUNOFF(CFS) =      0.15
  TOTAL AREA(ACRES) =      0.05   TOTAL RUNOFF(CFS) =      0.15
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    102.00 TO NODE    104.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  CHANNEL LENGTH THRU SUBAREA(FEET) =   390.00
  REPRESENTATIVE CHANNEL SLOPE =  0.0080
  CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =  45.000
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   1.50
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.256
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .5200
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.86
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.15
  AVERAGE FLOW DEPTH(FEET) =   0.26   TRAVEL TIME(MIN.) =   5.66
  Tc(MIN.) =   10.66
  SUBAREA AREA(ACRES) =     2.69       SUBAREA RUNOFF(CFS) =    7.35
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.517
  TOTAL AREA(ACRES) =        2.7         PEAK FLOW RATE(CFS) =       7.44

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.34   FLOW VELOCITY(FEET/SEC.) =   1.35
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    104.00 =    5390.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        2.7  TC(MIN.) =     10.66
  PEAK FLOW RATE(CFS)   =       7.44
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
_____
*****************************************************************************

            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                         2003,1985,1981 HYDROLOGY MANUAL
          (c) Copyright 1982-2016 Advanced Engineering Software (aes)
              Ver. 23.0 Release Date: 07/01/2016  License ID 1532

                              Analysis prepared by:




 ************************* DESCRIPTION OF STUDY *************************
* COLONNADE HOTEL                                                       *
* POST-PROJECT CONDITION (MITIGATED)                                    *
*                                                                       *
 *************************************************************************

  FILE NAME: COLOPR.DAT
  TIME/DATE OF STUDY: 10:31 07/19/2023
-----------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
-----------------------------------------------------------------------------
  2003 SAN DIEGO MANUAL CRITERIA

  USER SPECIFIED STORM EVENT(YEAR) = 100.00
  6-HOUR DURATION PRECIPITATION (INCHES) =   3.250
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: USE MODIFIED RATIONAL METHOD PROCEDURES FOR CONFLUENCE ANALYSIS
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*****************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    102.00 IS CODE =  21
-----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
=============================================================================
  *USER SPECIFIED(SUBAREA):
  OFFICE PROFESSIONAL/COMMERCIAL RUNOFF COEFFICIENT = .8500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    50.00
  UPSTREAM ELEVATION(FEET) =   1410.00
  DOWNSTREAM ELEVATION(FEET) =   1409.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    2.526
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.563
```

```
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.51
  TOTAL AREA(ACRES) =      0.07   TOTAL RUNOFF(CFS) =      0.51

****************************************************************************
  FLOW PROCESS FROM NODE    102.00 TO NODE    104.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  CHANNEL LENGTH THRU SUBAREA(FEET) =   230.00
  REPRESENTATIVE CHANNEL SLOPE =  0.0040
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =  50.000
  MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   1.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.341
  *USER SPECIFIED(SUBAREA):
  OFFICE PROFESSIONAL/COMMERCIAL RUNOFF COEFFICIENT = .8500
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.35
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.43
  AVERAGE FLOW DEPTH(FEET) =   0.22   TRAVEL TIME(MIN.) =   2.68
  Tc(MIN.) =    5.21
  SUBAREA AREA(ACRES) =     0.80       SUBAREA RUNOFF(CFS) =    5.67
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.850
  TOTAL AREA(ACRES) =        0.9         PEAK FLOW RATE(CFS) =       6.17

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.27   FLOW VELOCITY(FEET/SEC.) =   1.67
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    104.00 =     280.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    104.00 TO NODE    106.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  REPRESENTATIVE SLOPE =  0.0050
  FLOW LENGTH(FEET) =   340.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  12.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.60
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       6.17
  PIPE TRAVEL TIME(MIN.) =   1.23    Tc(MIN.) =    6.44
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    106.00 =     620.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    106.10 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.273
  *USER SPECIFIED(SUBAREA):
  OFFICE PROFESSIONAL/COMMERCIAL RUNOFF COEFFICIENT = .8500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.8500
  SUBAREA AREA(ACRES) =    1.87   SUBAREA RUNOFF(CFS) =   11.56
  TOTAL AREA(ACRES) =        2.7   TOTAL RUNOFF(CFS) =      16.94
  TC(MIN.) =    6.44

****************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    106.00 IS CODE =   7
----------------------------------------------------------------------------
  >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
```

```
==============================================================================
  USER-SPECIFIED VALUES ARE AS FOLLOWS:
  TC(MIN) =  10.44   RAIN INTENSITY(INCH/HOUR) =  5.33
  TOTAL AREA(ACRES) =     2.74   TOTAL RUNOFF(CFS) =      7.00

******************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    108.00 IS CODE =  31
------------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
==============================================================================
  REPRESENTATIVE SLOPE =  0.0050
  FLOW LENGTH(FEET) =   100.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  14.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.67
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       7.00
  PIPE TRAVEL TIME(MIN.) =   0.36    Tc(MIN.) =   10.80
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    108.00 =     720.00 FEET.
==============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        2.7  TC(MIN.) =     10.80
  PEAK FLOW RATE(CFS)   =       7.00
==============================================================================
==============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

Attachment 4

Rational Method Hydrograph Development

Rational Method Hydrograph Calculations
for Pre Project Condition
Colonnade Hotel, Ramona, CA

Q_{100}= 7.44 cfs

Tc= 11 min C= 0.52

#= 33 $P_{100,6}$= 3.3 in A= 2.74 acres

#	D (MIN)	I (IN/HR)	VOL (IN)	ΔVOL (IN)	I (INCR) (IN/HR)	Q (CFS)	VOL (CF)	ORDINATE SUM=
		*(7.44*P6*D^-.645)*	*(I*D/60)*	*(V1-V0)*	*(ΔV/ΔT)*	*(Q=ciA)*		*(Re-ordered)*
0	0	0.00	0.00	0.96	5.23	7.44	4910	
1	11	5.23	0.96	0.27	1.46	2.08	1372	0.29
2	22	3.34	1.23	0.19	1.04	1.48	974	0.30
3	33	2.57	1.42	0.15	0.83	1.18	781	0.30
4	44	2.14	1.57	0.13	0.71	1.00	663	0.32
5	55	1.85	1.70	0.11	0.62	0.88	582	0.33
6	66	1.65	1.81	0.10	0.56	0.79	522	0.35
7	77	1.49	1.91	0.09	0.51	0.72	476	0.36
8	88	1.37	2.01	0.09	0.47	0.67	439	0.38
9	99	1.27	2.09	0.08	0.43	0.62	409	0.39
10	110	1.18	2.17	0.07	0.41	0.58	383	0.42
11	121	1.11	2.25	0.07	0.38	0.55	361	0.43
12	132	1.05	2.32	0.07	0.36	0.52	342	0.47
13	143	1.00	2.38	0.06	0.35	0.49	326	0.49
14	154	0.95	2.45	0.06	0.33	0.47	311	0.55
15	165	0.91	2.51	0.06	0.32	0.45	298	0.58
16	176	0.87	2.57	0.06	0.30	0.43	286	0.67
17	187	0.84	2.62	0.05	0.29	0.42	276	0.72
18	198	0.81	2.67	0.05	0.28	0.40	266	0.88
19	209	0.78	2.73	0.05	0.27	0.39	257	1.00
20	220	0.76	2.78	0.05	0.26	0.38	249	1.48
21	231	0.73	2.82	0.05	0.26	0.37	241	2.08
22	242	0.71	2.87	0.05	0.25	0.36	234	7.44
23	253	0.69	2.92	0.04	0.24	0.35	228	1.18
24	264	0.67	2.96	0.04	0.24	0.34	222	0.79
25	275	0.66	3.01	0.04	0.23	0.33	216	0.62
26	286	0.64	3.05	0.04	0.22	0.32	211	0.52
27	297	0.62	3.09	0.04	0.22	0.31	206	0.45
28	308	0.61	3.13	0.04	0.21	0.30	201	0.40
29	319	0.60	3.17	0.04	0.21	0.30	197	0.37
30	330	0.58	3.21	0.04	0.20	0.29	193	0.34
31	341	0.57	3.24	0.04	0.20	0.29	189	0.31
32	352	0.56	3.28	0.04	0.20	0.28	185	0.29
33	363	0.55	3.32	0.00	0.00	0.00	0	0.00
						SUM=	**17006**	**cubic feet**
							0.39	**acre-feet**

