ANNUAL REPORT

WATERMASTER SERVICE IN THE UPPER LOS ANGELES RIVER AREA (ULARA) LOS ANGELES COUNTY, CALIFORNIA

Re: City of Los Angeles vs. City of San Fernando, et al.
Superior Court Case No. 650079 - County Of Los Angeles

2019-20 WATER YEAR
OCTOBER 1, 2019 - SEPTEMBER 30, 2020

December 2021

ULARA

UPPER LOS ANGELES RIVER AREA WATERMASTER

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ULARA WATERMASTER
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December 2021

Copies of this report may be viewed and downloaded from the ULARA Watermaster website located at ULARAwatermaster.com

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FOREWORD

As Watermaster for the Court-adjudicated Upper Los Angeles River Area (ULARA), I am pleased to present the Annual Watermaster Report for Water Year (WY) 2019-20 (i.e., from October 1, 2019 through September 30, 2020). Please note that this Annual Watermaster Report is being submitted to the Court later than its anticipated May 2021 filing date. Due to the delayed receipt of data necessary for analysis, reporting, and timely finalization of the report, this current Annual Watermaster Report is being provided to the Court in August 2023. However, to avoid confusion with the submittal to the Court of forthcoming Annual Watermaster Report for WY 2020-21, this current report has been purposely dated December 2021. This report has been prepared by Watermaster staff and myself in general accordance with the provisions of the Final ULARA Judgment, dated January 26, 1979, in regard to the Court-defined water rights case of the Superior Court for the County of Los Angeles (i.e., *City of Los Angeles vs. City of San Fernando, et al, Case No. 650079*).

Described in this Annual Watermaster Report are the water rights of each Party in each of the four ULARA groundwater basins, along with the volume of groundwater in storage to the credit of each Party, as of October 1, 2020. Four distinct groundwater basins and their adjoining hill and mountain watershed areas comprise ULARA. From largest to smallest in surface area, these four groundwater basins are known as the San Fernando, Sylmar, Verdugo and Eagle Rock basins. Also provided herein for each of the four ULARA groundwater basins are basin-specific data regarding their respective boundaries, geologic conditions, water supply, groundwater extractions, changes in groundwater levels over time, estimated change in groundwater in storage, imported water use, recharge operations, and water quality for the current 2019-20 WY.

Annual precipitation in ULARA in WY 2019-20 was about average, but surface water deliveries to ULARA from the Los Angeles Aqueduct (LAA) were approximately 19% lower than those in WY 2018-19. The 2019-20 WY marks the fourth consecutive WY that groundwater extractions in the San Fernando Basin have been far below the long-term average annual groundwater extractions for this basin. This reduced groundwater production volume in WY 2019-20 is attributable primarily to reductions in pumping by LADWP in response to contamination that has primarily impacted the groundwater underlying the eastern portion of San Fernando Basin.

Current key challenges in ULARA continue to be: the accumulation of stored water credits in the San Fernando Basin; new and ongoing problems with contamination of groundwater

in the San Fernando, Verdugo and Sylmar basins; the need to remediate that groundwater contamination; the apparent ongoing decline in groundwater levels in Verdugo Basin; and the need to increase recharge into the local groundwater basins. This need for increased and ongoing recharge is particularly important for the eastern portion of the San Fernando Basin. The Parties continue to advance planning efforts and projects to help increase both centralized and distributed groundwater recharge in the ULARA basins, where feasible.

Groundwater contamination from volatile organic compounds (VOCs), hexavalent chromium (CrVI), and some other newly-emerging contaminants continues to be a serious problem for water supply in ULARA, but particularly in the eastern portion of the San Fernando Basin. The cities of Burbank, Glendale and Los Angeles continue to rely on the key regulatory agencies including the United States Environmental Protection Agency (USEPA), the California Department of Toxic Substances Control (DTSC) and the Regional Water Quality Control Board – Los Angeles (RWQCB-LA) to help further characterize and expedite the cleanup of the contaminated soils and groundwater within the eastern portion of the San Fernando Basin. Pumping of excessive concentrations of hexavalent chromium (CrVI) by certain municipal-supply wells and the current limitations of existing treatment facilities to treat those excessive concentrations continue to be problems in the eastern portion of the San Fernando Basin.

