Preliminary Hydrology Report

MGA Chatsworth Campus
20000 Prairie Street
Chatsworth, CA

(Formerly LA Times)

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ATTACHMENTS

- **LACDPW-Canoga Park – 50-Year, 24-Hour Isohyet, 1-H1.26 (1 sheet)**
- **LACDPW – Proportion Impervious Data (4 sheets)**
- **(New) City of Los Angeles Drainage Map No. 391 (1 sheet)**
- **(Old) City of Los Angeles Drainage Map No. 391 (1 sheet)**
- **LACDPW Storm Drain Facilities (1 sheet)**
- **City of Los Angeles Stormwater Flood Zone Information Map (1 sheet)**

EXECUTIVE SUMMARY

The purpose of this study is to analyze the proposed MGA Chatsworth Campus development project with respect to hydrology and drainage alternatives. In addition, the issues of water quality and design flows of stormwater are addressed.

This project, consisting of 23.60 acres, is located on the property formerly occupied by the Los Angeles Times facility in Chatsworth. It should be noted that for the purposes of this report the area associated with actual development is lower than the project boundary area of 23.60 acres. The site is bounded on the north by Prairie Street, on the west by Winnetka Avenue, the south by Southern Pacific Railroad, and the east by a Southern Pacific Railroad spur track.

The MGA Chatsworth Campus project will renovate and expand the existing building facility. The project development will also consist of three new apartment buildings consisting of 700 residential units, 244,263 square feet of office, and 13,000 square feet of retail space.

Hydrology calculations were performed using the Los Angeles County of Public Works Hydrology Manual, dated 2006, and calculated for 50-year storm events.

With regard to stormwater pollution, and the “treatment” of non-storm and “first flush” storm runoff in accordance with the City of Los Angeles Stormwater Pollution Control Plan criteria, on-site water treatment is proposed. The preliminary systems proposed will be placed within the project limits prior to joining the existing storm drain channel. Storm runoff from the entire site will discharge through an existing pipe connection into the City of Los Angeles channel adjacent to the southerly project boundary. A more detailed description of the anticipated stormwater treatment systems is found in a separate report prepared by Hall & Foreman, Inc., titled “Preliminary Stormwater Quality Mitigation Report,” dated November 19, 2013.

1.0 INTRODUCTION

The purpose of this report is to analyze the subject proposed development with respect to hydrology. The site is the former location of the Los Angeles Times facility located at 20000 W. Prairie Street in Chatsworth, California. See Figure I, Vicinity Map, in the figure section of this report.

2.0 PROJECT DESCRIPTION

The MGA Chatsworth Campus project will be a new Industrial development located on Prairie Street in Chatsworth. The project will include renovation of the existing 250,000 square feet of building with internal additions. The project will also consist of three new buildings comprised of a total of 700 residential units, 244,263 square feet of office, and 13,000 square feet of feet retail.

3.0 EXISTING SITE SUMMARY

The project is located in the Chatsworth community of the City Of Los Angeles. Specifically, it is bounded by Prairie Street to the north, industrial buildings to the east, the Southern Pacific Railroad to the south, and Winnetka Avenue to the west. Reference Figure I, Vicinity Map in the figure section of this report.

4.0 EXISTING STORM DRAIN FACILITIES

There are two major existing storm drains channels within City of Los Angeles drainage easements on the project property. For reference purposes only, the channel adjacent to Winnetka Avenue will be referred to as the "Winnetka Channel" in this report. This channel is adjacent to the project's westerly boundary and drains southerly to the south-west corner of the property where it junctions with the major channel adjacent to Southern Pacific Railroad that will be referred to as the "S.P.R.R. Channel" in this report. Intercepting street flow on Winnetka Avenue, and the intersection of Winnetka Avenue and Prairie Street; are side-opening catch basins connected to the "Winnetka Channel" adjacent to westerly project boundary. Street flows in Prairie Street and Penfield Avenue are intercepted by side-opening catch basins connected to the existing storm drain in Prairie Street. There are no LACDPW storm drains adjacent to the MGA campus site. Per the City of Los Angeles Flood Zone Information Map, the site is in the Flood Zone Type "C." See the (New) and (Old) City of Los Angeles Drainage Map No. 391, the LACDWP Storm Drain Facilities Map, and the City of Los Angeles Flood Zone Information Map in the Appendix section of this report.

In conjunction with the public storm drains, there is a network of on-site private storm drains that connect to the City of Los Angeles "S.P.R.R. Channel" at the south east corner of the site. Reference Figure II, "Pre-Development Hydrology Map"

4.1 Winnetka Avenue

Winnetka Avenue consists of two side-opening catch basins located on the east and west side of the street, north of the southern pacific railroad crossing in a sump condition. These catch basins were constructed per plan D-17562 and are connected with a 39"RCP to the "Winnetka Channel." At the intersection of Winnetka Avenue and Prairie Street, there are four side-opening catch basins. Two are constructed per plan D-17562 on Winnetka Avenue north of the intersection and are connected with a junction structure to the "Winnetka Channel." The other two catch basins were constructed per D-20122 and P-35032 on Prairie Street west of the intersection and are connected with a 51" RCP to the Winnetka Channel.

4.2 Prairie Street

At the intersection of Prairie Street and Penfield Avenue, there are five side-opening catch basins. Four of the basins are in Penfield Avenue, and one is on the north side of Prairie Street, west of Penfield Ave. There are two side-opening catch basins on the west of the railroad spur crossing in a sump condition. All these catch basins were constructed per plan D-26593 and connect to a 39" and 48" RCP in Prairie Street.

4.3 Storm Drain Channels

As mentioned previously, there are two public storm drain channels along the west and southerly project boundaries within City of Los Angeles drainage easements. The "Winnetka Channel" is a 20'W x 18'H rectangular reinforced concrete channel constructed per plan D-17562. Adjacent to the project's southerly boundary is the "S.P.R.R. Channel," a 24'W x 8'-6"H rectangular reinforced concrete channel constructed per plan D-17562.

4.4 On-site Private Drain to Existing "S.P.R.R. Channel"

The existing on-site drainage system is composed of various types and sizes of catch basins, roof drains and a vast network of pipe sizes ranging from 6" to 36". This system intercepts, and conveys, the site storm runoff to a 33" RCP lateral constructed per D-26593 to the "S.P.R.R. Channel." See the "Pre-Development Hydrology Map," Figure II, on page 11.

5.0 Existing Hydrology

As described in the on-site private drain section, and by visual inspection of the site, the majority of the site drains in a southeasterly direction. Research efforts to obtain copies of hydrology and hydraulic calculations for the existing City of Los Angeles public storm drains in the adjacent streets and the adjacent channels were made at the City of Los Angeles, Department of Public Works, Bureau of Engineering, Valley District Office. It was disclosed that they do not exist.

Reference Figure II, "Pre-Development Hydrology Map."

6.0 Hydrology Calculations

Hydrology calculations are performed utilizing the Los Angeles County Department of Public Works' MODRAT method, revised in 2006. That method includes new Isohyetal Maps and a new Tc Calculator "Tc_Calc_depth.xls" program.

Drainage sub-areas are created and graphically illustrated on the "Pre-Development Hydrology Map" (Figure II) and the "Post-Development Hydrology Map" (Figure III) found in the Figure section of this report. See "Summary of Hydrological Sub-Areas" (Tables No. 1 and No. 2) on pages 7 and 8.

The site is situated adjacent to the 50-year Isohyet 6.4, and the soil classification for the project is 016. (See the attached LACDPW "Canoga Park," 50-year, 24-Hour Isohyet Map 1-H1.26" found in Attachment A.)

The proportion impervious values are obtained from the "Proportion Impervious Data" table found in the Attachments. A composite impervious value was determined for each sub-area. The proportion impervious values used are Mixed Multi-Family Residential with impervious areas of approximately 74%.

The volume flow rates have been determined for both the pre-development and post-development conditions. For the pre-development volume rate calculations, the site has been divided into sub-areas by examining the site and the locations of the existing on-site points of runoff interception.

For the post-development calculations, the site area was divided into sub-areas of the remaining, existing, and the proposed catch basin locations within the new parking areas.

For the purposes of routing and to be conservative the pre and post-development hydrology were calculated as un-routed areas. Each runoff was determined for each area and added to determine the cumulative runoff from the project site. The flow discharge was performed from all Sub-Areas to the existing outlet to the "S.P.R.R. Channel" for the 50-year storm event.

See the "Q_{50} Pre-Development" and "Q_{50} Post-Development" output files in the Appendix. Reference Figure II - "Pre-Development Hydrology Map", and Figure III - "Post-Development Hydrology Map".

6.1 Pre-Development Hydrology Calculations

The existing site is partially developed with buildings and paved parking lot areas in the northerly portion. On the southerly portion of the site is a large landscaped area. The existing drainage area is comprised of five (5) drainage sub-areas that drain to existing on-site catch basins and a network of storm drains pipes. Sub-area boundaries were established utilizing the site topography survey map and the existing storm drain network system to obtain the Pre-Development Q_{50}-year event runoff.

See Figure II, "Pre-Development Hydrology Map" and Table No.1, "Summary of Hydrological Sub-Areas" on page 7.

6.2 Post-Development Hydrology Calculations

The post-development will result in a slight increase in the total drainage area due to the additional driveway entrance from Winnetka Avenue and the expansion of the new residential buildings and retail area.

The drainage area is comprised three (3) drainage sub-areas that will drain to proposed, catch basins connected to the existing network of storm drain pipes. Due to the construction of the residential buildings at the southerly portion of the project an alternative routing and discharge for Sub-Area B was established. Sub-area boundaries are established utilizing the existing, and proposed, topography and the existing storm drain network system to obtain the Post-Development Q_{50}-year event runoff. See the Appendix for the output and hydrograph files.

Reference Figure III, "Post-Development Hydrology Map" and Table No. 2, "Summary of Hydrological Sub-Areas Post-Development" on page 8 of this report.

7.0 Stormwater Treatment Quality Control

It is anticipated that the proposed project will require treatment of on-site storm flows. A treatment system will be located within the project limits. The outlet of this treatment system will be connected to a proposed dry well to reduce the post-development runoff and then connect to the existing "S.P.R.R. Channel" adjacent to project southerly boundary and "Winnetka Channel".