Check: $V = C*A*P_6$

V= 0.39 acre-feet

OK

Rational Method Hydrograph Calculations
for Post Project Condition
Colonnade Hotel, Ramona, CA

		Q_{100}=	16.94	cfs			
		Tc=	6	min	C=	0.85	
#=	60	$P_{100,6}$=	3.25	in	A=	2.74	acres

		*(7.44*P6*D^-.645)*	*(I*D/60)*	*(V1-V0)*	*(ΔV/ΔT)*	*(Q=ciA)*		*(Re-ordered)*
#	**D (MIN)**	**I (IN/HR)**	**VOL (IN)**	**ΔVOL (IN)**	**I (INCR) (IN/HR)**	**Q (CFS)**	**VOL (CF)**	**ORDINATE SUM=**
0	0	0.00	0.00	0.76	7.61	16.94	6098	
1	6	7.61	0.76	0.21	2.12	4.95	1781	0.45
2	12	4.87	0.97	0.15	1.51	3.51	1264	0.46
3	18	3.75	1.12	0.12	1.21	2.82	1014	0.47
4	24	3.11	1.25	0.10	1.03	2.39	861	0.47
5	30	2.70	1.35	0.09	0.90	2.10	756	0.48
6	36	2.40	1.44	0.08	0.81	1.88	678	0.49
7	42	2.17	1.52	0.07	0.74	1.72	618	0.50
8	48	1.99	1.59	0.07	0.68	1.58	570	0.51
9	54	1.85	1.66	0.06	0.63	1.47	531	0.52
10	60	1.72	1.72	0.06	0.59	1.38	497	0.53
11	66	1.62	1.78	0.06	0.56	1.30	469	0.54
12	72	1.53	1.84	0.05	0.53	1.23	444	0.55
13	78	1.46	1.89	0.05	0.50	1.17	423	0.57
14	84	1.39	1.94	0.05	0.48	1.12	404	0.58
15	90	1.33	1.99	0.05	0.46	1.07	387	0.60
16	96	1.27	2.04	0.04	0.44	1.03	372	0.61
17	102	1.22	2.08	0.04	0.43	0.99	358	0.63
18	108	1.18	2.12	0.04	0.41	0.96	345	0.64
19	114	1.14	2.17	0.04	0.40	0.93	334	0.67
20	120	1.10	2.21	0.04	0.39	0.90	323	0.68
21	126	1.07	2.24	0.04	0.37	0.87	313	0.71
22	132	1.04	2.28	0.04	0.36	0.84	304	0.73
23	138	1.01	2.32	0.04	0.35	0.82	296	0.76
24	144	0.98	2.35	0.03	0.34	0.80	288	0.78
25	150	0.95	2.39	0.03	0.33	0.78	281	0.82
26	156	0.93	2.42	0.03	0.33	0.76	274	0.84
27	162	0.91	2.45	0.03	0.32	0.74	267	0.90
28	168	0.89	2.48	0.03	0.31	0.73	261	0.93
29	174	0.87	2.52	0.03	0.30	0.71	255	0.99
30	180	0.85	2.55	0.03	0.30	0.69	250	1.03
31	186	0.83	2.58	0.03	0.29	0.68	245	1.12
32	192	0.81	2.61	0.03	0.29	0.67	240	1.17
33	198	0.80	2.63	0.03	0.28	0.65	235	1.30
34	204	0.78	2.66	0.03	0.28	0.64	231	1.38
35	210	0.77	2.69	0.03	0.27	0.63	227	1.58
36	216	0.75	2.72	0.03	0.27	0.62	223	1.72
37	222	0.74	2.74	0.03	0.26	0.61	219	2.10
38	228	0.73	2.77	0.03	0.26	0.60	215	2.39
39	234	0.72	2.79	0.03	0.25	0.59	212	3.51
40	240	0.71	2.82	0.02	0.25	0.58	208	4.95
41	246	0.69	2.85	0.02	0.24	0.57	205	16.94

Rational Method Hydrograph Calculations
for Post Project Condition
Colonnade Hotel, Ramona, CA

#	D (MIN)	I (IN/HR)	VOL (IN)	ΔVOL (IN)	I (INCR) (IN/HR)	Q (CFS)	VOL (CF)	ORDINATE SUM=
42	252	0.68	2.87	0.02	0.24	0.56	202	2.82
43	258	0.67	2.89	0.02	0.24	0.55	199	1.88
44	264	0.66	2.92	0.02	0.23	0.54	196	1.47
45	270	0.65	2.94	0.02	0.23	0.54	193	1.23
46	276	0.64	2.96	0.02	0.23	0.53	190	1.07
47	282	0.64	2.99	0.02	0.22	0.52	188	0.96
48	288	0.63	3.01	0.02	0.22	0.51	185	0.87
49	294	0.62	3.03	0.02	0.22	0.51	183	0.80
50	300	0.61	3.05	0.02	0.22	0.50	181	0.74
51	306	0.60	3.07	0.02	0.21	0.50	178	0.69
52	312	0.60	3.10	0.02	0.21	0.49	176	0.65
53	318	0.59	3.12	0.02	0.21	0.48	174	0.62
54	324	0.58	3.14	0.02	0.21	0.48	172	0.59
55	330	0.57	3.16	0.02	0.20	0.47	170	0.56
56	336	0.57	3.18	0.02	0.20	0.47	168	0.54
57	342	0.56	3.20	0.02	0.20	0.46	166	0.51
58	348	0.55	3.22	0.02	0.20	0.46	164	0.50
59	354	0.55	3.24	0.02	0.19	0.45	162	0.48
60	360	0.54	3.26	0.00	0.00	0.00	0	0.46
						SUM=	**27022**	**cubic feet**
							0.62	**acre-feet**

