BR205962

On Site Hydrology Study

8100-8150 & 8160 W. McGroarty St.
Sunland, CA.

7-15-21

REGISTERED PROFESSIONAL ENGINEER
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No. C52563
Exp. 12-31-22
CIVIL
STATE OF CALIFORNIA

E.LOPEZ	07/16/2021
CHECKED BY	DATE

APPROVED

E. López for
DISTRICT ENGINEER
VALLEY ENGINEERING

APPROVED FOR HYDROLOGY CONCEPT ONLY. THIS REPORT SHOWS THAT THE POST CONSTRUCTION RUNOFF IS LESS THAN THE EXISTING PRECONSTRUCTION RUNOFF. FLOODING OF ADJACENT STREETS WILL BE ALLEVIATED BY THE CONSTRUCTION OF A SERIES OF DEBRIS BASINS, POSSIBLE DENTION BASINS, STANDARD STREET SECTIONS AND STORM DRAIN CONSTRUCTION. CONSTRUCTION OF THE MENTIONED IMPROVEMENTS WILL BE EVALUATED DURING THE STREET AND STORM DRAIN B-PERMIT DESIGN PHASE.

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Section 1 Purpose and Scope

This Drainage study presents an analysis of the hydrologic effects for the proposed new subdivision project located at 8100-8150 & 8160 W. McGroarty St. in the city of Los Angeles, Sunland community area, California. The study details the general project characteristics, the design, criteria and methodology applied to the analysis of the project. It evaluates the hydrologic effect of the project on local water resources in terms of both water quantity and water quality. The report provides a design analysis for the existing and proposed drainage facilities on adjacent streets and proposed as part of the project, including implementation and maintenance of water quality best management practices.

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Section 2 Project Information

2.1 Project Description

Project Information

This Drainage Study presents an analysis of the existing and proposed hydrologic effects associated with the proposed subdivision. Tentative tract no. 73957 consists of a partially graded hillside parcel approximately 19.06 acres on the north flank of the Verdugo Mountains, in the Sunland section of the city of Los Angeles, California. It is located on the southeast corner of the intersection of McGroarty Street and McVine Trail, approximately one-half of a mile south of Foothill Boulevard and is consist of three single family residences on proposed lots 3,8 and 12. The north portion of the site consists of a relatively level area that slopes gently to the north. The south portion of the site consists of mountainous terrain. On the western-northwestern portion of the site, two major north-south trending canyons converge to form a single north-south canyon. Two other north-south trending canyons transect the central and eastern portions of the site. The intervening ridges descend and gradient ranging from 2:1 to 3:1 to the north. Ridge flanks ascend from the canyon bottoms at an average gradient of 1 ½:1 to as steep as 1:1. Physical relief is about 345 feet to the top of the offsite ridgeline to the south. Vegetation on the site consists of planter areas, scattered grasses and trees around the existing residences and a thick assemblage of native chaparral on the slopes to the south. Existing surface drainage is by sheet flow runoff down the grades of the land to the north. The drainage is concentrated within the north-south trending canyons that transect the property. Proposed overall development involves the construction of approximately 9.82 acres of the total 19.06 acres for total of 13 lots consist of two-story buildings with attached garage, hardscaped walkway/Driveway along with installation of new on-site storm drains, and landscaping.

2.1.1 Project Location

The site is situated in the City of Los Angeles, in the community of Sunland (APN: 2559-032-003, 2561-006-005). The project site is located at South side of McGroarty Street. The site is almost rectangular in shape and covers an area of 853,737 square feet, 19.06 acres.

2.2 Hydrologic Setting

This section summarizes the project's size and location in the context of the larger watershed perspective, topography, soil and vegetation, percent impervious area, natural and infrastructure drainage features, and other relevant

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hydrologic and environmental factors to be protected specific to the project area's watershed. The development is located at the downstream end of a 29.56 acres watershed, as outlined on the drainage map included as a part of this study. At the present time the entire watershed of 29.56 acres drains into the McGroarty street, where the street grades carries the runoff from to the west and to the intersection of McGroarty and McVine Ave. The runoff from watershed then down to east side of McVine Ave. also at grade, to intersection of Day St. & McVine St. and along the north side of Day St. to intersection of Day St. & Scoville Ave. and along easterly side of Scoville Ave.to eventual points of concentration on Scoville Ave. almost a mile away from subject site.

2.2.1 Watershed

The project site is located within the Los Angeles River Watershed. This watershed is 840 square miles beginning in the Santa Monica, Santa Susana, and San Gabriel Mountains, and discharging into Pacific Ocean via San Pedro Bay near Long Beach.

2.2.2 Adjacent Land Use

The project site is bounded by single family residences to the north, west, and east and mountainous terrain to the south.

2.2.3 Soil Conditions

The soils report prepared by Byer Geotechnical, INC. dated March 3, 2016 indicates the soil consists of silty to gravelly sand, slightly moist to dry and slightly dense. Natural residual soils overlie the bedrock on the ascending slopes in the south portion of the site. Natural alluvium underlies the axes of the canyons and the northwest portion of the site. The alluvium consists of silty to gravelly sand. Bedrock underlying the site consists of Wilson diorite, bedrock is also exposed in slopes across the site. The bedrock is light brown, gray and white.

2.2.4 Downstream conditions

No underground storm drain facilities exist in either intersection of McGroarty or on McVine Ave., Even before any calculation are made to determine the actual runoff of a 50-year frequency design storm through methods outlined in the County of Los Angeles Standard Urban Storm water Mitigation Plan (LID) as promulgated in the County of Los Angeles Hydrology Manual (January 2006 and subsequent LID report dated February 2014), storm drain design, insight into the effect of draining close to 30 acres of steep, mountainous, hillside area into an intersection presently deficient of storm drain facilities is necessary.

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Experience dictates that the quantity of runoff will be of such great magnitude that only a system consisting of many catch basins and storm drainpipes located throughout the entire 30-acre watershed plus facilities located downstream of this project with the capability of channeling the runoff into a suitable existing storm drain facility could possibly devoid the McGroarty Street-McVine intersection of any surface water.
Since none of the facilities exist, it become clear that any new storm drain improvements required in conjunction with development of this tract will not relive the intersection of surface water. In regardless of what new facilities are required, the major portion of runoff will not even enter the new system but will continue to surface flow through the intersection and down McVine Avenue. It becomes clear then that real question is what percentage of the total design storm runoff can be captured by an underground storm drain facility located in the intersection. Also, will this percentage be great enough to warrant the necessary reconstruction of the intersection to create a sump condition where a catch basin would be most effective. From a design standpoint, the limiting factor, i.e., that portion of any newly proposed system that will most restrict flow, will be the newly adopted stormwater mitigation measures to maintain most of storm water runoffs within the development site and then the over-flow from such facilities that returns the runoff to street surface grade where it can be continue flowing northerly along McVine Avenue. This hydrology study and subsequent hydraulic analysis will clearly reflect this situation.

2.2.5 Impervious Cover

The proposed project due to nature of developments will include higher amount of impervious area than the existing development on the site. However, the proposed impervious areas will be mitigated through construction of permeable pavers, landscaping and planter boxes.

2.3 Proposed Runoff Management Facilities

The proposed facilities managing runoff from the site include:

i Areas of roofs and open deck and concrete walkways will collect storm water and discharge to storm water management systems of use of permeably pavers, bio-filtration, planter boxes, underground trenching and drywell system around the proposed buildings.

ii. Storm water will be treated by BEST MANAGEMENT SYSTEMS(BMP's) which will pretreat/re-use the first flush from the project site and protect local water resources to the maximum extent practicable.

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Section 3 Design Criteria and Methodology

This section summarizes the design criteria and methodology applied during the drainage analysis of the project site. The design criteria and methodology follow the County of Los Angeles Standard Urban Storm water Mitigation Plan (Susmp September 2002). And latest LID low development criteria of February 2014.

3.1 Design Criteria

3.1.1 Rational Method: Peak Flow

Runoff calculations for this study were accomplished using the Rational Method. The Rational Method is a physically based numerical method where runoff is assumed to be directly proportional to rainfall and area, less losses for infiltration and depression storage. Flows were computed based on the rational formula:

$$Q=CiA$$

Where…. Q=peak discharge(cfs);
C=runoff coefficient, based on land use and soil type;
i=Rainfall intensity(in/hr);
A=watershed area(acre)

The runoff coefficient represents the ratio of rainfall that runs off the watershed versus the portion that infiltrates to the soil or is held in depression storage. The runoff coefficient is dependent on the land use coverage and soil type. The County of Los Angeles Drainage design Manual methodology assumes hydrologic soil type 074 for all soils near the project site (see Isohyet Map in the Appendix section).

For a typical drainage study, rainfall intensity varies with the watershed time of concentration. The watershed time of concentration at any given point is defined as the time it would theoretically take runoff to travel from the most upstream point in the watershed to a concentration point, as calculated by TC Calculator software, provided by the Los Angeles County.

Rational Method calculation was accomplished using hand calculation or TC Calculator. Peak discharges were computed for 50-year hypothetical storm return frequencies and can be seen in the hydrology and drainage analysis section of this report. The output results of the TC Calculator can be found in the Appendix section of this report.

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Total watershed Area = 29.966 ac.
Total develop site area = 19.06 ac.
Impervious area = 45,912 sq.ft. = 1.054 ac. = 5.53%

a) Roofs / decks = 45912.00 sq.ft. = 1.054ac.

Existing / Undeveloped condition								
Subarea Number	Area (acres)	Proportion Impervious	Soil Type	Rainfall Iso(in.)	Storm Freq.	Flowrate (cfs)	Tc Value(min.)	Vd (cu-ft)
A	6.094	0.1	074	8.0	50yr.	24.164	5	42,690
B	6.075	0.1	074	8.0	50yr.	24.090	5	42,557
C	5.070	0.1	074	8.0	50yr.	20.103	5	35,516
D	6.970	0.1	074	8.0	50yr.	27.640	5	48,826
E	4.656	0.1	074	8.0	50yr.	18.460	5	32,616
F	1.101	0.1	074	8.0	50yr.	4.366	5	7,713

Total Existing condition Q(50) = 118.82 cfs.

Proposed condition								
Subarea Number	Area (acres)	Proportion Impervious	Soil Type	Rainfall Iso(in.)	Storm Freq.	Flowrate (cfs)	Tc Value(min.)	Vd (cu-ft)
Lot 1	0.2525	0.305	074	8.0	50yr.	1.029	5	2857
Lot 2	0.2525	0.190	074	8.0	50yr.	1.013	5	2247
Lot 3	1.0060	0.094	074	8.0	50yr.	3.986	5	6921
Lot 4	0.3638	0.180	074	8.0	50yr.	1.458	5	3160
Lot 5	0.372	0.176	074	8.0	50yr.	1.490	5	3200
Lot 6	0.3570	0.141	074	8.0	50yr.	1.423	5	2809
Lot 7	0.4330	0.126	074	8.0	50yr.	1.723	5	3270
Lot 8	0.8820	0.134	074	8.0	50yr.	3.513	5	6809
Lot 9	0.5686	0.132	074	8.0	50yr.	2.264	5	4366
Lot 10	0.9205	0.101	074	8.0	50yr.	3.650	5	6468
Lot 11	2.0760	0.042	074	8.0	50yr.	8.168	5	12012
Lot 12	1.4205	0.094	074	8.0	50yr.	5.628	5	9772
Lot 13	10.483	0.01	074	8.0	50yr.	37.04	6	53534
Natural	10.574	0.1	074	8.0	50yr.	37.88	6	74006

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Total Proposed condition Q(50) = 110.27 cfs.

Q50 on McGroarty St.=21.88 cfs < 110.27 cfs.

Section 4 Summary of results and conclusion

Based on the shown calculation for this watershed a 50-year frequency design storm has a run-off of approximately 110.27 cfs that is more than what existing capacity on adjacent street will accommodate. A system as might be constructed with this tract lacks the capability of relieving the problems stemming from an absence of existing facilities in the entire watershed. However the existing flooding conditions will be reduced by the construction of a standard street section with concrete curb and gutter along Mc Groarty street and by the construction of proposed onsite debris basin, necessary storage basins and storm drain construction.

A solution to mitigate this problem is to minimize the run-off from this development into adjacent streets by incorporating storm water management systems on the site as much as possible to bring the level of run-off to manageable level be accepted by adjacent street.

It is our conclusion that the tributary run-off watershed area of 29.97 acres and run-offs from developing of 19.06 acres site is suitable for building site safe from any hazard due to flooding provided that normal drainage requirements around structures are met. These requirements are that sheet flow and roof drainage be directed away from the structures and downward slopes and collected by non-erosive devices to prevent any runoff from impinging upon the footings and foundations. Providing measured three debris basins throughout the development with required capacities to meet the requirements to relive the produced mad flows and any run-offs from the natural ungraded areas.

TEMPORARY STORAGE CAPACITY "Cst":

A = 6.094 ac.x400(cy/ac.)= 2438 cy.
B = 6.075 ac.x400(cy/ac.) =2430 cy.
C = 5.07 ac.x400(cy/ac.) = 2028 cy.
D = 6.97 acx400(cy/ac.) = 2788 cy.
E = 4.65 acx400(cy/ac.) = 1860 cy.
F = 1.101 acx400(cy/ac.) = 441 cy.

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Total storage capacity required for tributary areas of (A+B+ F) is 5309 cubic yard and Debris basin no.1 with storage capacity of 5311 cubic yard will be sufficient to capture the watershed area., Debris basin no. 2 with total storage capacity of 2830 cubic yard will hold the tributary area of D and debris basin of no.3 with storage capacity of 1864 will be sufficient to store the watershed area for E

Watershed area of C will be carried by capacity of the private street no. 1

Storm drain capacity/size calculation for debris basins over-flow pipe:

Debris basin No. 1:

Total capacity=5311 cubic yard, total Area=13.27 Ac., Q50= 52.61cfs

D=30", A=4.91sq.ft., P=7.85ft., R=0.625, $R^{2/3}$ =0.7, S=8.724%Ave.

$$Q=\frac{1.486 x A x R^{2/3} x S^{1/2}}{n}$$

$$Q=\frac{1.486X4.91x0.73x0.295}{0.013}$$

Q50=120.86cfs>46.89cfs OK.

Debris basin No. 2:

Total capacity=2830 cubic yard, total Area=6.97 Ac., Q50= 27.64cfs

D=24", A=3.14sq.ft., P=6.28ft., R=0.50, $R^{2/3}$ =0.304, S=9.2%Ave.

$$Q=\frac{1.486 x A x R^{2/3} x S^{1/2}}{n}$$

$$Q=\frac{1.486X3.14x0.304x0.303}{0.013}$$

Q50=33.06cfs>27.64cfs OK.

Debris basin No. 3:

Total capacity=1864 cubic yard, total Area=4.656 Ac., Q50= 18.46cfs

D=24", A=3.14sq.ft., P=6.28ft., R=0.50, $R^{2/3}$ =0.304, S=10.4%Ave.

$$Q=\frac{1.486 x A x R^{2/3} x S^{1/2}}{n}$$

$$Q=\frac{1.486X3.14x0.304x0.3225}{0.013}$$

Q50=35.19cfs>18.46cfs OK.

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Street/driveways capacity calcs.

Private St. No. 1:

W=36’ Roadway= 32’, A=7.36 sq.ft., P=16.56 ft., R=0.444, $R^{2/3}$ =0.58,

S=1.5 %Ave.(1/2 street section),

$$Q=\frac{1.486xAx\ R^{2/3}\ x\ S^{1/2}}{n}$$

$$Q=\frac{1.486X7.36x0.58x0.1225}{0.013}$$

Q50=59.78cfsx2=119.56>72.71cfs OK.

Private St. No. 2:

W=32’ Roadway= 32’, A=2.80 sq.ft., P=16.35 ft., R=0.1713, $R^{2/3}$ =0.307,

S=2.20 %Ave.(1/2 street section),

$$Q=\frac{1.486xAx\ R^{2/3}\ x\ S^{1/2}}{n}$$

$$Q=\frac{1.486X2.80x0.307x0.1479}{0.013}$$

Q50=14.53cfsx2=29.06>18.46cfs OK.

Mc Groarty Street:

W=40’ Roadway= 35.30, A=6.17 sq.ft., P=20.58 ft., R=0.30, $R^{2/3}$ =0.446,

S=4.32 %Ave.(S’ly 1/2 street section),

$$Q=\frac{1.486xAx\ R^{2/3}\ x\ S^{1/2}}{n}$$

$$Q=\frac{1.486X6.17x0.446x0.208}{0.013}$$

Q50=65.42cfs<~66.20 close enough

Total Q50 on McGroarty from site=72.71+27.64+18.46=118.81cfs-52.61cfs from Db#1(straight to catch basin on McVine)=66.20cfs

Mc Vine Street:

W=40’ Roadway= 31.00 ‘ A=4.43 sq.ft., P=15.88 ft., R=0.279, $R^{2/3}$ =0.425,

S=3.4 %Ave.(W’ly ½ street section),

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$$Q = \frac{1.486 x A x R^{2/3} x S^{1/2}}{n}$$
$$Q = \frac{1.486X4.43x0.425x0.1844}{0.013}$$
Q50=39.69 cfs.