See Figure III, "Post-Development Hydrology Map".

A more detailed description of the anticipated stormwater treatment systems is contained in a separate report prepared by Hall & Foreman, Inc., titled "Preliminary Stormwater Quality Mitigation Report," dated November 25, 2013.

Treatment flow to these systems is determined using the method described in the Low Impact Development (LID), published by the City of Los Angeles.

7.1 Stormwater Treatment Quality Control Q_{pm} Calculations

To determine the peak mitigated flow rate (Qpm) for the Stormwater Treatment Quality Control Calculations, the Los Angeles County Department of Public Works program "LACoWQFlow.xls" was utilized. Each subarea was analyzed to determine the treatment measure required for each sub area. The results of calculations are found in Appendix B.

8.0 Summary and Conclusions

The existing storm drain system connection will remain with the addition of several new catch basins that will accommodate the revised development layout.

A stormwater treatment system will be installed in the main line within the landscaped areas of the site. This treatment system will mitigate pollution from the building's roof drainage, area drains, and parking surface runoff prior to discharging stormwater to the proposed dry wells/ bio-filtration system and then to the City's "S.P.R.R. Channel" and "Winnetka Channel".

In conclusion, in accordance with the Los Angeles City Stormwater Quality Management Program, with the installation of the stormwater treatment system on the existing storm drain and the dry well installation, satisfactory treatment of non-stormwater runoff will be provided. The installation of the dry well will decrease the 50-year post-development runoff rate and volume values to less than for pre-development.

As there are no existing stormwater issues in the vicinity and with the reduction of the post-development peak runoff to less than pre-development runoff, there will be adequate capacity in the "S.P.R.R. Channel" to accept the storm runoff from the proposed project.

TABLE 1
SUMMARY OF HYDROLOGICAL SUB-AREAS

Sub-Area	Acres	TC	Q_{50}(cfs) Unrouted	Destination
A1	2.52	5.0	8.66	Existing grating basins in driveway north side of building.
B1	0.99	5.0	3.37	Existing grating basins in landscape area sump north of building.
C1	2.66	9.0	6.94	Existing catch basins in sumps driveway along east property line.
D1	10.28	11.0	23.88	Existing grating basin in sump in driveway south of building.
E1	3.45	12.0	7.07	Existing grating basin in sump in landscape area adjacent to “S.P.R.R. Channel”.
Total	19.9	—	49.92	Outlet to “S.P.R.R Channel”

TABLE 2
SUMMARY OF HYDROLOGICAL SUB-AREAS

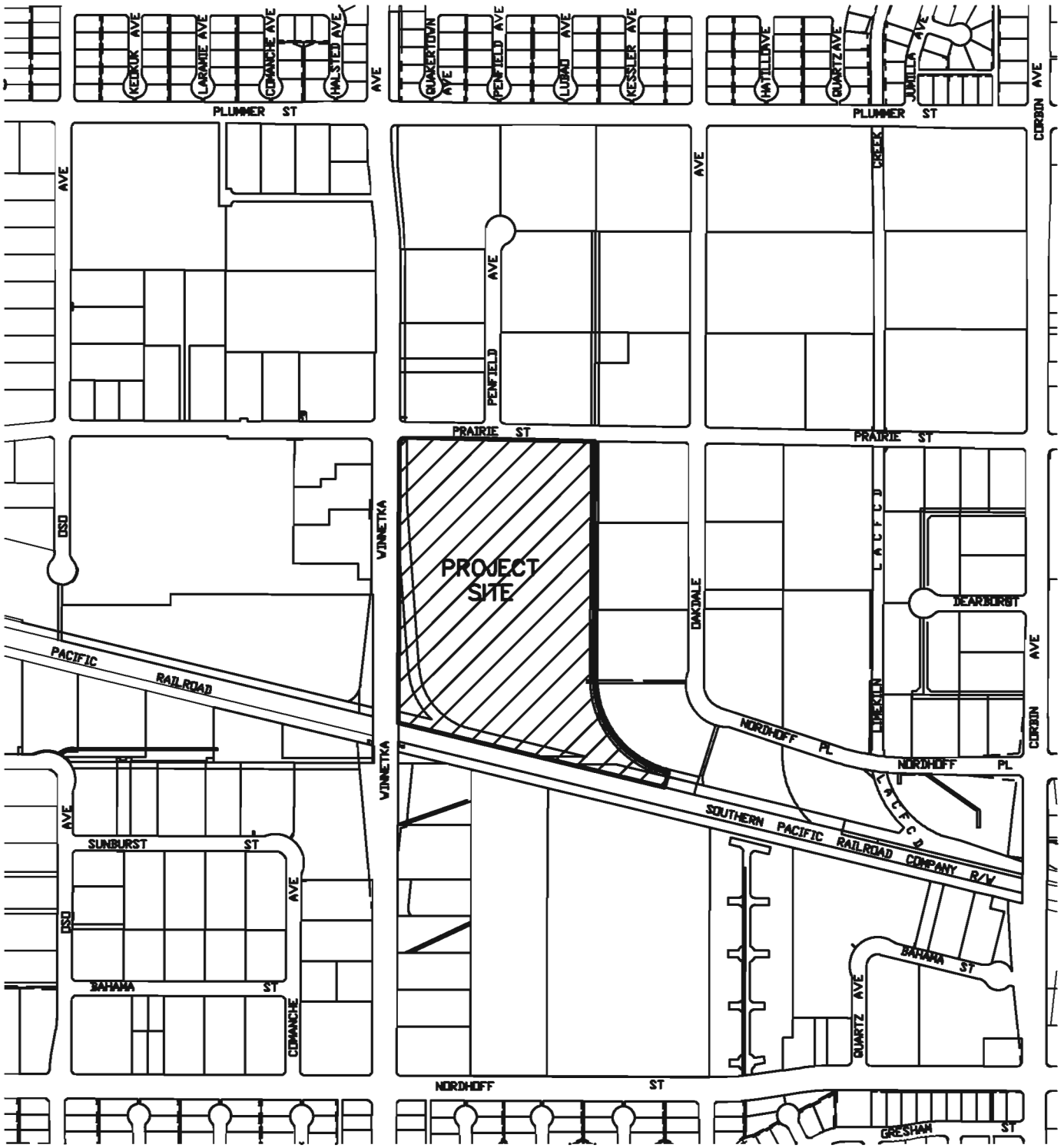
Sub-Area	Acres	Tc	Q_{50}(cfs) Unrouted	Q_{50} (cfs) Adjusted	Destination
A2	5.53	9	14.11	13.29**	To proposed catch basin in driveway north of building
B2	7.33	9	18.71	17.55**	To proposed catch basin in driveway at southeast corner of parking area
C2	8.43	12	18.77	17.89**	To proposed sump catch basin in driveway
Total	21.26*	---	51.59	48.73**	To proposed water quality unit, the dry well, and to the "S.P.R.R. Channel"

** A slight increase in the area from the total pre-development drainage area due to the 0.44-acre increase in the additional parking and driveway access.*

***Peak flow rate adjusted with drywells (infiltration rate of Qpm Total = 2.86 cfs)*

Note: The total Post-Development Q_{50} rate and volume to the "Winnetka" and "S.P.R.R." Channels will be reduced with the addition of the infiltration dry well.

FIGURES



VICINITY MAP

FIGURE 1

1"=600'

0 300 600 1200

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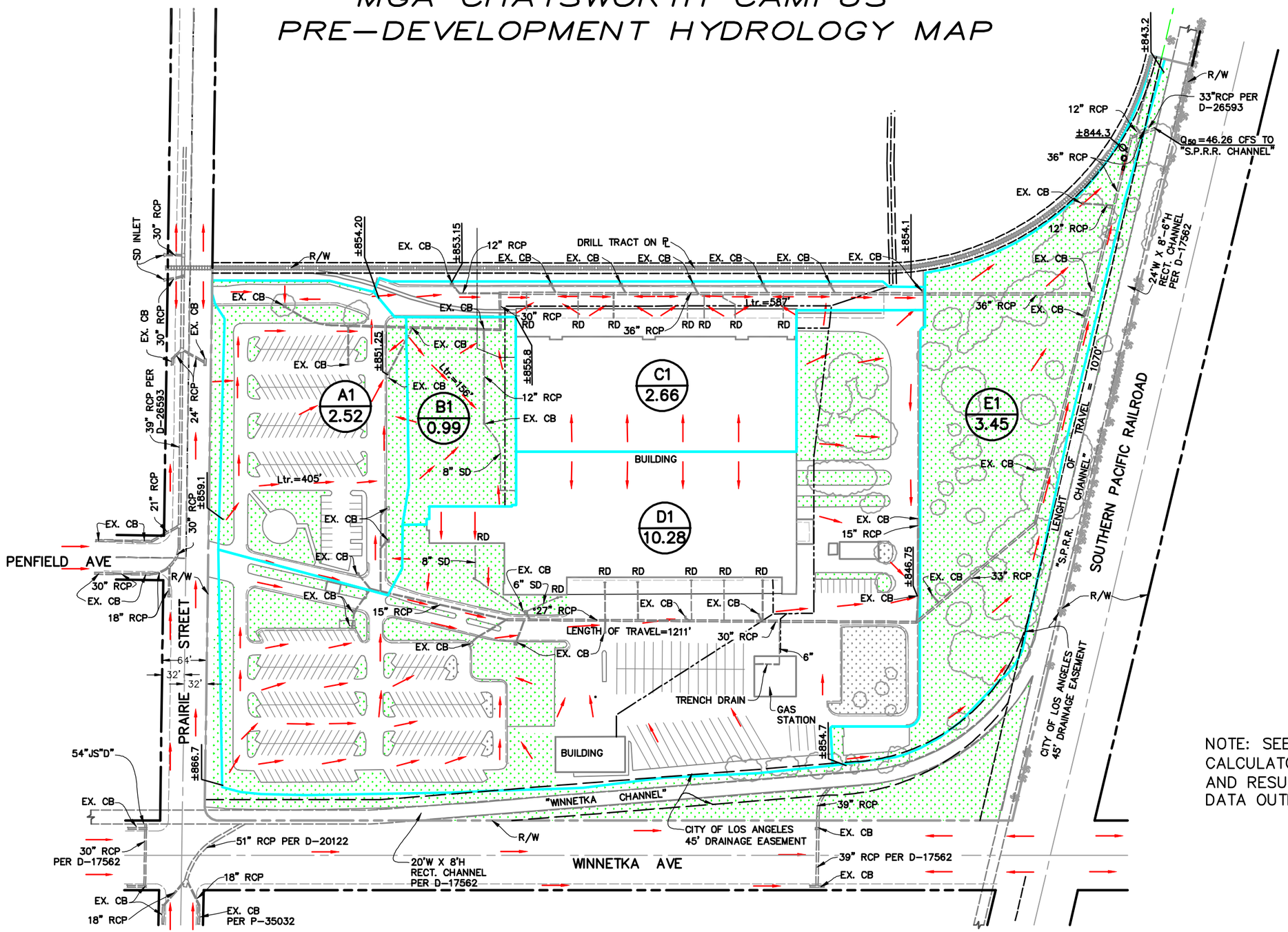
MGA CHATSWORTH CAMPUS
PRE–DEVELOPMENT HYDROLOGY MAP



