Preliminary

Hydrology and Hydraulics Report

Parnell Park

15390 Lambert Road

Whittier, CA

January 23, 2023

This Hydraulic Study has been prepared by, and under the direction of, the undersigned, a duly Registered Civil Engineer in the State of California. Except as noted, the undersigned attests to the technical information contained herein, and has judged to be acceptable the qualifications of any technical specialists providing engineering data for this report, upon which findings, conclusions, and recommendations are based.

_____

David Sloan, P.E.
Registered Civil Engineer No. C82595
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TAIT JOB # **ME04320**

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Section 1 Purpose and Scope

This hydrology study presents an analysis of the hydrologic effects of the development of a 11.6 acre public park redevelopment project, in the City of Whittier, California.

This hydrology study addresses runoff from the project site and its impact to the existing downstream storm drainage system. The study includes calculations for the 10 and 50 year storms. The study also details the general project characteristics, the design, criteria and methodology applied to the analysis of the project. The report provides a design analysis for the drainage facilities proposed as part of the project, with the drainage improvements being designed to mitigate all rainfall event frequencies up to a 24-hour, 50-year storm event.

This Hydrology Study fulfills the requirements of the Los Angeles County Hydrology Manual (2006).

The plans and specifications in the Hydrology Study are not for construction purposes; the contractor shall refer to final approved construction documents for plans and specifications.

1.1 Project Description

The project is in the City of Whittier, California, on Lambert Road, as graphically shown in Figure 1, below. The project is bounded by Lambert Road to the north. To the East and South, the project is bounded by Scott Avenue and Mulberry Drive respectively. A residential neighborhood lies to the West of the project site.

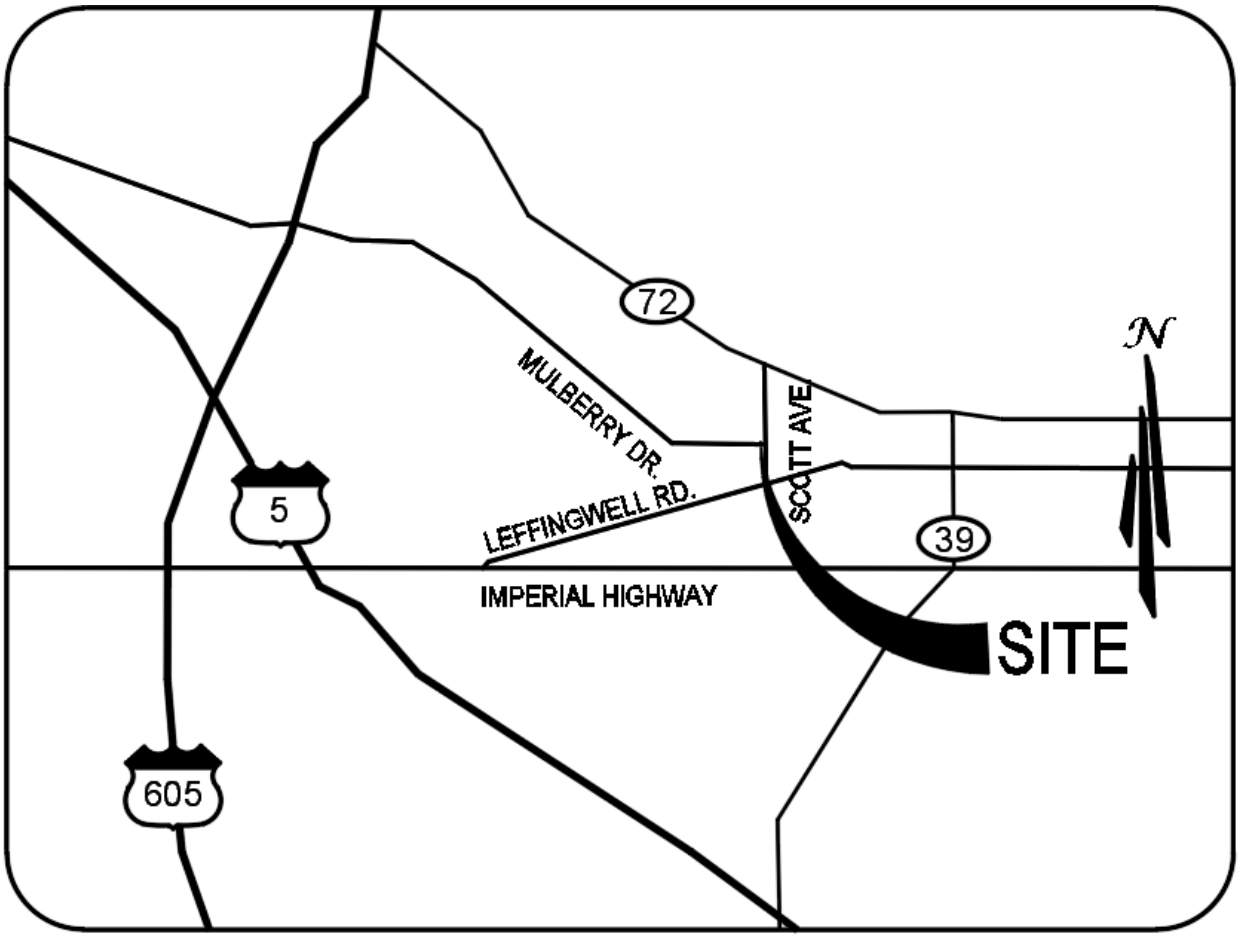


Figure 1 – Vicinity Map (Not To Scale)

The existing site is currently a public park with surface asphalt parking, community center, restroom facilities, petting zoo, and playground. The proposed construction involves the redevelopment of approximately 11.6 acres for improved park facilities. The development will include an expanded petting zoo, new asphalt parking, sports fields, splash pad, and tot lot. The existing community center will be protected in place during construction. Water quality treatment requirements will be achieved using a rainwater cistern.

Section 2 Hydrology and Watershed Characteristics

2.1 Hydrology Characteristics

This section summarizes the project's size and location in the context of the larger watershed perspective, topography, soil and vegetation conditions, percent impervious area, natural and infrastructure drainage features, and other relevant hydrologic and environmental factors to be protected specific to the project area's watershed.

2.1.1 Existing Site Conditions

The project site is located within the San Gabriel River Watershed of the LACFCD drainage system. (Los Angeles County Flood Control District). The project has three distinct outfalls further described in section 3.2.1. The project has three distinct outfalls. Outfall 1 is surface flows that discharge to Lambert Road. Storm waters are then conveyed westerly via curb and gutter toward the intersection of lambert road and Cole Road. All flows then move southerly down Cole Road and are intercepted via a LACFCD Catch basin located at the corner of Mulberry Drive and Cole Road. Outfall 2 is an existing grated inlet/Parkway drain structure that conveys flows to the curb and gutter in the cul-de-saq on Lindhall Way. Flows are then conveyed westerly via curb and gutter on Lindhall way to Cole Road. Stormwater then moves southerly along Cole Road to the aforementioned LACFCD catch basin at the intersection of Cole Road and Mulberry Drive. Outfall 3 is surface flows that discharge to Mulberry Drive. Flow is then conveyed westerly on Mulberry Drive via curb and gutter to the aforementioned catch basin at the corner of Mulberry Drive and Cole Road. The LACFCD Catch basin discharges to an LA County Flood Control Channel located on the South side of Mulberry drive. The Channel then discharges to Leffingwell Creek, Coyote Creek and then the San Gabriel River. From there all flows discharge to the Pacific Ocean near the port of Long Beach. See *Appendix J* for watershed and downstream tributary maps.

The topography of the project site is relatively flat with steeper landscaping mounds. Slopes vary from 1% to 20% across the site . Site elevations range from 209 to 218 above Mean Sea Level. The existing site is a public park. A majority of the site is covered by turf grass and trees. A community center building, parking lot, and basketball court comprise the majority of the impervious area across the site.

2.1.2 Proposed Site Conditions

As described in section 2.1.1 the project will maintain connections to the existing downstream water bodies. See *Appendix J* for watershed and downstream tributary maps.

The topography of the proposed project site is relatively flat with slopes varying from 0.5% to 3%. Site elevations range from 210 to 220 above Mean Sea Level. The proposed project will include an improved petting zoo, parking lot improvements, a splash pad, sports fields, and playground.

2.1.3 Soil Conditions

Using the LA County Soils map the project is soil type 12, Ramona Clay Loam. The soils map and soil identification table has been included in *Appendix A.*

Geotechnical investigations are ongoing and will be included in *Appendix A* once complete.

Per the state water boards Geotracker program, there are no active soil contamination remediation activities occurring within 1000' of the project site. Geotracker map included in *Appendix A*

Section 3 Hydrology Design Criteria, Methodology, and Analysis

3.1 Design Criteria

This section summarizes the design criteria and methodology applied during the drainage analysis of the project site. The design criteria and methodology follow the 2006 County of Los Angeles Hydrology manual (LACHM)

The procedures outlined in the 2006 County of Los Angeles Hydrology Manual (LACHM) and the Modified Rational Method (MODRAT) were used to compute watershed runoff rates. The MODRAT is a hydrologic model based on the Rational Method and developed by the County of Los Angeles Department of Public Works (LADPW). This hydrologic model uses a time of concentration and a design storm to create runoff hydrographs from a drainage area of any size up to 40 acres over a specific period. The 10-year storm event and 50 -year storm event existing and proposed condition hydrology analyses were prepared to support the storm drain system design. The Drainage Area delineation was prepared using the proposed grading. The soils data

and rainfall depth provided by LADPW were used to obtain the hydrologic parameters. Full on-site rational method analysis calculations and values are included in *Appendix C* for existing conditions and *Appendix E* for the proposed condition.

The Small Area Unit Hydrograph (SAH) was prepared to analyze the proposed underground detention basins for the project. The SAH analyzes the ability to reduce peak flow runoff for flood control purposes. The Federal Highway Administration's Hydraulic Toolbox detention basin sizing software was used to create and run the hydrograph through the detention system. The hydrograph is then routed through the proposed basin using the stage-storage-discharge table and the outflow discharge hydrograph is obtained. The small area hydrograph was run for the 10-year and 50- year storm events to analyze the capacity of the proposed basins and the flow through the storm drain system. The basin calculations and design are described further in Section 3.2.3 of this report.

3.2 Hydrology Analysis

The following section describes the existing and proposed drainage patterns and any required mitigation measures taken. A hydrology map for the existing and proposed conditions are provided in *Appendix B & D* of this report, depicting subareas, elevations, Flow lengths and slopes based on the Rational Method Peak Flow Analysis.

3.2.1 Existing Condition Hydrology Analysis

The project area is 11.6 acres. In the existing condition there are three distinct drainage areas. The northern portion of the site sheet flows generally in an northwest direction toward Lambert Street (Outlet 1). A majority of the site sheet flows over turf grass in a east to west direction. Water flows to a channel and discharge structure near the western property line. (Outlet 2) The eastern and southern parking areas sheet flows to the southern driveways and eventually discharge as surface flow to Mulberry Drive. (Outlet 3) All stormwater from the project site is then conveyed to the LACFCD channel across Mulberry Drive. Once stormwater enters the public storm drain system all flow is conveyed to the San Gabriel River where it is discharged and travels to the Pacific Ocean.

Outlet 1 – 1.39 acres flows generally northwesterly via sheet flow. Stormwater is then tributary to Lambert Street curb and gutter near the driveway entrances along the northern property boundary. Flows are then conveyed westerly along Lambert street as mentioned above.

Outlet 2 – A large portion of the site, 7.27 acres overland flows in a westerly direction. Along the western property boundary an existing concrete channel and grated inlet collect flows. Flows then discharge via a parkway drain to the adjacent neighborhood cul-de-sac. Stormwater is then conveyed westerly via curb and gutter towards the intersection of Cole Road and Lambert Street

Outlet 3 – 2.97 acres flows via sheet flow southerly through the existing parking lot. Stormwater is then tributary to the Mulberry Street curb and gutter near the driveway entrances along the Southern property boundary. Flows are then conveyed westerly along Mulberry street as mentioned above The existing hydrology map has been included in *Appendix C* of this report.

3.2.2 Proposed Condition Hydrology Analysis

The project will comprise of redeveloping the existing city park to include improved public park facilities, including several sport fields, petting zoo, and splash pad. In the proposed condition the project site will be three drainage areas and will mimic existing conditions. The current design intent is to allow stormwater flows to sheet flow across the site before being intercepted by either curb and gutter. From there all flows will be conveyed a BMP prior to offsite discharge.

Outlet 1 (1.58 ac) – As occurs in the existing condition the northern parking facility will sheet flow. Flows are then tributary to Lambert Street via the existing driveways.

Outlet 2 (3.51 ac) – Drainage area “B” will overland flow towards the existing parkway drain located near the wester property boundary. A portion of the existing condition has been diverted to drain southerly toward outlet 3 to reduce the surface flows discharging to the residential neighborhood.

Outlet 3 (4.43 ac) – Flows will mimic existing conditions and overland flow southerly. Flows will then discharge to Mulberry Street as occurs in the existing condition and flow westerly.

The proposed hydrological condition map has been included in *Appendix D*.

Section 4 Summary of Results and Conclusions

As shown in the tables below the 10 year peak flow rate and the 50 year storm values are slightly higher then existing. The flows will not be mitigated; however, secondary outflow from

the BMP to the existing downstream storm drain infrastructure is provided and the existing and proposed occupied structures are protected from flooding in the 50 year storm event.

Based on the results of this study, the 50 year storm result in a 1.47 cfs increase for the project. This is a small increase that will not adversely affect the storm drain systems receiving the project flows. Additionally these minor increases are also offset by the capture and reuse of approximately 16,200 CF of stormwater runoff for landscape irrigation as apart of the project's proposed BMP.

Table 1: Existing Condition Summary

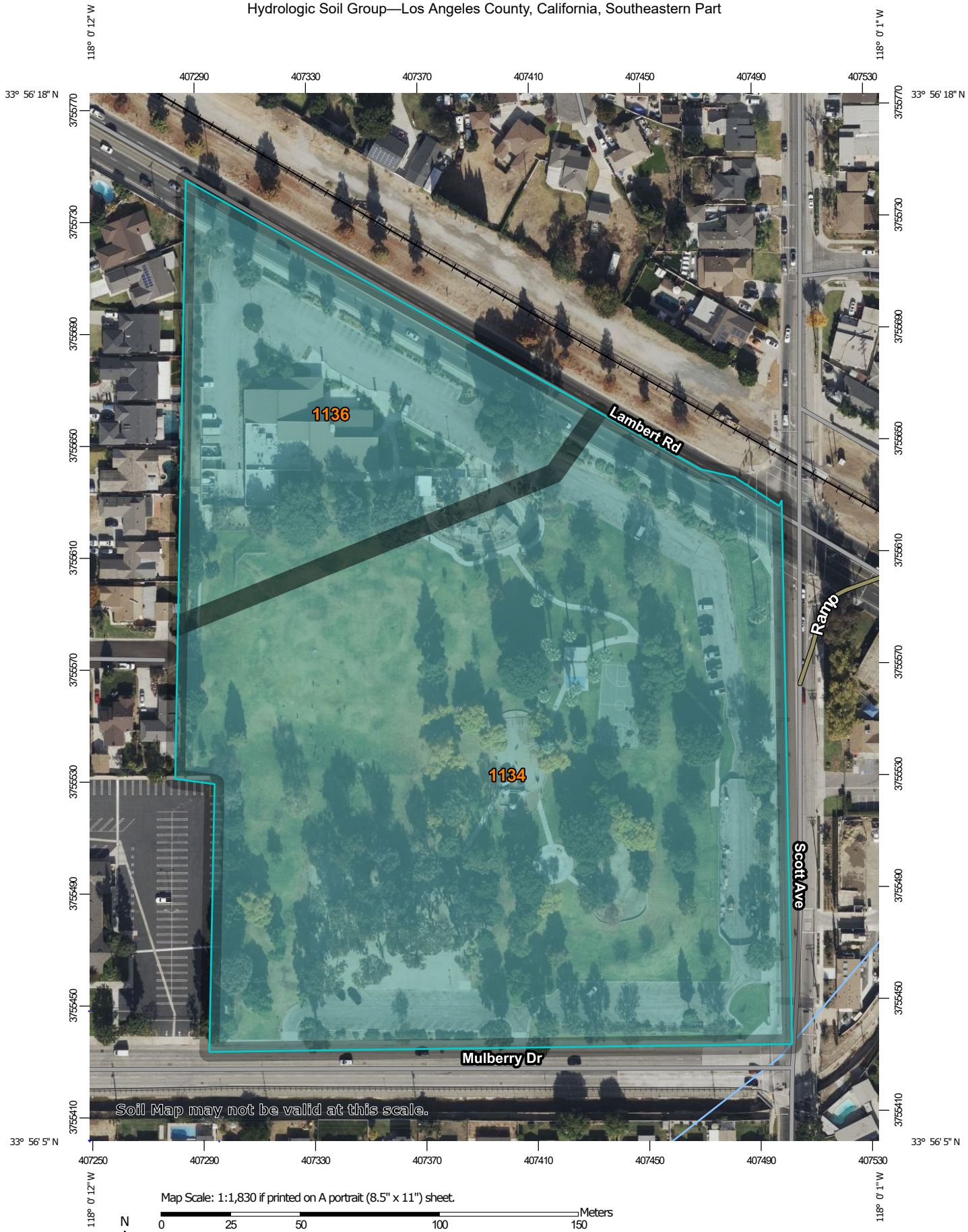
Drainage Area	Outfall	Area (ac)	10-year peak flow (cfs)	50-year peak flow (cfs)
EXA-1	1	1.08	1.08	3.14
EXA-2	1	0.29	0.66	0.91
EXB-1	2	7.27	10.89	17.47
EXC-1	3	1.91	3.46	5.55
EXC-2	3	1.07	1.94	2.89
TOTALS		11.62	18.03	29.96

Table 2: Proposed Condition Summary

Drainage Area	Outfall	Area (ac)	10-year peak flow (cfs)	50-year peak flow (cfs)
A1	1	0.99	1.91	4.73
A2	1	0.59	1.13	1.74
B1	2	3.51	5.48	7.81
C1	3	2.6	4.24	7.11
C2	3	2.21	3.45	5.96
C3	3	1.62	2.52	4.08
TOTALS		11.52	18.73	31.43

APPENDIX

Appendix A – Soils Information



Map Scale: 1:1,830 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 25 50 100 150

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: Los Angeles County, California, Southeastern Part
Survey Area Data: Version 8, Sep 13, 2021

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

Date(s) aerial images were photographed: Nov 19, 2020—Dec 5, 2020

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
1134	Urban land-Thums-Pierview complex, 0 to 5 percent slopes	C	10.1	75.8%
1136	Urban land-Sorrento-Arbolado complex, 2 to 9 percent slopes	C	3.2	24.2%
Totals for Area of Interest			**13.3**	**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.