A=3.11 sq.ft., P=20.25 ft., R=0.1536, $R^{2/3}$ =0.285, S=3.4 %Ave.

(E'ly ½ street section),

$$Q = \frac{1.486 x A x R^{2/3} x S^{1/2}}{n}$$
$$Q = \frac{1.486X3.11x0.285x0.1844}{0.013}$$
Q50=18.68 cfs.

Total= 39.69+18.68=58.37cfs

Street capacity need to be increased in order to handle the flow from site development

Prop. TC. And R/W capacity of Mc Vine St.

Mc Vine Street:

Roadway= 31.00 ft., assuming 8" curb face,A1=5.41sq.ft., A2=6.42 sq. ft., total A=11.83 sq. ft., P=32.61ft., R=0.363, $R^{2/3}$ =0.507,

S=2.65 %Ave.,

$$Q = \frac{1.486 x A x R^{2/3} x S^{1/2}}{n}$$
$$Q = \frac{1.486X11.83x0.507x0.1628}{0.013}$$
Q50=111.62 cfs. Top of curb

Q50 for R/W=40', A1=0.99sq.ft.,A2=4.43 sq.ft., A3=6.43 sq. ft., A4=3.14 sq.ft., A5=0.32 sq. ft., Total A=15.31 sq.ft., P=40.03 ft., R=0.383, $R^{2/3}$ =0.525,

S=2.65 %Ave.

$$Q = \frac{1.486 x A x R^{2/3} x S^{1/2}}{n}$$
$$Q = \frac{1.486X15.31x0.525x0.1628}{0.013}$$
R/WQ50=149.58 cfs.

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Street capacity on Mc vine will be sufficient to carry out the flow with construction of additional curb & gutter and standard street section.

Peak Flow Hydrologic Analysis

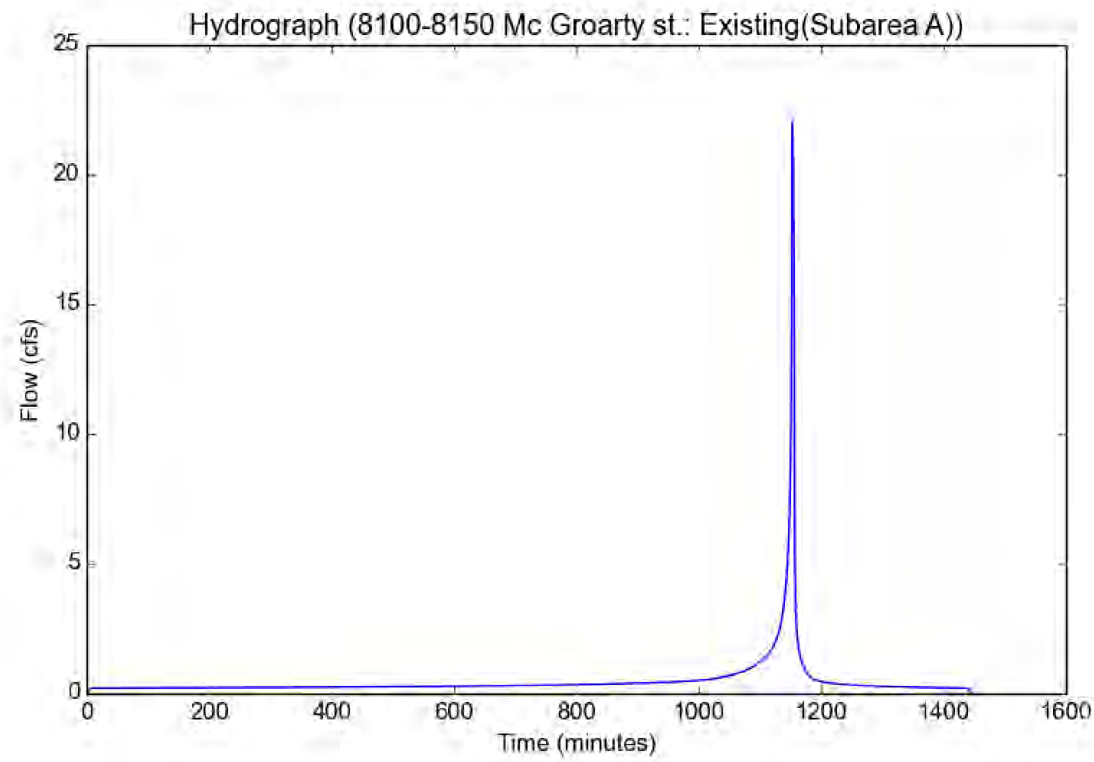
File location: C:/Users/hayk/OneDrive/Desktop/Sevan Files/2021/MCGROARTHY/Hydrocalcs (4-20-21)/8100-8150 Mc Groarty st. - Existing(Subarea A).
Version: HydroCalc 1.0.2

Input Parameters

Project Name	8100-8150 Mc Groarty st.
Subarea ID	Existing(Subarea A)
Area (ac)	6.094
Flow Path Length (ft)	936.0
Flow Path Slope (vft/hft)	0.3
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.1
Soil Type	74
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7424
Developed Runoff Coefficient (Cd)	0.7581
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	22.052
Burned Peak Flow Rate (cfs)	24.1636
24-Hr Clear Runoff Volume (ac-ft)	0.98
24-Hr Clear Runoff Volume (cu-ft)	42689.5603



Peak Flow Hydrologic Analysis

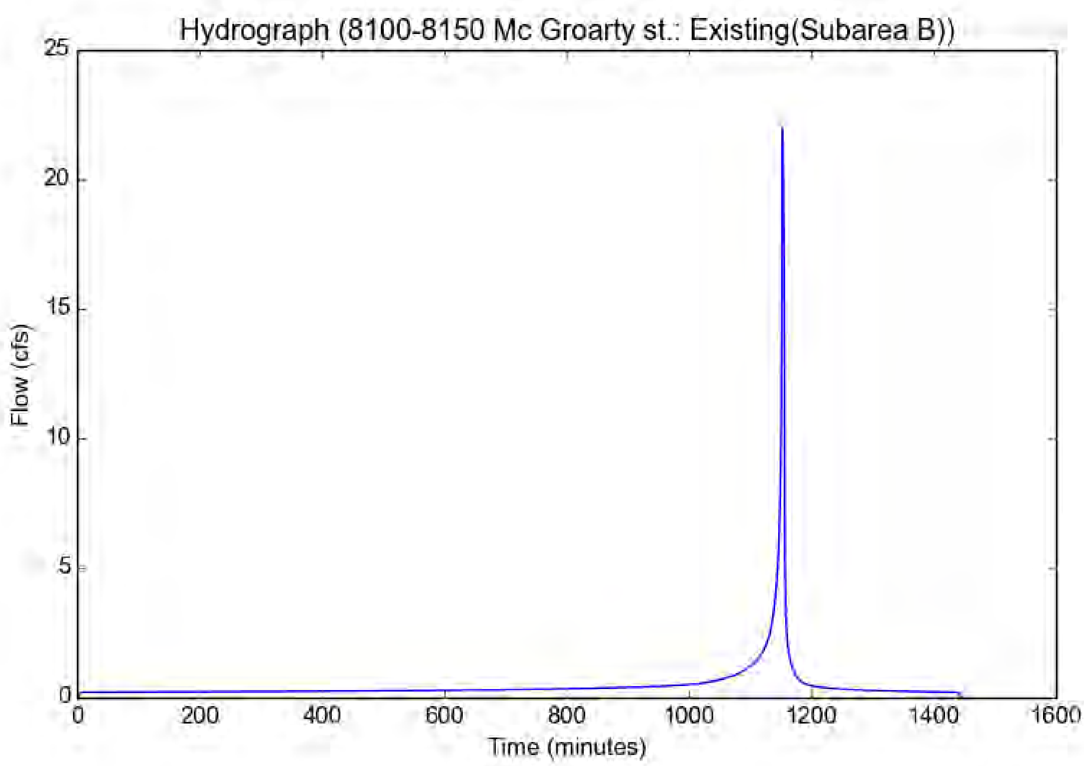
File location: C:/Users/hayk/OneDrive/Desktop/Sevan Files/2021/MCGROARTHY/Hydrocalcs (4-20-21)/8100-8150 Mc Groarty st. - Existing(Subarea B).p
Version: HydroCalc 1.0.2

Input Parameters

Project Name	8100-8150 Mc Groarty st.
Subarea ID	Existing(Subarea B)
Area (ac)	6.075
Flow Path Length (ft)	913.0
Flow Path Slope (vft/hft)	0.29
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.1
Soil Type	74
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7424
Developed Runoff Coefficient (Cd)	0.7581
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	21.9832
Burned Peak Flow Rate (cfs)	24.0882
24-Hr Clear Runoff Volume (ac-ft)	0.977
24-Hr Clear Runoff Volume (cu-ft)	42556.4619



Peak Flow Hydrologic Analysis

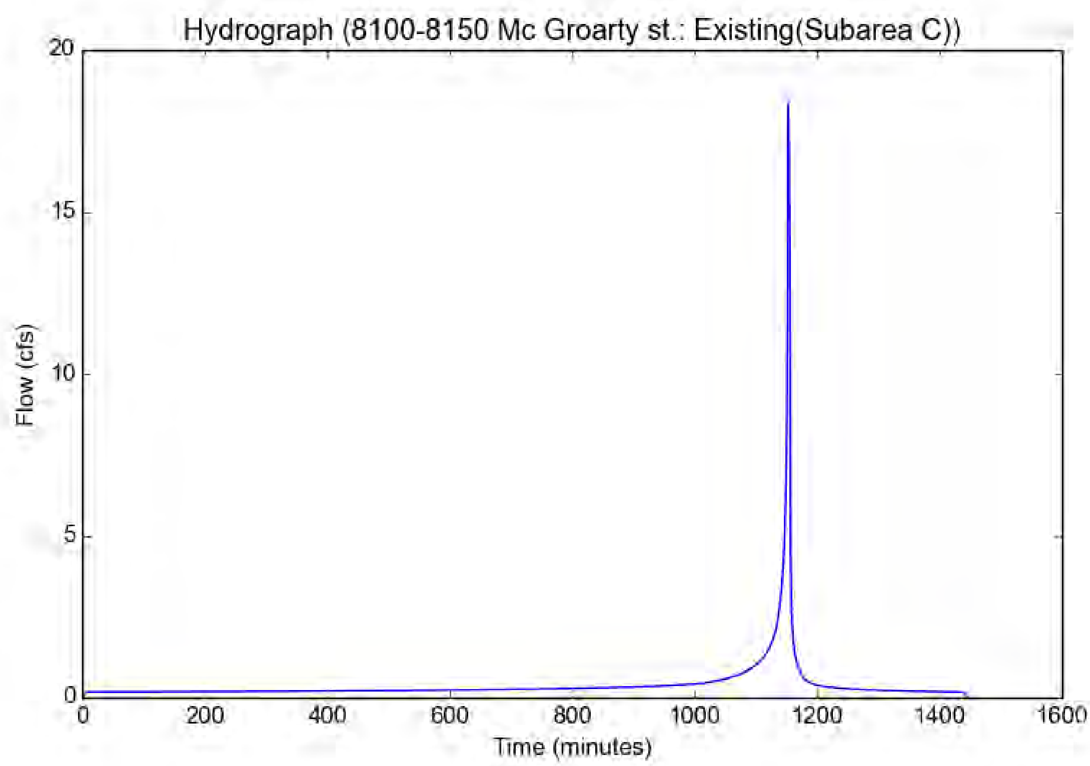
File location: C:/Users/hayk/OneDrive/Desktop/Sevan Files/2021/MCGROARTHY/Hydrocalcs (4-20-21)/8100-8150 Mc Groarty st. - Existing(Subarea C).
Version: HydroCalc 1.0.2

Input Parameters

Project Name	8100-8150 Mc Groarty st.
Subarea ID	Existing(Subarea C)
Area (ac)	5.07
Flow Path Length (ft)	841.0
Flow Path Slope (vft/hft)	0.24
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.1
Soil Type	74
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7424
Developed Runoff Coefficient (Cd)	0.7581
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	18.3465
Burned Peak Flow Rate (cfs)	20.1033
24-Hr Clear Runoff Volume (ac-ft)	0.8153
24-Hr Clear Runoff Volume (cu-ft)	35516.2571



Peak Flow Hydrologic Analysis

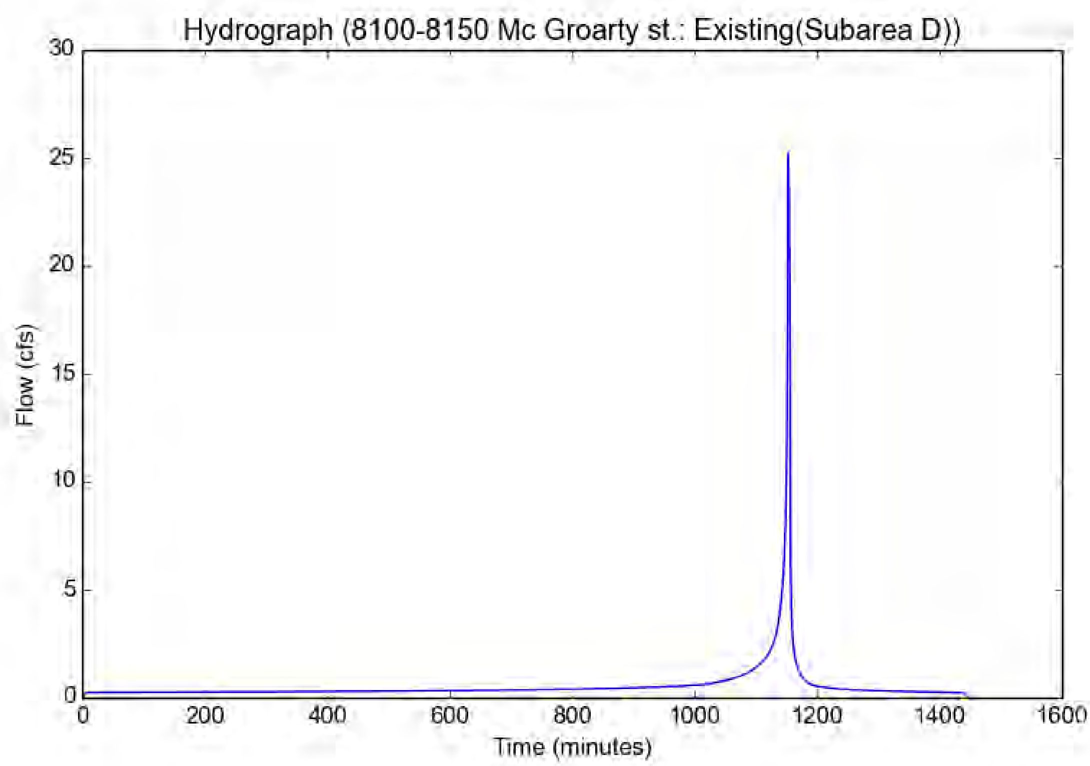
File location: C:/Users/hayk/OneDrive/Desktop/Sevan Files/2021/MCGROARTHY/Hydrocalcs (4-20-21)/8100-8150 Mc Groarty st. - Existing(Subarea D).
Version: HydroCalc 1.0.2

Input Parameters

Project Name	8100-8150 Mc Groarty st.
Subarea ID	Existing(Subarea D)
Area (ac)	6.97
Flow Path Length (ft)	1231.0
Flow Path Slope (vft/hft)	22.0
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.1
Soil Type	74
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7424
Developed Runoff Coefficient (Cd)	0.7581
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	25.2219
Burned Peak Flow Rate (cfs)	27.637
24-Hr Clear Runoff Volume (ac-ft)	1.1209
24-Hr Clear Runoff Volume (cu-ft)	48826.097