LEGEND:

- A1 / 5.05 ← SUBAREA / ACREAGE
- FLOW DIRECTION
- SUBAREA DRAINAGE BOUNDARY
- LANDSCAPE AREA
- BUILDING, CONCRETE OR ASPHALT PAVEMENT
- R/W
- RD ROOF DRAIN
- EXISTING STORM DRAIN

Ltr. LENGTH OF TRAVEL

NOTE: SEE THE APPENDIX FOR THE TC CALCULATOR "TC–CALC–DEPTH.XLS" DATA AND RESULTS, "WMS" MODRAT ROUTING DATA OUTPUT AND HYDROGRAPH.

FIGURE II

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LOS ANGELES, CA, 90015
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MGA CHATSWORTH CAMPUS PRE–DEVELOPEMENT HYDROLOGY MAP

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Date:	11/20/2013
Scale:	AS SHOWN
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Checked:	
Sheet	1 of 1 Sheets

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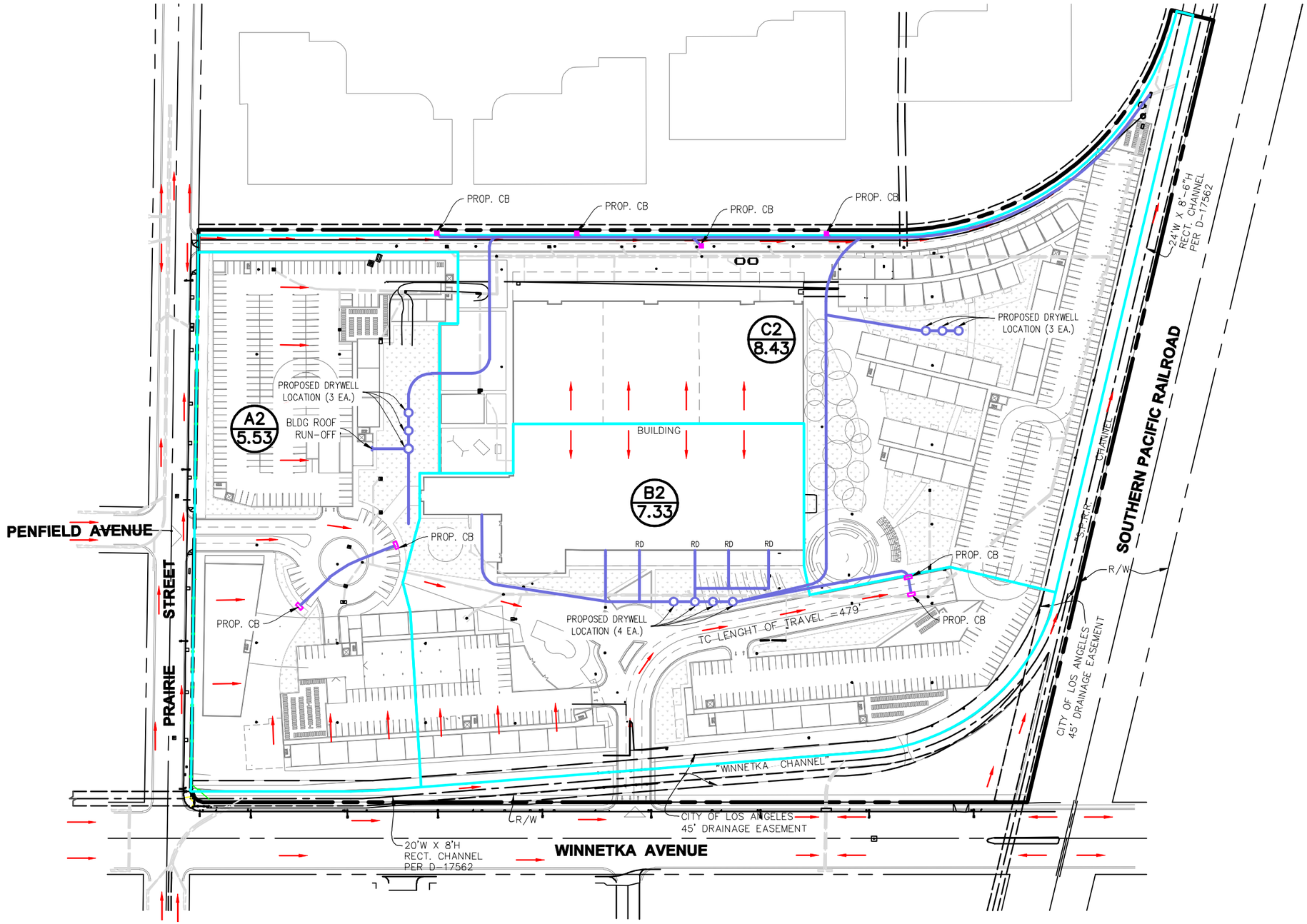
MGA CHATSWORTH CAMPUS
POST–DEVELOPMENT HYDROLOGY MAP



LEGEND:

- A1 / 5.05 — SUBAREA / ACREAGE
- FLOW DIRECTION
- SUBAREA DRAINAGE BOUNDARY
- LANDSCAPE AREA
- BUILDING, CONCRETE OR ASPHALT PAVEMENT
- R/W
- RD — ROOF DRAIN
- EXISTING STORM DRAIN
- PROPOSED CB
- PROPOSED CB
- PROPOSED STORM DRAIN
- PROPOSED DRYWELL UNIT