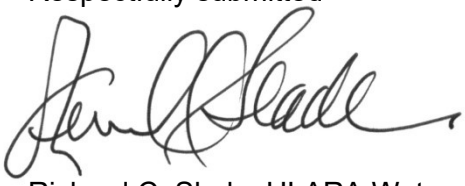
In the Sylmar Basin, nitrate concentrations have been increasing in recent years in certain water-supply wells operated by the City of San Fernando. The City of Los Angeles has also had wells that have been impacted by trichloroethylene (TCE) in this same basin. A number of other municipal-supply water wells have had to be removed from active service due to excessive concentrations of various contaminants in the Sylmar and Verdugo Basins, but these problems are greater and more widespread in the eastern portion of the San Fernando Basin.

To provide ongoing groundwater management within the four ULARA groundwater basins, the Watermaster and the Administrative Committee (i.e., representatives from the Parties to the Judgment: the cities of Burbank, Glendale, Los Angeles and San Fernando, and the Crescenta Valley Water District) continued to meet on a quarterly basis during the subject WY. The Watermaster also continued to provide updates on key ULARA issues at occasional status conferences with the Honorable Susan Bryant-Deason, Judge of the Los Angeles County Superior Court.

In accordance with the provisions of the California Sustainable Groundwater Management Act (SGMA), the Watermaster has continued to upload the required information from the Annual ULARA Watermaster reports to the SGMA Adjudicated Basins Reporting website. Summary Table 1-3 in this report is specifically formatted to include the information that is reported on the SGMA website and shows how those values are calculated using the data presented in the Annual Watermaster Report. The Watermaster also continues to attend California Department of Water Resources (DWR) workshops related to SGMA Adjudicated Basin reporting and has worked directly with DWR personnel on various issues on an as-needed basis.

For this Annual Watermaster Report, I want to acknowledge and personally thank the Watermaster Support Staff at LADWP for their continued efforts in creating many of the data tables, figures, and maps, as well as for conducting computer model simulations that continue to be vital to the preparation and submittal of this report to the Court. Among those at LADWP whose efforts continue to be particularly notable are Ms. Fatema Akhter, Mr. Hadi Jonny, Mr. Manuel Aguilar, and Mr. Rafael Villegas. I also want to Mr. Edward Linden of my office for his efforts in helping to prepare these reports, and thank the Assistant Watermaster, Mr. Anthony Hicke, for his ongoing efforts in preparing this report and participating in the quarterly meetings with the ULARA Administrative Committee.

Respectfully submitted



Richard C. Slade, ULARA Watermaster

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KEY ABBREVIATIONS

AF	Acre-feet
AFY	Acre-feet per Year
BOU	Burbank Operable Unit
BTEX	Benzene, Toluene, Ethylbenzene, and Total Xylene
Cal-EPA	California Environmental Protection Agency
CAO	Cleanup and Abatement Order
Cr	Chromium
CrIII	Trivalent chromium
CrVI	Hexavalent chromium
CVWD	Crescenta Valley Water District
DCA	Dichloroethane
1,1-DCE	1,1-Dichloroethene
cis-1,2-DCE	*cis*-1,2-Dichloroethene
DDW	California Division of Drinking Water, within the SWRCB
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
EIR	Environmental Impact Report
ERB	Eagle Rock Basin
EPA	Environmental Protection Agency (see also USEPA)
GAC	Granular Activated Carbon
GCOU	Glendale Chromium Operable Unit
GNOU	Glendale North Operable Unit
GOU	Glendale Operable Unit
GSE	Ground Surface Elevation
GSOU	Glendale South Operable Unit
gpm	Gallons Per Minute
IRA	Interim Remedial Action
IRAD	Interim Remedial Action Decision
ITT	ITT Aerospace Controls
IWMD	Industrial Waste Management Division
LAA	Los Angeles Aqueduct
LABOE	Los Angeles Bureau of Engineering
LACDPW	Los Angeles County Department of Public Works
LACFCD	Los Angeles County Flood Control District
LADWP	Los Angeles Department of Water and Power
LAFD	Los Angeles Fire Department
LASAN	Los Angeles Sanitation & Environment
LVMWD	Las Virgenes Municipal Water District
LID	Low Impact Development (formerly known as SUSMP)
MCL	Maximum Contaminant Level
mg/L	Milligrams per Liter, same as parts per million
MTA	Metropolitan Transportation Authority
MWD	Metropolitan Water District of Southern California
NCP	National Contingency Plan
NHW	North Hollywood West
NHOU	North Hollywood Operable Unit
NO_3	Nitrate
OEHHA	Office of Environmental Health Hazard Assessment