Peak Flow Hydrologic Analysis

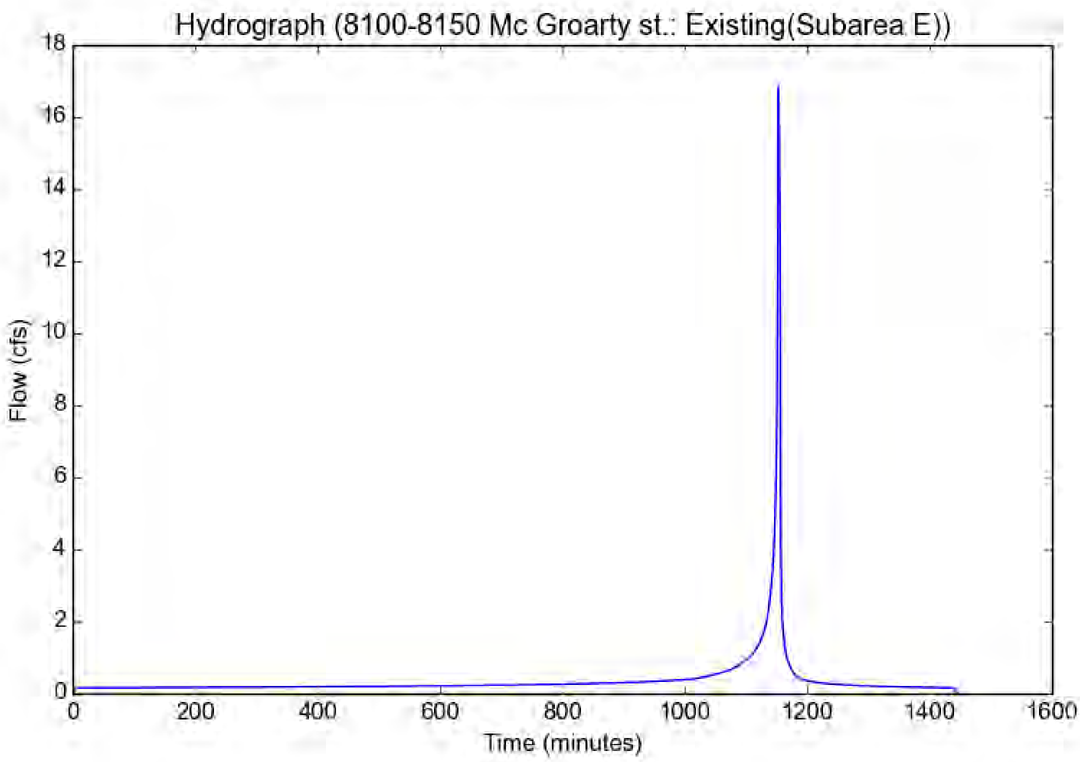
File location: C:/Users/hayk/OneDrive/Desktop/Sevan Files/2021/MCGROARTHY/Hydrocalcs (4-20-21)/8100-8150 Mc Groarty st. - Existing(Subarea E).p
Version: HydroCalc 1.0.2

Input Parameters

Project Name	8100-8150 Mc Groarty st.
Subarea ID	Existing(Subarea E)
Area (ac)	4.656
Flow Path Length (ft)	630.0
Flow Path Slope (vft/hft)	0.15
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.1
Soil Type	74
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7424
Developed Runoff Coefficient (Cd)	0.7581
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	16.8484
Burned Peak Flow Rate (cfs)	18.4617
24-Hr Clear Runoff Volume (ac-ft)	0.7488
24-Hr Clear Runoff Volume (cu-ft)	32616.113



Peak Flow Hydrologic Analysis

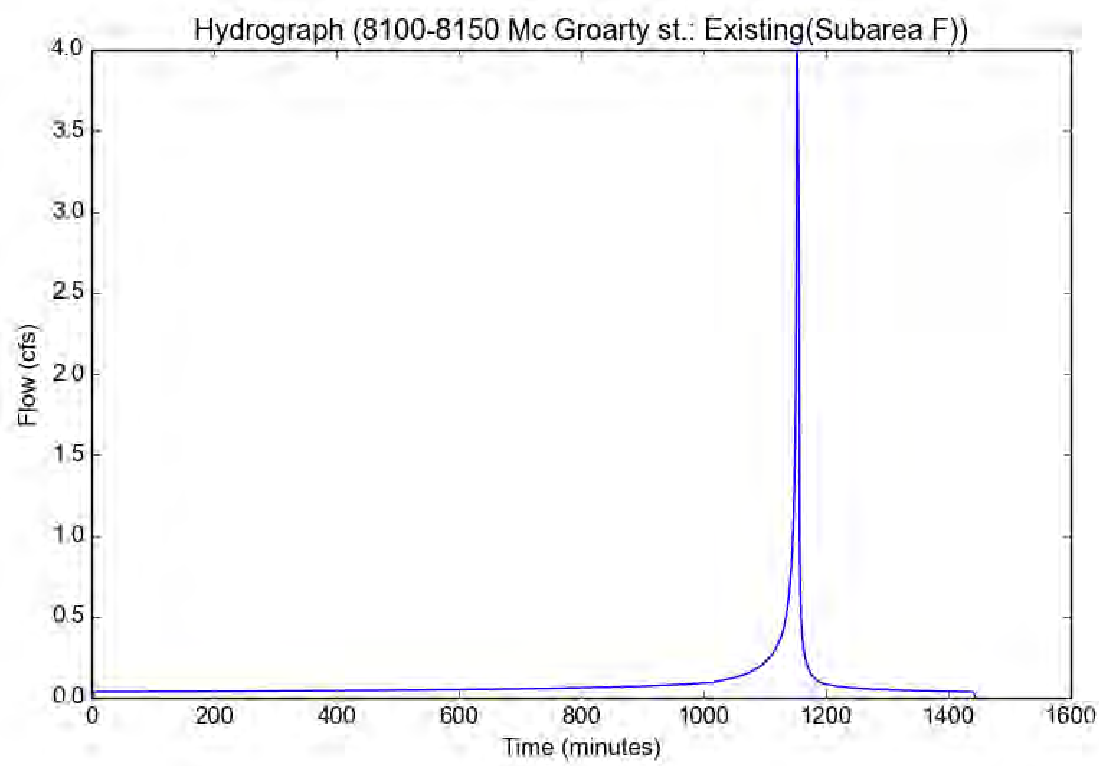
File location: C:/Users/hayk/OneDrive/Desktop/Sevan Files/2021/MCGROARTHY/Hydrocalcs (4-20-21)/8100-8150 Mc Groarty st. - Existing(Subarea F).p
Version: HydroCalc 1.0.2

Input Parameters

Project Name	8100-8150 Mc Groarty st.
Subarea ID	Existing(Subarea F)
Area (ac)	1.101
Flow Path Length (ft)	477.0
Flow Path Slope (vft/hft)	0.25
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.1
Soil Type	74
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7424
Developed Runoff Coefficient (Cd)	0.7581
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	3.9841
Burned Peak Flow Rate (cfs)	4.3656
24-Hr Clear Runoff Volume (ac-ft)	0.1771
24-Hr Clear Runoff Volume (cu-ft)	7712.702



Peak Flow Hydrologic Analysis

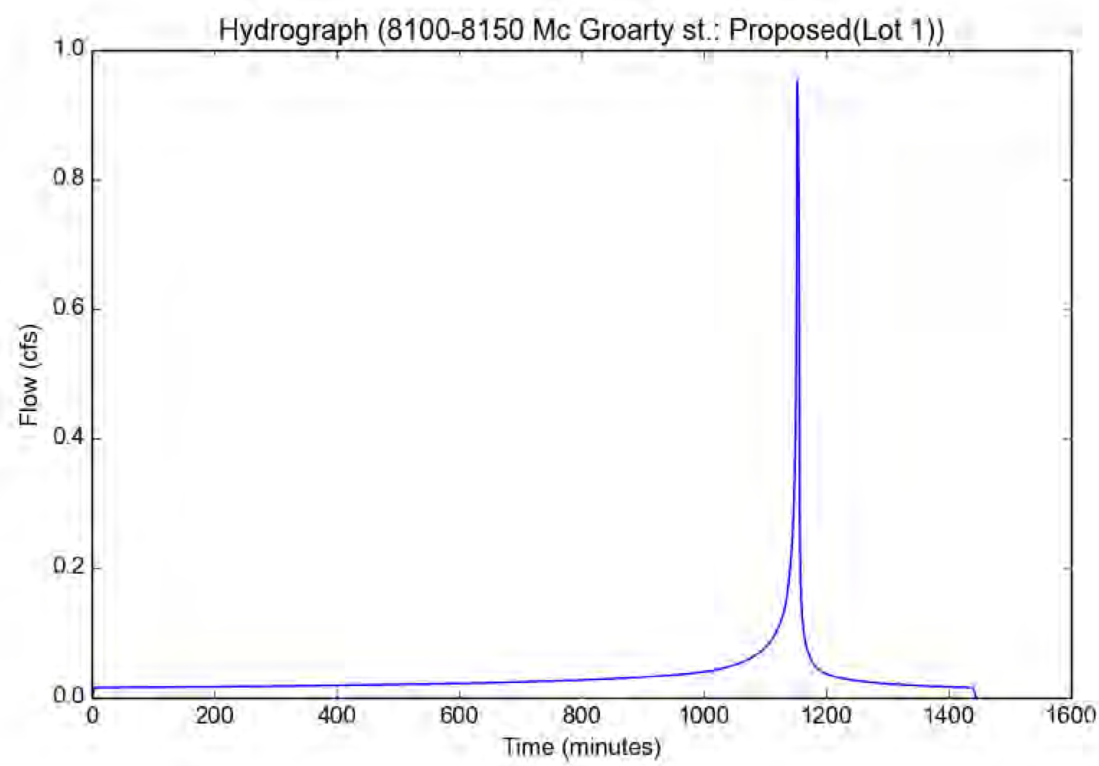
File location: C:/Users/hayk/OneDrive/Desktop/Sevan Files/2021/MCGROARTHY/Hydrocalcs (4-20-21)/8100-8150 Mc Groarty st. - Proposed(Lot 1).pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	8100-8150 Mc Groarty st.
Subarea ID	Proposed(Lot 1)
Area (ac)	0.2525
Flow Path Length (ft)	165.0
Flow Path Slope (vft/hft)	0.019
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.305
Soil Type	74
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7424
Developed Runoff Coefficient (Cd)	0.7905
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.9526
Burned Peak Flow Rate (cfs)	1.0285
24-Hr Clear Runoff Volume (ac-ft)	0.0656
24-Hr Clear Runoff Volume (cu-ft)	2856.6731



Peak Flow Hydrologic Analysis

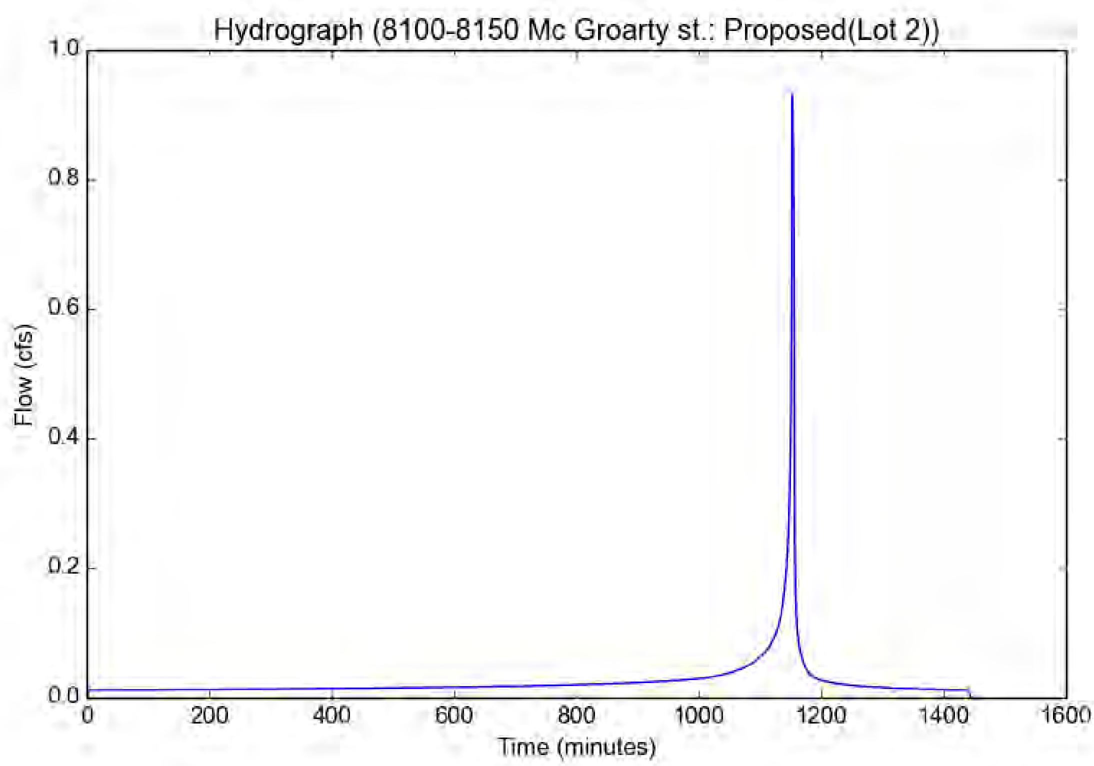
File location: C:/Users/hayk/OneDrive/Desktop/Sevan Files/2021/MCGROARTHY/Hydrocalcs (4-20-21)/8100-8150 Mc Groarty st. - Proposed(Lot 2).pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	8100-8150 Mc Groarty st.
Subarea ID	Proposed(Lot 2)
Area (ac)	0.2525
Flow Path Length (ft)	165.0
Flow Path Slope (vft/hft)	0.06
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.19
Soil Type	74
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7424
Developed Runoff Coefficient (Cd)	0.7723
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.9308
Burned Peak Flow Rate (cfs)	1.0132
24-Hr Clear Runoff Volume (ac-ft)	0.0516
24-Hr Clear Runoff Volume (cu-ft)	2246.4071



Peak Flow Hydrologic Analysis

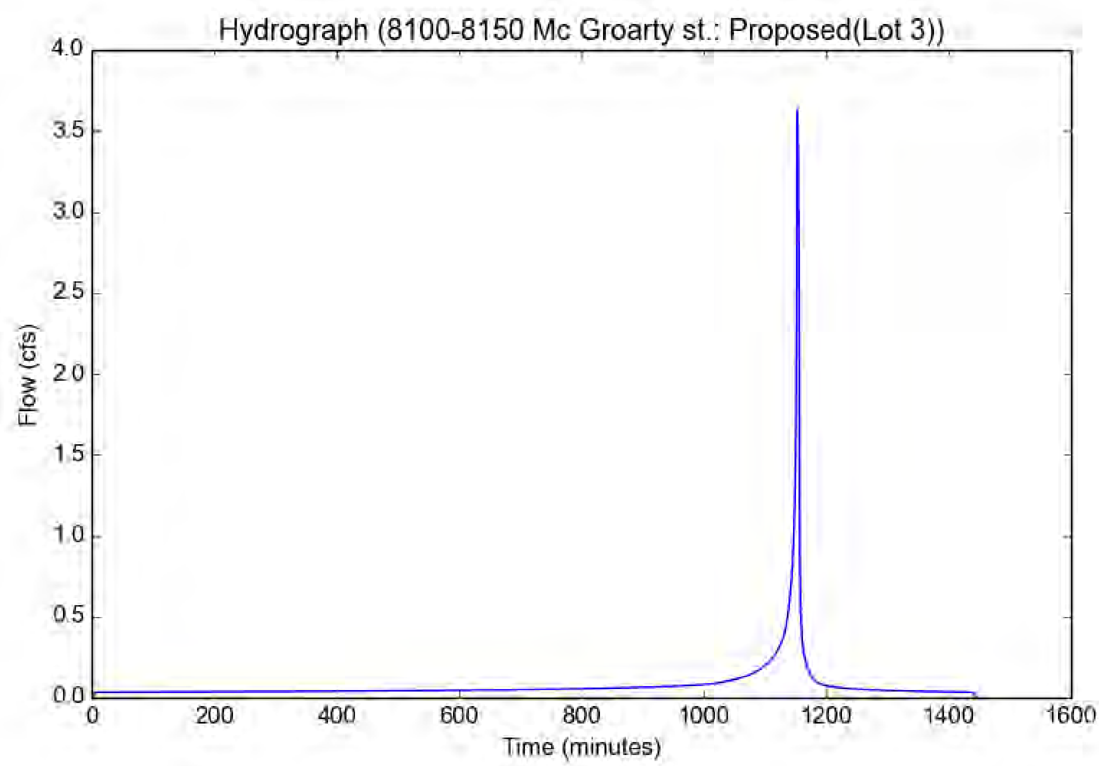
File location: C:/Users/hayk/OneDrive/Desktop/Sevan Files/2021/MCGROARTHY/Hydrocalcs (4-20-21)/8100-8150 Mc Groarty st. - Proposed(Lot 3).pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	8100-8150 Mc Groarty st.
Subarea ID	Proposed(Lot 3)
Area (ac)	1.006
Flow Path Length (ft)	407.0
Flow Path Slope (vft/hft)	0.06
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.094
Soil Type	74
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7424
Developed Runoff Coefficient (Cd)	0.7572
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	3.6358
Burned Peak Flow Rate (cfs)	3.9858
24-Hr Clear Runoff Volume (ac-ft)	0.1589
24-Hr Clear Runoff Volume (cu-ft)	6920.3545