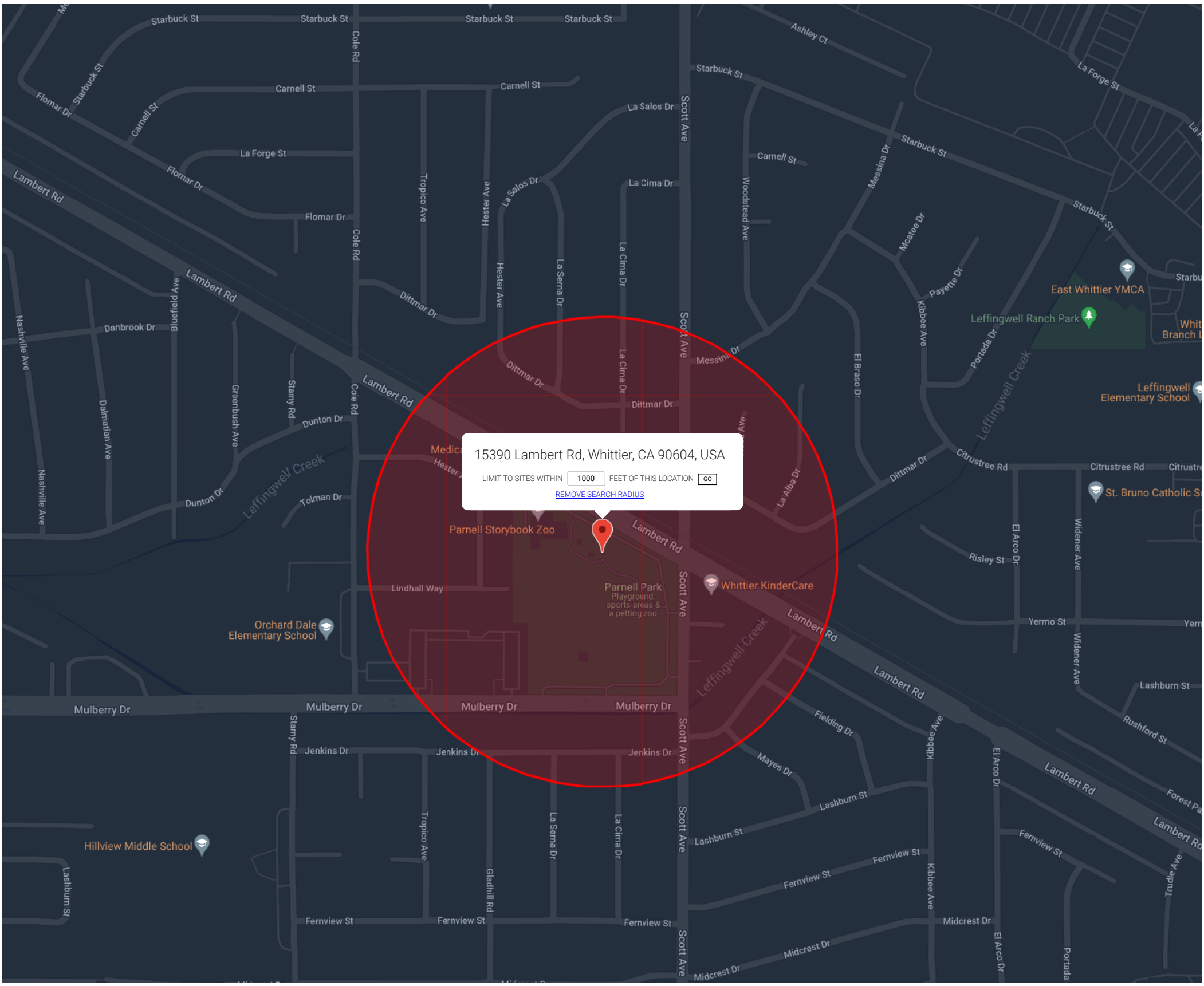
If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



LEGEND - CHOOSE MORE SITES
- LUST Cleanup Sites - REMOVE
- Cleanup Program Sites - REMOVE
- Military Cleanup Sites - REMOVE
- Military Privatized Sites - REMOVE
- Military UST Sites - REMOVE

☒ *Signifies a Closed Site*

ACTIVE MAP COVERAGES:
- Military Bases - REMOVE

LIST SITES VISIBLE ON MAP

50 m Map data ©2022 Google

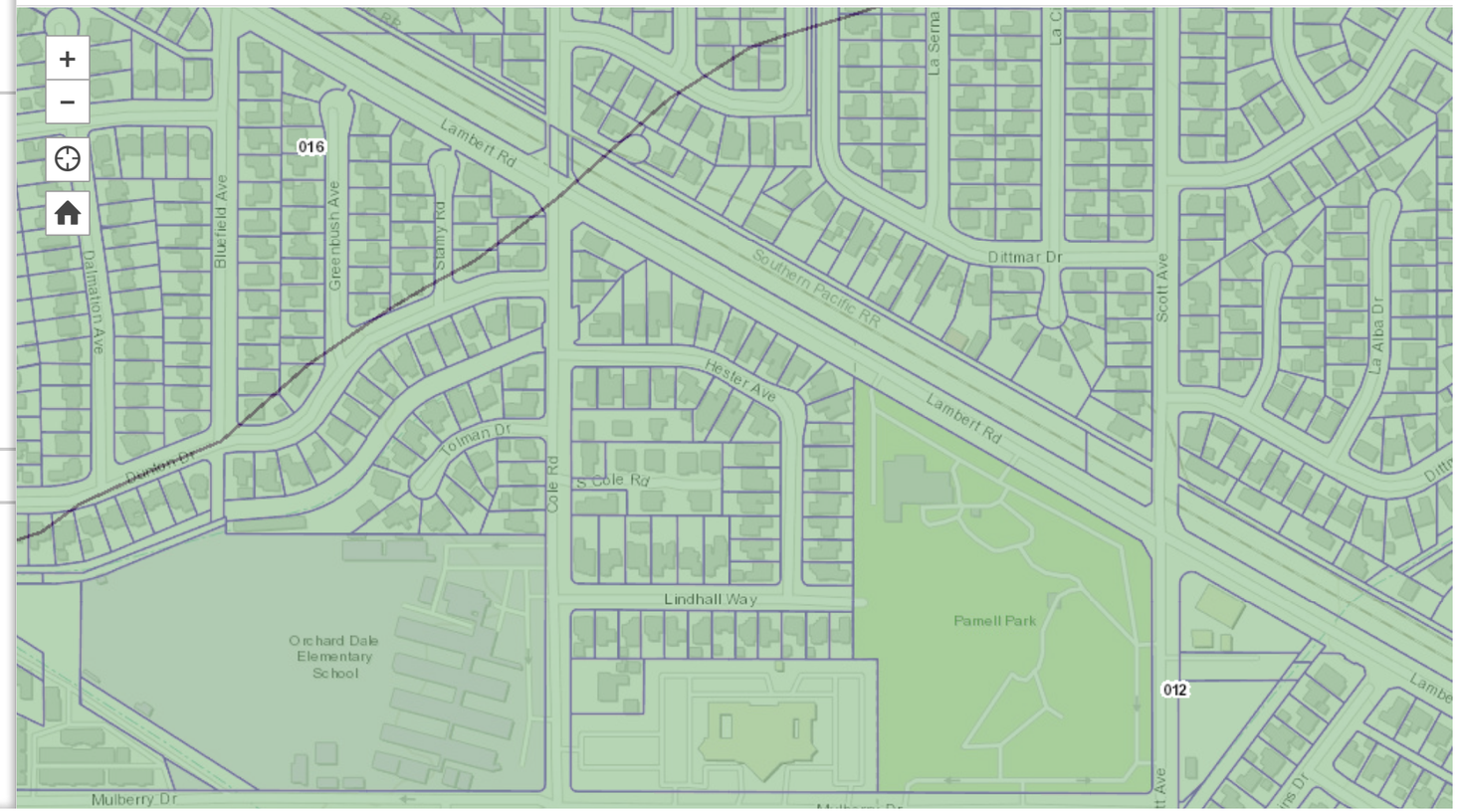
Sites Shown on Map: 8 Total Sites | 0 Open Sites | 8 Closed Sites | 0 Sites w/Water Quality Data

About | Legend | Layers

Layers

- [x] Hydrology GIS
  - [ ] 50yr Two Tenths (Rainfall)
  - [ ] DPA Zones
  - [x] Soils 2004
  - [ ] Final 85th Percentile, 24-hr Rainfall
  - [ ] 1-year, 1-hour Rainfall Intensity
  - [ ] Final 95th Percentile, 24-hr Rainfall
- [x] LA County Parcels

LA County Hydrology Map

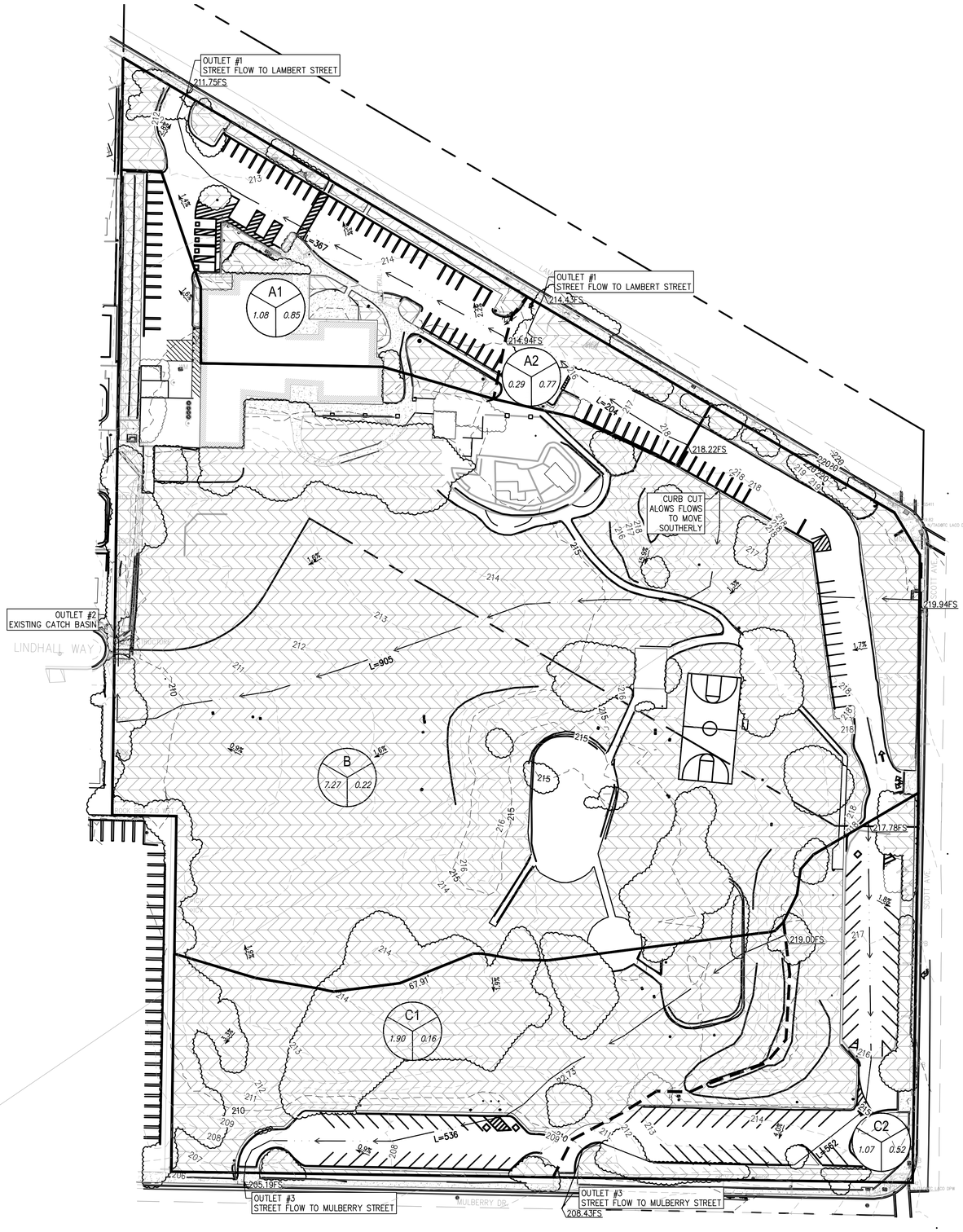


Soil Identification Table

Number	Name	Original Name
2	ALTAMONT CLAY LOAM	A
3	CHINO SILT LOAM	CS-1
4	DIABLO CLAY LOAM	DY
5	HANFORD FINE SANDY LOAM	HF
6	HANFORD FINE SANDY LOAM	HF-1
7	HANFORD GRAVELLY SANDY LOAM	HG
8	HANFORD SILT LOAM	HN
9	MONTEZUMA CLAY ADOBE	M
10	OAKLEY FINE SAND	OS
11	PLACENTIA LOAM	PL
12	RAMONA CLAY LOAM	RC- 1
13	RAMONA LOAM	RO
14	RAMONA SANDY LOAM	RS
15	TUJUNGA FINE SANDY LOAM	TF
16	YOLO LOAM	Y
17	YOLO CLAY LOAM	YC
18	YOLO FINE SANDY LOAM	YF
19	YOLO GRAVELLY SANDY LOAM	YG
20	YOLO SANDY LOAM	YS
21	SANTA MONICA MOUNTAINS	SMM-1
22	SANTA MONICA MOUNTAINS	SMM-2
23	SANTA MONICA MOUNTAINS	SMM-3
24	SANTA MONICA MOUNTAINS	SMM-4
25	SANTA MONICA MOUNTAINS	SMM-5
26	SANTA MONICA MOUNTAINS	SMM-6
27	SANTA MONICA MOUNTAINS	SMM-7
28	SANTA MONICA MOUNTAINS	SMM-8
29	SANTA MONICA MOUNTAINS	SMM-9
30	SANTA MONICA MOUNTAINS	SMM-10
31	SANTA MONICA MOUNTAINS	SMM- 11
32	SANTA MONICA MOUNTAINS	SMM-12
33	SANTA MONICA MOUNTAINS	SMM-13
34	SANTA MONICA MOUNTAINS	SMM-14
35	SANTA MONICA MOUNTAINS	SMM-15
36	SANTA MONICA MOUNTAINS	SMM-16
37	SANTA MONICA MOUNTAINS	SMM- 17
38	SANTA MONICA MOUNTAINS	SMM- 18