OU	Operable Unit
PAC	Pacific Airmotive
PCB	Polychlorinated Biphenyl
PCE	Tetrachloroethene (Tetrachloroethylene, Perchloroethylene)
PFAS	Per- and polyfluoroalkyl substances
PHG	Public Health Goal
ppb	Parts per billion, same as micrograms per liter
ppm	Parts per million, same as milligrams per liter
PRP	Potentially responsible party
PSDS	Private Sewage Disposal Systems
RAP	Remedial Action Plan
RI	Remedial Investigation
RWQCB	Regional Water Quality Control Board
SGMA	Sustainable Groundwater Management Act
SFB	San Fernando Basin
SFGWBR	San Fernando Groundwater Basin Remediation
SO_4	Sulfate
SVE	Soil vapor extraction
SWRCB	State Water Resources Control Board
SWAT	Solid Waste Water Quality Assessment Test
1,1,1-TCA	1,1,1-Trichloroethane
TCE	Trichloroethene (Trichloroethylene)
TDS	Total Dissolved Solids
Tillman WRP	Donald C. Tillman Water Reclamation Plant
µg/L	Micrograms per Liter, same as parts per billion
ULARA	Upper Los Angeles River Area
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UV AOP	Ultraviolet Advanced Oxidation Process
VOC	Volatile Organic Compound
VPWTP	Glendale-Verdugo Park Water Treatment Plant
WRP	Water Reclamation Plant
WY	Water Year (Oct 1 of one year through Sept 30 of the following year)

WATER EQUIVALENTS

Volume

1 gallon (gal)*	= 3.7854 liters (L)	= 231** cubic inches (in^3)
	= 0.0037854 cubic meters (m^3)	= 0.13368 cubic feet (ft^3)
100 cubic feet (HCF)***	= 748.05 gallons (gal)	= 2.8317 cubic meters (m^3)
	= 2,831.7 liters (L)	= 3.7037 cubic yards (yd^3)
	= 6,236.6 pounds (lbs) (fresh water at 60°F)	= 2,828.9 kilograms (kg) (fresh water at 60°F)
1 acre-foot (AF)****	= 43,560** cubic feet (ft^3)	= 1,233.5 cubic meters (m^3)
	= 325,850 gallons (gal)	= 1,233,500 liters (L)
	= the approximate amount of water used by two families for one year.	

Flow

1 cubic foot per second (cfs)	= 448.83 gallons per minute (gpm)	= 0.028317 cubic meters/sec (m^3/s)
	= 646,320 gallons per day (gpd)	= 1.6990 cubic meters/min (m^3/min)
	= 1.9835 acre-feet/day (AF/day)	= 2,446.6 cubic meters/day (m^3/day)
1,000 gallons per minute (gpm)	= 2.2280 cubic feet per second (cfs)	= 0.063090 cubic meters/sec (m^3/s)
	= 4.4192 acre-feet/day (AF/day)	= 5,451.0 cubic meters/day (m^3/day)
	= 1,613.0 acre-feet/year (AFY)	= 1,989,600 cubic meters/year (m^3/yr)
1 million gallons per day (mgd)	= 3.0689 acre-feet/day (AF/day)	= 3,785.4 cubic meters/day (m^3/day)
	= 1,120.1 acre-feet/year (AFY)	= 1,381,700 cubic meters/yr (m^3/yr)