Peak Flow Hydrologic Analysis

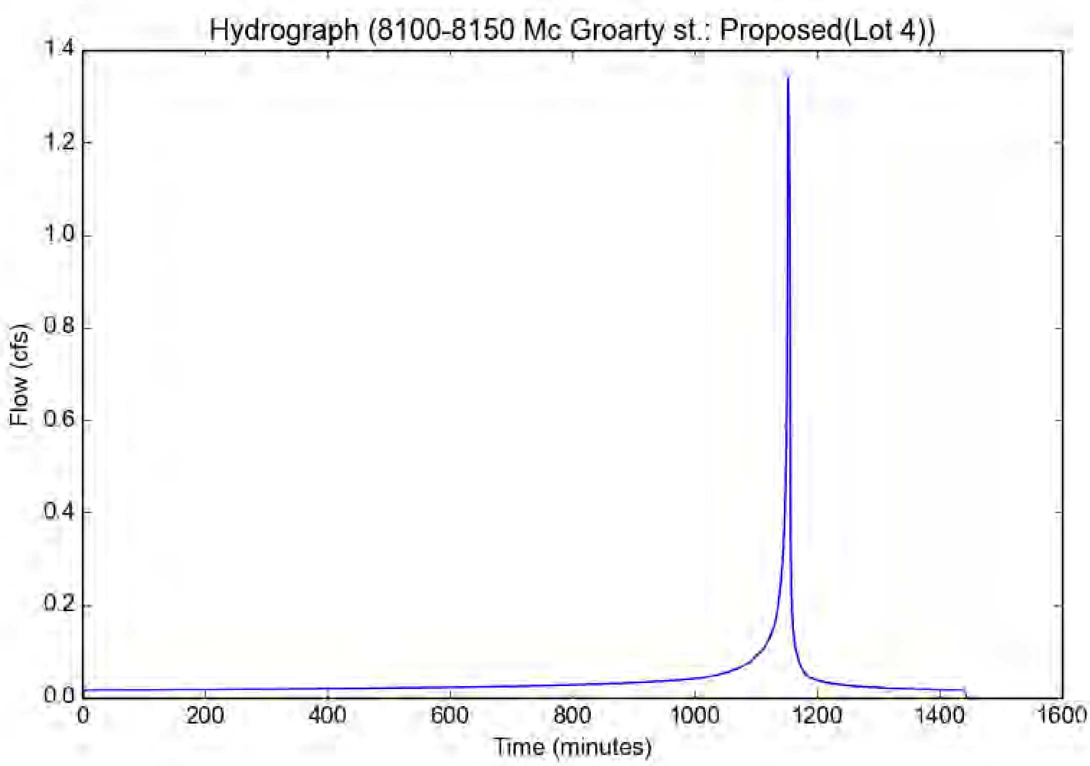
File location: C:/Users/hayk/OneDrive/Desktop/Sevan Files/2021/MCGROARTHY/Hydrocalcs (4-20-21)/8100-8150 Mc Groarty st. - Proposed(Lot 4).pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	8100-8150 Mc Groarty st.
Subarea ID	Proposed(Lot 4)
Area (ac)	0.3638
Flow Path Length (ft)	228.0
Flow Path Slope (vft/hft)	0.03
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.18
Soil Type	74
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7424
Developed Runoff Coefficient (Cd)	0.7708
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.3384
Burned Peak Flow Rate (cfs)	1.4578
24-Hr Clear Runoff Volume (ac-ft)	0.0725
24-Hr Clear Runoff Volume (cu-ft)	3160.1476



Peak Flow Hydrologic Analysis

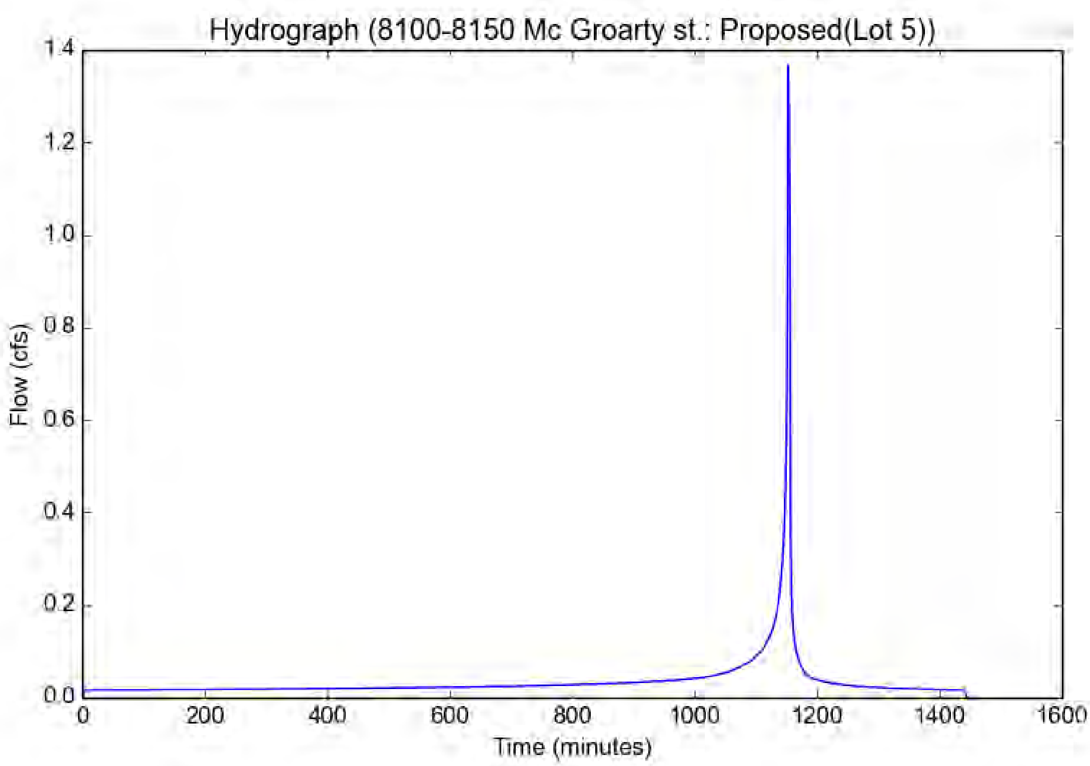
File location: C:/Users/hayk/OneDrive/Desktop/Sevan Files/2021/MCGROARTHY/Hydrocalcs (4-20-21)/8100-8150 Mc Groarty st. - Proposed(Lot 5).pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	8100-8150 Mc Groarty st.
Subarea ID	Proposed(Lot 5)
Area (ac)	0.372
Flow Path Length (ft)	232.0
Flow Path Slope (vft/hft)	0.03
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.176
Soil Type	74
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7424
Developed Runoff Coefficient (Cd)	0.7701
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.3674
Burned Peak Flow Rate (cfs)	1.4899
24-Hr Clear Runoff Volume (ac-ft)	0.0735
24-Hr Clear Runoff Volume (cu-ft)	3200.1044



Peak Flow Hydrologic Analysis

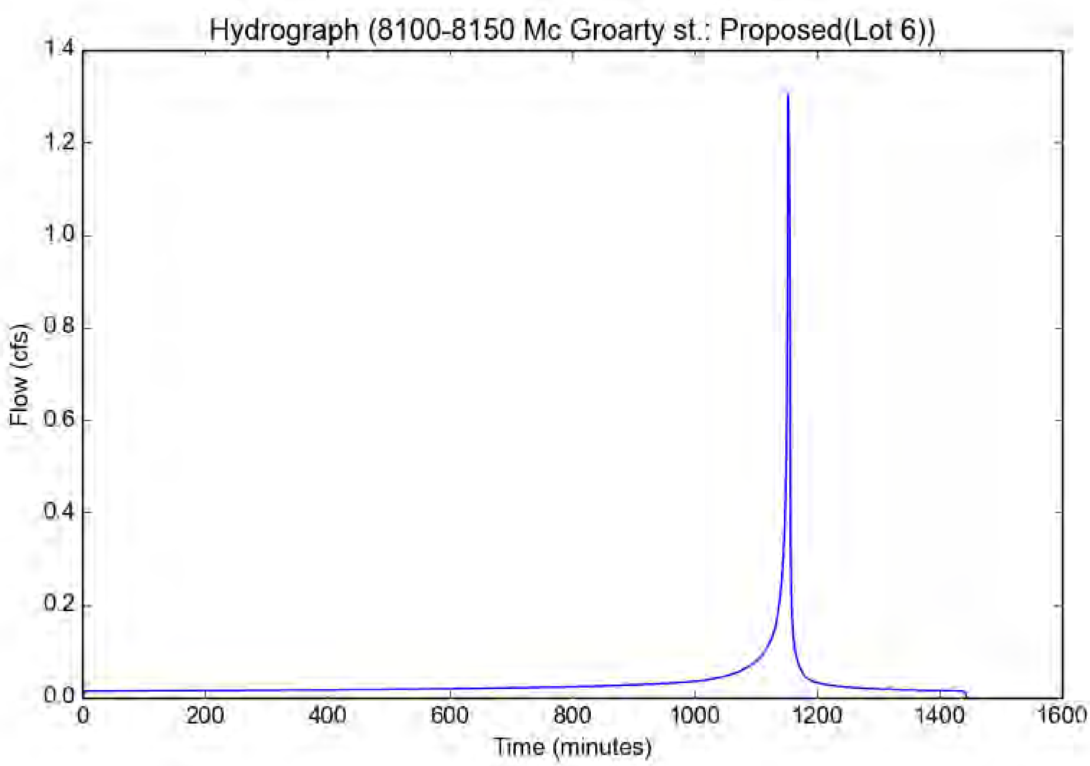
File location: C:/Users/hayk/OneDrive/Desktop/Sevan Files/2021/MCGROARTHY/Hydrocalcs (4-20-21)/8100-8150 Mc Groarty st. - Proposed(Lot 6).pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	8100-8150 Mc Groarty st.
Subarea ID	Proposed(Lot 6)
Area (ac)	0.357
Flow Path Length (ft)	231.0
Flow Path Slope (vft/hft)	0.05
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.141
Soil Type	74
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7424
Developed Runoff Coefficient (Cd)	0.7646
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.3029
Burned Peak Flow Rate (cfs)	1.4233
24-Hr Clear Runoff Volume (ac-ft)	0.0645
24-Hr Clear Runoff Volume (cu-ft)	2808.467



Peak Flow Hydrologic Analysis

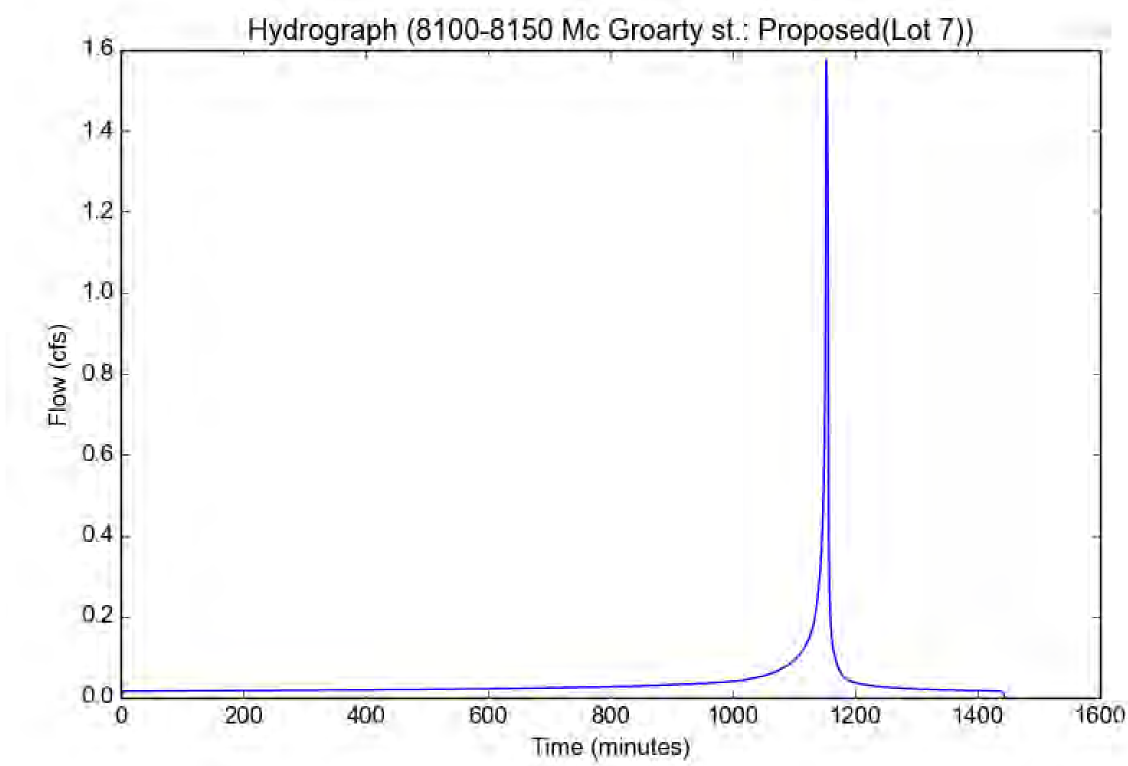
File location: C:/Users/hayk/OneDrive/Desktop/Sevan Files/2021/MCGROARTHY/Hydrocalcs (4-20-21)/8100-8150 Mc Groarty st. - Proposed(Lot 7).pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	8100-8150 Mc Groarty st.
Subarea ID	Proposed(Lot 7)
Area (ac)	0.433
Flow Path Length (ft)	410.0
Flow Path Slope (vft/hft)	0.03
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.126
Soil Type	74
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7424
Developed Runoff Coefficient (Cd)	0.7622
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.5753
Burned Peak Flow Rate (cfs)	1.7228
24-Hr Clear Runoff Volume (ac-ft)	0.0751
24-Hr Clear Runoff Volume (cu-ft)	3269.846



Peak Flow Hydrologic Analysis

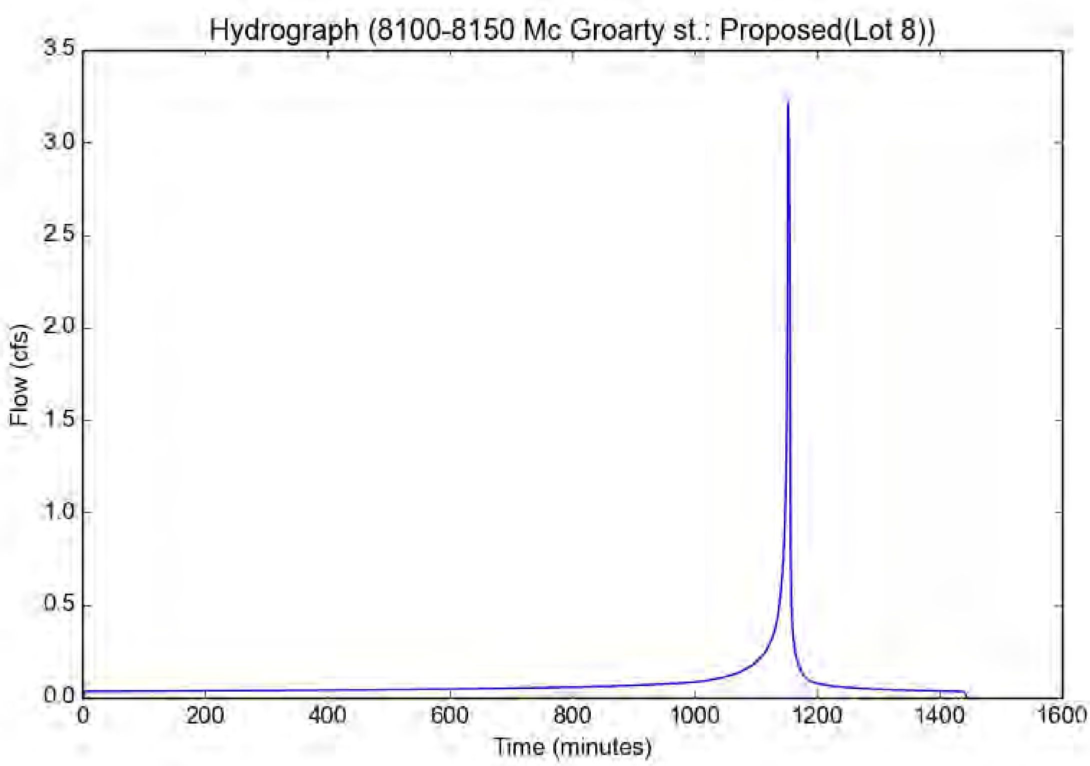
File location: C:/Users/hayk/OneDrive/Desktop/Sevan Files/2021/MCGROARTHY/Hydrocalcs (4-20-21)/8100-8150 Mc Groarty st. - Proposed(Lot 8).pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	8100-8150 Mc Groarty st.
Subarea ID	Proposed(Lot 8)
Area (ac)	0.882
Flow Path Length (ft)	323.0
Flow Path Slope (vft/hft)	0.06
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.134
Soil Type	74
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7424
Developed Runoff Coefficient (Cd)	0.7635
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	3.2142
Burned Peak Flow Rate (cfs)	3.513
24-Hr Clear Runoff Volume (ac-ft)	0.1563
24-Hr Clear Runoff Volume (cu-ft)	6808.8099