Appendix B – Existing Hydrolgical Conditions Map

Existing Hydrology Map
See Attached Exhibit



LEGEND

- 180 — EXISTING CONTOUR
- FLOW LINE
- SURFACE DIRECTION OF FLOW
- SD — EXISTING STORM DRAIN
- SD — PROPOSED STORM DRAIN ≤ 12"
- PROPOSED STORM DRAIN > 12"
- STORM DRAIN PIPE FLOW
- AREA BOUNDARY
- SUB-AREA BOUNDARY
- AREA ID
- XX / XX / 0.01 — AREA (AC)
- RUNOFF COEFFICIENT
- PERVIOUS AREA

ABBREVIATIONS

FS	FINISHED SURFACE
INV	INVERT
FF	FINISHED FLOOR ELEVATION
CF	CUBIC FEET

N

0 50' 100'

SCALE: 1" = 50'

DRAWN: CAD1
DATE: 04/01/2020
CHECKED: PM
DATE: 07/04/2020
JOB NO: AB1234X

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EXHIBIT TITLE

PROJECT TITLE
CLIENT NAME
ADDRESS / LOCATION
ADDITIONAL INFORMATION

5/20/2022 Exhibit XX

Jan 23, 2023 - 1:51pm by sshire K:\Drawings\ME\ME0432A - Parnell Park - Whittier - CDs\ENG\Hydrology\ME0432A EXISTING HYDRO.dwg

Appendix C – Existing Modified Rational Method Results

Tc Calculator Files
See Attached Exhibit

ME04320 PARNELL PARK PROPOSEDD FLOW RATE SUMMARY									
Drainage Area/ Basin	**Outfall**	**Area (ac)**	**Flowpath Length (ft)**	**Flowpath Slope**	**50 YEAR DEPTH (IN)**	**Soil Type**	**Imperviousness Ratio**	**10 YR Qp (CFS)**	**5O YR Qp (CFS)**
EX A1	1	1.08	367	0.009	5.9	12	0.85	1.08	3.14
EX A2	1	0.29	203	0.016	5.9	12	0.77	0.66	0.91
EX B1	2	7.27	860	0.013	5.9	12	0.22	10.89	17.47
EX C1	3	1.91	535	0.024	5.9	12	0.16	3.46	5.55
EX C2	3	1.07	562	0.018	5.9	12	0.52	1.94	2.89
TOTAL		11.62						18.03	29.96

ME04320 PARNELL PARK PROPOSEDD FLOW RATE SUMMARY									
Drainage Area/ Basin	**Outfall**	**Area (ac)**	**Flowpath Length (ft)**	**Flowpath Slope**	**50 YEAR DEPTH (IN)**	**Soil Type**	**Imperviousness Ratio**	**10 YR Qp (CFS)**	**5O YR Qp (CFS)**
A1	1	0.99	375	0.013	5.9	12	0.85	1.91	4.73
A2	1	0.59	355	0.011	5.9	12	0.79	1.13	1.74
B1	2	3.51	738	0.014	5.9	12	0.21	5.48	7.81
C1	3	2.6	703	0.017	5.9	12	0.15	4.24	7.11
C2	3	2.21	817	0.016	5.9	12	0.46	3.45	5.96
C3	3	1.62	755	0.014	5.9	12	0.62	2.52	4.08
TOTAL		11.52						18.73	31.43

Peak Flow Hydrologic Analysis

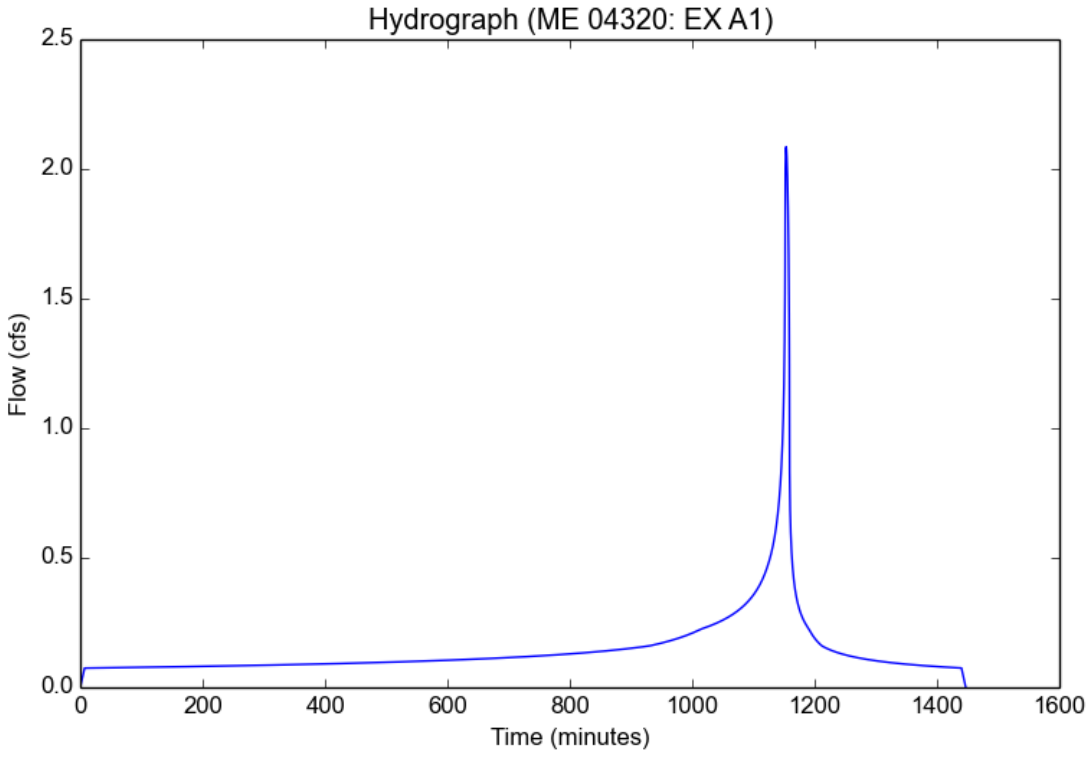
File location: K:/Drawings/ME/ME04320 - Parnell Park - Whittier/Docs/Reports/Hydrology/EXISTING/10 YEAR/ME 04320 Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	ME 04320
Subarea ID	EX A1
Area (ac)	1.08
Flow Path Length (ft)	367.0
Flow Path Slope (vft/hft)	0.009
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.8
Soil Type	12
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.2126
Peak Intensity (in/hr)	2.1457
Undeveloped Runoff Coefficient (Cu)	0.9
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	2.0856
Burned Peak Flow Rate (cfs)	2.0856
24-Hr Clear Runoff Volume (ac-ft)	0.2952
24-Hr Clear Runoff Volume (cu-ft)	12861.0461



Peak Flow Hydrologic Analysis

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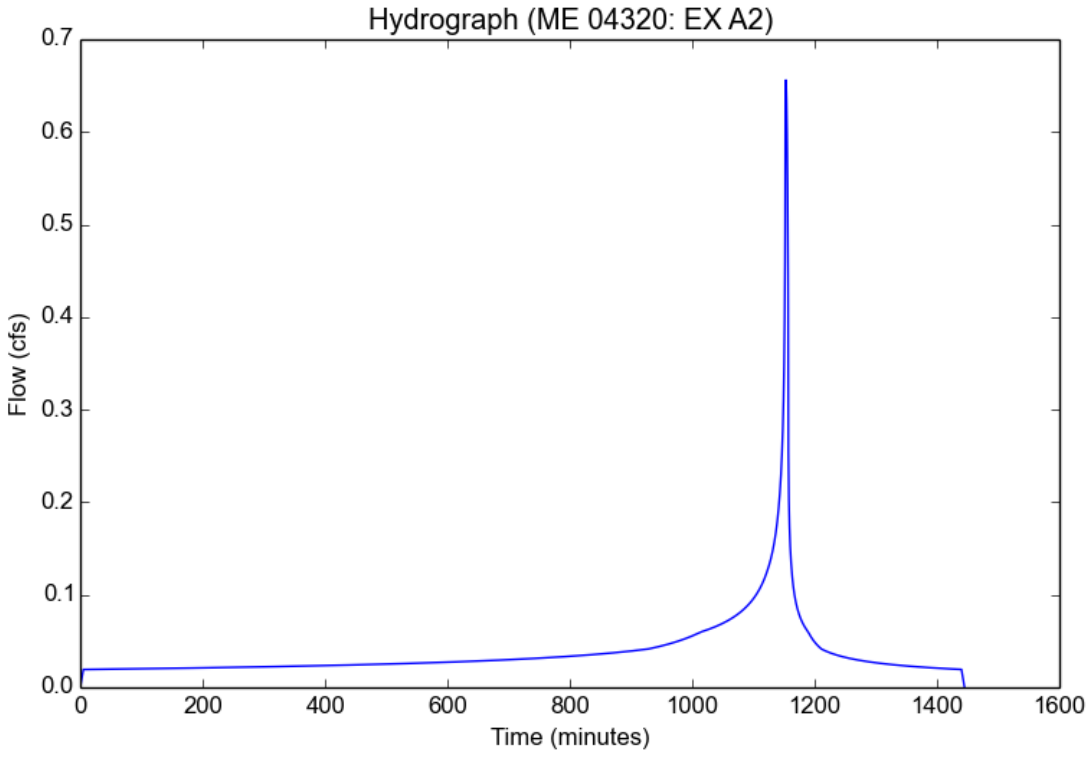
Version: HydroCalc 1.0.3

Input Parameters

Project Name	ME 04320
Subarea ID	EX A2
Area (ac)	0.29
Flow Path Length (ft)	203.0
Flow Path Slope (vft/hft)	0.016
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.77
Soil Type	12
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.2126
Peak Intensity (in/hr)	2.5134
Undeveloped Runoff Coefficient (Cu)	0.9
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.656
Burned Peak Flow Rate (cfs)	0.656
24-Hr Clear Runoff Volume (ac-ft)	0.0775
24-Hr Clear Runoff Volume (cu-ft)	3377.3863



Peak Flow Hydrologic Analysis

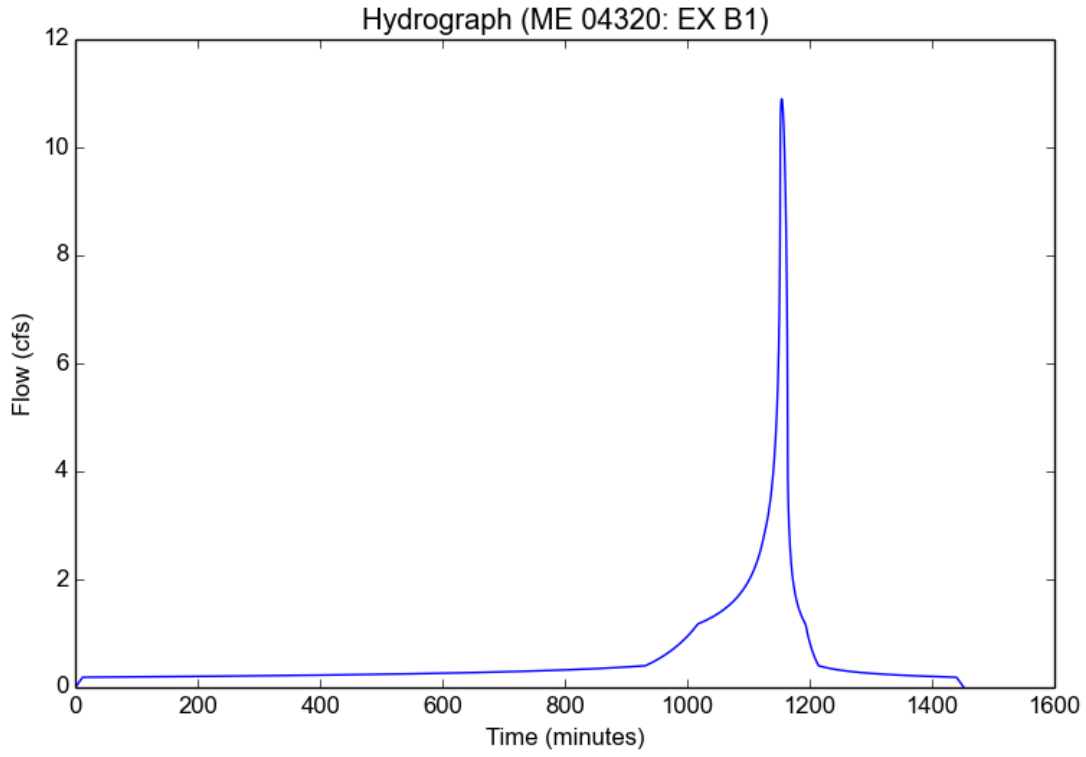
File location: K:/Drawings/ME/ME04320 - Parnell Park - Whittier/Docs/Reports/Hydrology/EXISTING/10 YEAR/ME 04320 Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	ME 04320
Subarea ID	EX B1
Area (ac)	7.27
Flow Path Length (ft)	860.0
Flow Path Slope (vft/hft)	0.013
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.22
Soil Type	12
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.2126
Peak Intensity (in/hr)	1.6655
Undeveloped Runoff Coefficient (Cu)	0.9
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	12.0
Clear Peak Flow Rate (cfs)	10.8976
Burned Peak Flow Rate (cfs)	10.8976
24-Hr Clear Runoff Volume (ac-ft)	1.1462
24-Hr Clear Runoff Volume (cu-ft)	49926.3207



Peak Flow Hydrologic Analysis

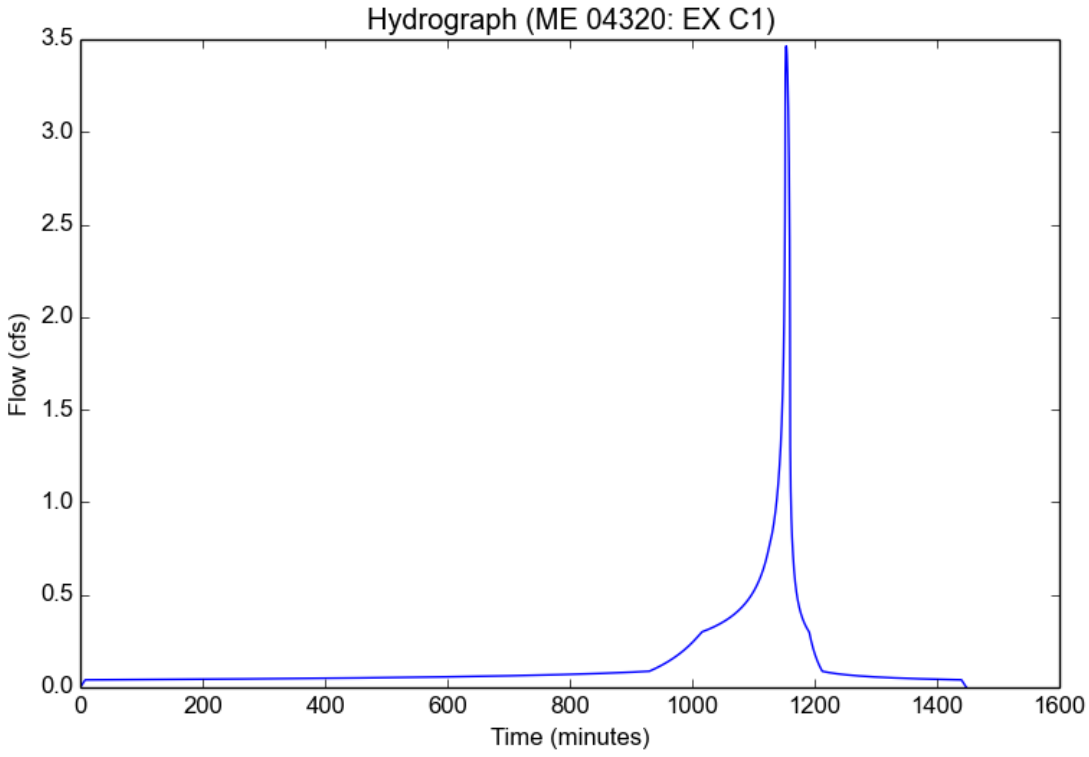
File location: K:/Drawings/ME/ME04320 - Parnell Park - Whittier/Docs/Reports/Hydrology/EXISTING/10 YEAR/ME 04320 Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	ME 04320
Subarea ID	EX C1
Area (ac)	1.91
Flow Path Length (ft)	535.0
Flow Path Slope (vft/hft)	0.024
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.16
Soil Type	12
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.2126
Peak Intensity (in/hr)	2.0152
Undeveloped Runoff Coefficient (Cu)	0.9
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	3.4641
Burned Peak Flow Rate (cfs)	3.4641
24-Hr Clear Runoff Volume (ac-ft)	0.278
24-Hr Clear Runoff Volume (cu-ft)	12110.9976