Concentration

1 milligram per liter (mg/L)	= 1 part per million (ppm)
1 milligram per liter (mg/L)	= 1,000 micrograms per liter (µg/L)
1 microgram per liter (µg/L)	= 1 part per billion (ppb)
1 part per million (ppm)	= 1,000 parts per billion (ppb)

* U.S. gallons

** Exact Value

*** HCF is a common billing unit used by municipal water purveyors.

**** An acre-foot of water covers one acre of land to a depth of one foot.

1 INTRODUCTION

1.1 BACKGROUND

The Court-adjudicated Upper Los Angeles River Area (ULARA) encompasses the entire hill and mountain watershed and the topographically-lower and intervening valley floor areas of the Los Angeles River and its tributaries upstream and to the north of a runoff gage in the river designated by the Los Angeles County Department of Public Works (LACDPW) as Gaging Station (Gage) F-57C-R; this gage lies along the Los Angeles River, just north of the River's confluence with the Arroyo Seco (see Plate 1, "ULARA Location Map"). The entire ULARA region encompasses a total of approximately 328,500 acres of hill and mountain areas and intervening valley fill areas. Approximately 122,800 acres of the total ULARA area represent the valley fill areas that form the four groundwater basins, whereas the remaining 205,700 acres are comprised by the tributary hills and mountains in the watershed that surround these groundwater basins. ULARA is bordered on the north and northwest by the Santa Susana Mountains; on the north and northeast by the San Gabriel Mountains; on the east by the San Rafael Hills; on the west by the Simi Hills and Chatsworth Hills; and on the south by the Santa Monica Mountains.

Four distinct groundwater basins were defined within the valley fill areas by the ULARA Judgment of 1979; these include, from largest to smallest, the San Fernando, Sylmar, Verdugo and Eagle Rock basins (refer to Plate 1). The groundwater reservoir comprising each of these groundwater basins is essentially separated from the others. Each basin is considered to be replenished (recharged) by deep percolation from direct rainfall, infiltration of surface water runoff, and infiltration of excess irrigation of a portion of the water that is delivered for use within these basins. Artificial recharge is also practiced in spreading basins in the eastern portion of the San Fernando Basin via the use of excess rainfall and runoff when available, and also with imported water.

Within the four ULARA groundwater basins, the potentially water-bearing sediments are comprised by various young and old alluvial fan-type deposits. In the San Fernando and Sylmar basins, the potentially water-bearing sediments also include various strata that are assigned to the Saugus Formation. This formation is considered to underlie all geologically younger and older alluvial fan-type deposits within these two groundwater basins.

Exposed at ground surface in all of the topographically-elevated hill and mountain watershed areas of ULARA, and also known to directly underlie all potentially water-bearing sediments (including the Saugus Formation, where present) beneath the four ULARA groundwater basins, are geologically older sedimentary rocks (i.e., sedimentary bedrock) and even older crystalline, metamorphic and igneous rocks (i.e., crystalline basement rock). These geologically older rocks are either well-lithified, cemented, and/or crystalline in nature. As such, they are considered to possess only secondary porosity; their permeability is low to very low. Because of their lithified and/or cemented and/or crystalline character, these rocks do not contain groundwater in their interstices (i.e., the pore spaces) between the individual sand or gravel grains (as occurs in the potentially water-bearing deposits), but rather the groundwater is contained solely within fractures, joints, and/or along bedding planes in these types of rocks. Hence, the groundwater storage capacity of these rocks is low, and their long-term sustainable yield is unpredictable. As a result, only limited quantities of groundwater can be yielded to wells from these older rocks. As a result, all of these geologically older rocks are classified as nonwater-bearing for municipal-supply purposes in ULARA, and none of these older sedimentary or crystalline rocks are considered part of the four groundwater basins within ULARA.