Check: $V = C*A*P_6$

V= 0.63 acre-feet

OK

Attachment 5

EPA SWMM Reports

```
[TITLE]
;;Project Title/Notes
Colonnade Hotel Proposed Condition - POC-1

[OPTIONS]
;;Option             Value
FLOW_UNITS           CFS
INFILTRATION         GREEN_AMPT
FLOW_ROUTING         KINWAVE
LINK_OFFSETS         DEPTH
MIN_SLOPE            0
ALLOW_PONDING        NO
SKIP_STEADY_STATE    NO

START_DATE           01/01/2000
START_TIME           00:00:00
REPORT_START_DATE    01/01/2000
REPORT_START_TIME    00:00:00
END_DATE             01/02/2000
END_TIME             00:14:00
SWEEP_START          01/01
SWEEP_END            12/31
DRY_DAYS             0
REPORT_STEP          00:01:00
WET_STEP             00:01:00
DRY_STEP             00:01:00
ROUTING_STEP         0:01:00
RULE_STEP            00:00:00

INERTIAL_DAMPING     PARTIAL
NORMAL_FLOW_LIMITED  BOTH
FORCE_MAIN_EQUATION  H-W
VARIABLE_STEP        0.75
LENGTHENING_STEP     0
MIN_SURFAREA         12.566
MAX_TRIALS           8
HEAD_TOLERANCE       0.005
SYS_FLOW_TOL         5
LAT_FLOW_TOL         5
MINIMUM_STEP         0.5
THREADS              1

[EVAPORATION]
;;Data Source    Parameters
;;-------------- ----------------
MONTHLY          0.060  0.080  0.110  0.150  0.170  0.190  0.190  0.180  0.150  0.110  0.080  0.060
DRY_ONLY         NO

[RAINGAGES]
;;Name           Format    Interval SCF      Source
;;-------------- --------- ------ ------ ----------
RainGage         INTENSITY 1:00     1.0      TIMESERIES NORAIN

[OUTFALLS]
;;Name           Elevation  Type       Stage Data       Gated    Route To
;;-------------- ---------- ---------- ---------------- -------- ----------------
POC-1            0          FREE                        NO
```

```
[STORAGE]
;;Name           Elev.    MaxDepth   InitDepth  Shape      Curve Type/Params            SurDepth  Fevap    Psi      Ksat     IMD
;;-------------- -------- ---------- ---------- ---------- ---------------------------- --------- --------          -------- --------
HS75             1402.76  3.5        0          TABULAR    HS75                         0         0

[OUTLETS]
;;Name           From Node        To Node          Offset     Type            QTable/Qcoeff    Qexpon     Gated
;;-------------- ---------------- ---------------- ---------- --------------- ---------------- ---------- --------
1                HS75             POC-1            0          TABULAR/DEPTH   OUT_1                       NO

[INFLOWS]
;;Node           Constituent      Time Series      Type     Mfactor  Sfactor  Baseline Pattern
;;-------------- ---------------- ---------------- -------- -------- -------- -------- --------
HS75             FLOW             Q100             FLOW     1.0      1.0

[CURVES]
;;Name           Type       X-Value    Y-Value
;;-------------- ---------- ---------- ----------
OUT_1            Rating     0.000      0.000
OUT_1                       0.042      0.002
OUT_1                       0.083      0.008
OUT_1                       0.125      0.016
OUT_1                       0.167      0.025
OUT_1                       0.208      0.030
OUT_1                       0.250      0.034
OUT_1                       0.292      0.038
OUT_1                       0.333      0.042
OUT_1                       0.375      0.045
OUT_1                       0.417      0.048
OUT_1                       0.458      0.051
OUT_1                       0.500      0.053
OUT_1                       0.542      0.056
OUT_1                       0.583      0.058
OUT_1                       0.625      0.060
OUT_1                       0.667      0.063
OUT_1                       0.708      0.065
OUT_1                       0.750      0.067
OUT_1                       0.792      0.069
OUT_1                       0.833      0.071
OUT_1                       0.875      0.072
OUT_1                       0.917      0.074
OUT_1                       0.958      0.076
OUT_1                       1.000      0.078
OUT_1                       1.042      0.080
OUT_1                       1.083      0.081
OUT_1                       1.125      0.083
OUT_1                       1.167      0.085
OUT_1                       1.208      0.086
OUT_1                       1.250      0.088
OUT_1                       1.292      0.089
OUT_1                       1.333      0.091
OUT_1                       1.375      0.092
OUT_1                       1.417      0.094
OUT_1                       1.458      0.095
OUT_1                       1.500      0.096
OUT_1                       1.542      0.098
OUT_1                       1.583      0.099
OUT_1                       1.625      0.100
```

```
OUT_1                    1.667      0.102
OUT_1                    1.708      0.103
OUT_1                    1.750      0.104
OUT_1                    1.792      0.106
OUT_1                    1.833      0.107
OUT_1                    1.875      0.108
OUT_1                    1.917      0.109
OUT_1                    1.958      0.111
OUT_1                    2.000      0.112
OUT_1                    2.042      0.113
OUT_1                    2.083      0.114
OUT_1                    2.125      0.115
OUT_1                    2.167      0.116
OUT_1                    2.208      0.118
OUT_1                    2.250      0.119
OUT_1                    2.292      0.120
OUT_1                    2.333      0.121
OUT_1                    2.375      0.141
OUT_1                    2.417      0.193
OUT_1                    2.458      0.269
OUT_1                    2.500      0.361
OUT_1                    2.542      0.427
OUT_1                    2.583      0.475
OUT_1                    2.625      0.573
OUT_1                    2.667      0.713
OUT_1                    2.708      0.880
OUT_1                    2.750      1.068
OUT_1                    2.792      1.246
OUT_1                    2.833      1.365
OUT_1                    2.875      1.585
OUT_1                    2.917      1.888
OUT_1                    2.958      2.241
OUT_1                    3.000      2.640
OUT_1                    3.042      3.017
OUT_1                    3.083      3.273
OUT_1                    3.125      3.508
OUT_1                    3.167      3.726
OUT_1                    3.208      3.927
OUT_1                    3.250      4.118
OUT_1                    3.292      4.437
OUT_1                    3.333      4.855
OUT_1                    3.375      5.349
OUT_1                    3.417      5.899
OUT_1                    3.458      6.490
OUT_1                    3.500      7.127
;
HS75             Storage 0.00       3422
HS75                     0.08       3422
HS75                     0.17       3422
HS75                     0.25       3422
HS75                     0.33       3422
HS75                     0.42       3422
HS75                     0.50       3422
HS75                     0.58       3422
HS75                     0.67       3875
HS75                     0.75       4223
HS75                     0.83       4498
HS75                     0.92       4719
```

```
HS75                       1.00       4899
HS75                       1.08       5047
HS75                       1.17       5172
HS75                       1.25       5276
HS75                       1.33       5364
HS75                       1.42       5439
HS75                       1.50       5502
HS75                       1.58       5555
HS75                       1.67       5600
HS75                       1.75       5637
HS75                       1.83       5667
HS75                       1.92       5691
HS75                       2.00       5710
HS75                       2.08       5723
HS75                       2.17       5731
HS75                       2.25       5735
HS75                       2.33       5735
HS75                       2.42       5730
HS75                       2.50       5721
HS75                       2.58       5706
HS75                       2.67       5686
HS75                       2.75       5660
HS75                       2.83       5623
HS75                       2.92       5574
HS75                       3.00       5520
HS75                       3.08       5464
HS75                       3.17       5410
HS75                       3.25       5359
HS75                       3.33       5310
HS75                       3.42       5264
HS75                       3.50       5221

[TIMESERIES]
;;Name           Date       Time       Value
;;-------------- ---------- ---------- ----------
NORAIN           01/01/2000 00:00      0
NORAIN           01/02/2000 00:00      0
;
Q100             01/01/2000 0:00       0
Q100                        0:06       0.45
Q100                        0:12       0.46
Q100                        0:18       0.47
Q100                        0:24       0.47
Q100                        0:30       0.48
Q100                        0:36       0.49
Q100                        0:42       0.50
Q100                        0:48       0.51
Q100                        0:54       0.52
Q100                        1:00       0.53
Q100                        1:06       0.54
Q100                        1:12       0.55
Q100                        1:18       0.57
Q100                        1:24       0.58
Q100                        1:30       0.60
Q100                        1:36       0.61
Q100                        1:42       0.63
Q100                        1:48       0.64
Q100                        1:54       0.67
```

```
Q100                     2:00       0.68
Q100                     2:06       0.71
Q100                     2:12       0.73
Q100                     2:18       0.76
Q100                     2:24       0.78
Q100                     2:30       0.82
Q100                     2:36       0.84
Q100                     2:42       0.90
Q100                     2:48       0.93
Q100                     2:54       0.99
Q100                     3:00       1.03
Q100                     3:06       1.12
Q100                     3:12       1.17
Q100                     3:18       1.30
Q100                     3:24       1.38
Q100                     3:30       1.58
Q100                     3:36       1.72
Q100                     3:42       2.10
Q100                     3:48       2.39
Q100                     3:54       3.51
Q100                     4:00       4.95
Q100                     4:06       16.94
Q100                     4:12       2.82
Q100                     4:18       1.88
Q100                     4:24       1.47
Q100                     4:30       1.23
Q100                     4:36       1.07
Q100                     4:42       0.96
Q100                     4:48       0.87
Q100                     4:54       0.80
Q100                     5:00       0.74
Q100                     5:06       0.69
Q100                     5:12       0.65
Q100                     5:18       0.62
Q100                     5:24       0.59
Q100                     5:30       0.56
Q100                     5:36       0.54
Q100                     5:42       0.51
Q100                     5:48       0.50
Q100                     5:54       0.48
Q100                     6:00       0.46

[REPORT]
;;Reporting Options
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
DIMENSIONS 191.920 4920.830 1021.827 5718.627
Units      None

[COORDINATES]
;;Node           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
POC-1            565.634            5156.270
```

```
HS75             565.634            5393.210

[VERTICES]
;;Link           X-Coord            Y-Coord
;;-------------- ------------------ ------------------

[Polygons]
;;Storage Node   X-Coord            Y-Coord
;;-------------- ------------------ ------------------

[SYMBOLS]
;;Gage           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
RainGage         352.458            5673.835
```

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.3)