Peak Flow Hydrologic Analysis

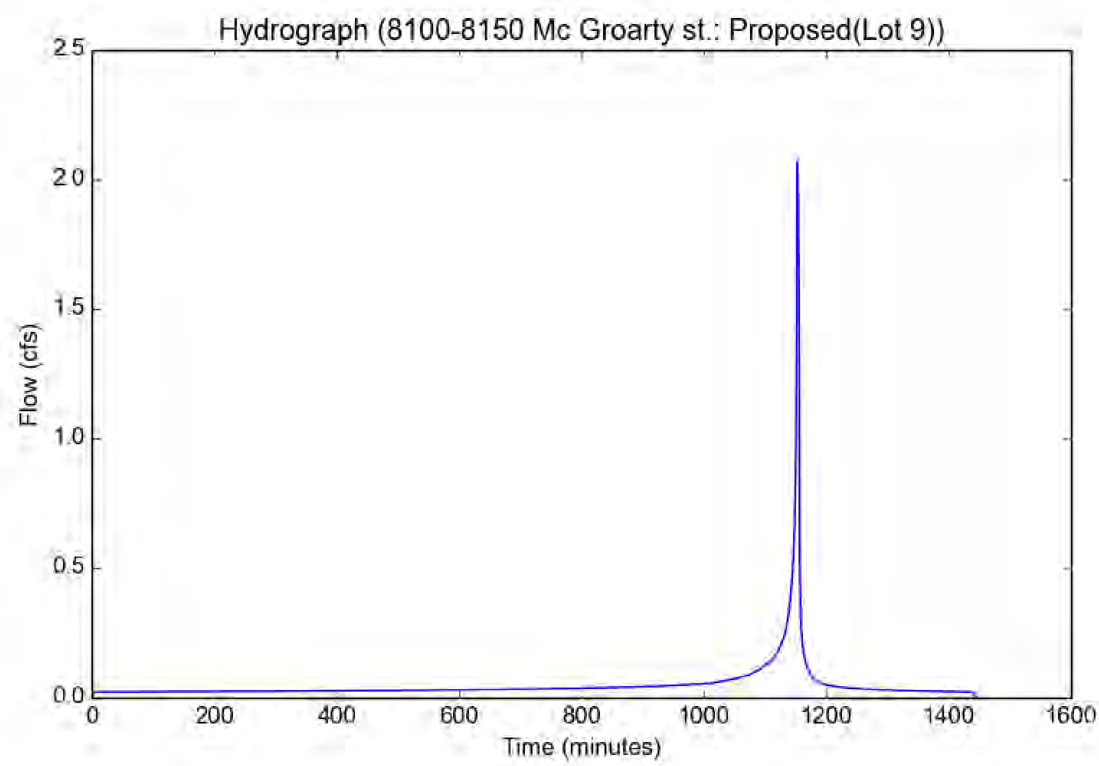
File location: C:/Users/hayk/OneDrive/Desktop/Sevan Files/2021/MCGROARTHY/Hydrocalcs (4-20-21)/8100-8150 Mc Groarty st. - Proposed(Lot 9).pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	8100-8150 Mc Groarty st.
Subarea ID	Proposed(Lot 9)
Area (ac)	0.5686
Flow Path Length (ft)	330.0
Flow Path Slope (vft/hft)	0.03
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.132
Soil Type	74
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7424
Developed Runoff Coefficient (Cd)	0.7632
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	2.0712
Burned Peak Flow Rate (cfs)	2.2642
24-Hr Clear Runoff Volume (ac-ft)	0.1002
24-Hr Clear Runoff Volume (cu-ft)	4365.5437



Peak Flow Hydrologic Analysis

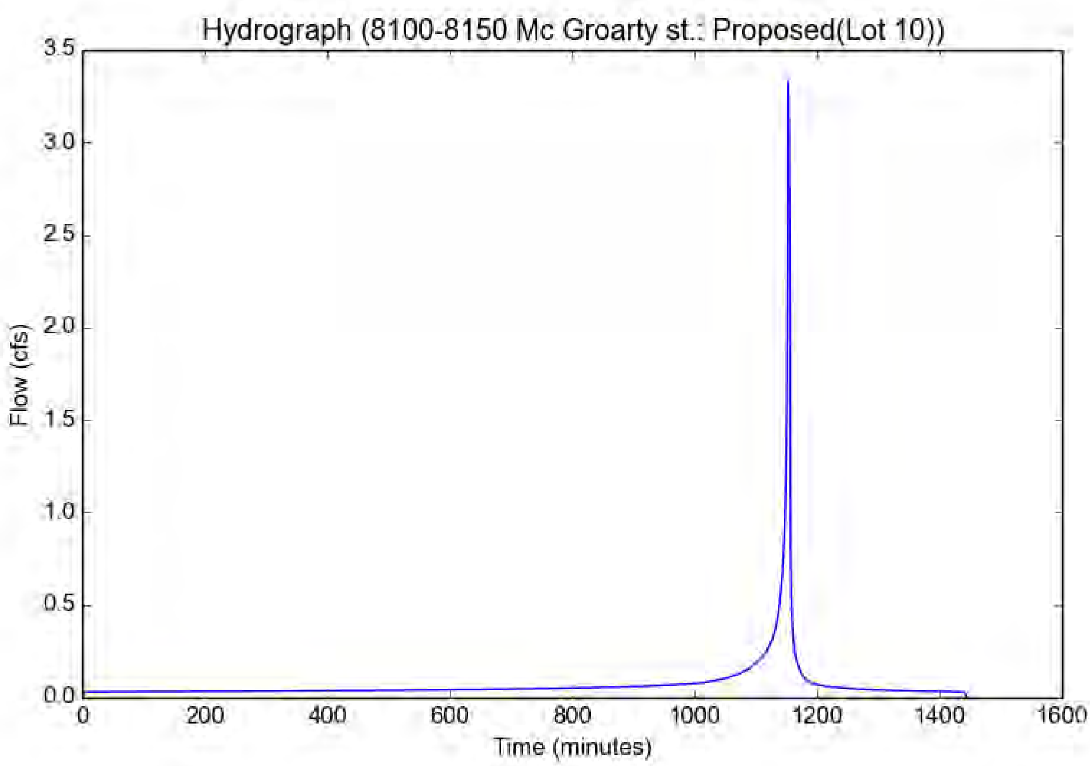
File location: C:/Users/hayk/OneDrive/Desktop/Sevan Files/2021/MCGROARTHY/Hydrocalcs (4-20-21)/8100-8150 Mc Groarty st. - Proposed(Lot 10).pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	8100-8150 Mc Groarty st.
Subarea ID	Proposed(Lot 10)
Area (ac)	0.9205
Flow Path Length (ft)	293.0
Flow Path Slope (vft/hft)	0.05
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.101
Soil Type	74
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7424
Developed Runoff Coefficient (Cd)	0.7583
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	3.3316
Burned Peak Flow Rate (cfs)	3.6504
24-Hr Clear Runoff Volume (ac-ft)	0.1485
24-Hr Clear Runoff Volume (cu-ft)	6467.6129



Peak Flow Hydrologic Analysis

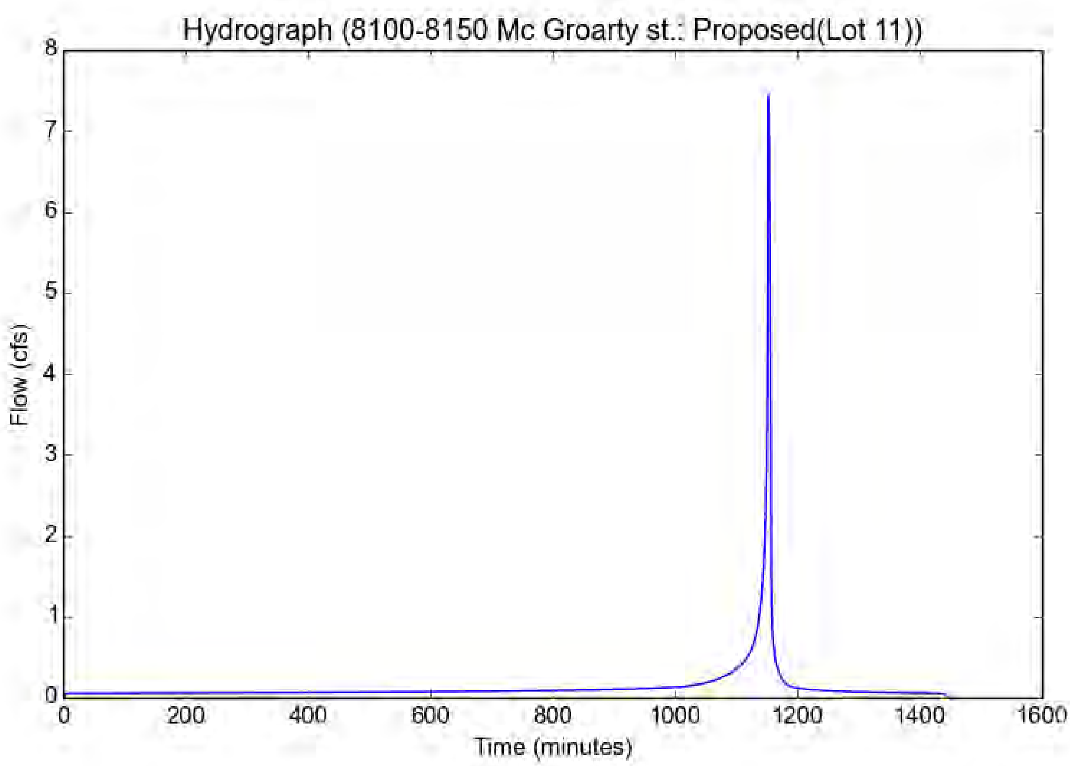
File location: C:/Users/hayk/OneDrive/Desktop/Sevan Files/2021/MCGROARTHY/Hydrocalcs (4-20-21)/8100-8150 Mc Groarty st. - Proposed(Lot 11).pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	8100-8150 Mc Groarty st.
Subarea ID	Proposed(Lot 11)
Area (ac)	2.076
Flow Path Length (ft)	650.0
Flow Path Slope (vft/hft)	0.2
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.042
Soil Type	74
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7424
Developed Runoff Coefficient (Cd)	0.749
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	7.4217
Burned Peak Flow Rate (cfs)	8.1682
24-Hr Clear Runoff Volume (ac-ft)	0.2758
24-Hr Clear Runoff Volume (cu-ft)	12012.1995



Peak Flow Hydrologic Analysis

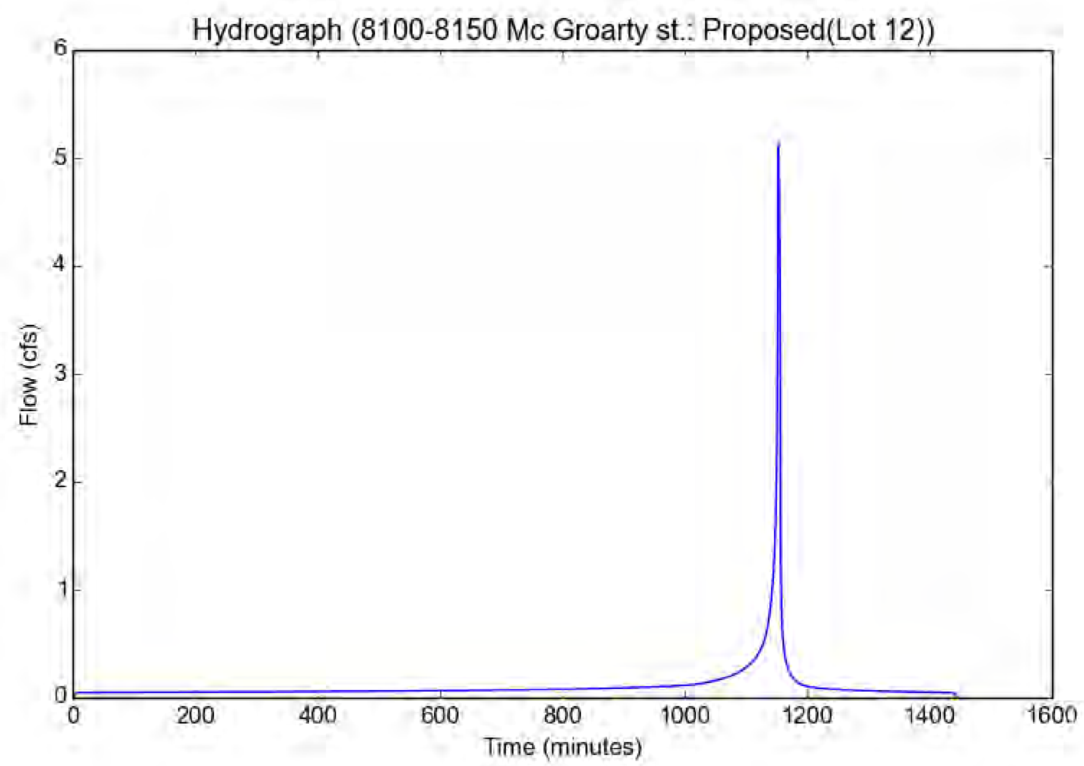
File location: C:/Users/hayk/OneDrive/Desktop/Sevan Files/2021/MCGROARTHY/Hydrocalcs (4-20-21)/8100-8150 Mc Groarty st. - Proposed(Lot 12).pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	8100-8150 Mc Groarty st.
Subarea ID	Proposed(Lot 12)
Area (ac)	1.4205
Flow Path Length (ft)	355.0
Flow Path Slope (vft/hft)	0.2
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.094
Soil Type	74
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7424
Developed Runoff Coefficient (Cd)	0.7572
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	5.1339
Burned Peak Flow Rate (cfs)	5.628
24-Hr Clear Runoff Volume (ac-ft)	0.2243
24-Hr Clear Runoff Volume (cu-ft)	9771.7332



Peak Flow Hydrologic Analysis

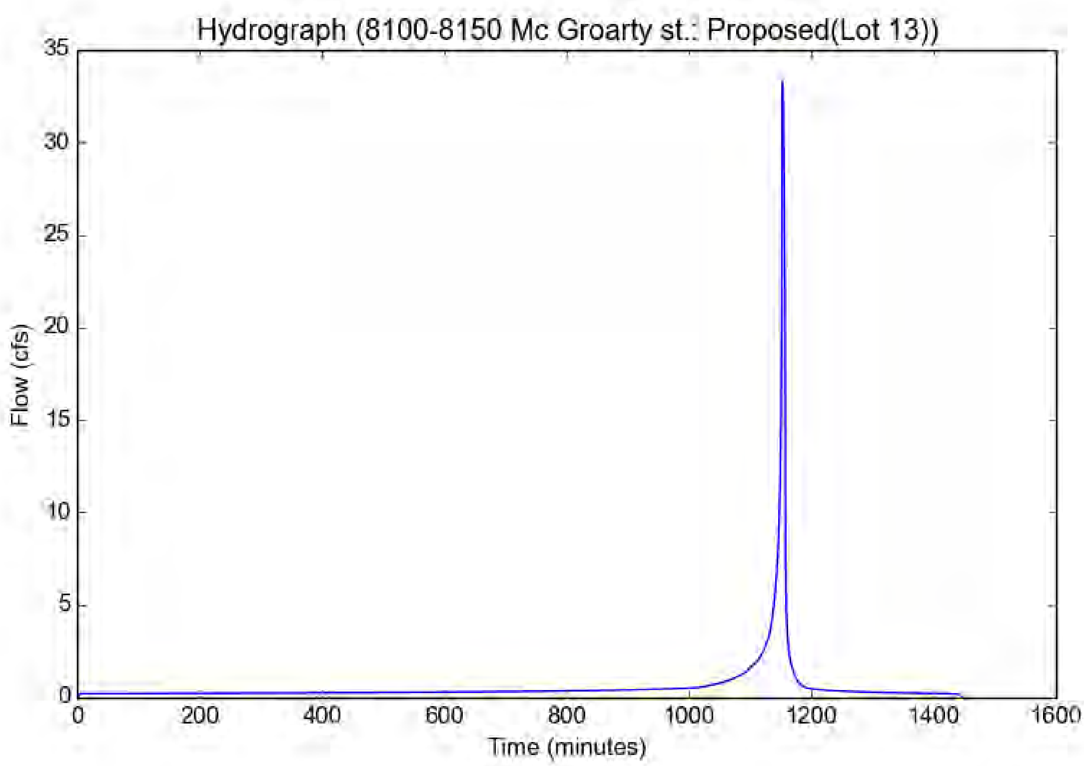
File location: C:/Users/hayk/OneDrive/Desktop/Sevan Files/2021/MCGROARTHY/Hydrocalcs (4-20-21)/8100-8150 Mc Groarty st. - Proposed(Lot 13).pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	8100-8150 Mc Groarty st.
Subarea ID	Proposed(Lot 13)
Area (ac)	10.483
Flow Path Length (ft)	1060.0
Flow Path Slope (vft/hft)	0.27
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.01
Soil Type	74
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.381
Undeveloped Runoff Coefficient (Cu)	0.7232
Developed Runoff Coefficient (Cd)	0.7249
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	33.2943
Burned Peak Flow Rate (cfs)	37.0406
24-Hr Clear Runoff Volume (ac-ft)	1.229
24-Hr Clear Runoff Volume (cu-ft)	53534.2239