* Q_{50} TO BE REDUCED WITH THE INSTALLATION OF THE DRY WELL

150 0 150 300
scale 1"= 150' feet

FIGURE III

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MGA CHATSWORTH CAMPUS POST–DEVELOPEMENT HYDROLOGY MAP

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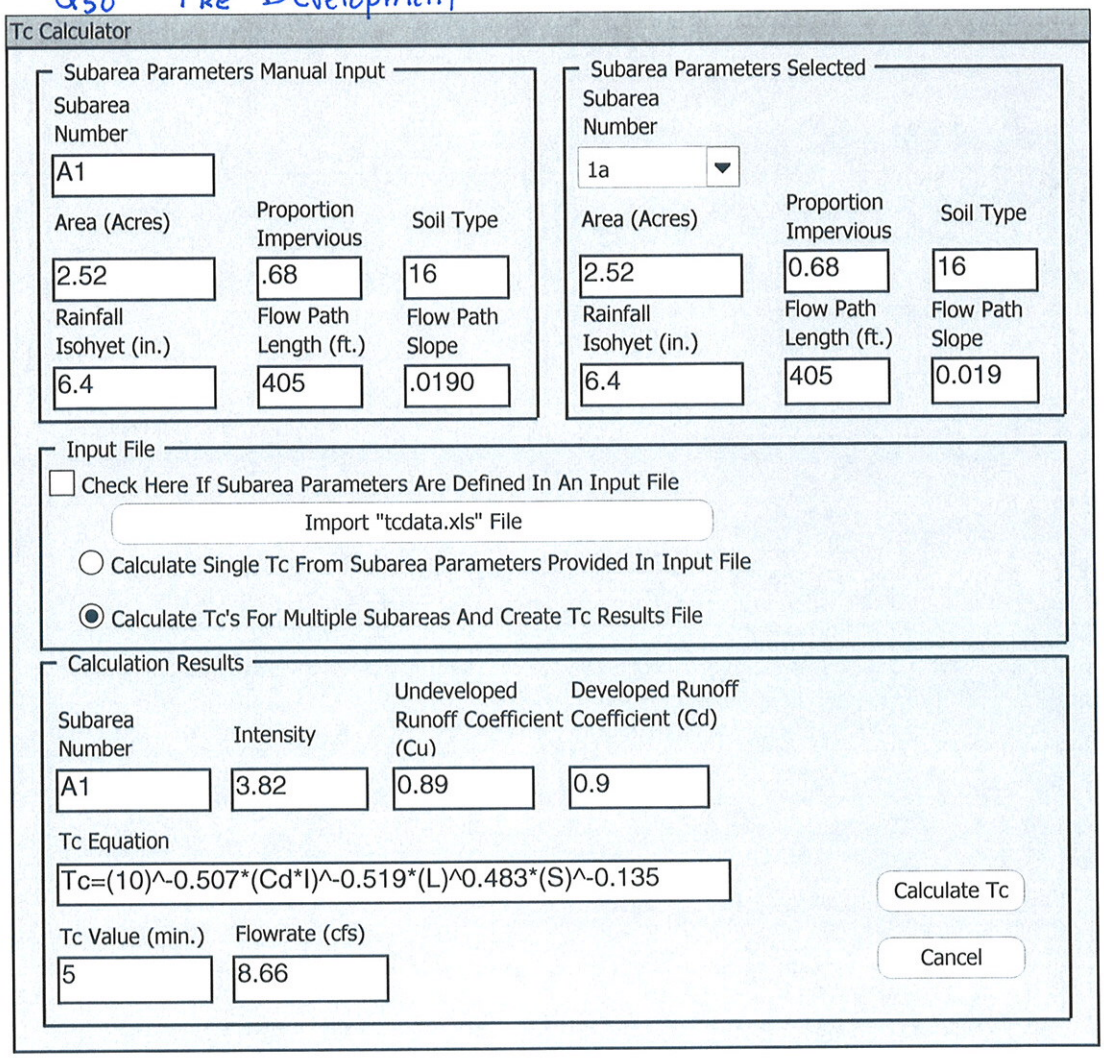
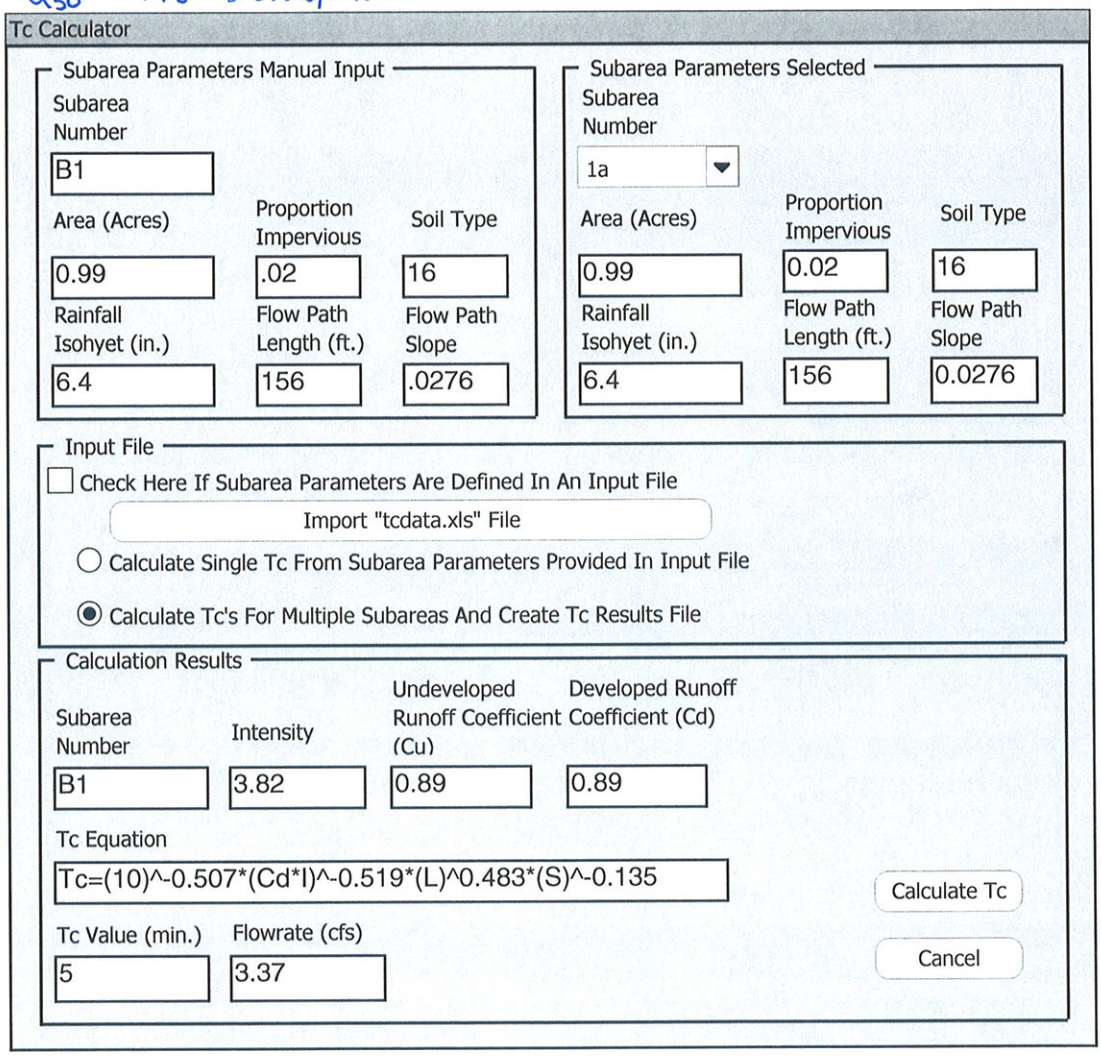
APPENDIX A

Q50 - Pre Development



Q_{50} - Pre Development



Q_{50} - Pre Development

Tc Calculator

Subarea Parameters Manual Input

Subarea Number	Area (Acres)	Proportion Impervious	Soil Type	Rainfall Isohyet (in.)	Flow Path Length (ft.)	Flow Path Slope
C1	2.66	0.95	16	6.4	587	.0029

Subarea Parameters Selected

Subarea Number	Area (Acres)	Proportion Impervious	Soil Type	Rainfall Isohyet (in.)	Flow Path Length (ft.)	Flow Path Slope
1a	2.66	0.95	16	6.4	587	0.0029

Input File

- ☐ Check Here If Subarea Parameters Are Defined In An Input File
- Import "tcdata.xls" File
- ○ Calculate Single Tc From Subarea Parameters Provided In Input File
- ◉ Calculate Tc's For Multiple Subareas And Create Tc Results File

Calculation Results

Subarea Number	Intensity	Undeveloped Runoff Coefficient (Cu)	Developed Runoff Coefficient (Cd)
C1	2.9	0.84	0.9

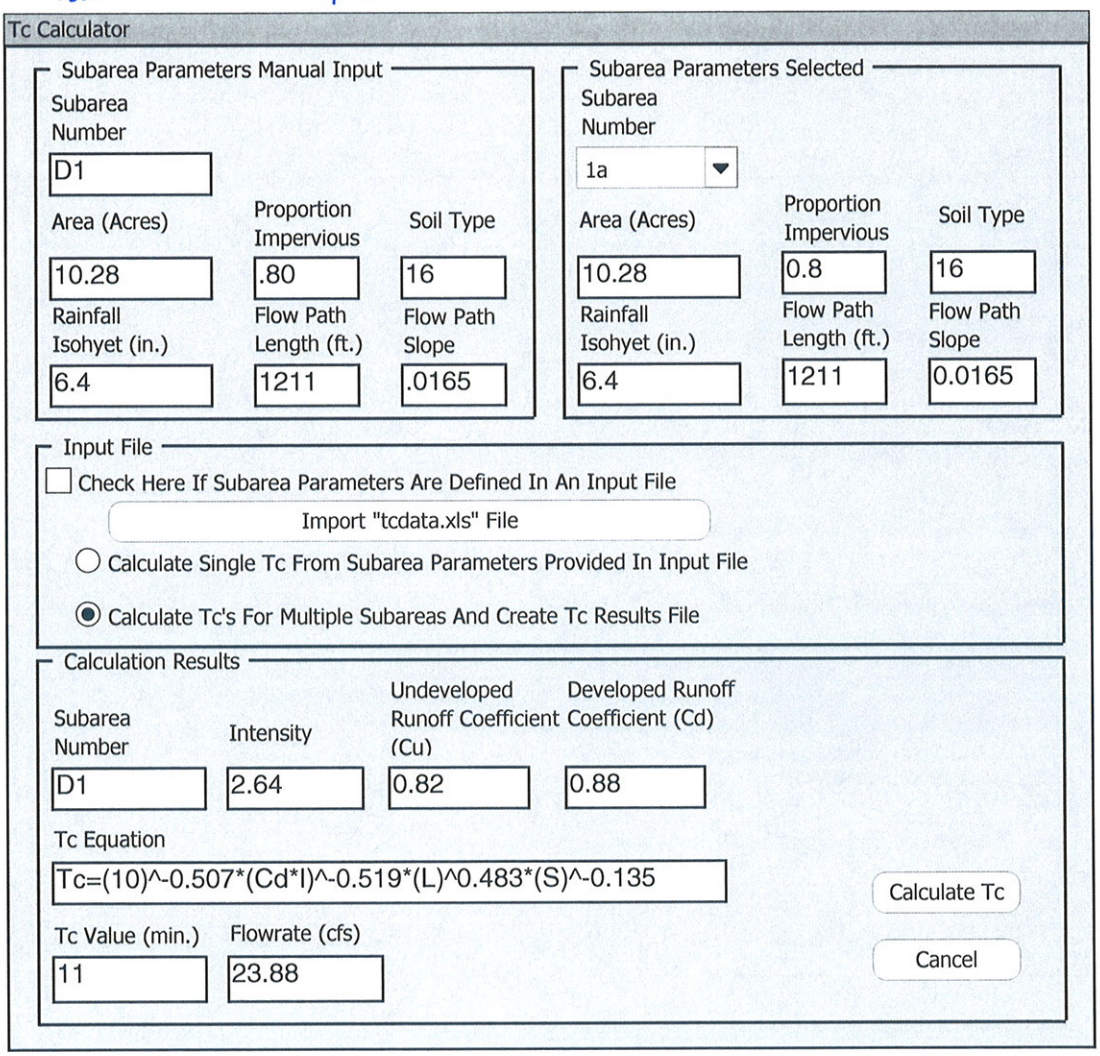
Tc Equation: Tc=(10)^-0.507*(Cd*I)^-0.519*(L)^0.483*(S)^-0.135