Colonnade Hotel Proposed Condition - POC-1

****
Analysis Options
****
Flow Units ..... CFS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... NO
  Water Quality ..... NO
Flow Routing Method ..... KINWAVE
Starting Date 01/01/2000 00:00:00
Ending Date 01/02/2000 00:14:00
Antecedent Dry Days 0.0
Report Time Step 00:01:00
Routing Time Step ..... 60.00 sec

**************************   Volume   Volume
Flow Routing Continuity   acre-feet   10^6 gal
**************************   ---------   ---------
Dry Weather Inflow 0.000   0.000
Wet Weather Inflow 0.000   0.000
Groundwater Inflow 0.000   0.000
RDII Inflow 0.000   0.000
External Inflow 0.618   0.201
External Outflow 0.502   0.164
Flooding Loss 0.000   0.000
Evaporation Loss 0.000   0.000
Exfiltration Loss 0.000   0.000
Initial Stored Volume 0.000   0.000
Final Stored Volume 0.114   0.037
Continuity Error (%) 0.196

****
Highest Flow Instability Indexes
****
All links are stable.

****
Routing Time Step Summary
****
Minimum Time Step   :   60.00 sec
Average Time Step   :   60.00 sec
Maximum Time Step   :   60.00 sec
% of Time in Steady State   :   0.00
Average Iterations per Step :   1.00
% of Steps Not Converging   :   0.00

****
Node Depth Summary
****

Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Reported Max Depth Feet
POC-1	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
HS75	STORAGE	1.78	3.49	1406.25	0 04:11	3.49

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal	Flow Balance Error Percent
POC-1	OUTFALL	0.00	7.00	0 04:11	0	0.164	0.000
HS75	STORAGE	16.94	16.94	0 04:07	0.201	0.201	0.196

****
Node Flooding Summary
****

No nodes were flooded.

****
Storage Volume Summary
****

Storage Unit	Average Volume 1000 ft³	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 ft³	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CFS
HS75	8.072	45.9	0.0	0.0	17.549	99.8	0 04:11	7.00

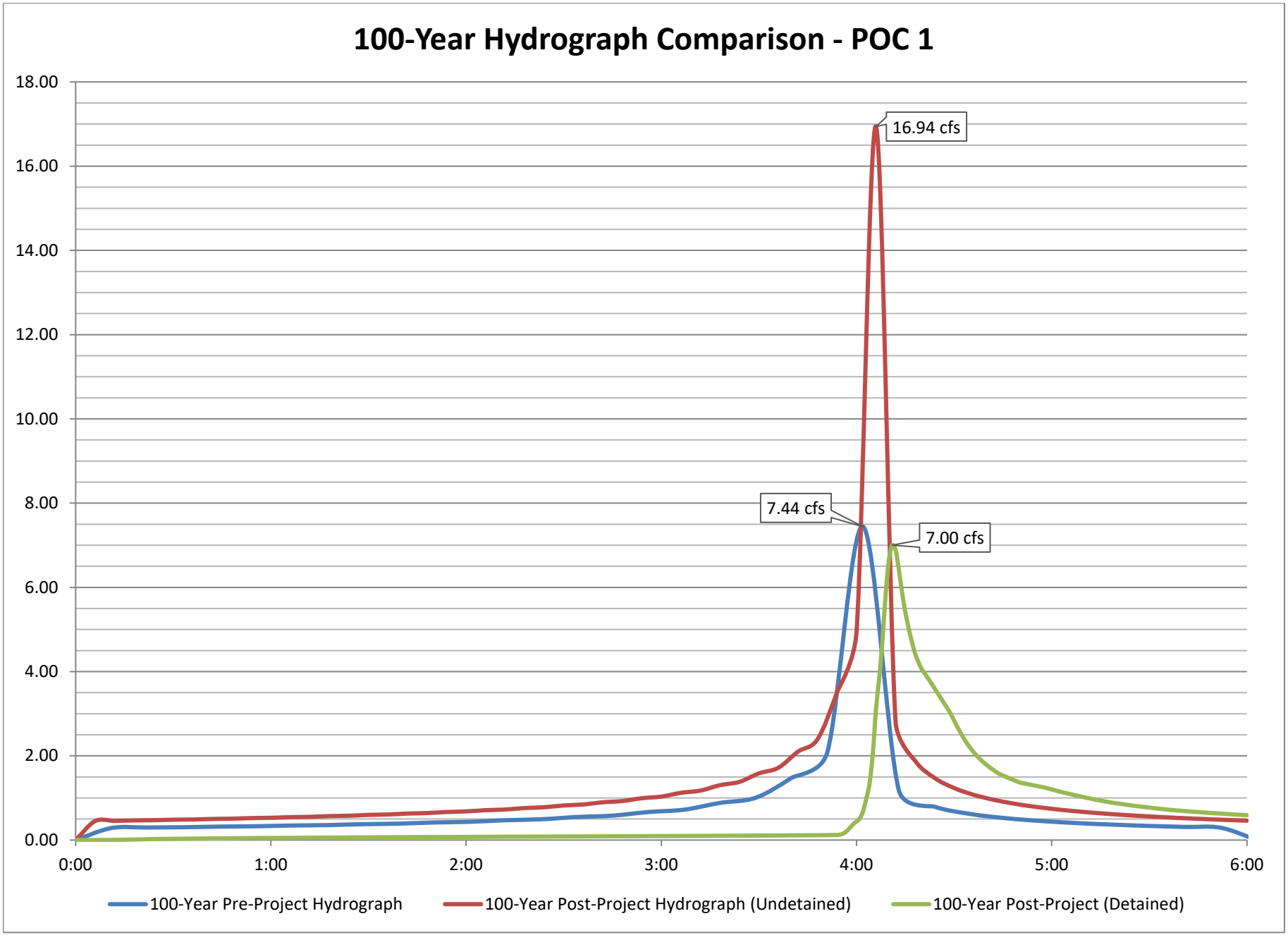
****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal
POC-1	99.59	0.25	7.00	0.164

```
-------------------------------------------------------------
System                99.59      0.25      7.00       0.164


********************
Link Flow Summary
********************

-------------------------------------------------------------------------------
                               Maximum  Time of Max   Maximum    Max/    Max/
                                |Flow|   Occurrence   |Veloc|    Full    Full
Link                 Type          CFS  days hr:min    ft/sec    Flow   Depth
-------------------------------------------------------------------------------
1                    DUMMY        7.00     0  04:11


*************************
Conduit Surcharge Summary
*************************

No conduits were surcharged.


Analysis begun on:  Fri Aug 11 17:04:40 2023
Analysis ended on:  Fri Aug 11 17:04:40 2023
Total elapsed time: < 1 sec
```

Attachment 6

Hydrograph Comparison


100-Year Hydrograph Comparison - POC 1
18.00
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
0:00
1:00
2:00
3:00
4:00
5:00
6:00
16.94 cfs
7.44 cfs
7.00 cfs
100-Year Pre-Project Hydrograph
100-Year Post-Project Hydrograph (Undetained)
100-Year Post-Project (Detained)

Attachment 7

Detention Facility Storage and Discharge Curves

Standard Units Calculator

PRINSCO WATER MANAGEMENT SOLUTIONS

HydroStor™

PROJECT DESCRIPTION

Project Name: Colonnade Hotel | Date: 7 / 7 / 2023 | City/State: Ramona / California | Phone #: (760) 414-9212

Engineer: TRWE | Contractor: TBD | Designed By: AJS | Prinsco Rep:

DESIGN CRITERIA - BASED ON STORAGE VOLUME

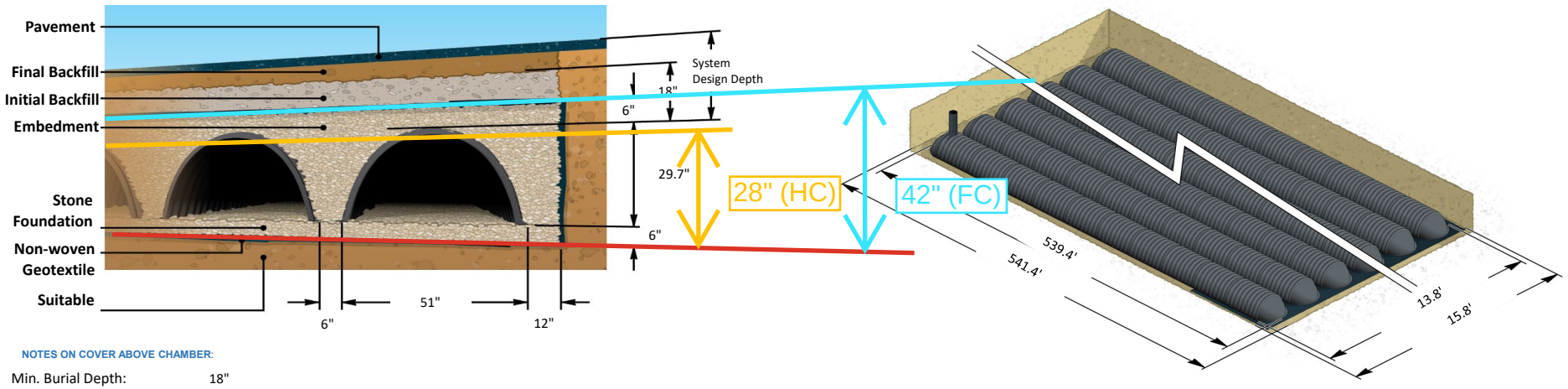
**For Metric units, visit Prinsco.com

Chamber Size: HS75 | Constraint on System Dimensions: Width | Number of Manifolds: 0 | Manifold Diameter: 24 (in) | Include Manifold Volume?: No | Units: Standard **

Target Storage Volume	18000	(cf)	Constraint Limit	20	(ft)	Stone Porosity	40	%	Bottom of Stone Elevation	1402.76	(ft)
Max. Pavement Elevation	1409.42	(ft)	Min. Pavement Elevation	1407.86	(ft)						
Additional Stone Above Chamber*	0	(in)	Additional Stone Below Chamber*	0	(in)	Additional Stone Side of Chamber*	0	(in)	Additional Stone Between Chambers	0	(in)

* Minimum recommended values are already included in calculations

SYSTEM LAYOUT



NOTES ON COVER ABOVE CHAMBER:

Min. Burial Depth: 18"

Max. Burial Depth: 8'

SYSTEM STORAGE & QUANTITIES

System Layout: 1 rows of 76 chambers & 2 rows of 75 chambers

System Footprint	Stone Storage	Manifold Storage	Chamber Storage	Total System Storage
8554 (sf)	7561 (cf)	0 (cf)	10494 (cf)	18055 (cf)

Number of Chambers	Number of End Caps	Required Stone (For Embedment Backfill)	Non-Woven Geotextile (Includes 20% Overlap)	Woven Geotextile - Scour	Woven Geotextile - Sediment Row
226	6	700 (cy)	2775 (sy)	3 (sy)	602 (sy)

ASSISTANCE: For assistance with design, drawings or pricing please have your completed system design aid ready, and contact your Prinsco sales representative

Chamber Model	HS75		
Number of Chambers	226		
Number of Endcaps	6		
Stone Voids (porosity)	40%		
Base of Stone Elevation	0	ft	
Recommended Stone Below Chambers*	6	in.	**Include perimeter stone?** Yes
Recommended Stone Above Chambers*	6	in.	

Area of System** 8554 sq.ft

***Area must be greater than:* **8453 sq.ft**

*The minimum stone below and above the chambers to be determinded by the design engineer.

System Height (in)	Incremental Single Chamber Storage (cu.ft)	Incremental Single End Cap Storage (cu.ft)	Incremental Total Chamber Storage (cu.ft)	Incremental Total End Cap Storage (cu.ft)	Incremental Stone Storage (cu.ft)	Incremental Chamber, End Cap, & Stone (cu.ft)	Cumulative System Storage (cu.ft)	Elevation (ft)
42	0.000	0.000	0.000	0.000	285.14	285.14	18271.80	3.50
41	0.000	0.000	0.000	0.000	285.14	285.14	17986.67	3.42
40	0.000	0.000	0.000	0.000	285.14	285.14	17701.53	3.33
39	0.000	0.000	0.000	0.000	285.14	285.14	17416.39	3.25
38	0.000	0.000	0.000	0.000	285.14	285.14	17131.25	3.17
37	0.000	0.000	0.000	0.000	285.14	285.14	16846.12	3.08
36	0.125	0.000	28.245	0.000	273.84	302.08	16560.98	3.00
35	0.301	0.010	67.950	0.060	257.93	325.94	16258.90	2.92
34	0.616	0.020	139.293	0.120	229.37	368.79	15932.95	2.83
33	0.852	0.030	192.466	0.180	208.08	400.73	15564.17	2.75
32	1.012	0.040	228.612	0.240	193.60	422.45	15163.44	2.67
31	1.138	0.050	257.274	0.300	182.11	439.68	14740.99	2.58
30	1.244	0.060	281.070	0.360	172.57	454.00	14301.31	2.50
29	1.333	0.060	301.265	0.360	164.49	466.11	13847.32	2.42
28	1.411	0.070	318.831	0.420	157.44	476.69	13381.20	2.33
27	1.481	0.080	334.753	0.480	151.04	486.28	12904.51	2.25
26	1.547	0.080	349.594	0.480	145.11	495.18	12418.24	2.17
25	1.608	0.090	363.444	0.540	139.54	503.53	11923.06	2.08
24	1.665	0.100	376.361	0.600	134.35	511.31	11419.53	2.00
23	1.719	0.100	388.396	0.600	129.54	518.53	10908.21	1.92
22	1.768	0.110	399.603	0.660	125.03	525.30	10389.68	1.83
21	1.814	0.110	410.020	0.660	120.87	531.55	9864.38	1.75
20	1.855	0.120	419.153	0.720	117.19	537.06	9332.84	1.67
19	1.897	0.120	428.749	0.720	113.35	542.82	8795.78	1.58
18	1.935	0.120	437.286	0.720	109.93	547.94	8252.96	1.50
17	1.970	0.130	445.297	0.780	106.71	552.78	7705.02	1.42
16	2.004	0.130	452.793	0.780	103.71	557.28	7152.23	1.33
15	2.034	0.130	459.795	0.780	100.91	561.48	6594.95	1.25
14	2.064	0.140	466.457	0.840	98.22	565.52	6033.47	1.17
13	2.093	0.140	472.922	0.840	95.63	569.39	5467.96	1.08
12	2.121	0.140	479.379	0.840	93.05	573.27	4898.56	1.00
11	2.149	0.140	485.672	0.840	90.53	577.04	4325.29	0.92

Chamber Model	HS75		
Number of Chambers	226		
Number of Endcaps	6		
Stone Voids (porosity)	40%		
Base of Stone Elevation	0	ft	
Recommended Stone Below Chambers*	6	in.	**Include perimeter stone?** Yes
Recommended Stone Above Chambers*	6	in.	

Area of System** 8554 sq.ft

***Area must be greater than:* **8453 sq.ft**

*The minimum stone below and above the chambers to be determinded by the design engineer.

System Height (in)	Incremental Single Chamber Storage (cu.ft)	Incremental Single End Cap Storage (cu.ft)	Incremental Total Chamber Storage (cu.ft)	Incremental Total End Cap Storage (cu.ft)	Incremental Stone Storage (cu.ft)	Incremental Chamber, End Cap, & Stone (cu.ft)	Cumulative System Storage (cu.ft)	Elevation (ft)
10	2.175	0.140	491.645	0.840	88.14	580.63	3748.25	0.83
9	2.201	0.140	497.456	0.840	85.82	584.12	3167.62	0.75
8	2.226	0.150	503.109	0.900	83.53	587.54	2583.50	0.67
7	0.000	0.000	0.000	0.000	285.14	285.14	1995.96	0.58
6	0.000	0.000	0.000	0.000	285.14	285.14	1710.82	0.50
5	0.000	0.000	0.000	0.000	285.14	285.14	1425.69	0.42
4	0.000	0.000	0.000	0.000	285.14	285.14	1140.55	0.33
3	0.000	0.000	0.000	0.000	285.14	285.14	855.41	0.25
2	0.000	0.000	0.000	0.000	285.14	285.14	570.27	0.17
1	0.000	0.000	0.000	0.000	285.14	285.14	285.14	0.08
0	0.000	0.000	0.000	0.000	0.00	0.00	0.00	0.00