Peak Flow Hydrologic Analysis

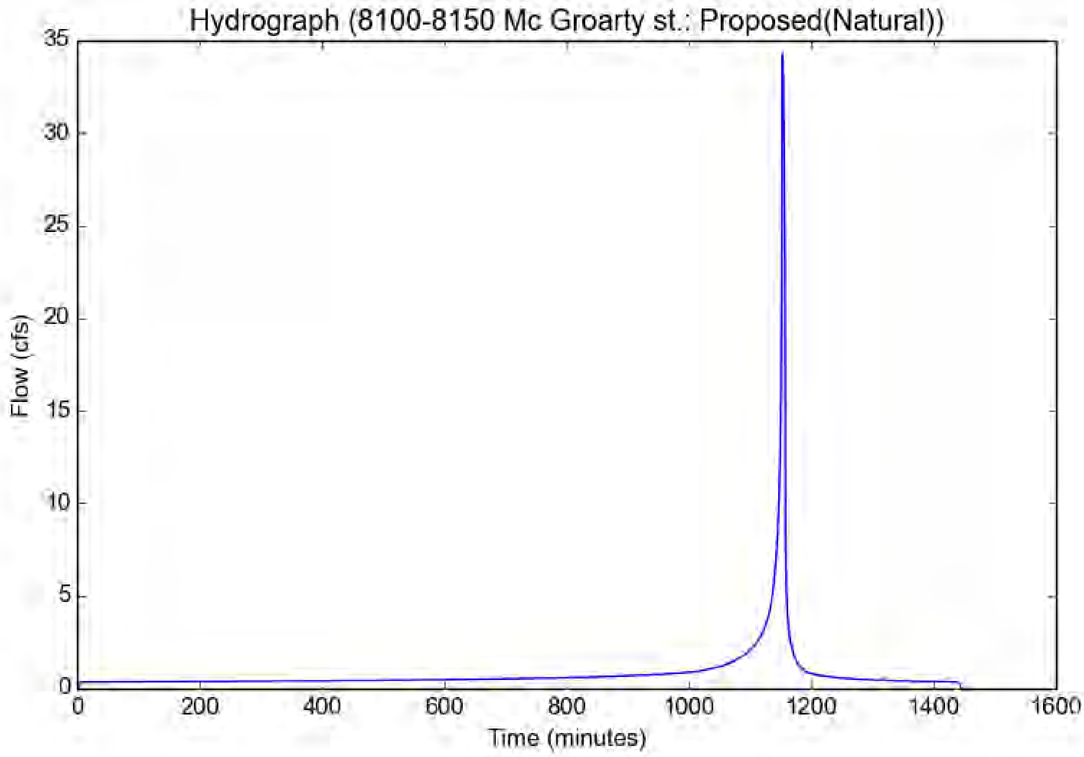
File location: C:/Users/hayk/OneDrive/Desktop/Sevan Files/2021/MCGROARTHY/Hydrocalcs (4-20-21)/8100-8150 Mc Groarty st. - Proposed(Natural).pd
Version: HydroCalc 1.0.2

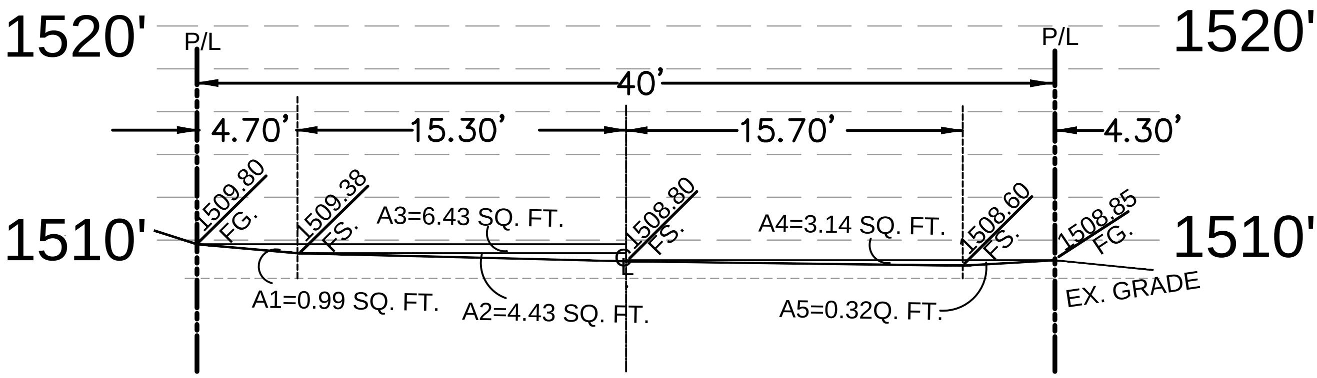
Input Parameters

Project Name	8100-8150 Mc Groarty st.
Subarea ID	Proposed(Natural)
Area (ac)	10.574
Flow Path Length (ft)	1092.0
Flow Path Slope (vft/hft)	0.27
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.1
Soil Type	74
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

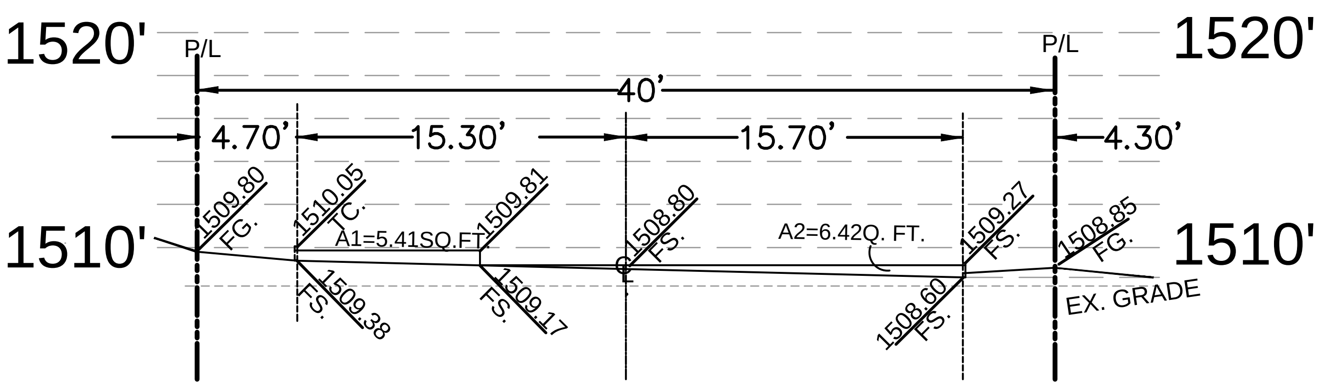
Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.381
Undeveloped Runoff Coefficient (Cu)	0.7232
Developed Runoff Coefficient (Cd)	0.7409
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	34.3206
Burned Peak Flow Rate (cfs)	37.8807
24-Hr Clear Runoff Volume (ac-ft)	1.6989
24-Hr Clear Runoff Volume (cu-ft)	74006.1454





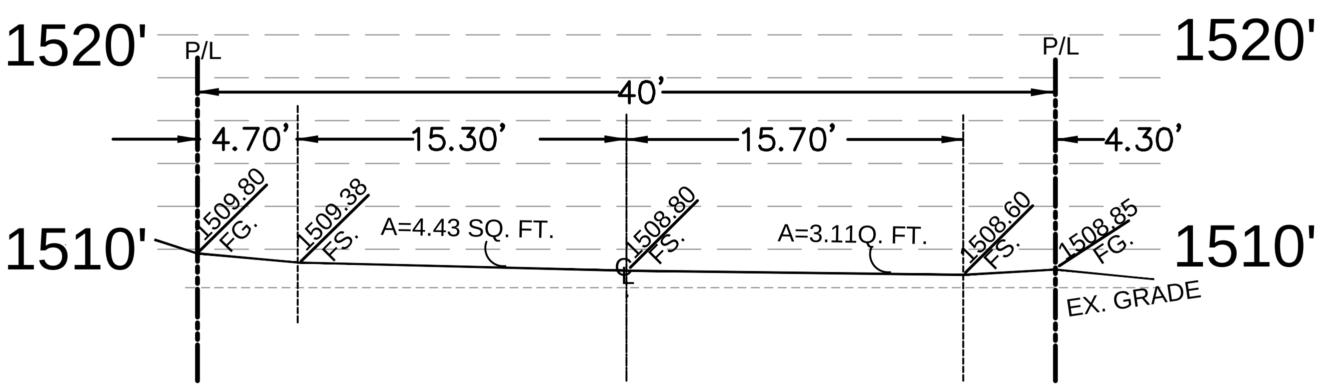
Mc Vine Ave.

N.T.S. R/WQ50=149.58CFS



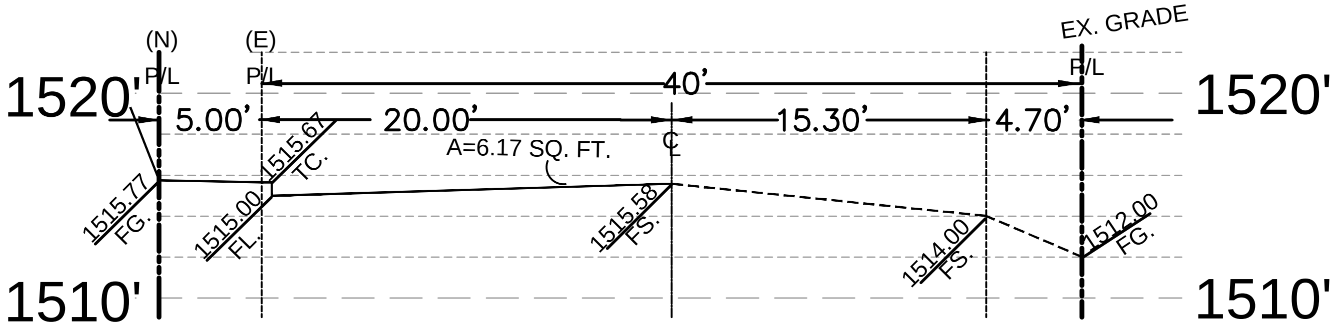
Mc Vine Ave.

N.T.S. TC/Q50=111.62.37CFS



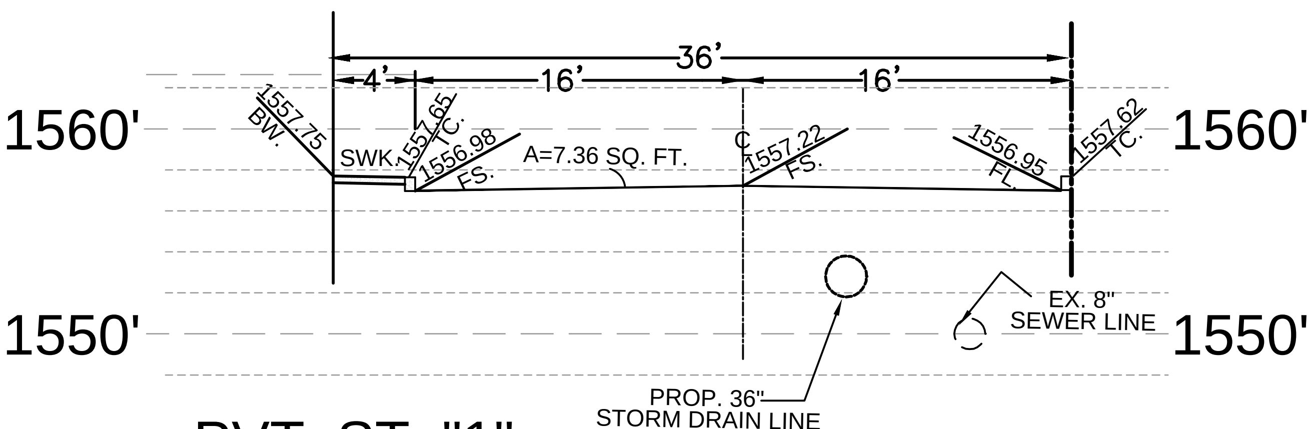
Mc Vine Ave.

N.T.S. Q50=58.37CFS



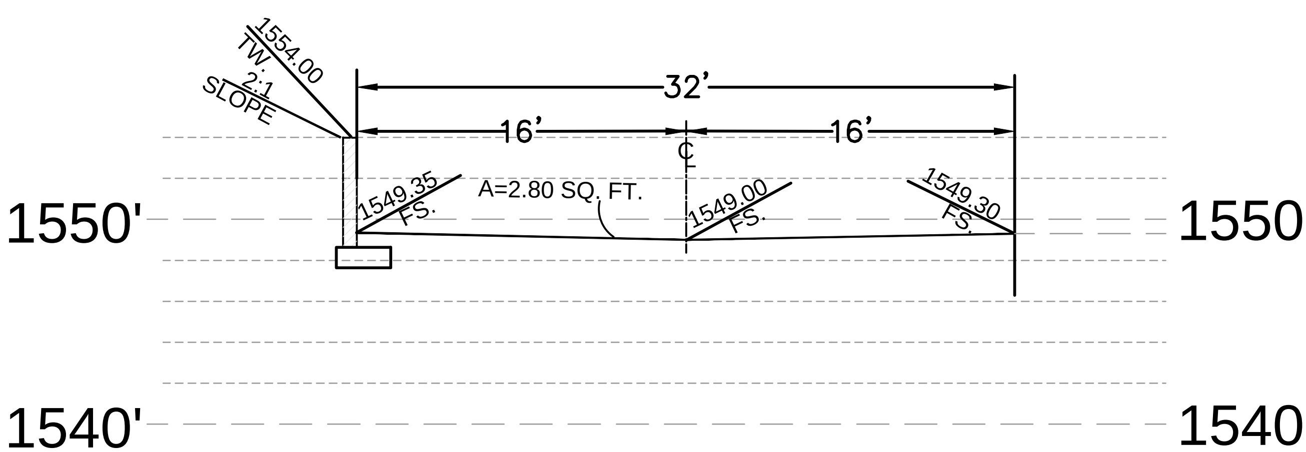
McGroarty St.