Peak Flow Hydrologic Analysis

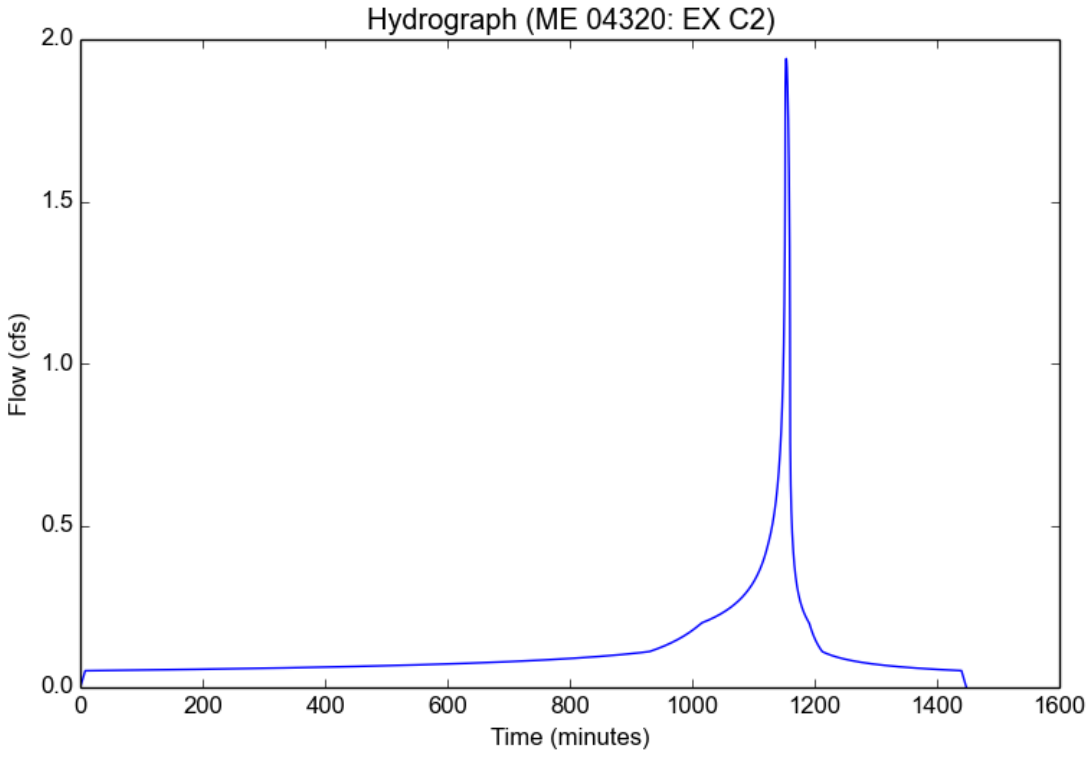
File location: K:/Drawings/ME/ME04320 - Parnell Park - Whittier/Docs/Reports/Hydrology/EXISTING/10 YEAR/ME 04320 Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	ME 04320
Subarea ID	EX C2
Area (ac)	1.07
Flow Path Length (ft)	562.0
Flow Path Slope (vft/hft)	0.018
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.52
Soil Type	12
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.2126
Peak Intensity (in/hr)	2.0152
Undeveloped Runoff Coefficient (Cu)	0.9
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	1.9406
Burned Peak Flow Rate (cfs)	1.9406
24-Hr Clear Runoff Volume (ac-ft)	0.2327
24-Hr Clear Runoff Volume (cu-ft)	10135.9343



Peak Flow Hydrologic Analysis

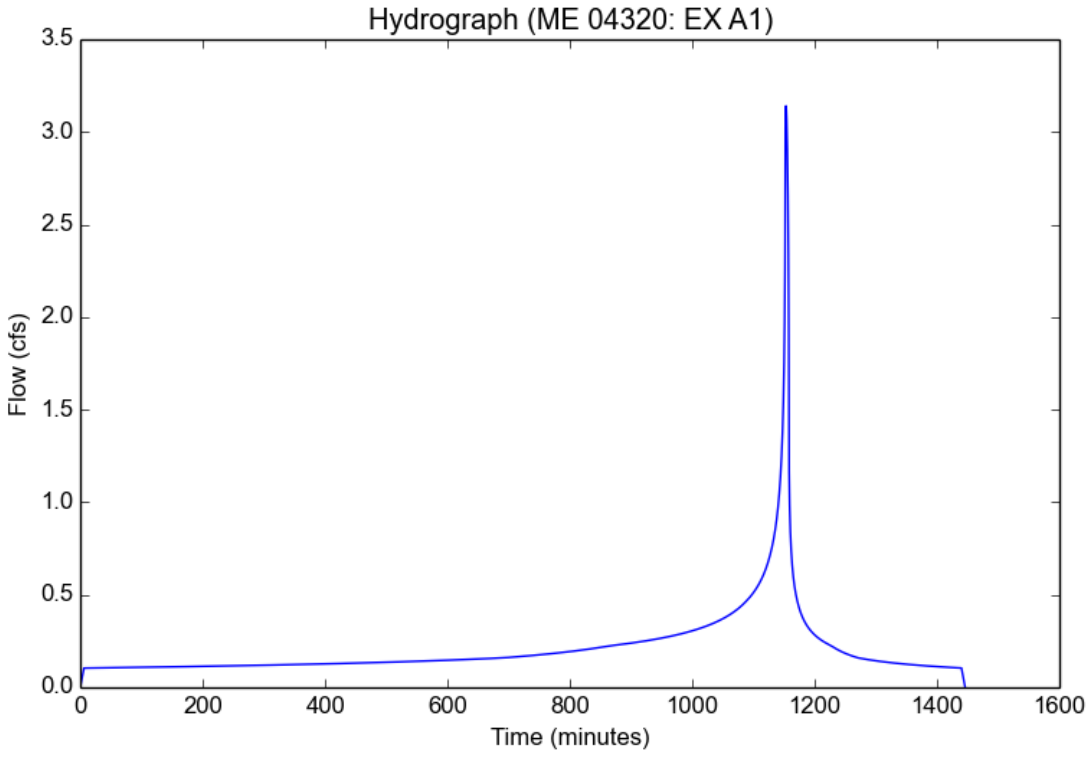
File location: K:/Drawings/ME/ME04320 - Parnell Park - Whittier/Docs/Reports/Hydrology/EXISTING/50 YEAR/ME 04320 Report 50 YEAR.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	ME 04320
Subarea ID	EX A1
Area (ac)	1.08
Flow Path Length (ft)	367.0
Flow Path Slope (vft/hft)	0.009
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.8
Soil Type	12
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	3.231
Undeveloped Runoff Coefficient (Cu)	0.9
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	3.1406
Burned Peak Flow Rate (cfs)	3.1406
24-Hr Clear Runoff Volume (ac-ft)	0.4244
24-Hr Clear Runoff Volume (cu-ft)	18487.865



Peak Flow Hydrologic Analysis

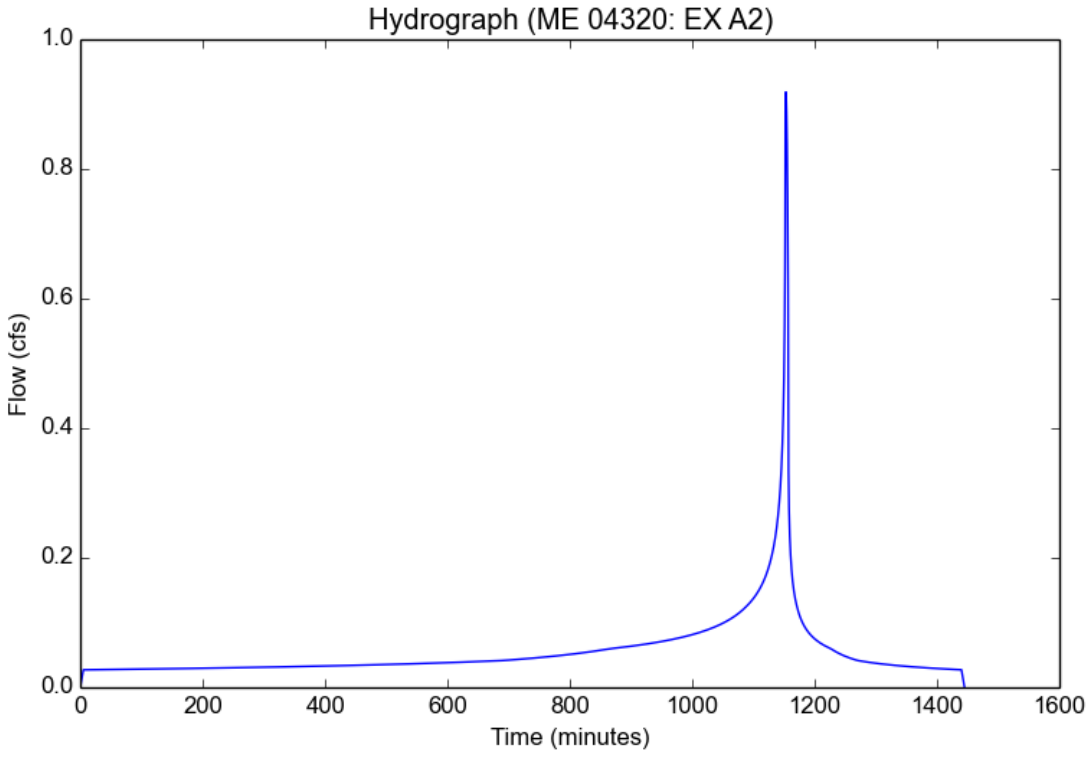
File location: K:/Drawings/ME/ME04320 - Parnell Park - Whittier/Docs/Reports/Hydrology/EXISTING/50 YEAR/ME 04320 Report 50 YEAR.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	ME 04320
Subarea ID	EX A2
Area (ac)	0.29
Flow Path Length (ft)	203.0
Flow Path Slope (vft/hft)	0.016
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.77
Soil Type	12
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	3.5201
Undeveloped Runoff Coefficient (Cu)	0.9
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.9187
Burned Peak Flow Rate (cfs)	0.9187
24-Hr Clear Runoff Volume (ac-ft)	0.112
24-Hr Clear Runoff Volume (cu-ft)	4877.3172



Peak Flow Hydrologic Analysis

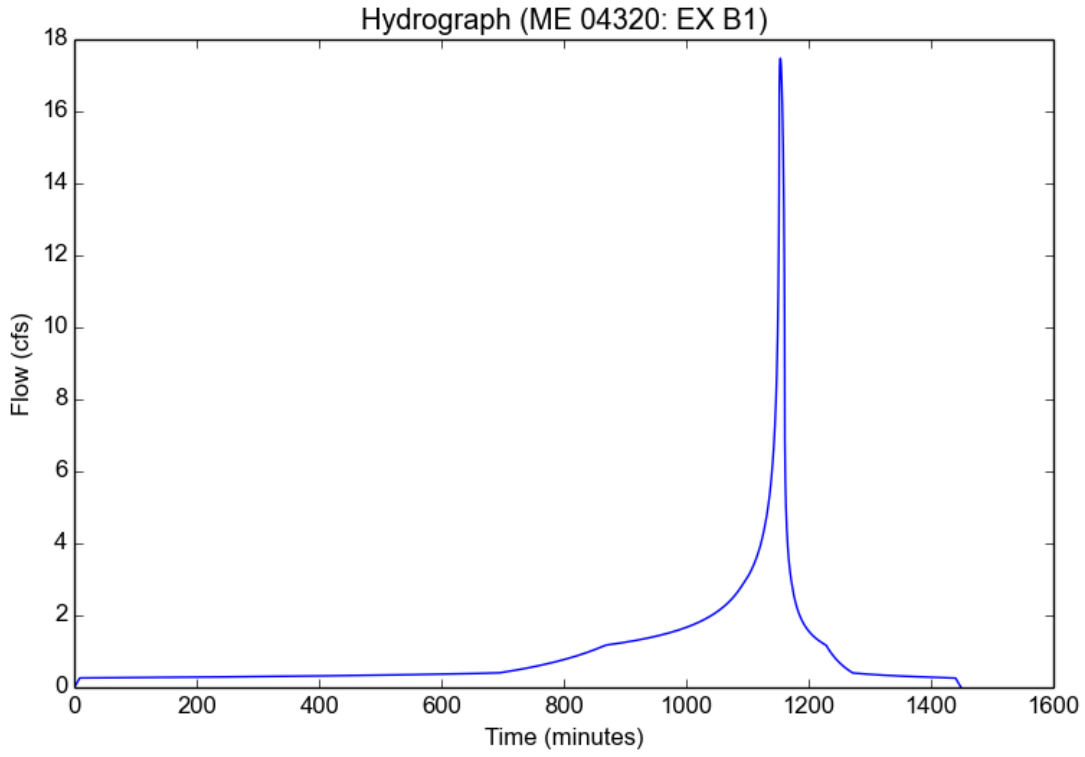
File location: K:/Drawings/ME/ME04320 - Parnell Park - Whittier/Docs/Reports/Hydrology/EXISTING/50 YEAR/ME 04320 Report 50 YEAR.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	ME 04320
Subarea ID	EX B1
Area (ac)	7.27
Flow Path Length (ft)	860.0
Flow Path Slope (vft/hft)	0.013
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.22
Soil Type	12
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	2.6704
Undeveloped Runoff Coefficient (Cu)	0.9
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	17.4725
Burned Peak Flow Rate (cfs)	17.4725
24-Hr Clear Runoff Volume (ac-ft)	1.891
24-Hr Clear Runoff Volume (cu-ft)	82373.4653



Peak Flow Hydrologic Analysis

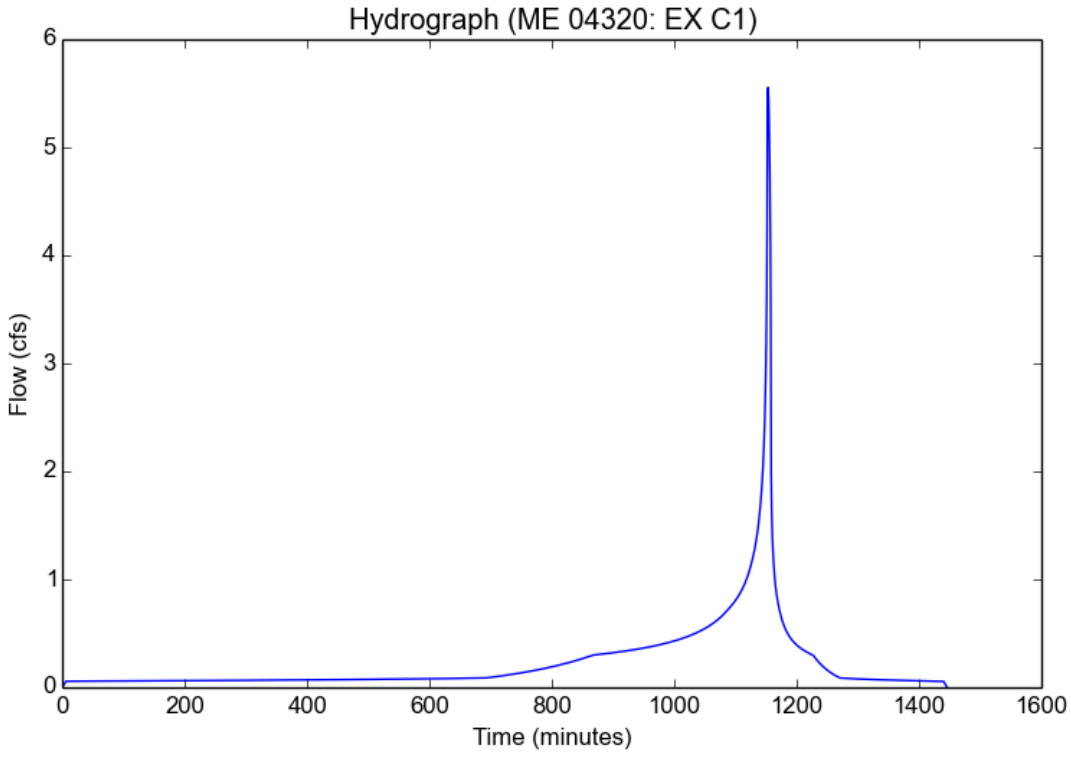
File location: K:/Drawings/ME/ME04320 - Parnell Park - Whittier/Docs/Reports/Hydrology/EXISTING/50 YEAR/ME 04320 Report 50 YEAR.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	ME 04320
Subarea ID	EX C1
Area (ac)	1.91
Flow Path Length (ft)	535.0
Flow Path Slope (vft/hft)	0.024
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.16
Soil Type	12
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	3.231
Undeveloped Runoff Coefficient (Cu)	0.9
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	5.5541
Burned Peak Flow Rate (cfs)	5.5541
24-Hr Clear Runoff Volume (ac-ft)	0.4703
24-Hr Clear Runoff Volume (cu-ft)	20486.7078