Stage-Area for HS75

Depth (ft)	Area (ft^2)	Volume (ft^3)
0.00	3422	0
0.08	3422	285
0.17	3422	570
0.25	3422	855
0.33	3422	1141
0.42	3422	1426
0.50	3422	1711
0.58	3422	1996
0.67	3875	2584
0.75	4223	3168
0.83	4498	3748
0.92	4719	4325
1.00	4899	4899
1.08	5047	5468
1.17	5172	6033
1.25	5276	6595
1.33	5364	7152
1.42	5439	7705
1.50	5502	8253
1.58	5555	8796
1.67	5600	9333
1.75	5637	9864
1.83	5667	10390
1.92	5691	10908
2.00	5710	11420
2.08	5723	11923
2.17	5731	12418
2.25	5735	12905
2.33	5735	13381
2.42	5730	13847
2.50	5721	14301
2.58	5706	14741
2.67	5686	15163
2.75	5660	15564
2.83	5623	15933
2.92	5574	16259
3.00	5520	16561
3.08	5464	16846
3.17	5410	17131
3.25	5359	17416
3.33	5310	17702
3.42	5264	17987
3.50	5221	18272

DISCHARGE RATING CURVE

Lowest Orifice

Diameter:	1.750	inches
Quantity:	1	
Invert Elevation:	0.000	ft
Type	Vertical	

Lower Slot

Quantity:	1	
Invert Elevation:	2.58	ft
Width:	2.00	ft
Height:	2.00	in
	0.167	ft
H_w:	1405.34	ft

Lower Weir

Quantity:	1	
Invert Elevation:	3.25	ft
Length:	5.00	ft
H_w:	1406.01	ft
Type	Sharp	

Notes:

h taken as total depth above the invert of the lowest discharge opening.

H_w = height of slot/weir invert above basin bottom

Upper Orifice

Diameter:	2.000	inches
Quantity:	8	
Invert Elevation:	2.333	ft

Upper Slot

Quantity:	2	
Invert Elevation:	2.83	ft
Width:	2.00	ft
Height:	2.00	in
	0.167	ft
H_w:	1405.59	ft

Emergency Weir

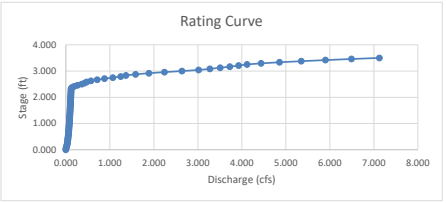
Invert Elevation:		ft
Length:		ft
Breadth:		ft
H_w:	1402.76	ft
Type	Sharp	

Infiltration

Basin Footprint:		sf
Infiltration Rate		in/hr
Factor of Safety		
Design Infiltration Rate		in/hr

Absolute Invert Elevation of Lowest Discharge Opening

Invert Elevation: 1402.76 ft



Elevation (ft)	h (ft)	LOWEST ORIFICE				UPPER ORIFICE				LOWER SLOT					UPPER SLOT					LOWER WEIR		EMERGENCY WEIR		Q_{inf} (cfs)	Q_{TOTAL} (cfs)
		Orifice Discharge Coefficient	Orifice Flow	Weir Flow	$Q_{control}$ (cfs)	Orifice Discharge Coefficient	Orifice Flow	Weir Flow	$Q_{control}$ (cfs)	Orifice Discharge Coefficient	Orifice Flow	Weir Discharge Coefficient	Weir Flow	$Q_{control}$ (cfs)	Orifice Discharge Coefficient	Orifice Flow	Weir Discharge Coefficient	Weir Flow	$Q_{control}$ (cfs)	Weir Discharge Coefficient	Q (cfs)	Weir Discharge Coefficient	Q (cfs)		
1402.76	0.000	N/A	N/A	0.000	0.000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000
1402.80	0.042	N/A	N/A	0.002	0.002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.002
1402.84	0.083	N/A	N/A	0.008	0.008	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.008
1402.89	0.125	N/A	N/A	0.016	0.016	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.016
1402.93	0.167	0.609	0.025	N/A	0.025	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.025
1402.97	0.208	0.609	0.030	N/A	0.030	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.030
1403.01	0.250	0.609	0.034	N/A	0.034	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.034
1403.05	0.292	0.609	0.038	N/A	0.038	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.038
1403.09	0.333	0.609	0.042	N/A	0.042	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.042
1403.14	0.375	0.609	0.045	N/A	0.045	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.045
1403.18	0.417	0.609	0.048	N/A	0.048	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.048
1403.22	0.458	0.609	0.051	N/A	0.051	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.051
1403.26	0.500	0.607	0.053	N/A	0.053	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.053
1403.30	0.542	0.607	0.056	N/A	0.056	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.056
1403.34	0.583	0.606	0.058	N/A	0.058	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.058
1403.39	0.625	0.606	0.060	N/A	0.060	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.060
1403.43	0.667	0.606	0.063	N/A	0.063	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.063
1403.47	0.708	0.606	0.065	N/A	0.065	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.065
1403.51	0.750	0.606	0.067	N/A	0.067	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.067
1403.55	0.792	0.605	0.069	N/A	0.069	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.069
1403.59	0.833	0.605	0.071	N/A	0.071	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.071
1403.64	0.875	0.604	0.072	N/A	0.072	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.072
1403.68	0.917	0.604	0.074	N/A	0.074	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.074
1403.72	0.958	0.604	0.076	N/A	0.076	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.076
1403.76	1.000	0.603	0.078	N/A	0.078	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.078
1403.80	1.042	0.603	0.080	N/A	0.080	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.080
1403.84	1.083	0.603	0.081	N/A	0.081	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.081
1403.89	1.125	0.603	0.083	N/A	0.083	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.083
1403.93	1.167	0.603	0.085	N/A	0.085	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.085
1403.97	1.208	0.603	0.086	N/A	0.086	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.086
1404.01	1.250	0.603	0.088	N/A	0.088	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.088
1404.05	1.292	0.602	0.089	N/A	0.089	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.089
1404.09	1.333	0.602	0.091	N/A	0.091	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.091
1404.14	1.375	0.602	0.092	N/A	0.092	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.092
1404.18	1.417	0.602	0.094	N/A	0.094	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.094
1404.22	1.458	0.602	0.095	N/A	0.095	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.095
1404.26	1.500	0.601	0.096	N/A	0.096	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.096
1404.30	1.542	0.601	0.098	N/A	0.098	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.098
1404.34	1.583	0.601	0.099	N/A	0.099	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.099
1404.39	1.625	0.601	0.100	N/A	0.100	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.100
1404.43	1.667	0.601	0.102	N/A	0.102	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.102
1404.47	1.708	0.601	0.103	N/A	0.103	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.103
1404.51	1.750	0.601	0.104	N/A	0.104	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.104
1404.55	1.792	0.601	0.106	N/A	0.106	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.106
1404.59	1.833	0.601	0.107	N/A	0.107	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.107
1404.64	1.875	0.601	0.108	N/A	0.108	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.108
1404.68	1.917	0.601	0.109	N/A	0.109	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.109
1404.72	1.958	0.601	0.111	N/A	0.111	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.111
1404.76	2.000	0.601	0.112	N/A	0.112	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.112
1404.80	2.042	0.601	0.113	N/A	0.113	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.113
1404.84	2.083	0.600	0.114	N/A	0.114	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.114
1404.89	2.125	0.600	0.115	N/A	0.115	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.115
1404.93	2.167	0.600	0.116	N/A	0.116	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.116
1404.97	2.208	0.600	0.118	N/A	0.118	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.118
1405.01	2.250	0.600	0.119	N/A	0.119	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.119

DISCHARGE RATING CURVE

Lowest Orifice

Diameter:	1.750	inches
Quantity:	1	
Invert Elevation:	0.000	ft
Type	Vertical	

Lower Slot

Quantity:	1	
Invert Elevation:	2.58	ft
Width:	2.00	ft
Height:	2.00	in
	0.167	ft
H_w:	1405.34	ft

Lower Weir

Quantity:	1	
Invert Elevation:	3.25	ft
Length:	5.00	ft
H_w:	1406.01	ft
Type	Sharp	