Calculate Tc

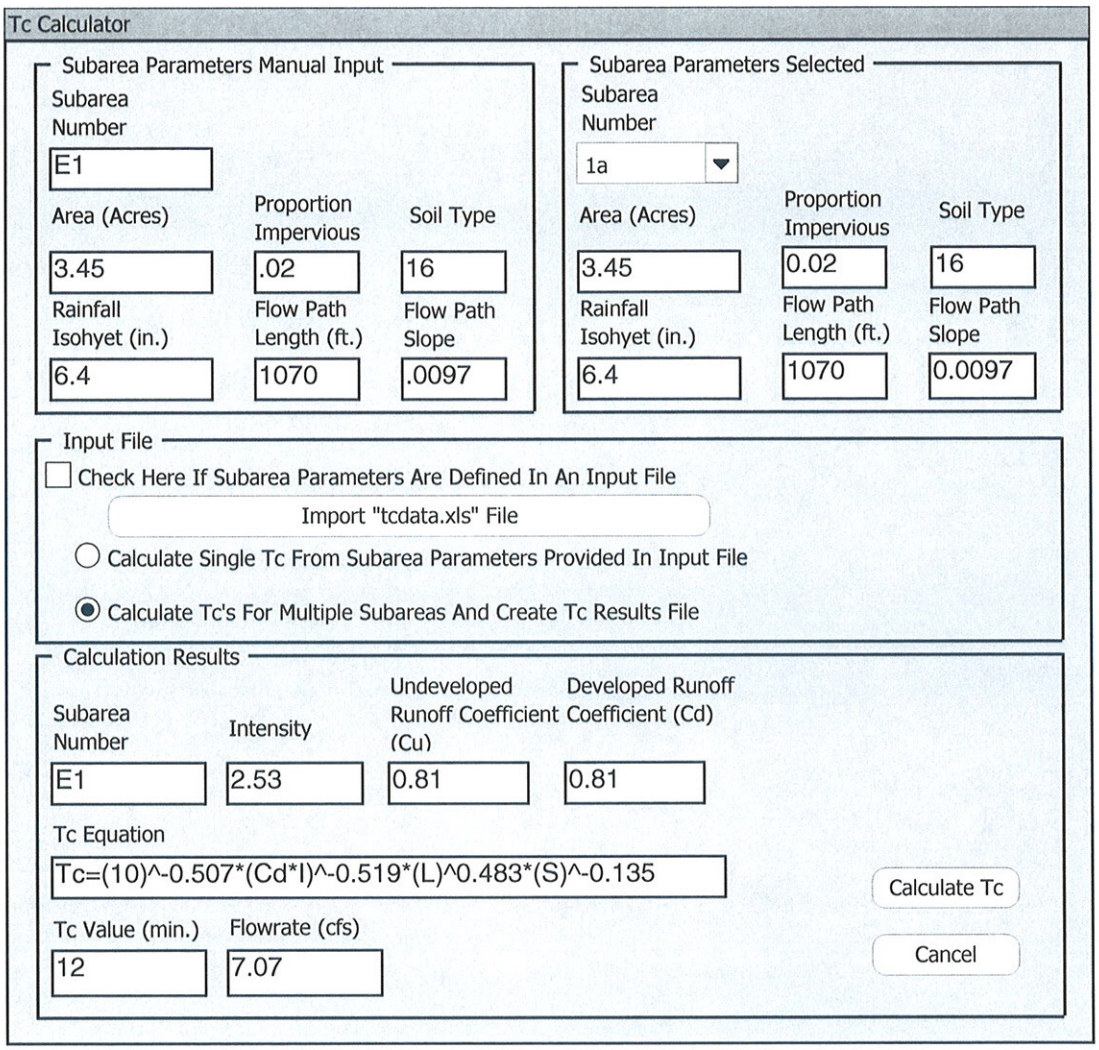
Cancel

Tc Value (min.)	Flowrate (cfs)
9	6.94

Q_{50} - Pre Development

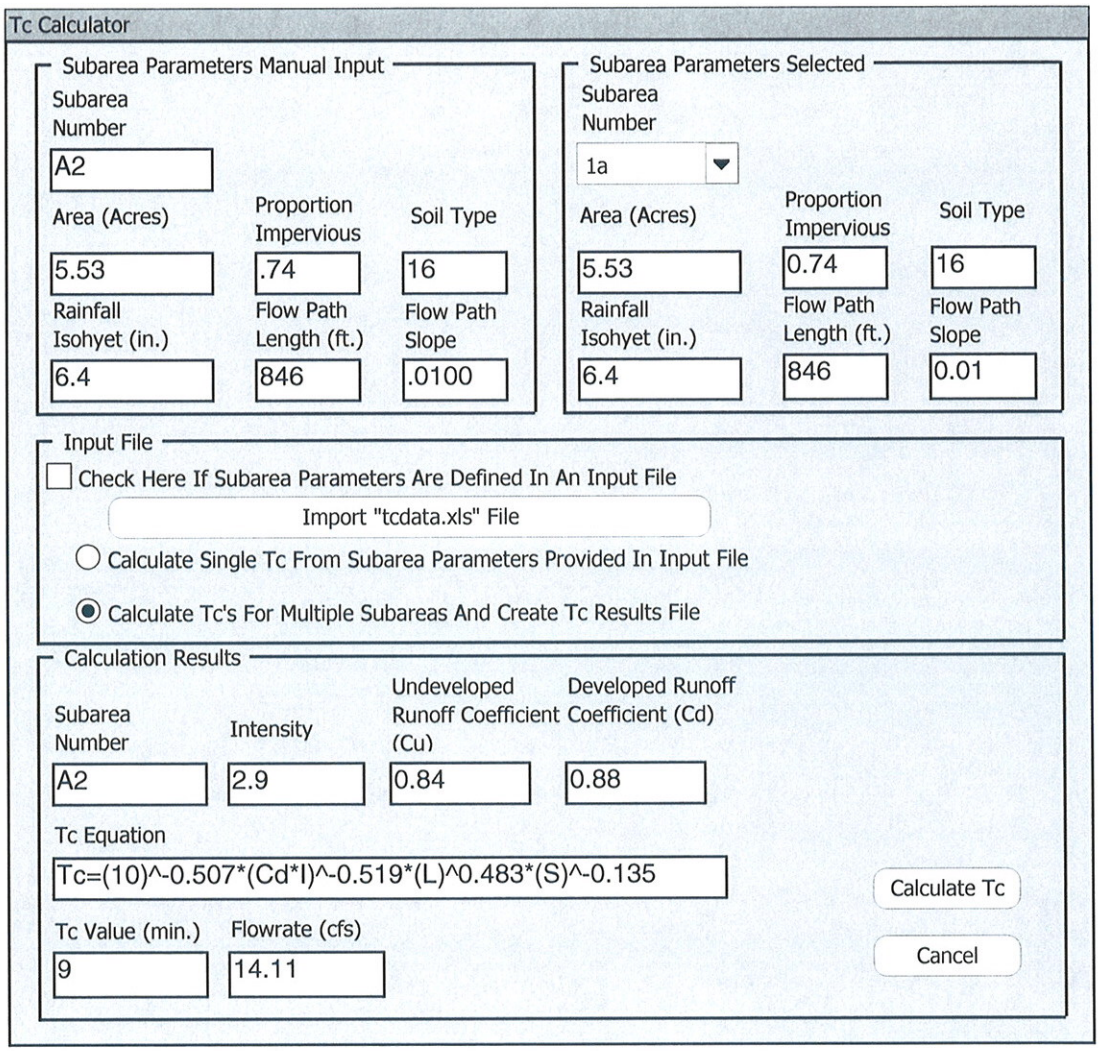


Q50 - Pre Development



APPENDIX B

Q_{50} - Post Development



Q50 - Post Development

Tc Calculator

Subarea Parameters Manual Input

Subarea Number	Area (Acres)	Proportion Impervious	Soil Type	Rainfall Isohyet (in.)	Flow Path Length (ft.)	Flow Path Slope
B2	7.33	.74	16	6.4	842	.0120

Subarea Parameters Selected

Subarea Number	Area (Acres)	Proportion Impervious	Soil Type	Rainfall Isohyet (in.)	Flow Path Length (ft.)	Flow Path Slope
1a	7.33	0.74	16	6.4	842	0.012

Input File

☐ Check Here If Subarea Parameters Are Defined In An Input File

Import "tcdata.xls" File

○ Calculate Single Tc From Subarea Parameters Provided In Input File

◉ Calculate Tc's For Multiple Subareas And Create Tc Results File

Calculation Results

Subarea Number	Intensity	Undeveloped Runoff Coefficient (Cu)	Developed Runoff Coefficient (Cd)
B2	2.9	0.84	0.88

Tc Equation

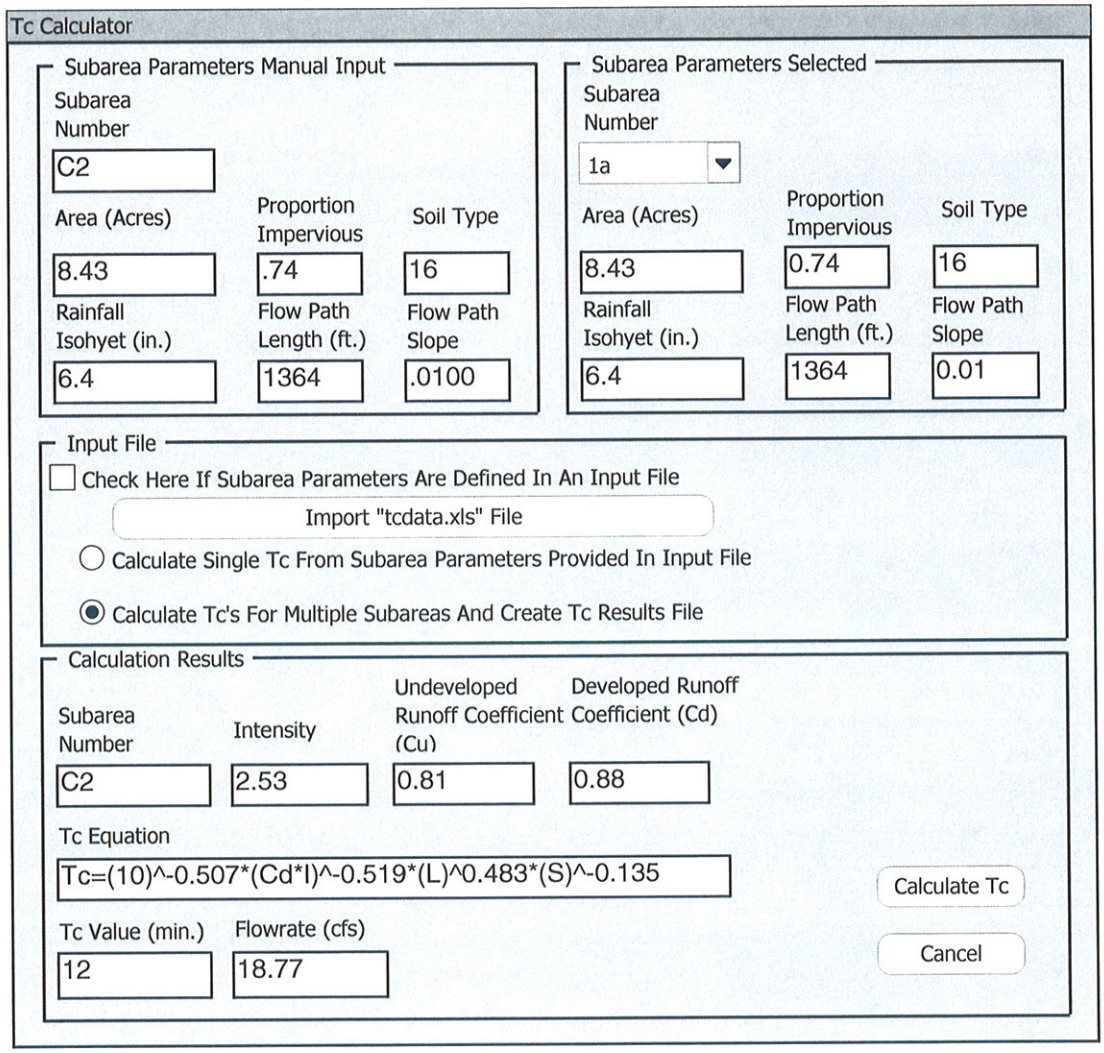
Tc=(10)^-0.507*(Cd*I)^-0.519*(L)^0.483*(S)^-0.135