Peak Flow Hydrologic Analysis

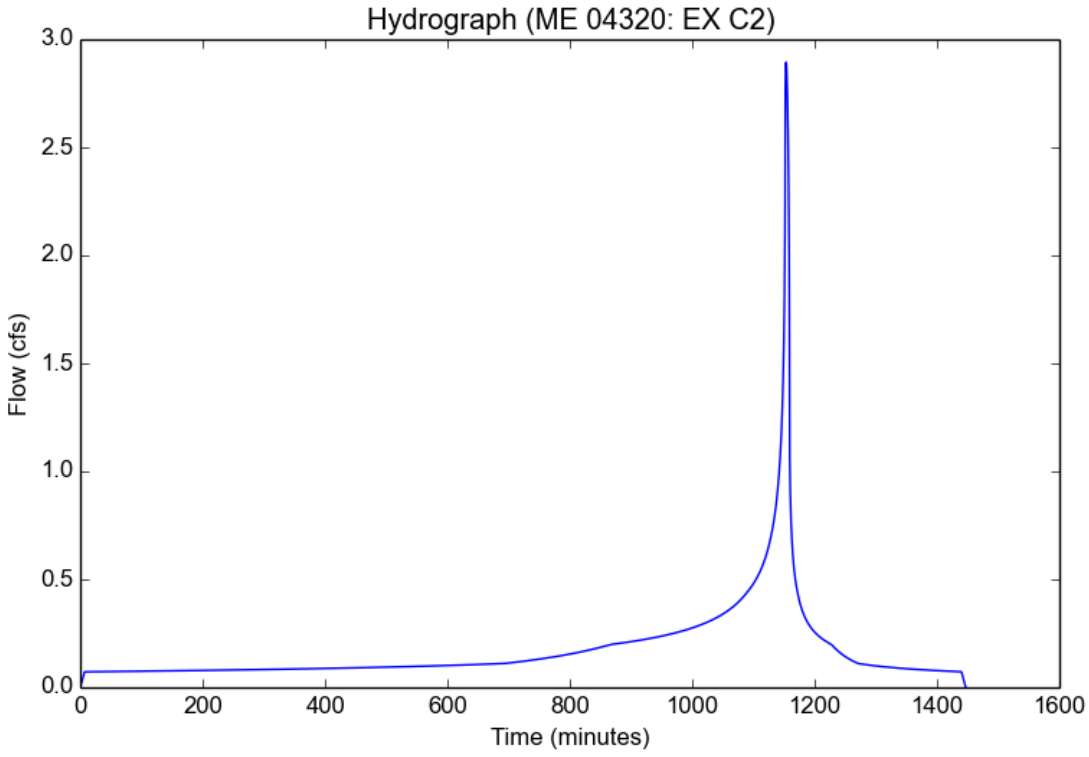
File location: K:/Drawings/ME/ME04320 - Parnell Park - Whittier/Docs/Reports/Hydrology/EXISTING/50 YEAR/ME 04320 Report 50 YEAR.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	ME 04320
Subarea ID	EX C2
Area (ac)	1.07
Flow Path Length (ft)	562.0
Flow Path Slope (vft/hft)	0.018
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.52
Soil Type	12
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

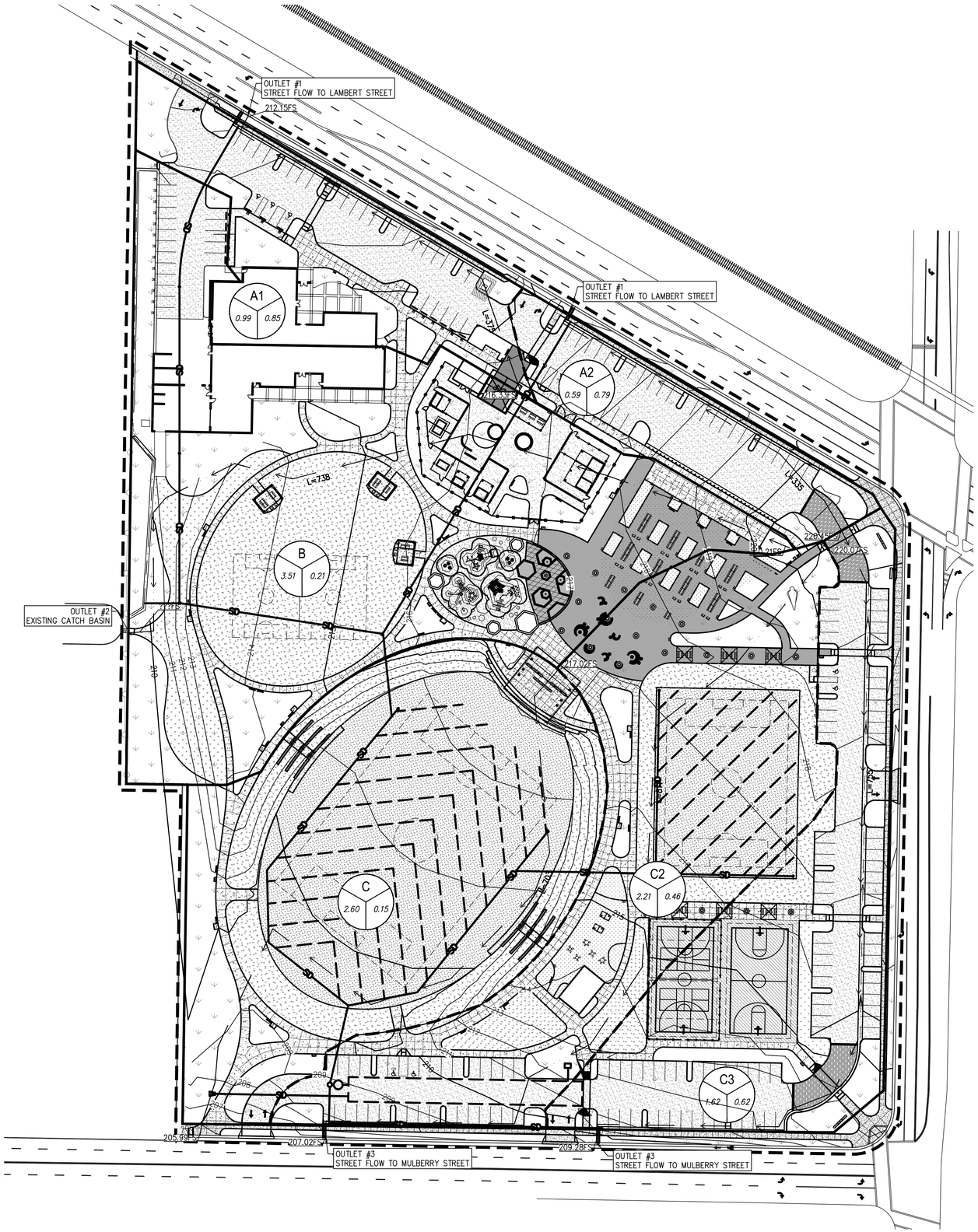
Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	3.0052
Undeveloped Runoff Coefficient (Cu)	0.9
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	2.894
Burned Peak Flow Rate (cfs)	2.894
24-Hr Clear Runoff Volume (ac-ft)	0.3518
24-Hr Clear Runoff Volume (cu-ft)	15325.315



Appendix D – Proposed Hydrological Condition Map

Proposed Hydrological Condition Map
See Attached Exhibit



LEGEND

- 180 — PROPOSED CONTOUR
- FLOW LINE
- SURFACE DIRECTION OF FLOW
- SD — EXISTING STORM DRAIN
- SD — PROPOSED STORM DRAIN ≤ 12"
- PROPOSED STORM DRAIN > 12"
- STORM DRAIN PIPE FLOW
- AREA BOUNDARY
- SUB-AREA BOUNDARY
- AREA ID
- XX / XX / 0.01 — AREA (AC)
- RUNOFF COEFFICIENT
- PERVIOUS AREA

ABBREVIATIONS

FS	FINISHED SURFACE
INV	INVERT
FF	FINISHED FLOOR ELEVATION
CF	CUBIC FEET

N

0 50' 100'

SCALE: 1" = 50'

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CHECKED: TB
DATE: 06/07/2022
JOB NO: ME04320

CONCEPT EXHIBIT

PARNELL PARK
CITY OF WHITTIER
15390 LAMBERT ROAD
WHITTIER, CA

SHEET 1 OF 1

5/15/2019 Exhibit XX

Jan 23, 2023 - 1:57pm by sshire K:\Drawings\ME\ME0432A - Parnell Park - Whittier - CDs\ENG\Hydrology\ME0432A PROPOSED HYDRO.dwg

Appendix E – Proposed Modified Rational Method Results

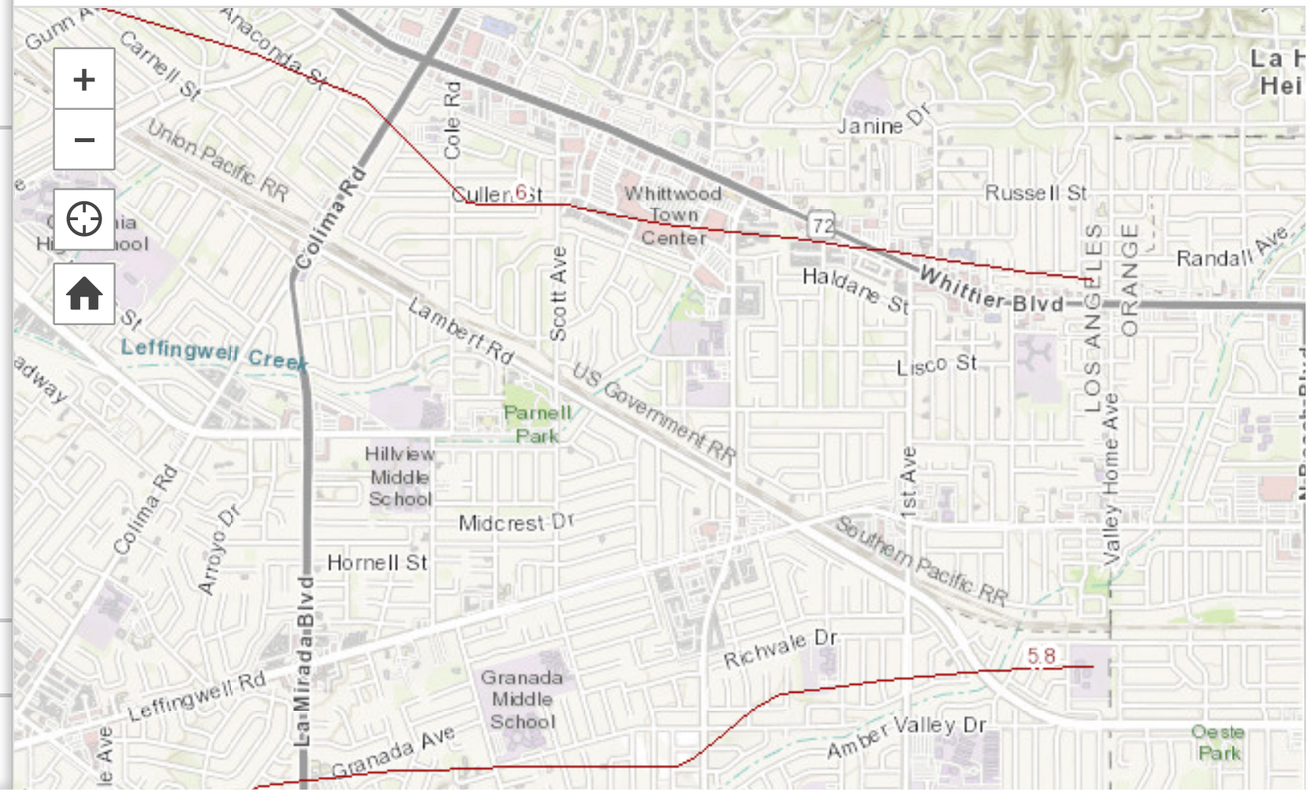
Proposed Tc Calculator Files
See Attached Exhibit

About | Legend | Layers

Layers

- [x] Hydrology GIS
  - [x] 50yr Two Tenths (Rainfall)
  - [ ] DPA Zones
  - [ ] Soils 2004
  - [ ] Final 85th Percentile, 24-hr Rainfall
  - [ ] 1-year, 1-hour Rainfall Intensity
  - [ ] Final 95th Percentile, 24-hr Rainfall
- [x] LA County Parcels

LA County Hydrology Map



Peak Flow Hydrologic Analysis

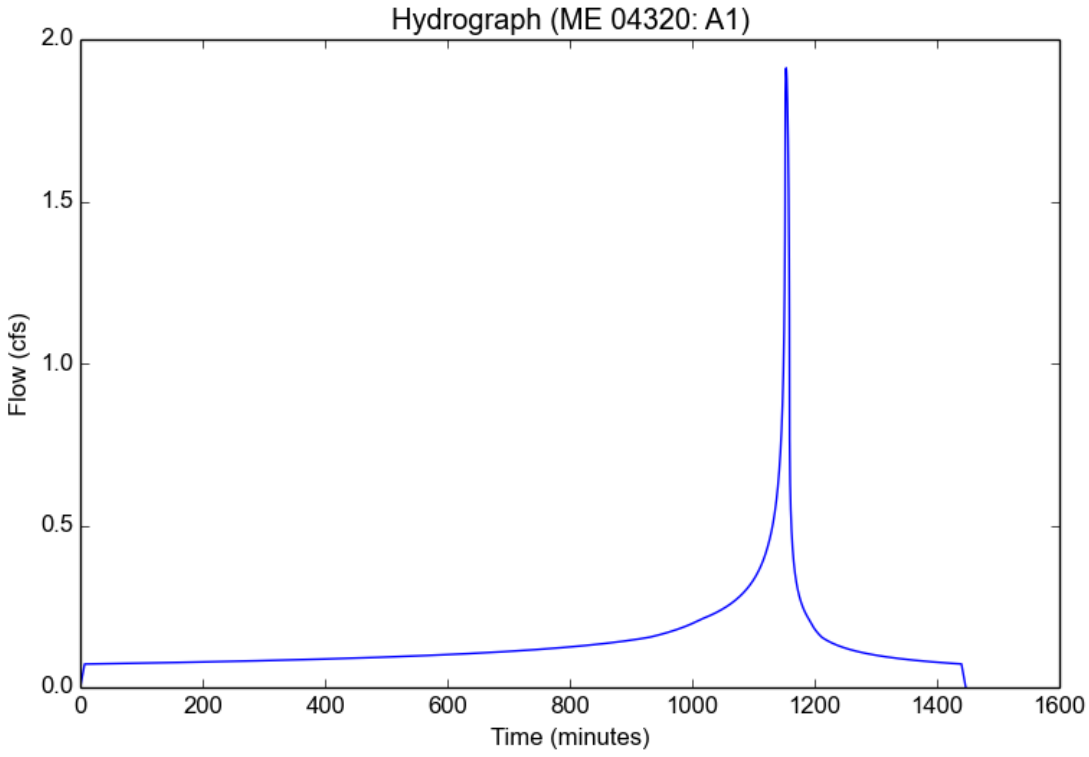
File location: K:/Drawings/ME/ME04320 - Parnell Park - Whittier/Docs/Reports/Hydrology/Appendices/Appendix E - Pr Calcs/PROPOSED/10 YEAR/ME (
Version: HydroCalc 1.0.3

Input Parameters

Project Name	ME 04320
Subarea ID	A1
Area (ac)	0.99
Flow Path Length (ft)	375.0
Flow Path Slope (vft/hft)	0.013
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.85
Soil Type	12
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.2126
Peak Intensity (in/hr)	2.1457
Undeveloped Runoff Coefficient (Cu)	0.9
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	1.9118
Burned Peak Flow Rate (cfs)	1.9118
24-Hr Clear Runoff Volume (ac-ft)	0.2805
24-Hr Clear Runoff Volume (cu-ft)	12220.0552