N.T.S. Q50=65.42CFS



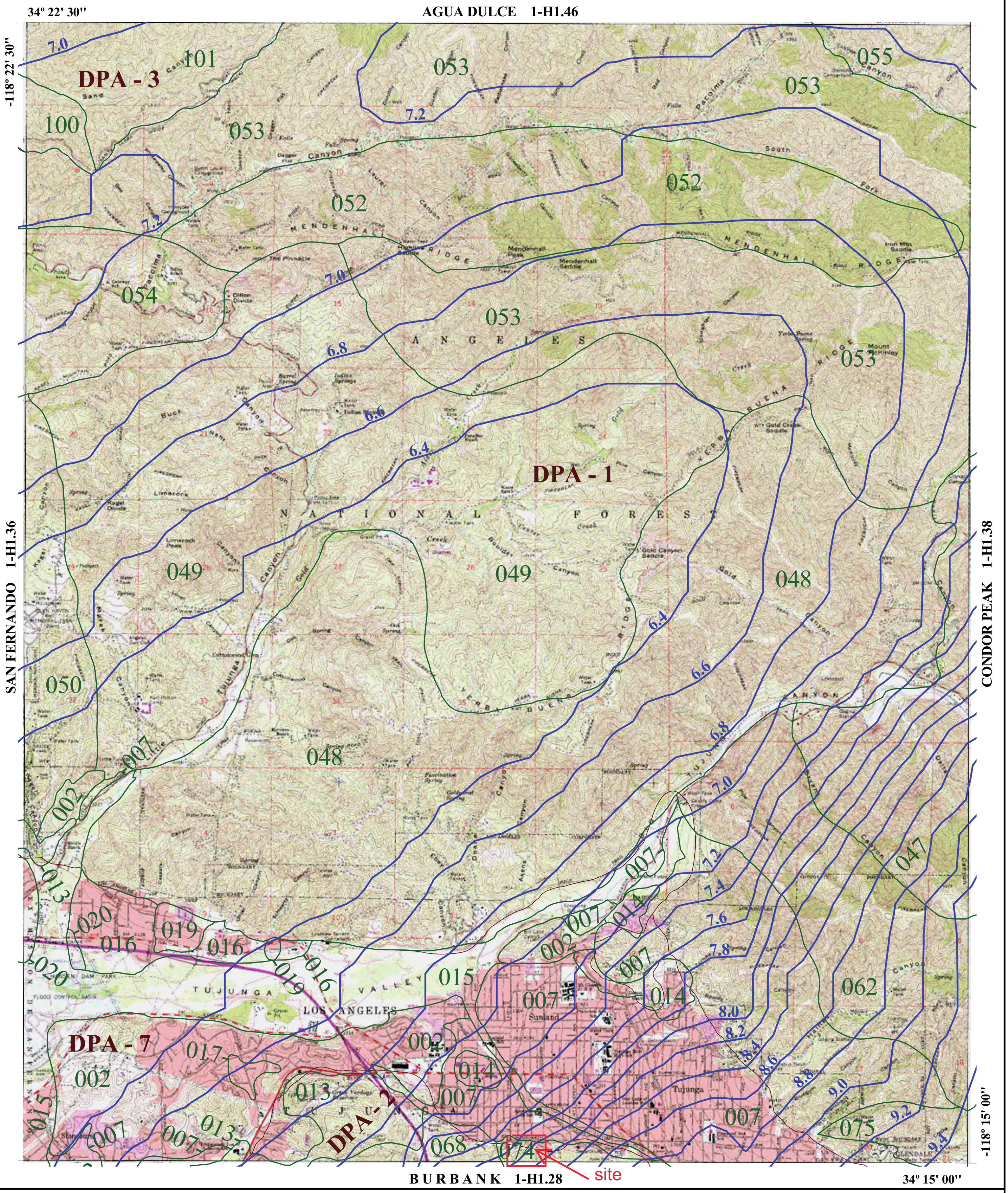
PVT. ST. "1"

N.T.S. Q50=119.56CFS
(full section)



PVT. ST. "2"

N.T.S. Q50=29.06CFS
(full section)



016 SOIL CLASSIFICATION AREA

7.2 INCHES OF RAINFALL

DPA - 6 DEBRIS POTENTIAL AREA

1 0 1 2 Miles

N W E S

25-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.878

10-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.714

S U N L A N D

50-YEAR 24-HOUR ISOHYET

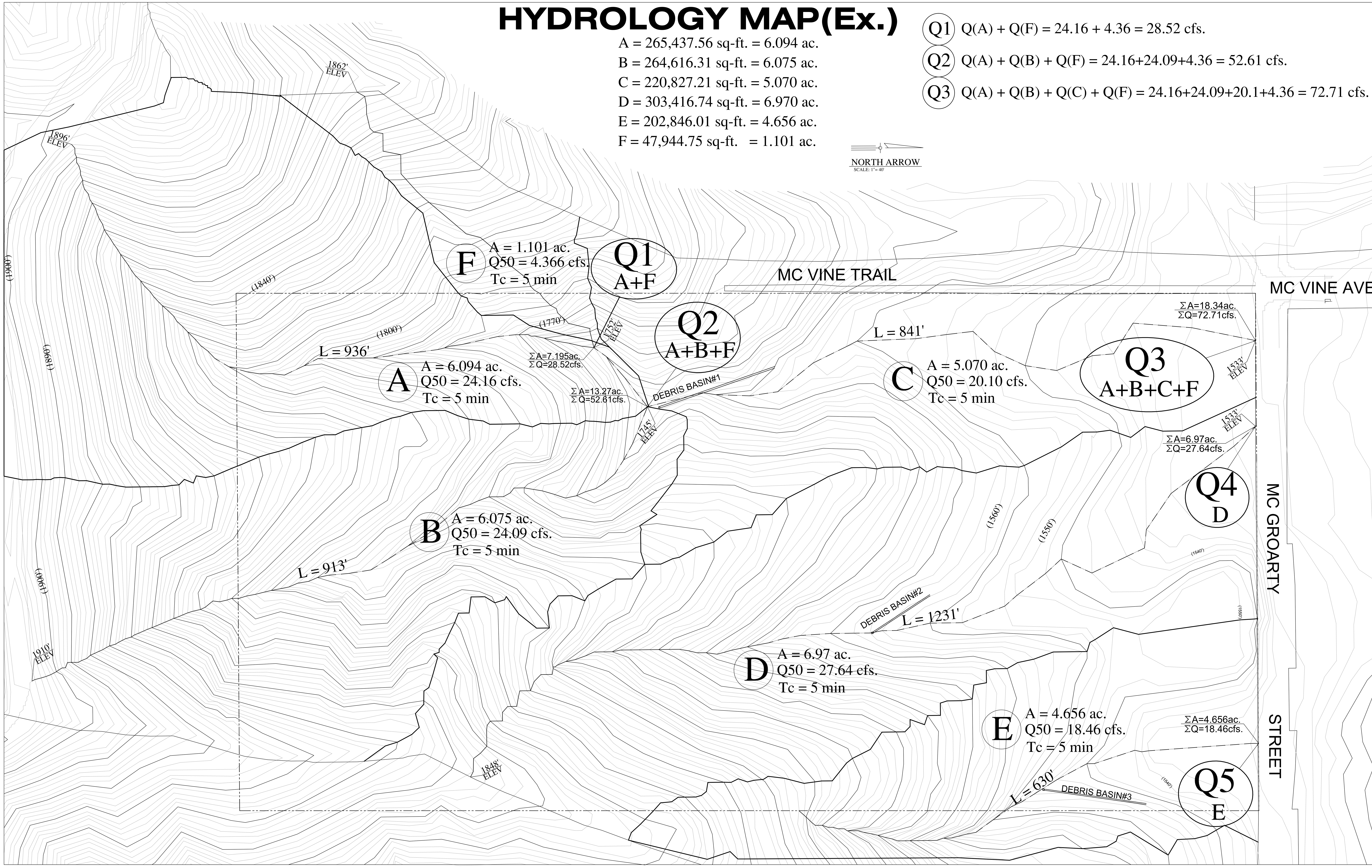
1-H1.37

LOS ANGELES COUNTY PUBLIC WORKS Public Service That Works

HYDROLOGY MAP(Ex.)

A = 265,437.56 sq-ft. = 6.094 ac.
B = 264,616.31 sq-ft. = 6.075 ac.
C = 220,827.21 sq-ft. = 5.070 ac.
D = 303,416.74 sq-ft. = 6.970 ac.
E = 202,846.01 sq-ft. = 4.656 ac.
F = 47,944.75 sq-ft. = 1.101 ac.

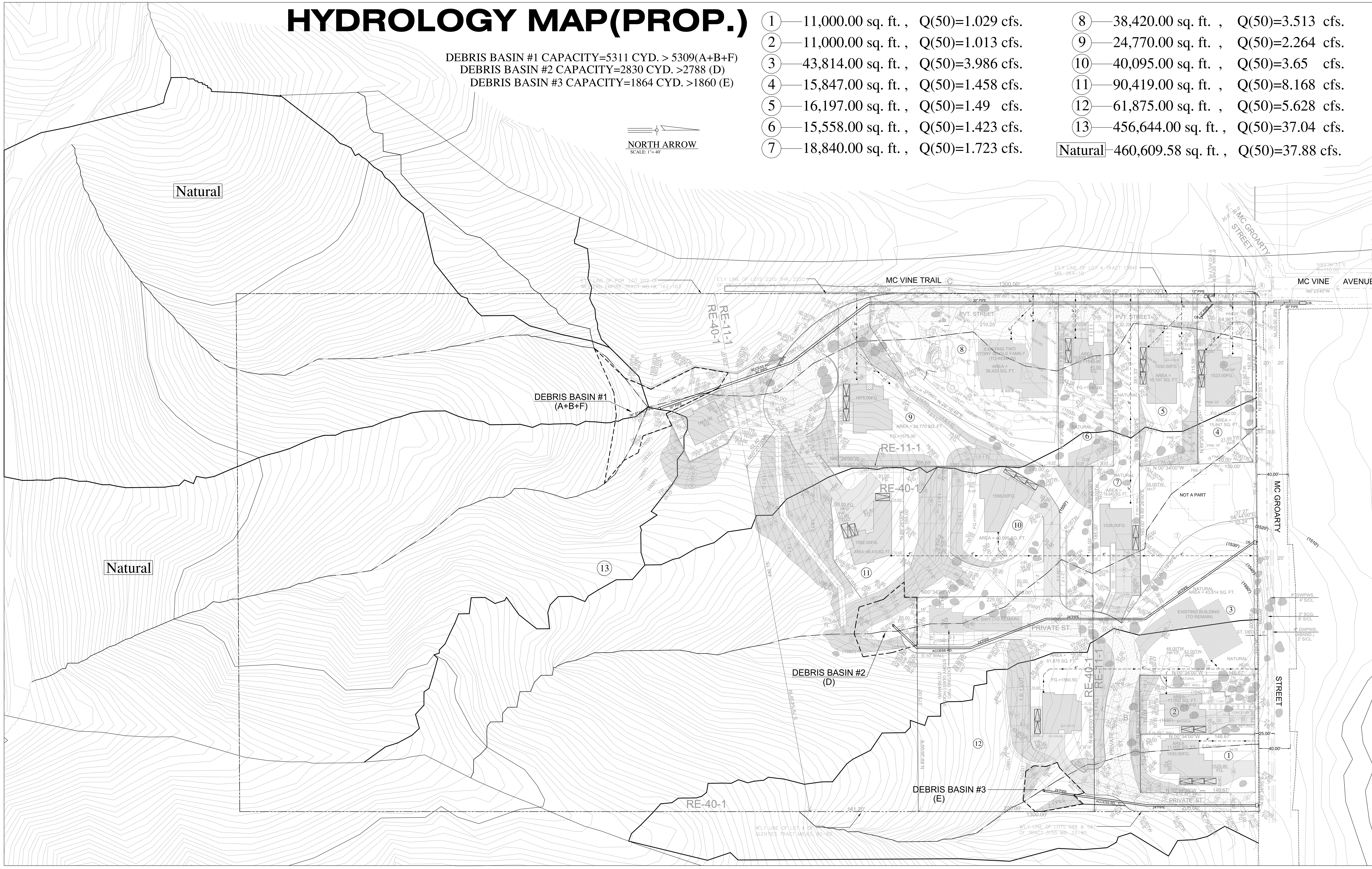
Q1 Q(A) + Q(F) = 24.16 + 4.36 = 28.52 cfs.
Q2 Q(A) + Q(B) + Q(F) = 24.16+24.09+4.36 = 52.61 cfs.
Q3 Q(A) + Q(B) + Q(C) + Q(F) = 24.16+24.09+20.1+4.36 = 72.71 cfs.



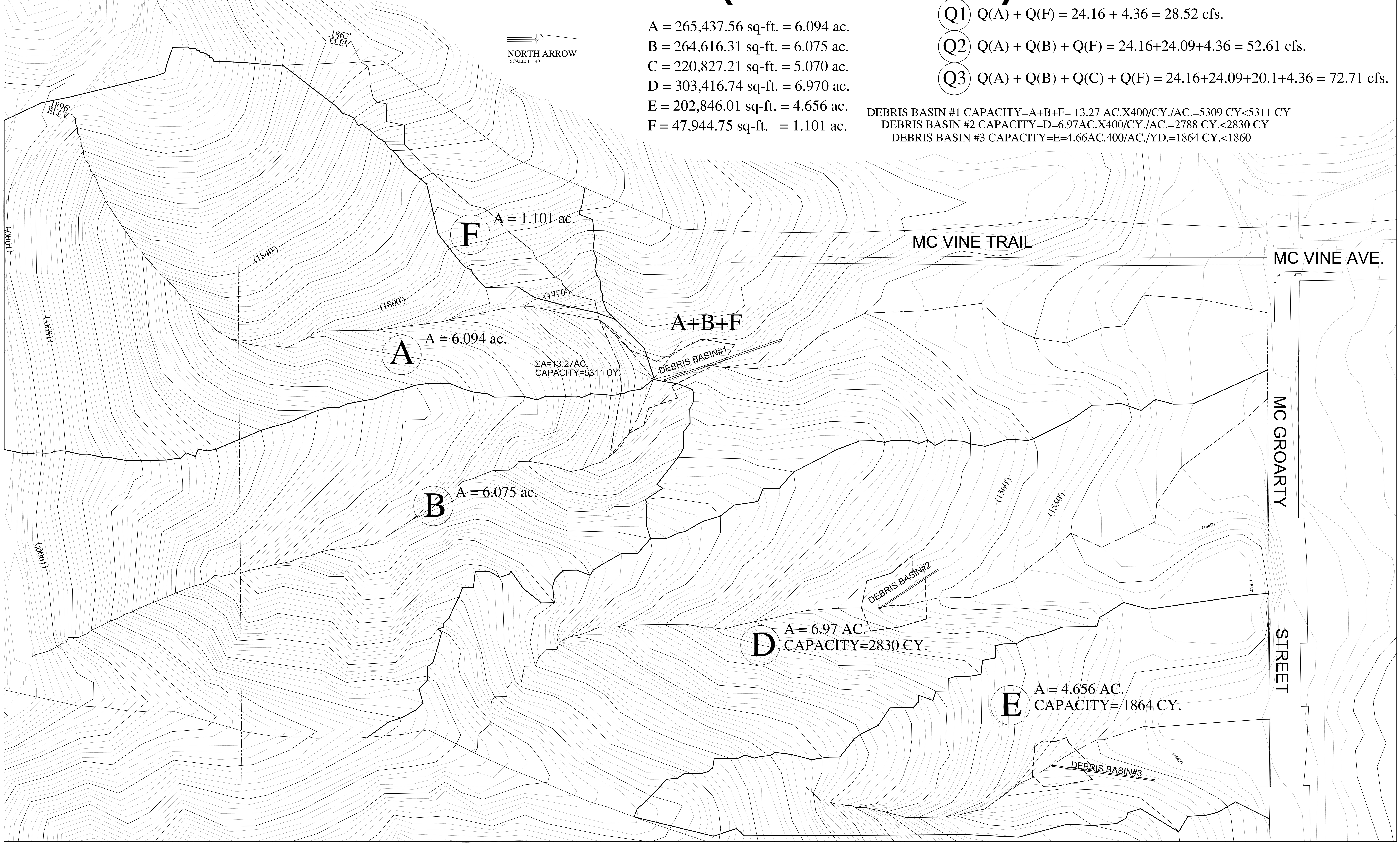
HYDROLOGY MAP(PROP.)

DEBRIS BASIN #1 CAPACITY=5311 CYD. > 5309(A+B+F)
DEBRIS BASIN #2 CAPACITY=2830 CYD. >2788 (D)
DEBRIS BASIN #3 CAPACITY=1864 CYD. >1860 (E)

1	11,000.00 sq. ft.	Q(50)=1.029 cfs.
2	11,000.00 sq. ft.	Q(50)=1.013 cfs.
3	43,814.00 sq. ft.	Q(50)=3.986 cfs.
4	15,847.00 sq. ft.	Q(50)=1.458 cfs.
5	16,197.00 sq. ft.	Q(50)=1.49 cfs.
6	15,558.00 sq. ft.	Q(50)=1.423 cfs.
7	18,840.00 sq. ft.	Q(50)=1.723 cfs.
8	38,420.00 sq. ft.	Q(50)=3.513 cfs.
9	24,770.00 sq. ft.	Q(50)=2.264 cfs.
10	40,095.00 sq. ft.	Q(50)=3.65 cfs.
11	90,419.00 sq. ft.	Q(50)=8.168 cfs.
12	61,875.00 sq. ft.	Q(50)=5.628 cfs.
13	456,644.00 sq. ft.	Q(50)=37.04 cfs.
Natural	460,609.58 sq. ft.	Q(50)=37.88 cfs.