Calculate Tc

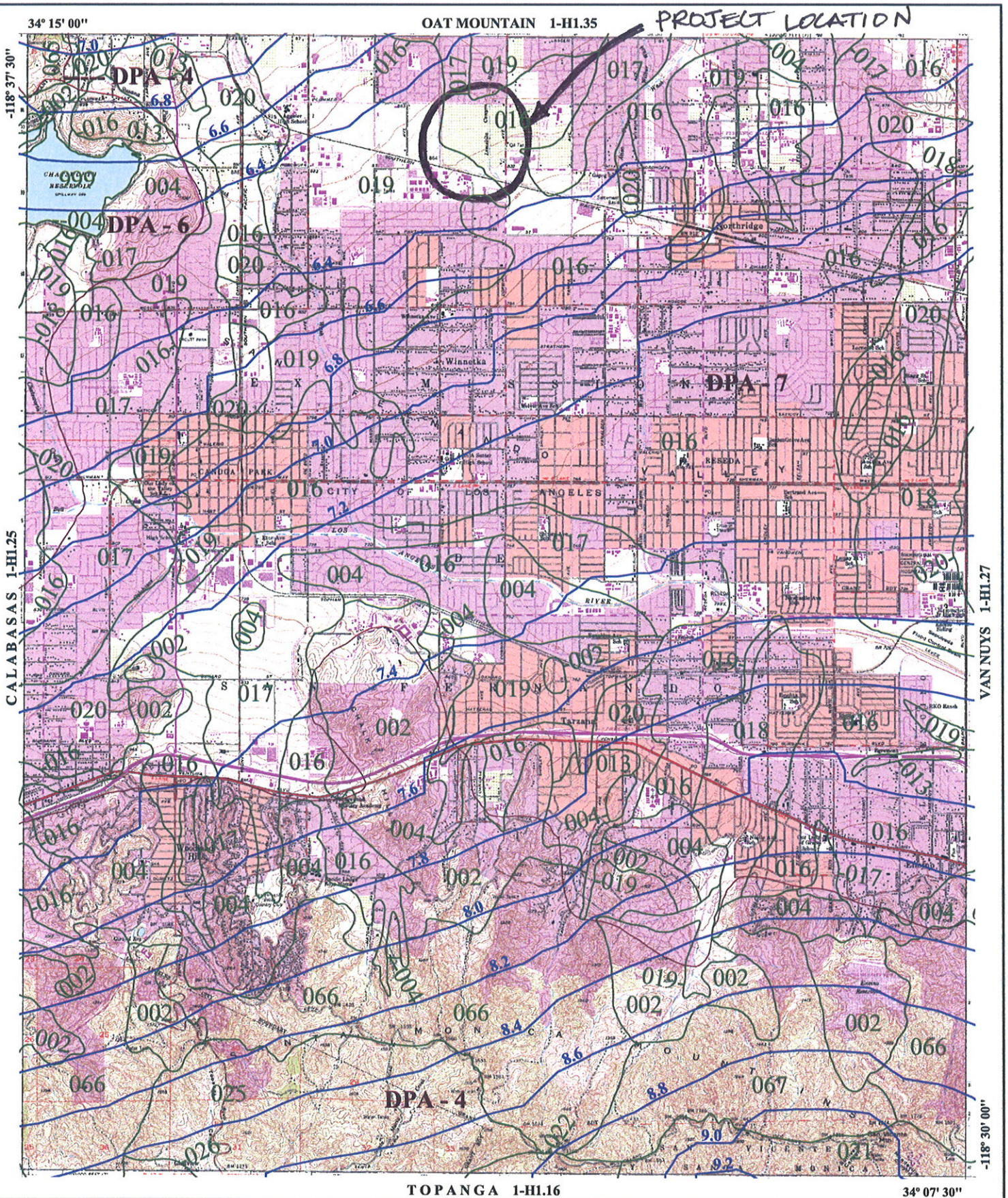
Cancel

Tc Value (min.)	Flowrate (cfs)
9	18.71

Q_{50} - Post Development



ATTACHMENTS



016 SOIL CLASSIFICATION AREA

7.2 INCHES OF RAINFALL

DPA - 6 DEBRIS POTENTIAL AREA

1 0 1 2 Miles

25-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.878
10-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.714

CANOGA PARK
50-YEAR 24-HOUR ISOHYET

1-H1.26

LOS ANGELES COUNTY PUBLIC WORKS
Public Service That Works

Proportion Impervious Data

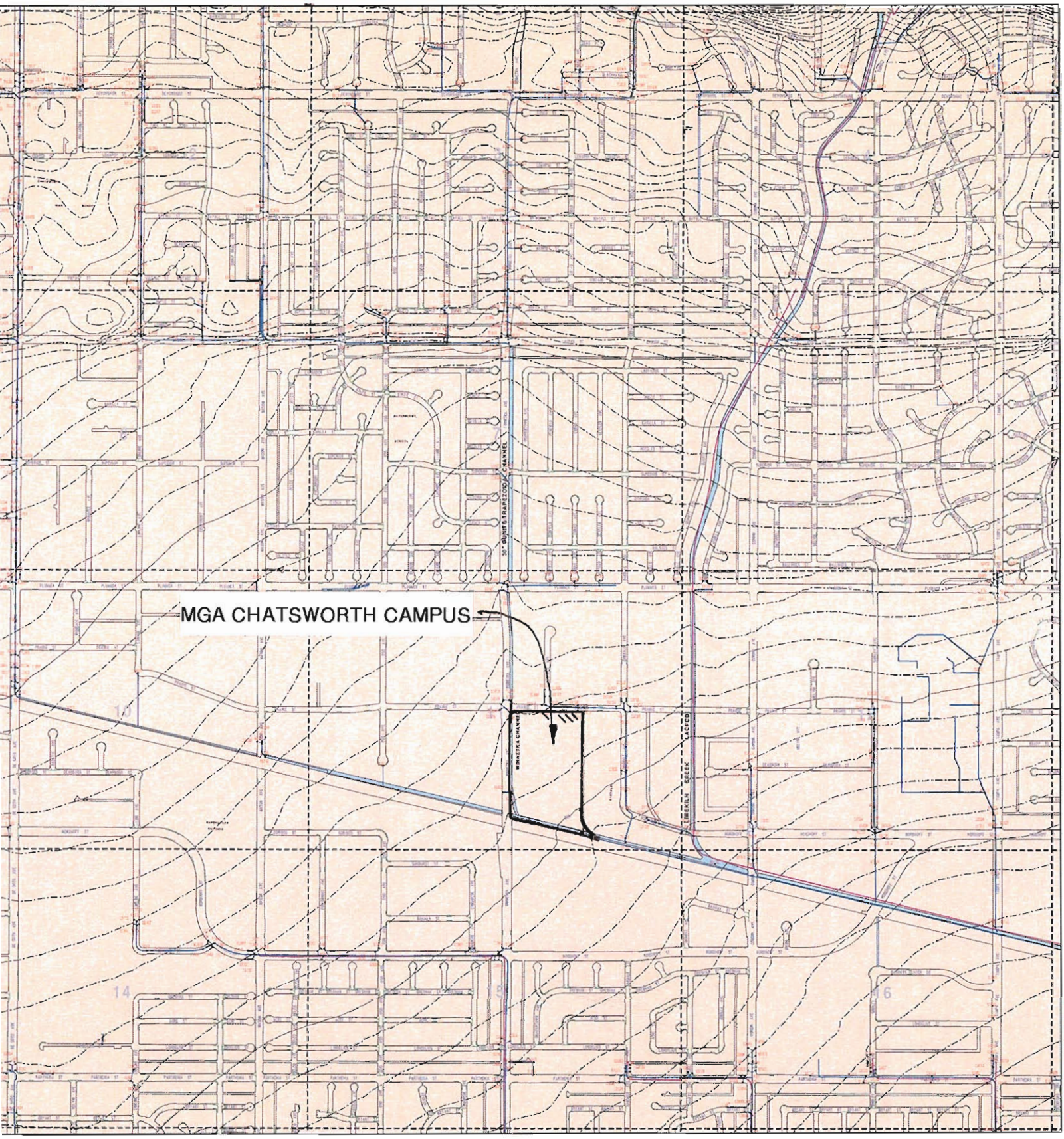
Code	Land Use Description	% Impervious
1111	High-Density Single Family Residential	42
1112	Low-Density Single Family Residential	21
1121	Mixed Multi-Family Residential	74
1122	Duplexes, Triplexes and 2-or 3-Unit Condominiums and Townhouses	55
1123	Low-Rise Apartments, Condominiums, and Townhouses	86
1124	Medium-Rise Apartments and Condominiums	86
1125	High-Rise Apartments and Condominiums	90
1131	Trailer Parks and Mobile Home Courts, High-Density	91
1132	Mobile Home Courts and Subdivisions, Low-Density	42
1140	Mixed Residential	59
1151	Rural Residential, High-Density	15
1152	Rural Residential, Low-Density	10
1211	Low- and Medium-Rise Major Office Use	91
1212	High-Rise Major Office Use	91
1213	Skyscrapers	91
1221	Regional Shopping Center	95
1222	Retail Centers (Non-Strip With Contiguous Interconnected Off-Street	96
1223	Modern Strip Development	96
1224	Older Strip Development	97
1231	Commercial Storage	90
1232	Commercial Recreation	90
1233	Hotels and Motels	96
1234	Attended Pay Public Parking Facilities	91
1241	Government Offices	91
1242	Police and Sheriff Stations	91
1243	Fire Stations	91
1244	Major Medical Health Care Facilities	74
1245	Religious Facilities	82
1246	Other Public Facilities	91
1247	Non-Attended Public Parking Facilities	91
1251	Correctional Facilities	91
1252	Special Care Facilities	74
1253	Other Special Use Facilities	86
1261	Pre-Schools/Day Care Centers	68
1262	Elementary Schools	82
1263	Junior or Intermediate High Schools	82
1264	Senior High Schools	82
1265	Colleges and Universities	47
1266	Trade Schools and Professional Training Facilities	91
1271	Base (Built-up Area)	65
1271.01	Base High-Density Single Family Residential	42
1271.02	Base Duplexes, Triplexes and 2-or 3-Unit Condominiums and T	55