More detailed descriptions of each of the four ULARA groundwater basis are available at the ULARA Watermaster website, ULARAwatermaster.com.

1.2 BRIEF HISTORY OF ADJUDICATION

A detailed history of the ULARA adjudication is provided on the ULARA Watermaster website ULARAwatermaster.com. Digital versions of various legal documents that were a part of the adjudication process are also available for download on that website. A basic summary of key milestones for the ULARA Judgment is provided below.

On September 30, 1955, the City of Los Angeles filed an action in Los Angeles Superior Court against the cities of San Fernando, Glendale and Burbank, the Crescenta Valley Water District, and several other defendants to: (1) quiet its title and obtain a declaration of its prior rights to the water underlying the ULARA; and (2) enjoin the defendants from extracting such water other than in subordination to its prior rights (*The City of Los Angeles v. City of San Fernando*, Los Angeles Superior Court Case No. 650079.)

The Superior Court appointed the State Water Rights Board as a referee in the action and directed it to investigate, find, and report upon certain physical facts of the ULARA. The

State Water Rights Board adopted its Report of Referee and the resulting two-volume document is dated July 27, 1962.

The cities of Burbank, Glendale, Los Angeles and San Fernando, the Crescenta Valley Water District, and several private parties with smaller water claims proceeded to a bench trial on March 1, 1966. Numerous other defendants were eliminated from the case before trial by dismissal, disclaimer, default, or stipulated judgment. On March 15, 1968, following more than 181 trial days, the judge entered a judgment.

The City of Los Angeles appealed that judgment and, on May 12, 1975, the California Supreme Court, by unanimous opinion (14 Cal. 3d 199), reversed and remanded the case. The Supreme Court affirmed the City of Los Angeles' Pueblo Water Rights to the surface waters of the Los Angeles River and all groundwater in the San Fernando Basin (SFB) derived from precipitation within ULARA (infiltration of direct rainfall plus surface water runoff). It held that the City of Los Angeles' Pueblo Water Rights did not extend to and/or include the groundwater in the Sylmar, Verdugo or Eagle Rock basins; however, it found that all surface water runoff and groundwater underflows from these adjoining groundwater basins were part of the City of Los Angeles' Pueblo Water Rights.

As to imported water, the Supreme Court held that the City of Los Angeles had rights to all groundwater in the SFB that was derived from water the City imported from outside ULARA that was eventually spread or delivered within the SFB. The Supreme Court granted the cities of Burbank and Glendale similar rights based on water they imported from outside ULARA and delivered within SFB. Because the City of San Fernando was not a member of the Metropolitan Water District of Southern California (MWD) until the end of 1971 and because it had never imported any water from outside ULARA prior to 1971, it was given no return flow rights based on a March 22, 1984-dated stipulation between the cities of Los Angeles and San Fernando.

After trial on some remaining issues on remand, and pursuant to stipulations among the parties, the Superior Court entered the Final Judgment on January 26, 1979 and also issued Findings of Fact and Conclusions of Law that same day. This Judgment remains the governing document for ULARA.

The water rights set forth in the Judgment are generally consistent with the Supreme Court's opinion, except for a provision regarding the calculation of Import Return Credit. In 1978, the cities of Burbank, Glendale and Los Angeles agreed to use all delivered water, instead of only imported water, in the calculation of their Import Return Credit.

1.3 EXTRACTION RIGHTS

The extraction rights under the January 26, 1979 Final Judgment for the four ULARA groundwater basins and the separate August 26, 1983 (and subsequent) Sylmar Basin Stipulations are as follows:

1.3.1 San Fernando Groundwater Basin

Native Water

The City of Los Angeles has an exclusive right to extract and utilize all of the native safe yield water in the San Fernando Basin; refer to Plate 1A for the boundaries of this basin. This native safe yield, which was originally determined to be an average of 43,660 AFY, represents the Pueblo Water Right of the City of Los Angeles under the Final ULARA Judgment of 1979.