Peak Flow Hydrologic Analysis

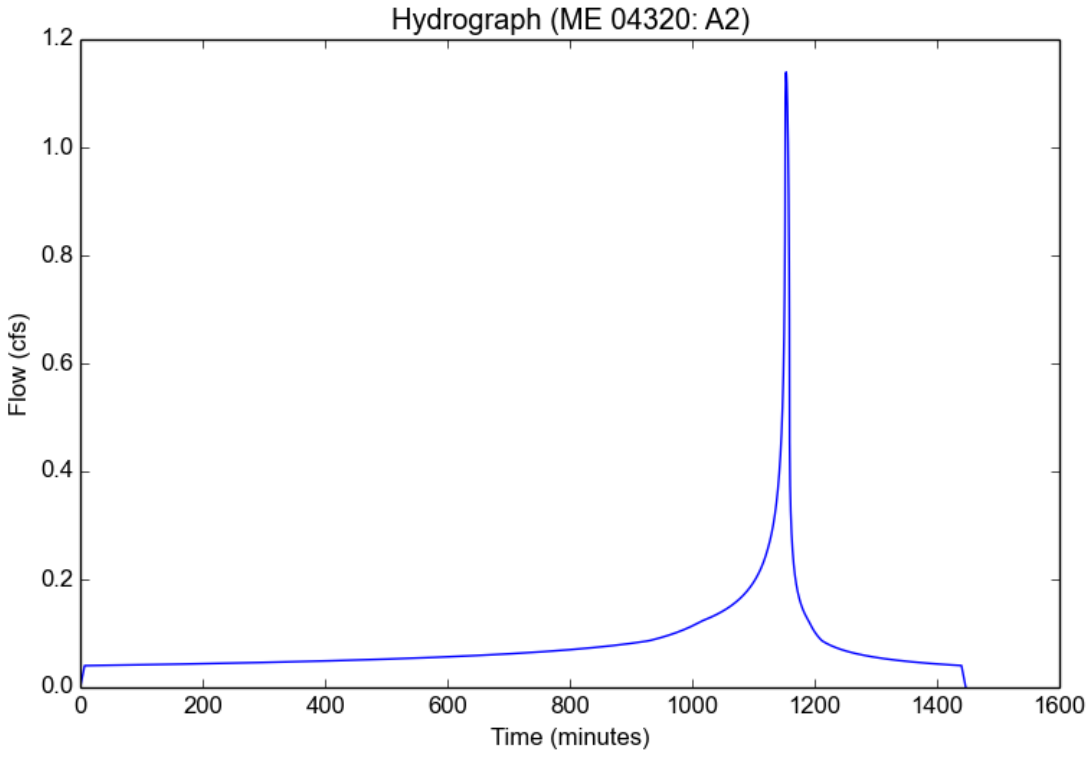
File location: K:/Drawings/ME/ME04320 - Parnell Park - Whittier/Docs/Reports/Hydrology/Appendices/Appendix E - Pr Calcs/PROPOSED/10 YEAR/ME (
Version: HydroCalc 1.0.3

Input Parameters

Project Name	ME 04320
Subarea ID	A2
Area (ac)	0.59
Flow Path Length (ft)	355.0
Flow Path Slope (vft/hft)	0.011
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.79
Soil Type	12
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.2126
Peak Intensity (in/hr)	2.1457
Undeveloped Runoff Coefficient (Cu)	0.9
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	1.1394
Burned Peak Flow Rate (cfs)	1.1394
24-Hr Clear Runoff Volume (ac-ft)	0.1601
24-Hr Clear Runoff Volume (cu-ft)	6974.5984



Peak Flow Hydrologic Analysis

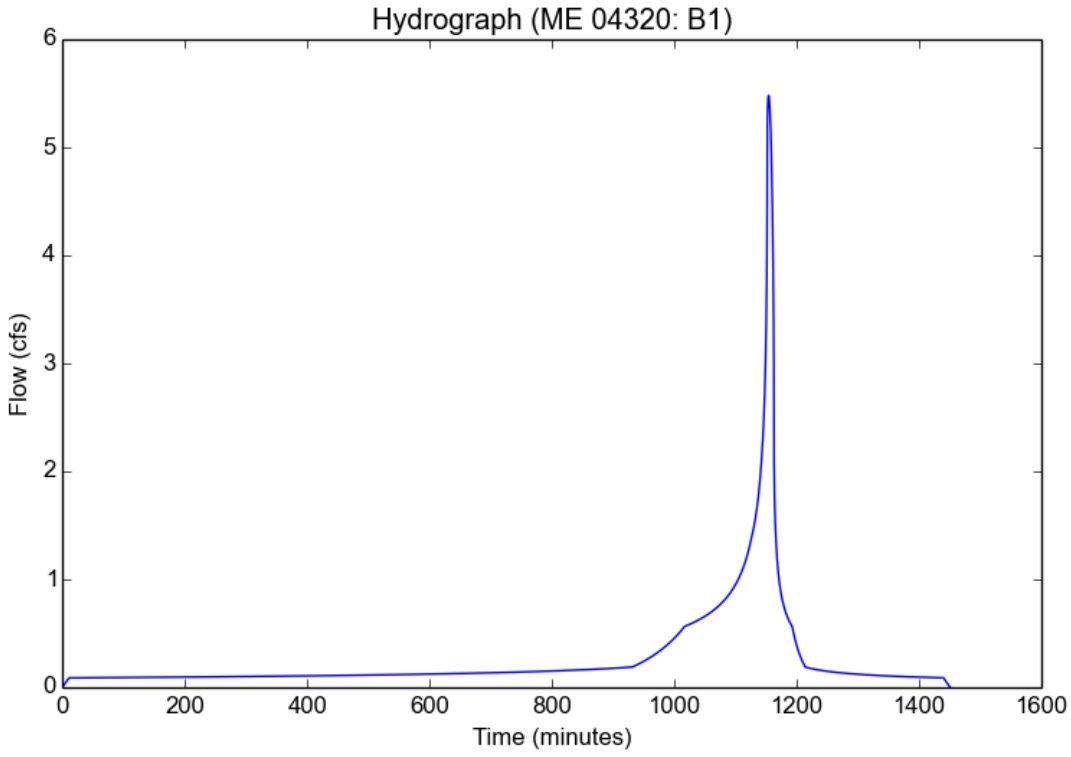
File location: K:/Drawings/ME/ME04320 - Parnell Park - Whittier/Docs/Reports/Hydrology/Appendices/Appendix E - Pr Calcs/PROPOSED/10 YEAR/ME (
Version: HydroCalc 1.0.3

Input Parameters

Project Name	ME 04320
Subarea ID	B1
Area (ac)	3.51
Flow Path Length (ft)	738.0
Flow Path Slope (vft/hft)	0.014
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.21
Soil Type	12
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.2126
Peak Intensity (in/hr)	1.7351
Undeveloped Runoff Coefficient (Cu)	0.9
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	11.0
Clear Peak Flow Rate (cfs)	5.4811
Burned Peak Flow Rate (cfs)	5.4811
24-Hr Clear Runoff Volume (ac-ft)	0.5463
24-Hr Clear Runoff Volume (cu-ft)	23797.9718



Peak Flow Hydrologic Analysis

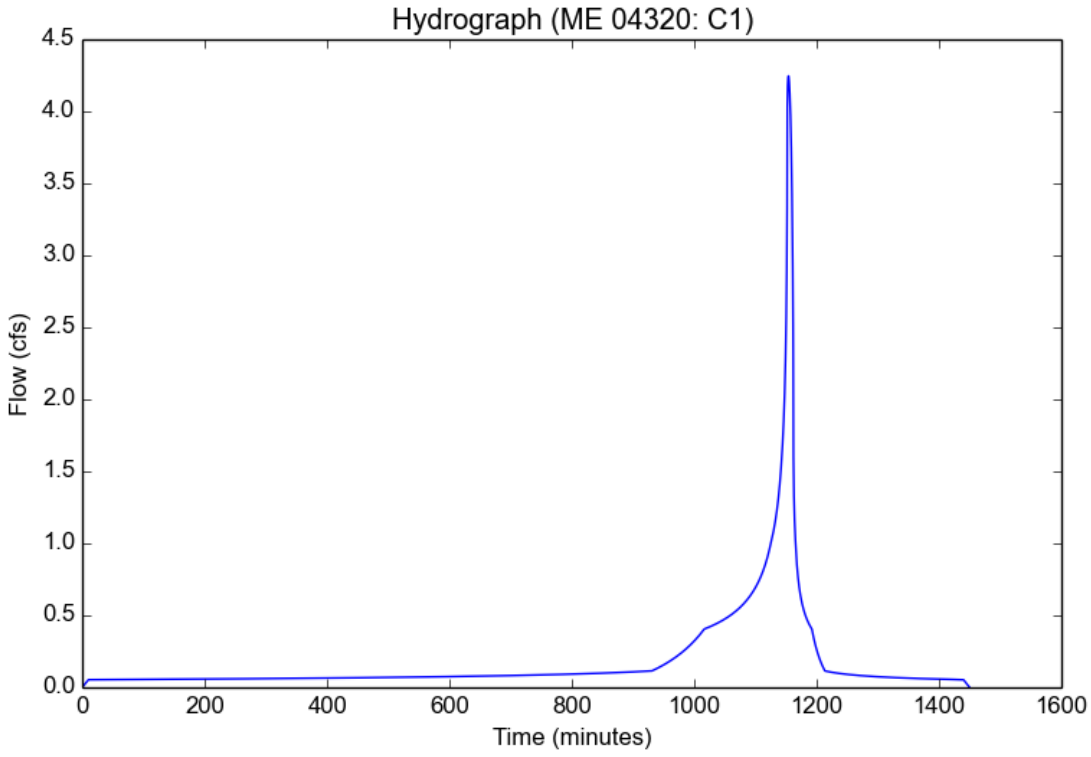
File location: K:/Drawings/ME/ME04320 - Parnell Park - Whittier/Docs/Reports/Hydrology/Appendices/Appendix E - Pr Calcs/PROPOSED/10 YEAR/ME (
Version: HydroCalc 1.0.3

Input Parameters

Project Name	ME 04320
Subarea ID	C1
Area (ac)	2.6
Flow Path Length (ft)	703.0
Flow Path Slope (vft/hft)	0.017
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.15
Soil Type	12
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.2126
Peak Intensity (in/hr)	1.8146
Undeveloped Runoff Coefficient (Cu)	0.9
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	10.0
Clear Peak Flow Rate (cfs)	4.2461
Burned Peak Flow Rate (cfs)	4.2461
24-Hr Clear Runoff Volume (ac-ft)	0.3735
24-Hr Clear Runoff Volume (cu-ft)	16268.7249



Peak Flow Hydrologic Analysis

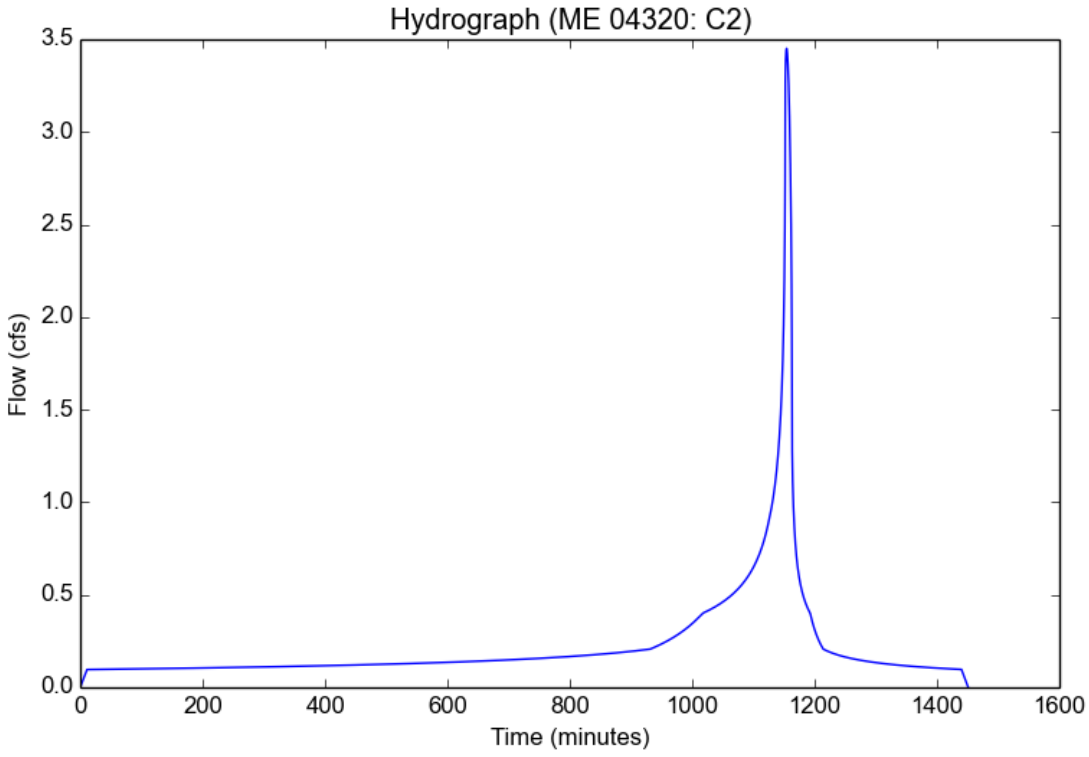
File location: K:/Drawings/ME/ME04320 - Parnell Park - Whittier/Docs/Reports/Hydrology/Appendices/Appendix E - Pr Calcs/PROPOSED/10 YEAR/ME (
Version: HydroCalc 1.0.3

Input Parameters

Project Name	ME 04320
Subarea ID	C2
Area (ac)	2.21
Flow Path Length (ft)	817.0
Flow Path Slope (vft/hft)	0.016
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.46
Soil Type	12
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.2126
Peak Intensity (in/hr)	1.7351
Undeveloped Runoff Coefficient (Cu)	0.9
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	11.0
Clear Peak Flow Rate (cfs)	3.451
Burned Peak Flow Rate (cfs)	3.451
24-Hr Clear Runoff Volume (ac-ft)	0.4543
24-Hr Clear Runoff Volume (cu-ft)	19787.7179



Peak Flow Hydrologic Analysis

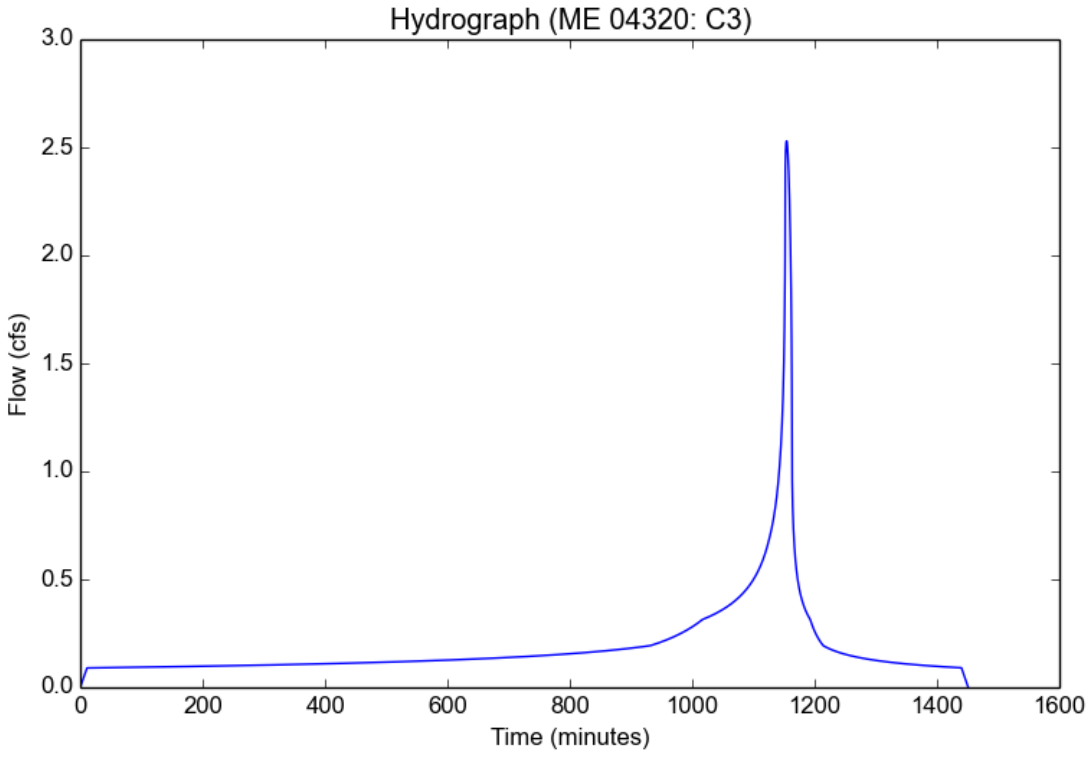
File location: K:/Drawings/ME/ME04320 - Parnell Park - Whittier/Docs/Reports/Hydrology/Appendices/Appendix E - Pr Calcs/PROPOSED/10 YEAR/ME (
Version: HydroCalc 1.0.3