Code	Land Use Description	% Impervious
1271.03	Base Government Offices	91
1271.04	Base Fire Stations	91
1271.05	Base Non-Attended Public Parking Facilities	91
1271.06	Base Air Field	45
1271.07	Base Petroleum Refining and Processing	91
1271.08	Base Mineral Extraction - Oil and Gas	10
1271.09	Base Harbor Facilities	91
1271.10	Base Navigation Aids	47
1271.11	Base Developed Local Parks and Recreation	10
1271.12	Base Vacant Undifferentiated	1
1272	Vacant Area	2
1273	Air Field	45
1274	Former Base (Built-up Area)	65
1275	Former Base Vacant Area	2
1276	Former Base Air Field	91
1311	Manufacturing, Assembly, and Industrial Services	91
1312	Motion Picture and Television Studio Lots	82
1313	Packing Houses and Grain Elevators	96
1314	Research and Development	91
1321	Manufacturing	91
1322	Petroleum Refining and Processing	91
1323	Open Storage	66
1324	Major Metal Processing	91
1325	Chemical Processing	91
1331	Mineral Extraction - Other Than Oil and Gas	10
1332	Mineral Extraction - Oil and Gas	10
1340	Wholesaling and Warehousing	91
1411	Airports	91
1411.01	Airstrip	10
1412	Railroads	15
1412.01	Railroads-Attended Pay Public Parking Facilities	91
1412.02	Railroads-Non-Attended Public Parking Facilities	91
1412.03	Railroads-Manufacturing, Assembly, and Industrial Services	91
1412.04	Railroads-Petroleum Refining and Processing	91
1412.05	Railroads-Open Storage	66
1412.06	Railroads-Truck Terminals	91
1413	Freeways and Major Roads	91
1414	Park-and-Ride Lots	91
1415	Bus Terminals and Yards	91
1416	Truck Terminals	91
1417	Harbor Facilities	91
1418	Navigation Aids	47
1420	Communication Facilities	82
1420.01	Communication Facilities-Antenna	2

Code	Land Use Description	% Impervious
1431	Electrical Power Facilities	47
1431.01	Electrical Power Facilities-Powerlines (Urban)	2
1431.02	Electrical Power Facilities-Powerlines (Rural)	1
1432	Solid Waste Disposal Facilities	15
1433	Liquid Waste Disposal Facilities	96
1434	Water Storage Facilities	91
1435	Natural Gas and Petroleum Facilities	91
1435.01	Natural Gas and Petroleum Facilities-Manufacturing, Assembly, and In	91
1435.02	Natural Gas and Petroleum Facilities-Petroleum Refining and Processing	91
1435.03	Natural Gas and Petroleum Facilities-Mineral Extraction – Oil and Gas	10
1435.04	Natural Gas and Petroleum Facilities-Vacant Undifferentiated	1
1436	Water Transfer Facilities	96
1437	Improved Flood Waterways and Structures	100
1440	Maintenance Yards	91
1450	Mixed Transportation	90
1460	Mixed Transportation and Utility	91
1460.01	Mixed Utility and Transportation-Improved Flood Waterways and Structures	100
1460.02	Mixed Utility and Transportation-Railroads	15
1460.03	Mixed Utility and Transportation-Freeways and Major Roads	91
1500	Mixed Commercial and Industrial	91
1600	Mixed Urban	89
1700	Under Construction (Use appropriate value)	91
1810	Golf Courses	3
1821	Developed Local Parks and Recreation	10
1822	Undeveloped Local Parks and Recreation	2
1831	Developed Regional Parks and Recreation	2
1832	Undeveloped Regional Parks and Recreation	1
1840	Cemeteries	10
1850	Wildlife Preserves and Sanctuaries	2
1850.01	Wildlife-Commercial Recreation	90
1850.02	Wildlife-Other Special Use Facilities	86
1850.03	Wildlife-Developed Local Parks and Recreation	10
1860	Specimen Gardens and Arboreta	15
1870	Beach Parks	10
1880	Other Open Space and Recreation	10
2110	Irrigated Cropland and Improved Pasture Land	2
2120	Non-Irrigated Cropland and Improved Pasture Land	2
2200	Orchards and Vineyards	2
2300	Nurseries	15
2400	Dairy, Intensive Livestock, and Associated Facilities	42
2500	Poultry Operations	62
2600	Other Agriculture	42
2700	Horse Ranches	42

Code	Land Use Description	% Impervious
3100	Vacant Undifferentiated	1
3200	Abandoned Orchards and Vineyards	2
3300	Vacant With Limited Improvements (Use appropriate value)	42
3400	Beaches (Vacant)	1
4100	Water, Undifferentiated	100
4200	Harbor Water Facilities	100
4300	Marina Water Facilities	100
4400	Water Within a Military Installation	100