Import Return Water

The cities of, Burbank, Glendale and Los Angeles each have a right to extract the following amounts of groundwater from the SFB:

Burbank: 20.0 percent of all delivered water, including recycled water, to the valley fill lands of the SFB and all of its tributary hill and mountain areas.

Glendale: 20.0 percent of all delivered water, including recycled water, to the valley fill lands of the SFB and all of its tributary hill and mountain areas.

Los Angeles: 20.8 percent of all delivered water, including recycled water, to the valley fill lands of the SFB and all of its tributary hill and mountain areas.

Physical Solution Water

Several private entities have been granted limited entitlement to extract groundwater from the SFB, but each such entitlement is chargeable by the Watermaster to the rights of the respective Party; that specific private entity must then pay that Party for the resulting costs of the pumped water. Table 1-1, “Physical Solution Parties,” lists the various private pumping entities and their maximum physical solution pumping volumes per year.

Table 1-1 PHYSICAL SOLUTION PARTIES

Chargeable Party	Pumping Party	Allowable Pumping (acre-feet)
City of Burbank	Valhalla[1]	300
	Lockheed-Martin	25
City of Glendale	Forest Lawn	400
	Angelica Healthcare[2]	75
City of Los Angeles	City of Glendale	5,500
	City of Burbank	4,200
	Middle Ranch[3]	50
	Hallelujah Prayer Center[4]	60
	Van de Kamp[5]	120
	Toluca Lake	100
	Sportsmen's Lodge[6]	25
	Water Licenses	83

1. Valhalla began receiving recycled water from the City of Burbank in January 2016 and has since suspended its onsite groundwater pumping.
2. Angelica Healthcare no longer pumps its physical solution rights.
3. Well Nos. 5 & 8, and Springs 1 & 2 were sold to RJ's Property Management, and Well Nos. 6 & 7 were sold to Debra L. Cecil and Donald R. Cecil, effective February 2017. Well Nos. 3 & 4 were acquired by RJ's Property Management effective September 2018.
4. Formerly Hathaway-Sycamore Children's Home.
5. Van de Kamp has never pumped its physical solution right.
6. Sportsmen's Lodge well abandoned and destroyed in February 2020. That Party's successor also abandoned its ULARA physical solution extraction right in February 2020.

Stored Water

Each of the cities of Burbank, Glendale, and Los Angeles has a right in the SFB to store water and a right to extract equivalent amounts of groundwater from the SFB.

1.3.2 Sylmar Groundwater Basin

Native and Import Return Water

In August 1983, the original ULARA Watermaster (Mr. Melvin Blevins) reported to the Court, pursuant to Section 10.2 of the Judgment, that the Sylmar Basin was in a condition of overdraft. In response to that Watermaster's letter and a Minute Order of the Court, the cities of Los Angeles and San Fernando responded to the Court, agreeing with the Watermaster that a condition of overdraft existed in the Sylmar Basin at that time. The March 22, 1984 Stipulation of the Court (effective October 1, 1984) assigned the cities of Los Angeles and San Fernando equal rights to the then-current total safe yield value of 6,210 AFY for the Sylmar Basin (see basin boundaries on Plate 1B).

On July 16, 1996, the original Watermaster (Mr. Blevins) re-evaluated this safe yield value and established a temporary increase (for a 10-year period) in the safe yield of this basin from 6,210 AFY to 6,510 AFY. This temporary 10-year period ended on October 1, 2005, and triggered a re-evaluation of the safe yield of this basin by the then-current Watermaster (Mr. Mark Mackowski). That re-assessment work was once again performed using the same basic methodology as had been used previously by the former Watermaster (Mr. Blevins); this work was consistent with Section 8.2.10 of the Judgment. That re-assessment by the then-Watermaster (Mr. Mackowski) and by the special Consultant to the Watermaster (Mr. Blevins) resulted in a new Stipulation, which was approved by the Court on December 13, 2006. This updated safe yield assessment permitted a temporary increase in the safe yield of the Sylmar Basin to 6,810 AFY beginning October 1, 2006. That Stipulation also noted that the safe yield of the Sylmar Basin "shall be re-evaluated within 5 years after adoption of the Stipulation." The Court approved the new Stipulation after its hearing on December 13, 2006.