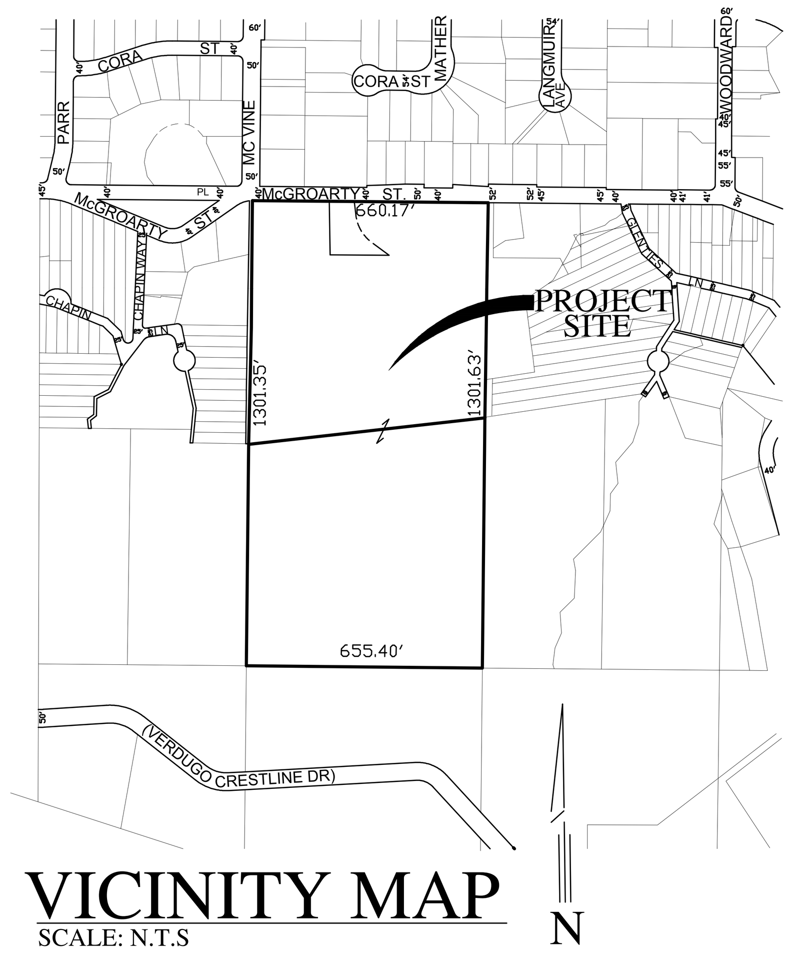
HYDROLOGY MAP(DABRIS BASIN)



VESTING TENTATIVE TRACT MAP NO. 73957

IN THE CITY OF LOS ANGELES, STATE OF CALIFORNIA

FOR SUBDIVISION PURPOSES



VICINITY MAP
SCALE: N.T.S

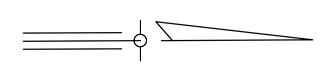
DATE: ~~JAN. 5, 2016~~
REVISED : ~~JAN. 30,2018~~
REVISED : ~~JULY10,2018~~
REVISED: ~~SEPTER 6,2018~~
REVISED: FEB. 12, 2019

OWNER / SUBDIVIDER
ALBERT DAVITYAN
8160 MC GROARTY ST.
SUNLAND, CA 91040
TEL: (818) 822-6864

ENGINEER
TECHNA LAND CO., INC.
HAYK MARTIROSIAN
1545 N. VERDUGO RD. SUITE 2
GLENDALE, CA 91208
TEL: (818) 547-0543
RCE 52563

PROJECT ADDRESS
8100-8160 W. MC GROARTY ST.
SUNLAND, CA. 91040

LEGAL DESCRIPTION
LOT 202½, WESTERN EMPIRE TRACT
M.B.18,PGS.162/163
(SEE HEREIN)



NORTH ARROW
SCALE: 1"=40'

PROJECT DATA
EXIST. ZONE:---------------RE11-1 & RE40-1
PROP. ZONE:---------------RE11-1 & RE40-1
GENERAL PLAN LAND USE: MINIMUM RESIDENTIAL & LOW RESIDENTIAL
EXIST. USE: --1 {SINGLE FAMILY RES.}
1 {PVT. SCHOOL+ 1 ACCESSORY LIVING}
(ZA-1995-212-CU)
PROP. USE: -------------------13 SINGLE FAMILY LOTS
LOT AREA WITHIN BORDERS =835335 SQ.FT.=19.18 AC.
LOT AREA (GROSS) =853,737 SQ.FT.=19.60AC.
LOT AREA (NET) =830,113 SQ.FT.=19.06AC.
LOT AREA WITHIN RE-11-1 ZONE: 220,990.00SQ. FT.=5.07 AC.
LOT AREA WITHIN RE-40-1 ZONE: 609,1235Q. FT.=13.99AC.

EXIST. USES:
1. SINGLE FAMILY-2 STORY (8160 MC GROARTY ST.) (3-CAR GARAGE)
2. SINGLE STORY PVT. SCHOOL (8100 MC GROARTY ST.) (4 SPACES)
3. ACCESSORY LIVING 2- STORY (8150 MC GROARTY ST.) (2-CAR GARAGE)

NOTES:
1. EXIST PVT. SCHOOL USE TO BE CONVERTED TO SFD. USE
2. PROPOSED BUIILDING 2-3 STORY, MAX. 45' HI.

EARTHWORK QUANTITY:
TOTAL CUT": 47,720 CY.
TOTAL FILL: 15,405 CY.
EXPORT: 32,315 CY., SCHOLL CYN. LAND FILL AREA

CURVE DATA

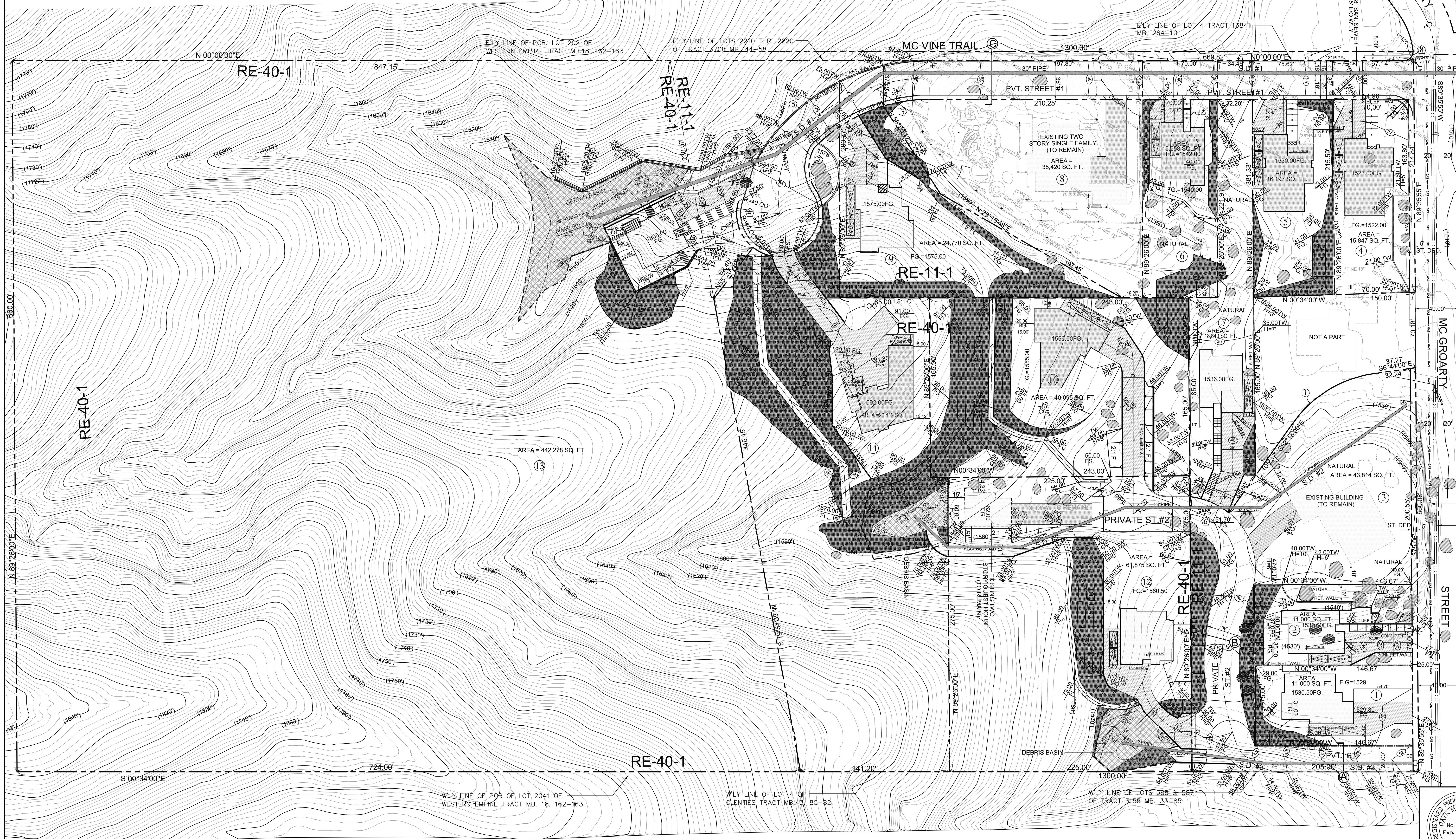
	R	△	L	T
1	110.65'	46°33'53"	89.93'	47.62'
2	15.00'	90°08'23"	23.60'	15.04'
3	149.00'	47°56'48"	124.69'	66.26'
4	40.00'	227°2'16"	158.50'	56.57'
5	185.00'	72°51'52"	235.25'	155.35'
6	35.00'	61°13'32"	37.40'	20.71'
7	36.83'	67°20'27"	43.33'	28.91'
8	8.00'	89°00'34"	12.43'	7.86'

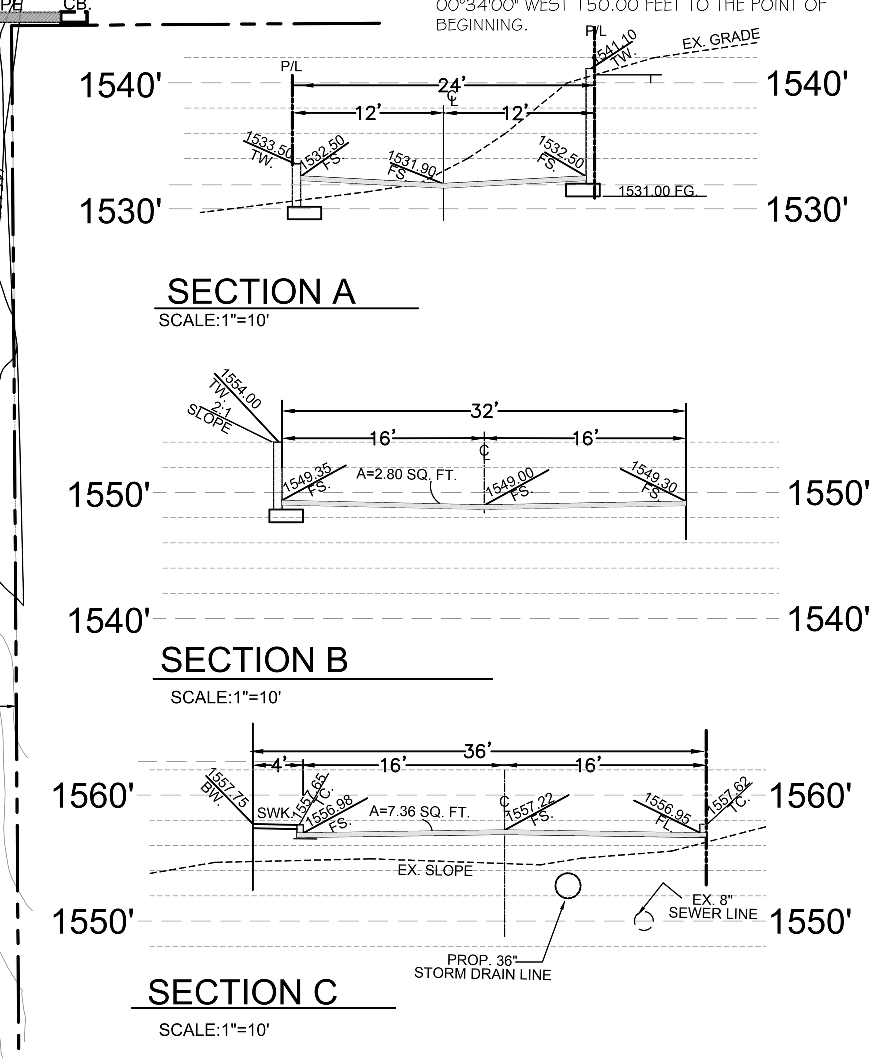
LOT	AVE. SLOPE
1	9.86%
2	28.94%
3	27.81%
4	11.37%
5	14.79%
6	31.64%
7	21.23%
8	12.34%
9	42.60%
10	28.35%
11	42.23%
12	40.54%
13	59.97%

NOTES:
1 - WATER SYSTEM: CITY OF L.A. DWP.
2 - POWER SYSTEM: CITY OF L.A. DWP.
3 - SEWER SYSTEM: CITY OF L.A. DPW.
4 - COMMUNITY PLAN AREA: SUN VALLEY- LA TUNA CANYON
5 - T.G. PAGE: 503- G4&H4
6 - HILLSIDE AREA NOTE: SITE IS LOCATED IN CITY DESIGNATED HILLSIDE AREA.
7 - TREES: SEE TREE PLAN.
8 - THIS SUBDIVISION IS NOT LOCATED WITHIN THE VICINITY OF THE MULHOLLAND SCENIC PARKWAY
9 - THIS SUBDIVISION IS IN A BOE SPECIAL GRADING AREA, LANDSLIDE AREA, & WITHIN VERDUGO FAULT ZONE
10 - COUNCIL DISTRICT NO. CD-7
11 - ASSESSOR PARCEL NO.: 2559-032-003
2561-006-005
12 - CENSUS TRACT NO.: 1034.00
13 - DM: 201B 193 & 204B 193

LEGEND:
PRIVATE STREET
DRIVEWAY
PROP./EX. STRUCTURES
PROTECTED TREES TO BE REMOVED
OAK & PROTECTED TREES

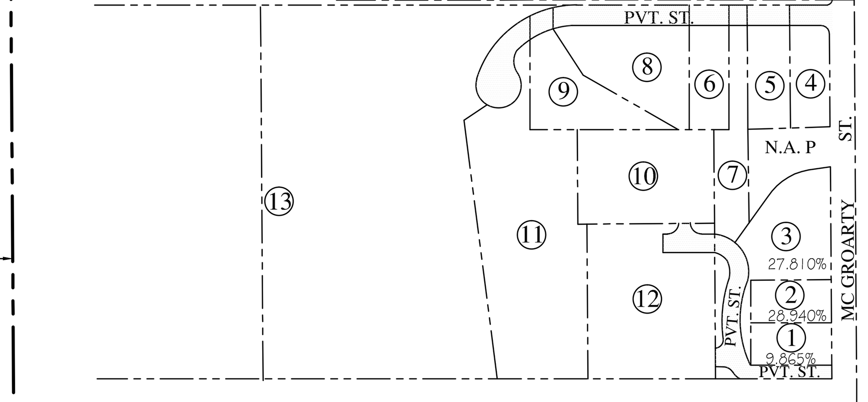
LEGAL DESCRIPTION
LOT 202½, WESTERN EMPIRE TRACT M.B.18,PGS.162/163, EXCEPT THEREFROM THAT PORTION THEREOF DESCRIBED AS FOLLOWS: BEGINNING AT A POINT IN THE NORTH LINE OF SAID LOT THAT IS DISTANT ALONG SAID LINE SOUTH 89°26'00" WEST 445.11 FEET FROM THE NORTHEAST CORNER OF SAID LOT; THENCE ALONG SAID NORTH LINE 89°26'00" EAST 70.00 FEET; THENCE SOUTH 06°44'00"EAST 37.545 FEET TO THE BEGINNING OF A TANGENT CURVE CONCAVE TO THE NORTHEAST HAVING A RADIUS OF 110.63 FEET; THENCE SOUTHEASTERLY ALONG SAID CURVE 89.91 FEET; THENCE TANGENT TO SAID CURVE SOUTH 53°18'00"EAST 60.30 FEET; THENCE SOUTH 89°26'00" WEST 165.02 FEET TO A LINE EXTENDING SOUTH 00°34'00" EAST FROM THE POINT OF BEGINNING; THENCE ALONG SAID LINE NORTH 00°34'00" WEST 150.00 FEET TO THE POINT OF BEGINNING.





LOT AREAS:
(AFTER ST. DEDICATION)

Lot	Area	Lot	Area
1	11,000.00 SQ. FT.	8	38,420.00 SQ. FT.
2	11,000.00 SQ. FT.	9	24,770.00 SQ. FT.
3	43,814.00 SQ. FT.	10	40,095.00 SQ. FT.
4	15,847.00 SQ. FT.	11	90,419 SQ. FT. [64,875 (RE40-1) + 25,544 (RE11-1)]
5	16,197.00 SQ. FT.	12	61,875 SQ. FT.
6	15,558.00 SQ. FT.	13	442,278.00 SQ. FT.
7	18,840.00 SQ. FT.		



LOT LOCATION MAP
SCALE: N.T.S

TENT.TR. NO. 73957

REGISTERED PROFESSIONAL ENGINEER HAYK MARTIROSIAN No. C52563 Exp. 12-31-22 CIVIL STATE OF CALIFORNIA

TECHNA LAND CO., INC.
CIVIL ENGINEERING, LAND PLANNING, CONST. MGMT.

6-24-21
HAYK MARTIROSIAN DATE
1545 N. VERDUGO RD. # 2 GLENDALE, CA 91208
TEL: (818) 547-0543, FAX: (818) 547-1074