(NEW) CITY OF LOS ANGELES DRAINAGE MAP NO 391



Drainage Map No. 391-Dmap

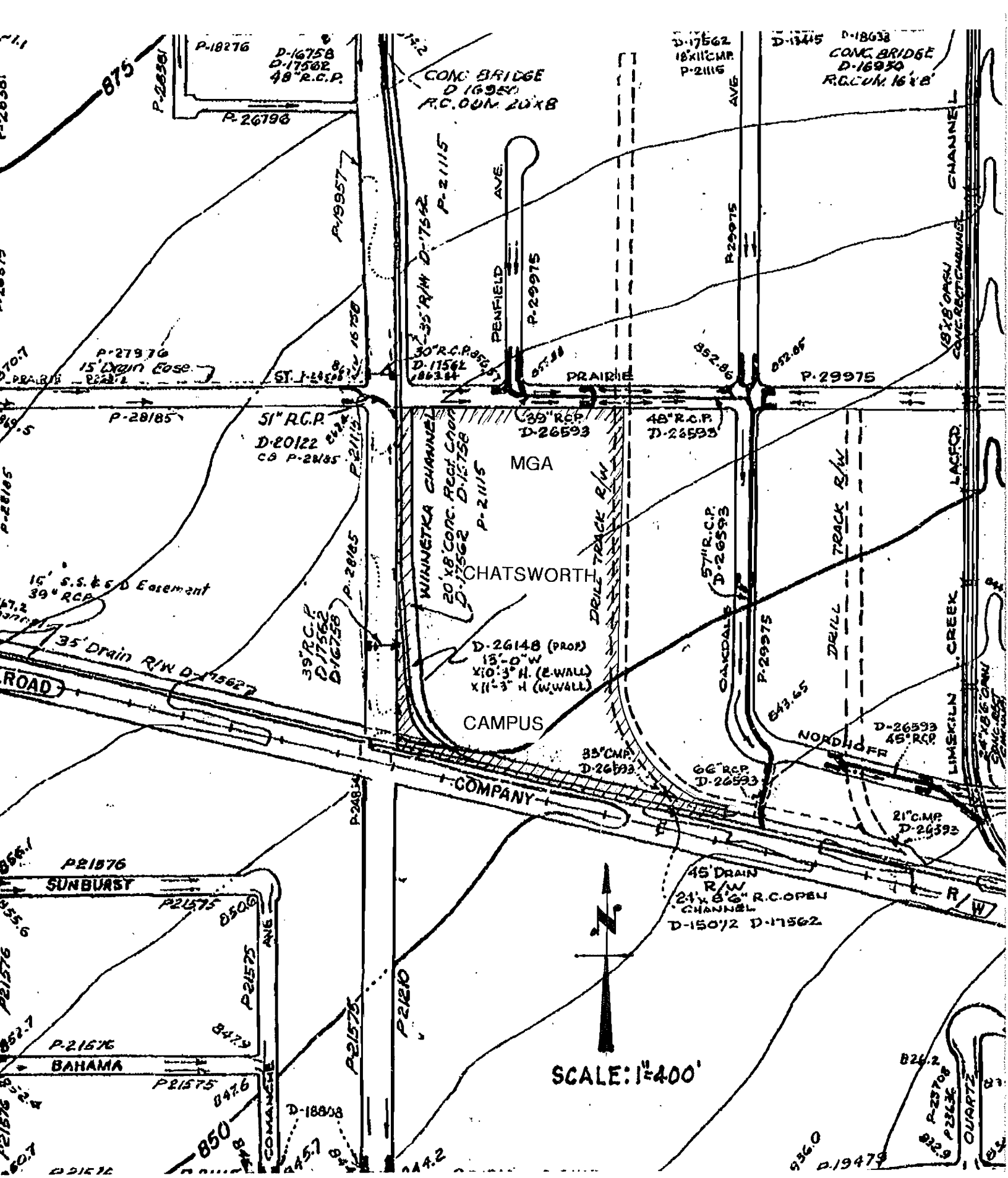
800 400 0 800 1600

Scale in feet

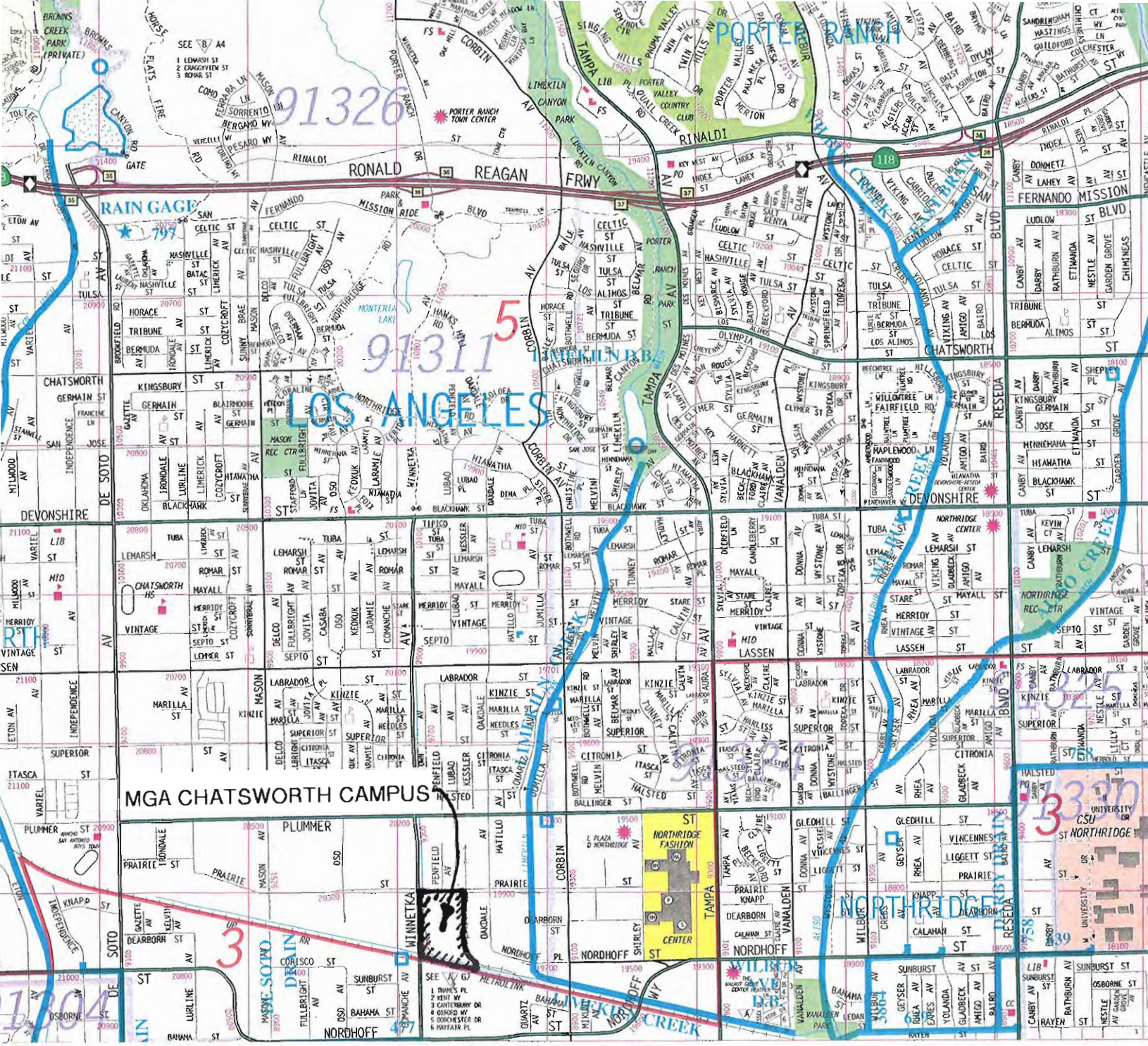
Contour Interval = 5 ft.

- Inlet
- Buildings and Cultural Features
- Coast/Stormwater channel
- City of Los Angeles
- Flow direction
- Intermediate countour
- Stormwater pipe
- Stormwater lateral
- Relief sewer
- Abandoned pipe
- Miscellaneous pipe
- Railroad
- Jetty
- Los Angeles City limit
- County Storm Drain

Primary Office: VALLEY



(OLD) CITY OF LOS ANGELES DRAINAGE MAP NO 391



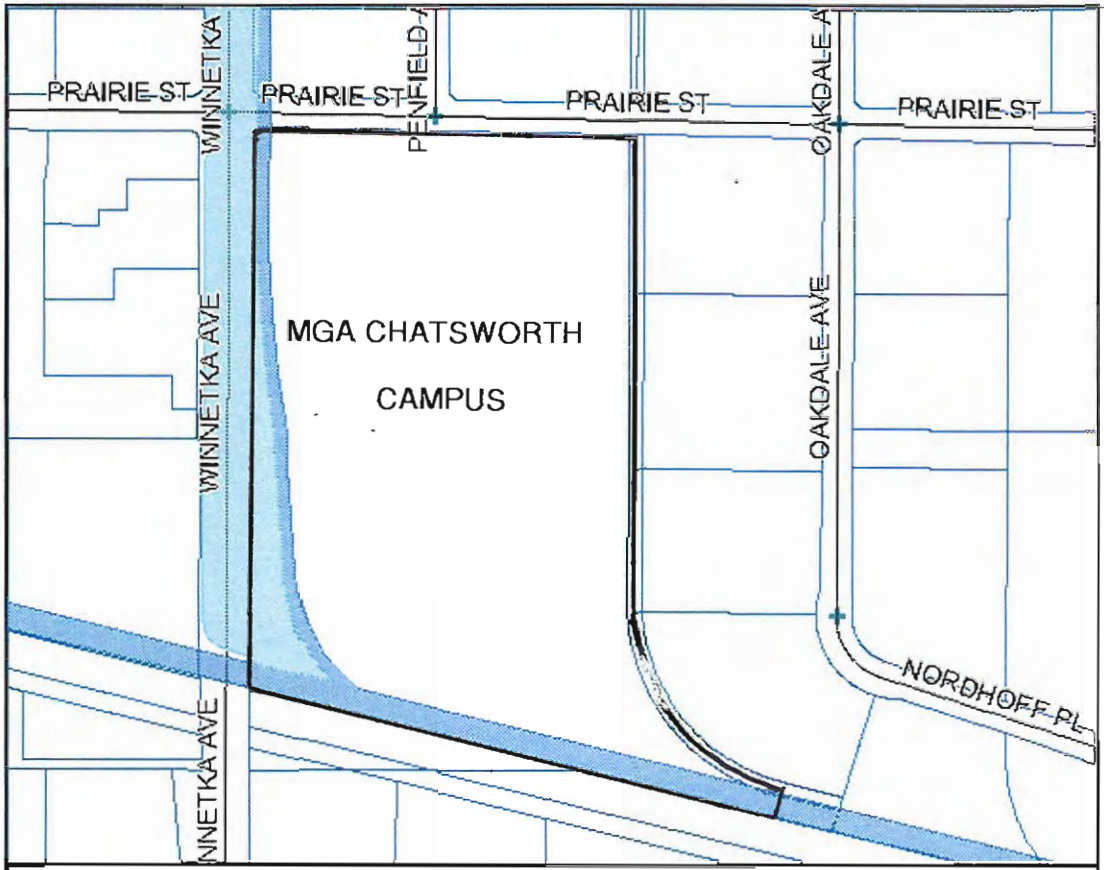
NTS

LACDPW STORM DRAIN FACILITIES

FloodLA
City of Los Angeles
Bureau of Engineering
DEPARTMENT OF PUBLIC WORKS

Flood Zone Information Map

LA CITY ENGINEERING
Serving the Present, Designing for Future...



EXPLANATION OF ZONE DESIGNATION

	SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD
A	Areas of 100-year flood; no base flood elevations determined.
AE	Areas of 100-year flood; base flood elevations determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet (usually areas of ponding); base flood elevations are shown.
AO	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet (usually sheetflow on sloping terrain); average depths of inundation are shown.
AO(AF)	Areas of 100-year alluvial fan flooding; average depths of inundation are shown.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A1-A30(FW)	Floodway areas.
VE	Areas of 100-year coastal flood with velocity hazard (wave action); base flood elevations determined.
V1-V30	Areas of 100-year coastal flood with velocity hazard (wave action); base flood elevations and flood hazard factors determined.
	500-YEAR FLOOD AREAS
B or X	Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas of less than 1 square mile; and areas protected by levees from 100-year flood.
	OTHER AREAS
C or X	Areas determined to be outside 500-year flood plain. Areas of minimal flooding.
D	Areas in which flood hazards are undetermined.

Base Flood Elevation Line With Elevation In Feet** ~~~513~~~

Base Flood Elevation In Feet Where Uniform Within Zone** (EL987)

Elevation Reference Mark RM7 x

River Mile M1.5

** Referenced to the National Geodetic Vertical Datum of 1929.

N
W E
S

APNs:

Addresses	20000 W PRAIRIE ST , 20001 W NORDHOFF PL , 20060 W PRAIRIE ST , 9200 N WINNETKA AVE , 9254 N WINNETKA AVE		
ZipCode	91311		
Council Dist	12	**Flood Depth**	Not Available
LOMR/LOMA		**Elevation**	Not Available
Flood Status	100 Yr	**FEMA Panel No**	060137 0018 C
Zone Type	B	**Effective Date**	12/02/1980

NOTES TO USER

Certain areas not in the special flood hazard areas (zones A and V) may be protected by flood control structures.

This map is for flood insurance purposes only; it does not necessary show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

City of Los Angeles, Stormwater program / Source: Federal Emergency Management Agency