Upper Orifice

Diameter:	2.000	inches
Quantity:	8	
Invert Elevation:	2.333	ft

Upper Slot

Quantity:	2	
Invert Elevation:	2.83	ft
Width:	2.00	ft
Height:	2.00	in
	0.167	ft
H_w:	1405.59	ft

Emergency Weir

Invert Elevation:		ft
Length:		ft
Breadth:		ft
H_w:	1402.76	ft
Type	Sharp	

Absolute Invert Elevation of Lowest Discharge Opening

Invert Elevation: 1402.76 ft

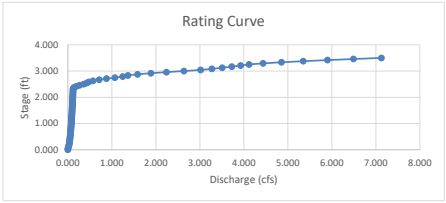
Infiltration

Basin Footprint:		sf
Infiltration Rate		in/hr
Factor of Safety		
Design Infiltration Rate		in/hr

Notes:

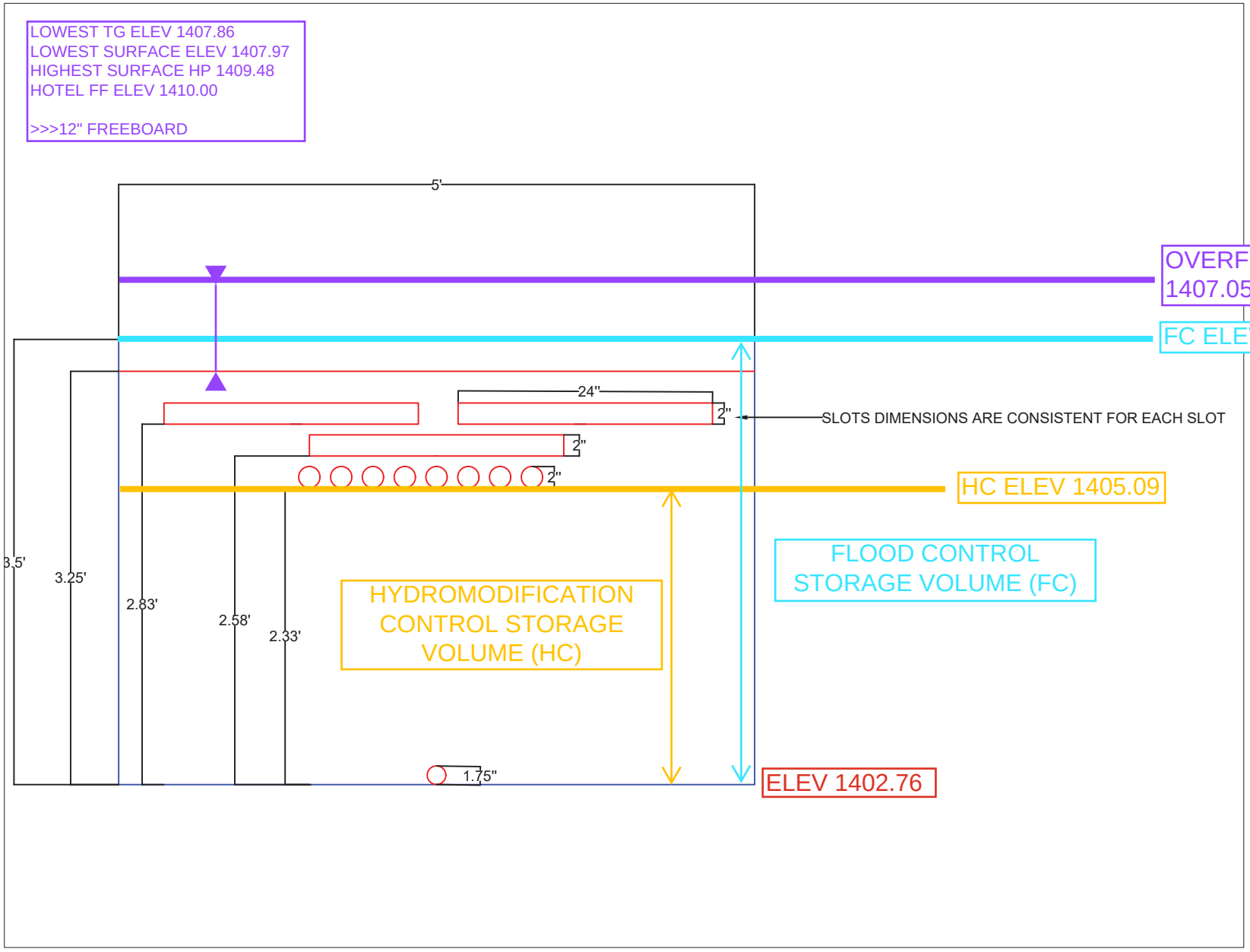
h taken as total depth above the invert of the lowest discharge opening.