Input Parameters

Project Name	ME 04320
Subarea ID	C3
Area (ac)	1.62
Flow Path Length (ft)	755.0
Flow Path Slope (vft/hft)	0.014
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.62
Soil Type	12
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.2126
Peak Intensity (in/hr)	1.7351
Undeveloped Runoff Coefficient (Cu)	0.9
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	11.0
Clear Peak Flow Rate (cfs)	2.5297
Burned Peak Flow Rate (cfs)	2.5297
24-Hr Clear Runoff Volume (ac-ft)	0.3847
24-Hr Clear Runoff Volume (cu-ft)	16758.6846



Peak Flow Hydrologic Analysis

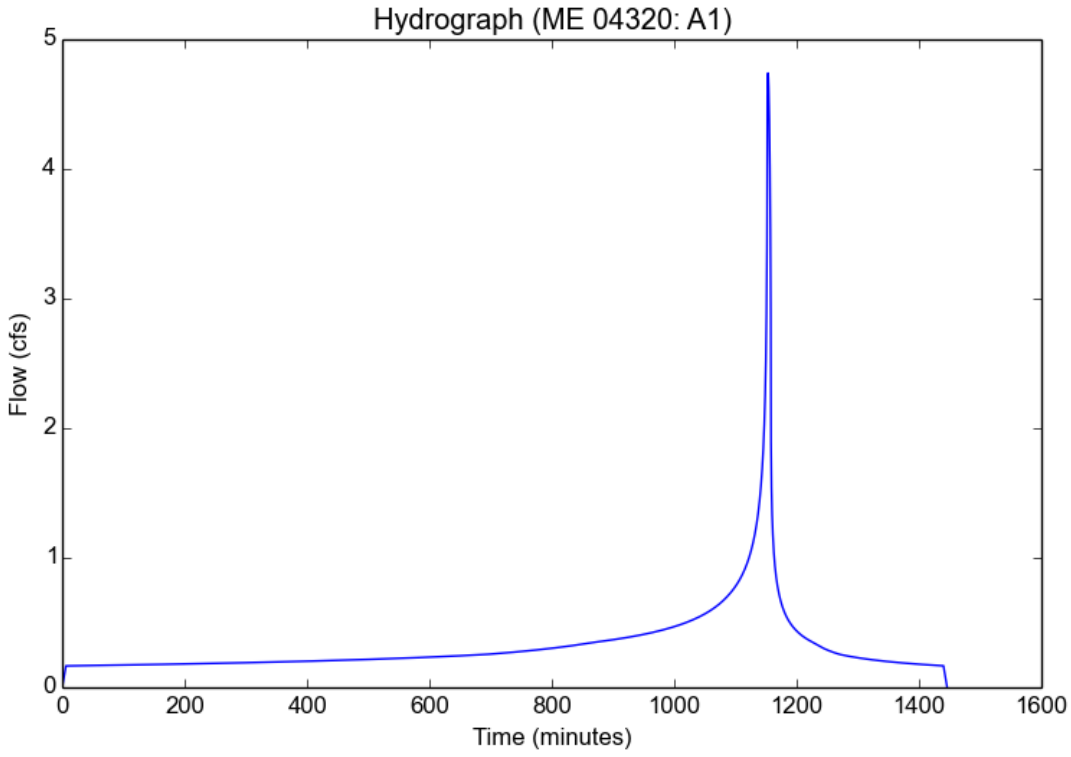
File location: K:/Drawings/ME/ME04320 - Parnell Park - Whittier/Docs/Reports/Hydrology/Appendices/Appendix E - Pr Calcs/PROPOSED/50 YEAR/ME (
Version: HydroCalc 1.0.3

Input Parameters

Project Name	ME 04320
Subarea ID	A1
Area (ac)	1.63
Flow Path Length (ft)	367.0
Flow Path Slope (vft/hft)	0.011
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.85
Soil Type	12
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	3.231
Undeveloped Runoff Coefficient (Cu)	0.9
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	4.7399
Burned Peak Flow Rate (cfs)	4.7399
24-Hr Clear Runoff Volume (ac-ft)	0.6593
24-Hr Clear Runoff Volume (cu-ft)	28717.0096



Peak Flow Hydrologic Analysis

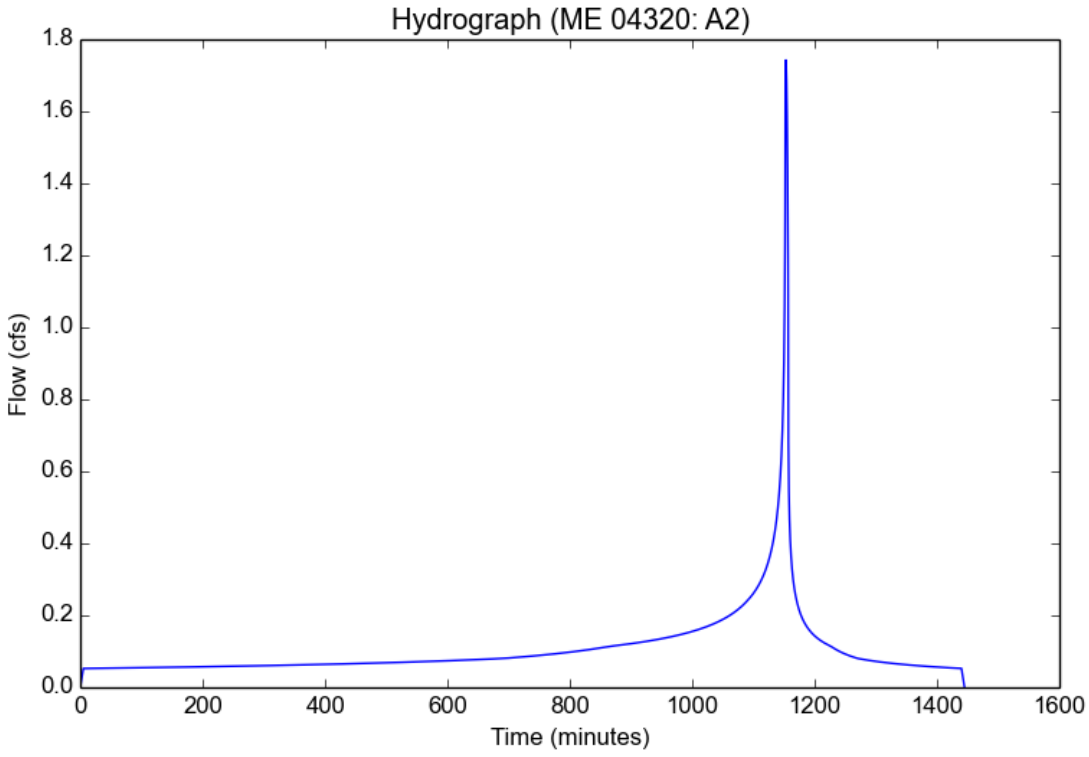
File location: K:/Drawings/ME/ME04320 - Parnell Park - Whittier/Docs/Reports/Hydrology/Appendices/Appendix E - Pr Calcs/PROPOSED/50 YEAR/ME (
Version: HydroCalc 1.0.3

Input Parameters

Project Name	ME 04320
Subarea ID	A2
Area (ac)	0.55
Flow Path Length (ft)	366.0
Flow Path Slope (vft/hft)	0.014
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.79
Soil Type	12
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	3.5201
Undeveloped Runoff Coefficient (Cu)	0.9
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.7425
Burned Peak Flow Rate (cfs)	1.7425
24-Hr Clear Runoff Volume (ac-ft)	0.2149
24-Hr Clear Runoff Volume (cu-ft)	9359.973



Peak Flow Hydrologic Analysis

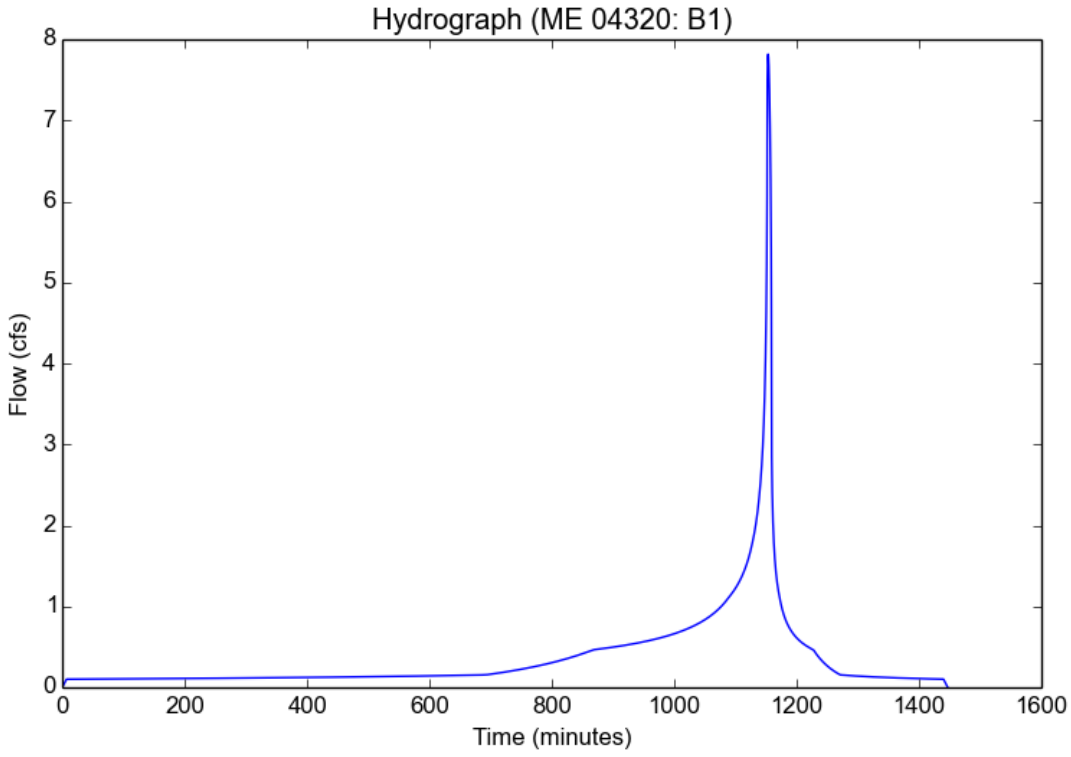
File location: K:/Drawings/ME/ME04320 - Parnell Park - Whittier/Docs/Reports/Hydrology/Appendices/Appendix E - Pr Calcs/PROPOSED/50 YEAR/ME (
Version: HydroCalc 1.0.3

Input Parameters

Project Name	ME 04320
Subarea ID	B1
Area (ac)	2.89
Flow Path Length (ft)	634.0
Flow Path Slope (vft/hft)	0.016
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.21
Soil Type	12
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	3.0052
Undeveloped Runoff Coefficient (Cu)	0.9
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	7.8166
Burned Peak Flow Rate (cfs)	7.8166
24-Hr Clear Runoff Volume (ac-ft)	0.7449
24-Hr Clear Runoff Volume (cu-ft)	32446.202



Peak Flow Hydrologic Analysis

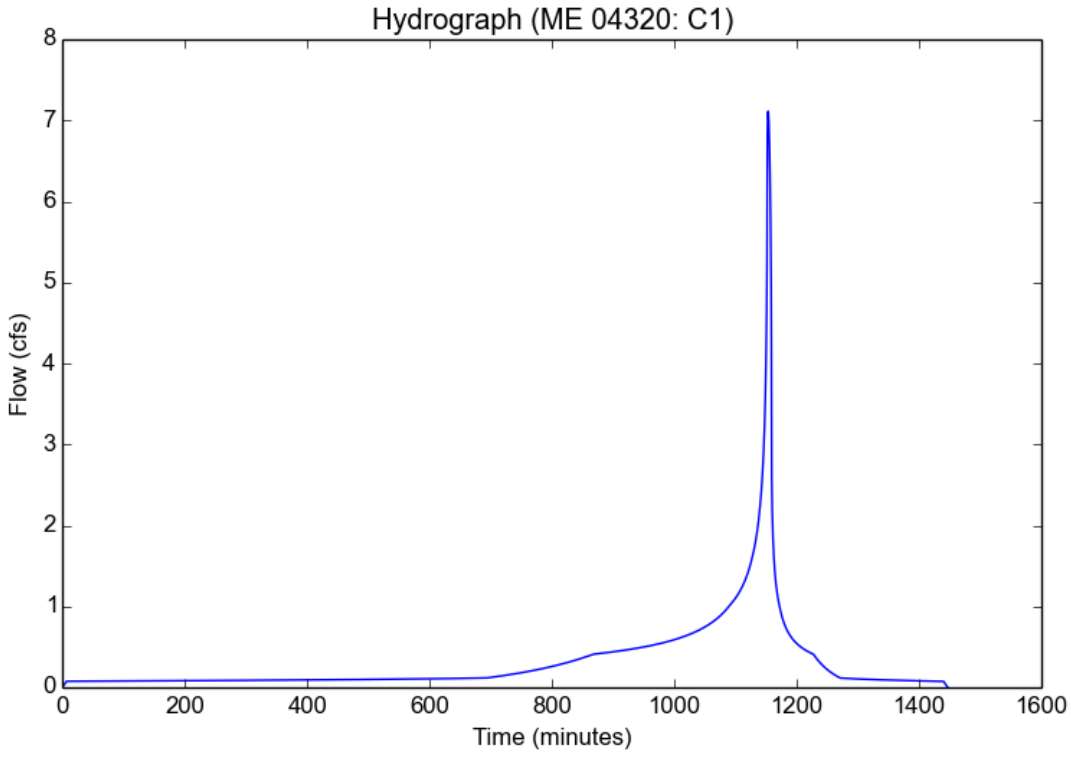
File location: K:/Drawings/ME/ME04320 - Parnell Park - Whittier/Docs/Reports/Hydrology/Appendices/Appendix E - Pr Calcs/PROPOSED/50 YEAR/ME (
Version: HydroCalc 1.0.3

Input Parameters

Project Name	ME 04320
Subarea ID	C1
Area (ac)	2.63
Flow Path Length (ft)	570.0
Flow Path Slope (vft/hft)	0.021
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.15
Soil Type	12
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	3.0052
Undeveloped Runoff Coefficient (Cu)	0.9
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	7.1133
Burned Peak Flow Rate (cfs)	7.1133
24-Hr Clear Runoff Volume (ac-ft)	0.6417
24-Hr Clear Runoff Volume (cu-ft)	27951.3733



Peak Flow Hydrologic Analysis

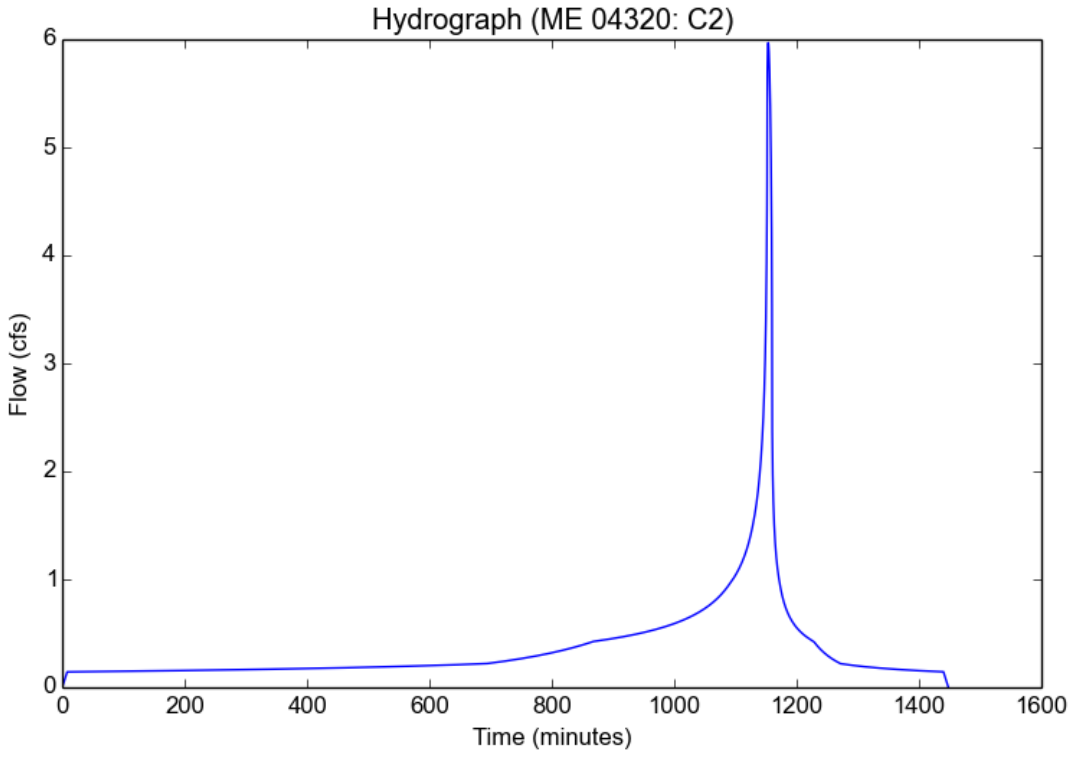
File location: K:/Drawings/ME/ME04320 - Parnell Park - Whittier/Docs/Reports/Hydrology/Appendices/Appendix E - Pr Calcs/PROPOSED/50 YEAR/ME (
Version: HydroCalc 1.0.3