In 2012, the current Watermaster reassessed the safe yield of the Sylmar Basin using the same basic methodology used by two prior ULARA Watermasters (Mr. Blevins and Mr. Mackowski). That 2012-dated reassessment provided several conclusions, including: Sylmar Basin was not in a current state of overdraft; the new safe yield of this basin could be temporarily and conditionally increased to 7,140 acre feet per year (AFY) for the cities of Los Angeles and San Fernando (this value is to be divided equally between these two parties); and these pumping amounts could continue for the five subsequent Water Years of 2011-12 through 2015-16, unless in-progress data evaluation by the Watermaster were to reveal that Sylmar Basin is being adversely affected by the increased pumping by these Parties. The 2012-dated reassessment of the safe yield of Sylmar Basin by the current Watermaster was filed with the Court in June 2013.

In a Memorandum dated October 31, 2016, the current Watermaster once again reviewed newly-available data, including more recent water level records for local water wells, to assess the possible need for an updated safe yield assessment of the Sylmar Basin. Ultimately, and as stated in that Memorandum, it was the Watermaster's opinion "that overdraft is not occurring in this basin at this time," and that "the current safe yield value of 7,140 AFY for the Sylmar Basin shall remain in effect for the next five water years (WY 2016-17 through WY 2020-21), or until such time as the Watermaster may determine that a new/updated reassessment is called for, whichever comes first."

The only potentially active, but private, party with overlying rights within the Sylmar Basin is Santiago Estates, a successor to Meurer Engineering, M.H.C. Inc. Any future pumping by Santiago Estates would be deducted from the total safe yield of this basin and the cities of Los Angeles and San Fernando would then be permitted to equally divide the remainder of the current safe yield value of this basin. However, no deductions have been required since WY 1998-99, the last WY during which Santiago Estates pumped groundwater from the Sylmar Basin.

Stored Water

Each of the cities of Los Angeles and San Fernando has a right to store groundwater by in-lieu practices, and each also has a right to extract equivalent amounts of groundwater from the Sylmar Basin.

1.3.3 Verdugo Groundwater Basin

Native Water

The City of Glendale and the Crescenta Valley Water District (CVWD) have appropriative and prescriptive rights to extract 3,856 and 3,294 AFY of groundwater, respectively, from the Verdugo Basin (refer to Plate 1C for the boundaries of this basin).

Import Return Water

The City of Los Angeles may have a right to recapture its delivered (imported) water in the Verdugo Basin upon application to the Watermaster and on subsequent order after a hearing by the Court pursuant to Section 5.2.3.2 of the Judgment.

Stored Water

There are no storage rights for any party in the Verdugo Basin based on the Judgment.

1.3.4 Eagle Rock Groundwater Basin

Native Water

The Eagle Rock Basin has only a limited native safe yield. Plate 1D depicts the approximate boundaries of this small groundwater basin.

Imported Return Water

The City of Los Angeles delivers imported water to lands overlying the Eagle Rock Basin; return flow from this delivered water constitutes most of the safe yield of this basin. The

City of Los Angeles has the right to extract, or to allow to be extracted, the entire safe yield of this basin.

Physical Solution Water

DS Services of America, Inc. (formerly DS Waters and successor to Sparkletts and Deep Rock water companies) has a physical solution right to extract groundwater from the Eagle Rock Basin pursuant to a stipulation with the City of Los Angeles, and as provided for in Section 9.2.1 of the Judgment.

Stored Water

There are no storage rights for any party in the Eagle Rock Basin, based on the Judgment.

1.4 WATERMASTER SERVICE AND ADMINISTRATIVE COMMITTEE

In preparing this Annual Watermaster Report, the Watermaster support staff at LADWP continued to collect and record a large amount of information related to the water supply, water use, water disposal, groundwater levels, water quality, and the ownership and locations of any new water-supply wells within ULARA. All groundwater pumpers are required to report their extractions on a monthly basis to the Watermaster. This allows the Watermaster staff at LADWP and the Assistant Watermaster to update all required water production accounts on a monthly basis, from which the allowable pumping by each Party for the remainder of the year can be determined by the Watermaster.