H_w = height of slot/weir invert above basin bottom



Elevation (ft)	h (ft)	LOWEST ORIFICE				UPPER ORIFICE				LOWER SLOT					UPPER SLOT					LOWER WEIR		EMERGENCY WEIR		Q_{inf} (cfs)	Q_{TOTAL} (cfs)
		Orifice Discharge Coefficient	Orifice Flow	Weir Flow	$Q_{control}$ (cfs)	Orifice Discharge Coefficient	Orifice Flow	Weir Flow	$Q_{control}$ (cfs)	Orifice Discharge Coefficient	Orifice Flow	Weir Discharge Coefficient	Weir Flow	$Q_{control}$ (cfs)	Orifice Discharge Coefficient	Orifice Flow	Weir Discharge Coefficient	Weir Flow	$Q_{control}$ (cfs)	Weir Discharge Coefficient	Q (cfs)	Weir Discharge Coefficient	Q (cfs)		
1405.05	2.292	0.600	0.120	N/A	0.120	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.120
1405.09	2.333	0.600	0.121	N/A	0.121	N/A	N/A	0.000	0.000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.121
1405.14	2.375	0.600	0.122	N/A	0.122	N/A	N/A	0.019	0.019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.141
1405.18	2.417	0.600	0.123	N/A	0.123	N/A	N/A	0.070	0.070	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.193
1405.22	2.458	0.600	0.124	N/A	0.124	N/A	N/A	0.145	0.145	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.269
1405.26	2.500	0.600	0.125	N/A	0.125	N/A	N/A	0.236	0.236	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.361
1405.30	2.542	0.600	0.126	N/A	0.126	0.608	0.301	N/A	0.301	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.427
1405.34	2.583	0.600	0.127	N/A	0.127	0.608	0.348	N/A	0.348	N/A	N/A	3.270	0.000	0.000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.475
1405.39	2.625	0.600	0.129	N/A	0.129	0.608	0.389	N/A	0.389	N/A	N/A	3.270	0.056	0.056	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.573
1405.43	2.667	0.600	0.130	N/A	0.130	0.608	0.426	N/A	0.426	N/A	N/A	3.270	0.157	0.157	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.713
1405.47	2.708	0.600	0.131	N/A	0.131	0.608	0.460	N/A	0.460	N/A	N/A	3.270	0.289	0.289	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.880
1405.51	2.750	0.600	0.132	N/A	0.132	0.608	0.492	N/A	0.492	N/A	N/A	3.270	0.445	0.445	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.068
1405.55	2.792	0.600	0.133	N/A	0.133	0.608	0.521	N/A	0.521	0.626	0.592	N/A	N/A	0.592	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.246
1405.59	2.833	0.600	0.134	N/A	0.134	0.606	0.548	N/A	0.548	0.626	0.684	N/A	N/A	0.684	N/A	N/A	3.270	0.000	0.000	N/A	N/A	N/A	N/A	N/A	1.365
1405.64	2.875	0.600	0.135	N/A	0.135	0.606	0.575	N/A	0.575	0.626	0.764	N/A	N/A	0.764	N/A	N/A	3.270	0.111	0.111	N/A	N/A	N/A	N/A	N/A	1.585
1405.68	2.917	0.600	0.136	N/A	0.136	0.606	0.600	N/A	0.600	0.626	0.837	N/A	N/A	0.837	N/A	N/A	3.270	0.315	0.315	N/A	N/A	N/A	N/A	N/A	1.888
1405.72	2.958	0.600	0.137	N/A	0.137	0.603	0.622	N/A	0.622	0.626	0.904	N/A	N/A	0.904	N/A	N/A	3.270	0.578	0.578	N/A	N/A	N/A	N/A	N/A	2.241
1405.76	3.000	0.600	0.138	N/A	0.138	0.603	0.645	N/A	0.645	0.626	0.967	N/A	N/A	0.967	N/A	N/A	3.270	0.890	0.890	N/A	N/A	N/A	N/A	N/A	2.640
1405.80	3.042	0.600	0.139	N/A	0.139	0.604	0.668	N/A	0.668	0.626	1.025	N/A	N/A	1.025	0.626	1.184	N/A	N/A	1.184	N/A	N/A	N/A	N/A	N/A	3.017
1405.84	3.083	0.600	0.140	N/A	0.140	0.604	0.690	N/A	0.690	0.623	1.076	N/A	N/A	1.076	0.626	1.367	N/A	N/A	1.367	N/A	N/A	N/A	N/A	N/A	3.273
1405.89	3.125	0.600	0.141	N/A	0.141	0.603	0.711	N/A	0.711	0.623	1.128	N/A	N/A	1.128	0.626	1.529	N/A	N/A	1.529	N/A	N/A	N/A	N/A	N/A	3.508
1405.93	3.167	0.600	0.142	N/A	0.142	0.603	0.731	N/A	0.731	0.623	1.178	N/A	N/A	1.178	0.626	1.675	N/A	N/A	1.675	N/A	N/A	N/A	N/A	N/A	3.726
1405.97	3.208	0.600	0.142	N/A	0.142	0.603	0.751	N/A	0.751	0.622	1.225	N/A	N/A	1.225	0.626	1.809	N/A	N/A	1.809	N/A	N/A	N/A	N/A	N/A	3.927
1406.01	3.250	0.600	0.143	N/A	0.143	0.602	0.770	N/A	0.770	0.622	1.271	N/A	N/A	1.271	0.626	1.934	N/A	N/A	1.934	3.270	0.000	N/A	N/A	N/A	4.118
1406.05	3.292	0.600	0.144	N/A	0.144	0.602	0.789	N/A	0.789	0.621	1.314	N/A	N/A	1.314	0.626	2.051	N/A	N/A	2.051	3.270	0.139	N/A	N/A	N/A	4.437
1406.09	3.333	0.600	0.145	N/A	0.145	0.602	0.808	N/A	0.808	0.621	1.357	N/A	N/A	1.357	0.623	2.151	N/A	N/A	2.151	3.270	0.393	N/A	N/A	N/A	4.855
1406.14	3.375	0.600	0.146	N/A	0.146	0.602	0.826	N/A	0.826	0.621	1.398	N/A	N/A	1.398	0.623	2.256	N/A	N/A	2.256	3.270	0.723	N/A	N/A	N/A	5.349
1406.18	3.417	0.600	0.147	N/A	0.147	0.602	0.844	N/A	0.844	0.621	1.439	N/A	N/A	1.439	0.623	2.357	N/A	N/A	2.357	3.270	1.112	N/A	N/A	N/A	5.899
1406.22	3.458	0.600	0.148	N/A	0.148	0.602	0.861	N/A	0.861	0.621	1.478	N/A	N/A	1.478	0.622	2.449	N/A	N/A	2.449	3.270	1.555	N/A	N/A	N/A	6.490
1406.26	3.500	0.600	0.149	N/A	0.149	0.602	0.878	N/A	0.878	0.620	1.515	N/A	N/A	1.515	0.622	2.542	N/A	N/A	2.542	3.270	2.044	N/A	N/A	N/A	7.127

FLOW CONTROL STRUCTURE
COLONNADE HOTEL
COUNTY OF SAN DIEGO, CA



Attachment 8

Hydraulic Sizing Calculations

(TO BE PROVIDED AT ENGINEERING PHASE)

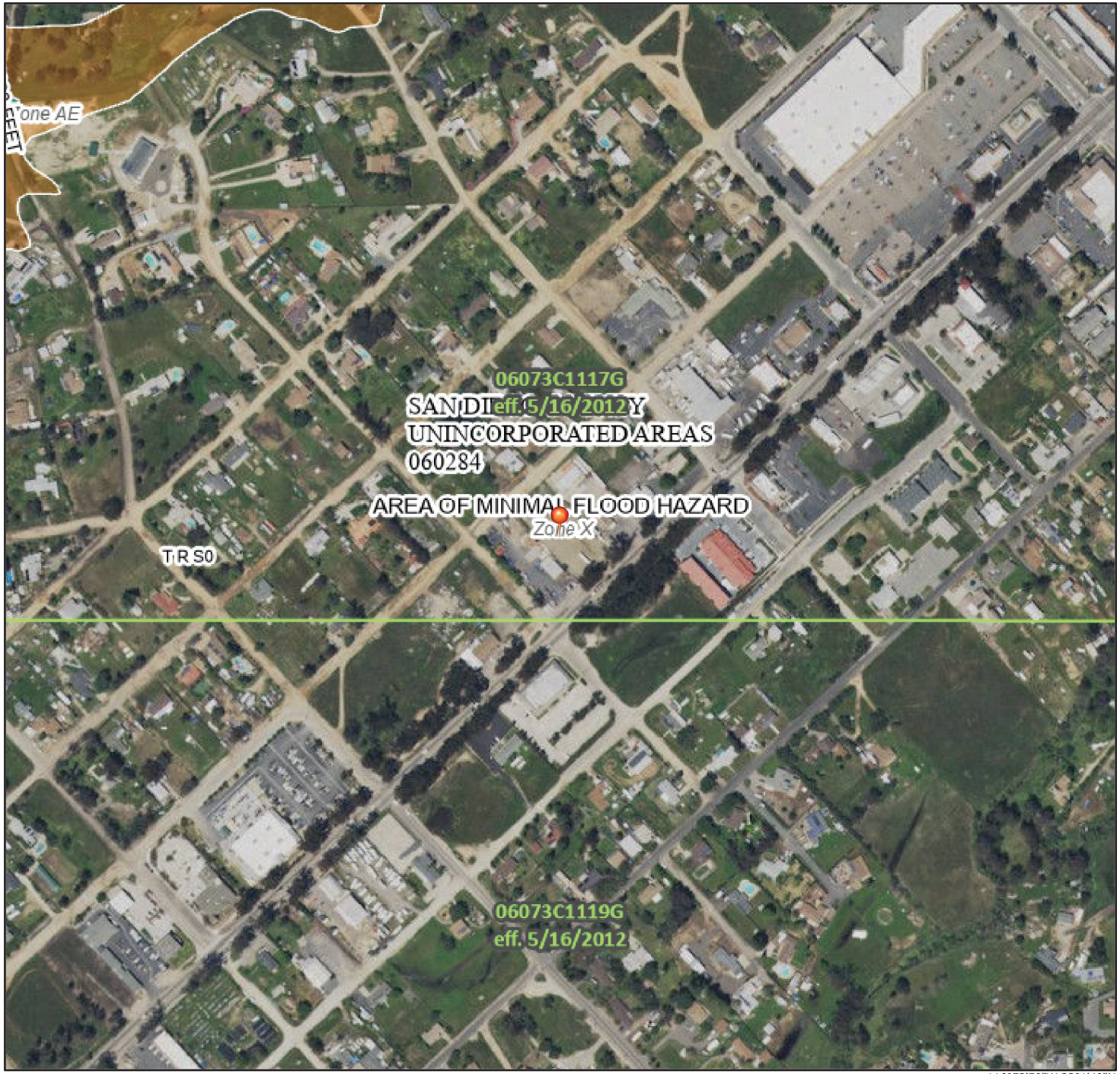
Attachment 9

Referenced Documents

National Flood Hazard Layer FIRMette

FEMA

116°53'27"W 33°2'10"N



116°52'50"W 33°1'40"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap Imagery Source: USGS National Map 2023

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 Cross Sections with 1% Annual Chance
- 17.5 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

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