Input Parameters

Project Name	ME 04320
Subarea ID	C2
Area (ac)	2.35
Flow Path Length (ft)	771.0
Flow Path Slope (vft/hft)	0.017
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.46
Soil Type	12
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	2.8224
Undeveloped Runoff Coefficient (Cu)	0.9
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	5.9694
Burned Peak Flow Rate (cfs)	5.9694
24-Hr Clear Runoff Volume (ac-ft)	0.7404
24-Hr Clear Runoff Volume (cu-ft)	32253.3202



Peak Flow Hydrologic Analysis

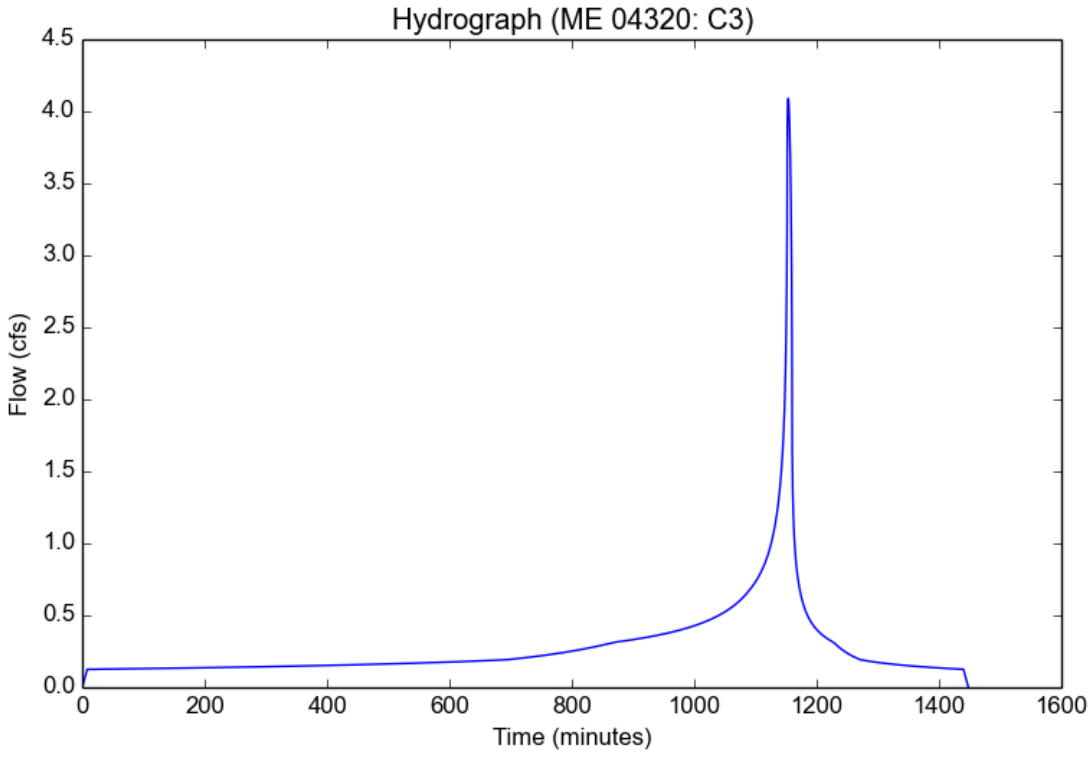
File location: K:/Drawings/ME/ME04320 - Parnell Park - Whittier/Docs/Reports/Hydrology/Appendices/Appendix E - Pr Calcs/PROPOSED/50 YEAR/ME (
Version: HydroCalc 1.0.3

Input Parameters

Project Name	ME 04320
Subarea ID	C3
Area (ac)	1.61
Flow Path Length (ft)	747.0
Flow Path Slope (vft/hft)	0.014
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.62
Soil Type	12
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	2.8224
Undeveloped Runoff Coefficient (Cu)	0.9
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	4.0897
Burned Peak Flow Rate (cfs)	4.0897
24-Hr Clear Runoff Volume (ac-ft)	0.5663
24-Hr Clear Runoff Volume (cu-ft)	24668.7568



Appendix F – Basin Calculations and Details

Existing and Proposed Condition
Hydrograph and Basin Details
See Attached Hydrograph

Not included as apart of the Preliminary Hydrology report. Will be included, as applicable, in the Final Hydrology Report

Appendix G – As Built Storm Drain Plans

Downstream Condition Records

See Attached As builts

COUNTY OF LOS ANGELES

SAN GABRIEL RIVER WATERSHED

San Gabriel River Watershed

LEGEND

- SAN GABRIEL RIVER WATERSHED
- UNINCORPORATED AREA
- DAM / LAKE / RESERVOIR
- MAJOR RIVER
- MAJOR CHANNEL

MILES
0 0.875 1.75 3.5

Data contained in this map is produced in whole or part from the Los Angeles County Department of Public Works' digital database.

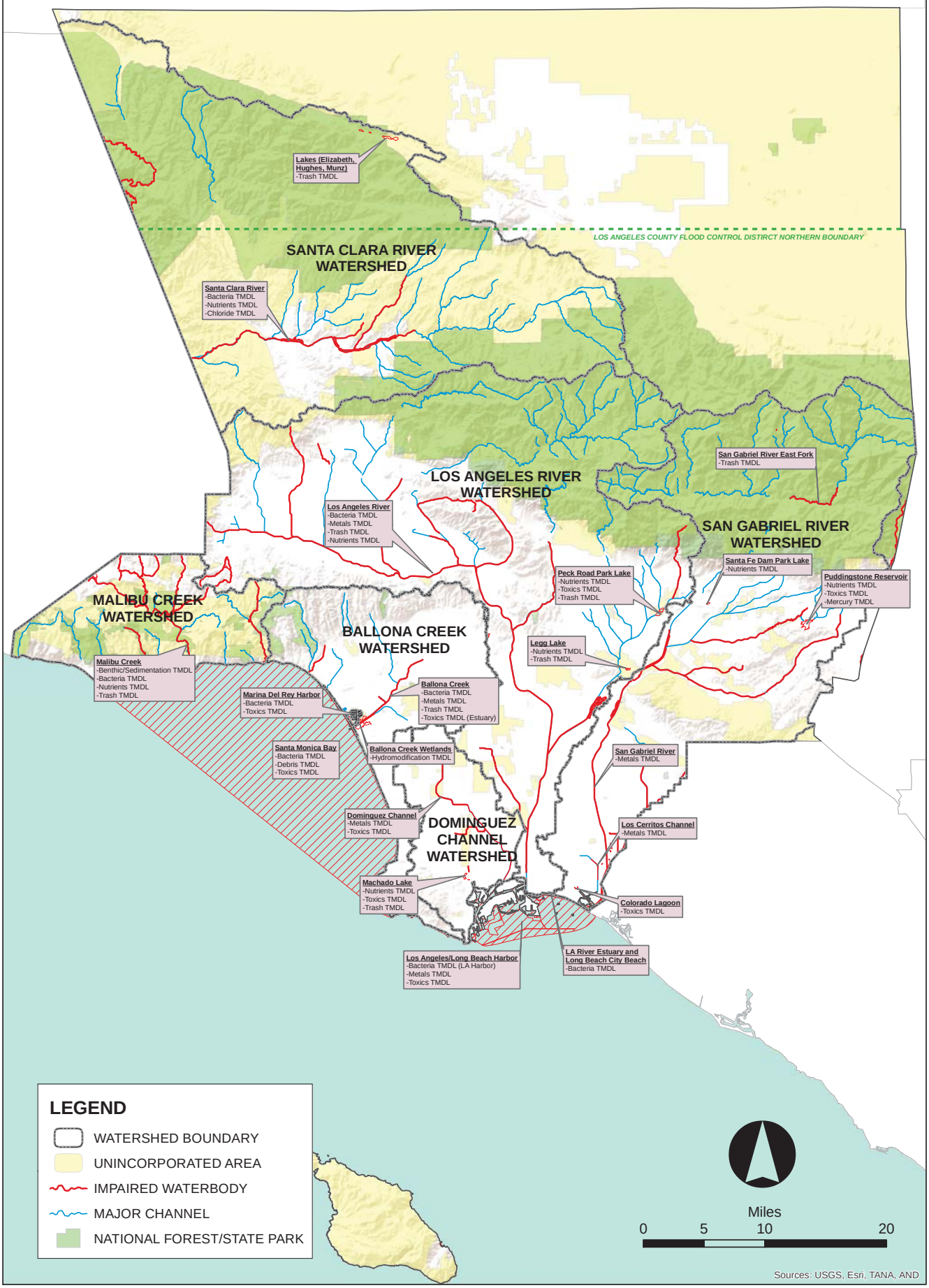
REF: \\pwgisd02\mpmgis\MPMGIS\projects\mpm\gismaps\wk_2627\SanGabrielRiver_wtrshed.mxd DATE: 08/21/07

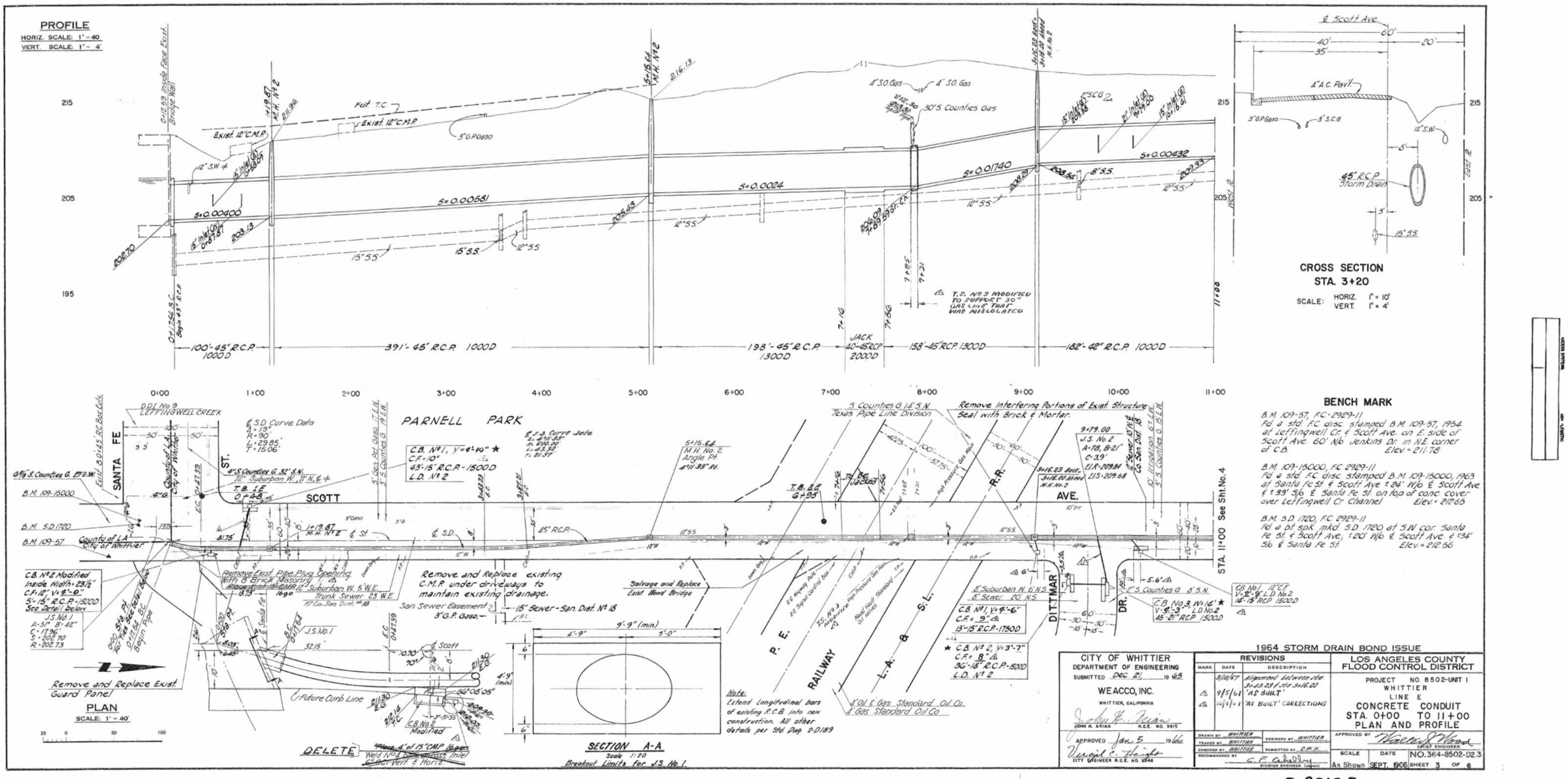
Mapping & Property Management Division, Mapping & GIS Services Section

COUNTY OF LOS ANGELES

MAJOR WATERSHEDS and EFFECTIVE TOTAL MAXIMUM DAILY LOADS

(as of October 2013)




PROFILE
HORIZ. SCALE: 1" = 40
VERT. SCALE: 1" = 4'
CROSS SECTION
STA. 3+20
SCALE: HORIZ. 1" = 10' VERT. 1" = 4'
100'-45" R.C.P. 1000D
391'-45" R.C.P. 1000D
198'-45" R.C.P. 1300D
JACK 40'-45" RCP 2000D
158'-45" RCP 1300D
182'-42" R.C.P. 1000D
S=0.00400
S=0.00681
S=0.0024
S=0.01740
S=0.00632
PARNELL PARK
SCOTT
AVE.
SANTA FE
P. E. RAILWAY
L. A. & S. L. R.R.
DITTMAR DR.
STA. 11+00 See Sht. No. 4
PLAN
SCALE: 1" = 40'
Remove and Replace Exist. Guard Panel
Remove and Replace existing C.M.P. under driveways to maintain existing drainage.
SECTION A-A
Scale 1:20
Breakout Limits for J.S. No. 1
DELETE
Note: Extend longitudinal bars of existing R.C.B. into new construction. All other details per Std Dwg. 2-D189
BENCH MARK
B.M. 109-57, FC-2929-11 Fd a std. F.C. disc stamped B.M. 109-57, 1954 at Leffingwell Cr. & Scott Ave. on E. side of Scott Ave. 60' N/o Jenkins Dr. in N.E. corner of C.B. Elev. = 211.78
B.M. 109-15000, FC 2929-11 Fd a std. FC disc stamped B.M. 109-15000, 1963 at Santa Fe St. & Scott Ave ± 24' W/o & Scott Ave & ± 33' S/o & Santa Fe St. on top of conc cover over Leffingwell Cr Channel Elev. = 212.65
B.M. S.D. 1720, FC 2929-11 Fd a bt. spk. mkd S.D. 1720 at S.W. cor. Santa Fe St. & Scott Ave, ± 20' W/o & Scott Ave & ± 34' S/o & Santa Fe St. Elev. = 212.56
1964 STORM DRAIN BOND ISSUE
CITY OF WHITTIER
DEPARTMENT OF ENGINEERING
SUBMITTED DEC 21, 1965
WEACCO, INC.
WHITTIER, CALIFORNIA
JOHN H. ARIAN R.C.E. NO. 5915
APPROVED Jan 5 1966
CITY ENGINEER R.C.E. NO. 2846
REVISIONS
MARK | DATE | DESCRIPTION
3/10/67 Alignment between sta. 3+43.23 & sta. 9+16.00
9/5/67 "AS BUILT"
10/7/67 "AS BUILT" CORRECTIONS
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT
PROJECT NO. 8502-UNIT 1
WHITTIER
LINE E
CONCRETE CONDUIT
STA. 0+00 TO 11+00
PLAN AND PROFILE
DRAWN BY WHITTIER
TRACED BY WHITTIER
CHECKED BY WHITTIER
DESIGNED BY WHITTIER
SUBMITTED BY C.W.H.
APPROVED BY
CHIEF ENGINEER
DIVISION ENGINEER
SCALE As Shown
DATE SEPT. 1966
NO. 364-8502-D2.3
SHEET 3 OF 6
D-9010-3