Section 8.3 of the Judgment established an Administrative Committee for the purpose of advising the Watermaster in the administration of his duties. Table 1-2 shows the current, duly appointed members of the Committee.

Table 1-2: ULARA ADMINISTRATIVE COMMITTEE

AS OF APRIL 15, 2020	REPRESENTATIVE	ALTERNATE
CITY OF BURBANK	Richard Wilson *Committee Vice Chair*	Michael Thompson
CRESCENTA VALLEY WATER DISTRICT	David Gould	Nem Ochoa
CITY OF GLENDALE	Michael De Ghetto *Committee Chair*	Richard Ruyle
CITY OF LOS ANGELES	David Pettijohn	Rafael Villegas
CITY OF SAN FERNANDO	Martin Pastucha	Alex Mendez

The Watermaster may convene the Administrative Committee at any time in order to seek its advice, although meetings are typically held on a quarterly basis each year. The Watermaster met with the Administrative Committee on October 23, 2019; January 15, 2020; April 15, 2020; and July 22, 2020 in the 2019-20 WY. The April and July meetings held during this current water year were attended remotely in response to the ongoing COVID-19 pandemic, at the recommendation of public health officials. Each year the Administrative Committee is also responsible for reviewing and approving Drafts of the Annual Watermaster Report and the Groundwater Pumping and Spreading Plan prepared by the Watermaster.

On the date the Final ULARA Judgment was signed by the Court judge on January 26, 1979, a separate stipulation was filed in Superior Court, appointing Mr. Melvin L. Blevins of LADWP as the original ULARA Watermaster under the Judgment. On September 1, 2003, Mr. Mark G. Mackowski, also of LADWP, was appointed as the second ULARA Watermaster by the Superior Court, succeeding Mr. Blevins after his 24 years of service. On January 1, 2009, Mr. Richard C. Slade, Principal Groundwater Geologist for Richard C. Slade and Associates LLC, Consulting Groundwater Geologists, was appointed as the first completely independent ULARA Watermaster, thereby succeeding Mr. Mackowski after his 5 years of service.

1.5 SIGNIFICANT EVENTS THROUGH SEPTEMBER 2020

Below is a brief description of significant events that occurred within ULARA during the subject WY, i.e., October 1, 2019 through September 30, 2020.

1.5.1 San Fernando Groundwater Basin Remediation (SFGWBR) Efforts

LADWP undertook an extensive characterization and treatment master planning evaluation of its wellfields in the SFB from 2009 through 2015. This 6-year, $11.5 million study characterized groundwater quality and groundwater contamination in the eastern portion of the SFB. Twenty-six new monitoring wells were constructed and sampled in support of this groundwater characterization project at a cost of approximately $22 million. These new monitoring wells, along with a network of more than 70 existing water wells and monitoring wells, were used to monitor groundwater levels and to permit groundwater sampling and laboratory testing to further characterize groundwater quality. These sites continue to be sampled to gather additional groundwater data in the northeastern portion of the SFB, which historically contains the City's most productive wellfields, including:

- Tujunga

- North Hollywood West
- Rinaldi-Toluca
- North Hollywood East (offline due to high concentrations of contaminants)

LADWP plans to complete one or more response actions for each wellfield in substantial compliance with the National Contingency Plan (NCP). The NCP provides the organizational structure and procedures for responding to releases and threatened releases of hazardous substances, pollutants and contaminants.

LADWP has also begun evaluating potential response actions to restore the beneficial use of groundwater in the vicinity of its various wellfields. These efforts included performing studies, analyses, and other activities as required by the NCP to evaluate appropriate response actions. While additional work is required to evaluate the appropriate interim and final response actions for each area, one potential set of alternatives would consist of a series of the construction of local and centralized water treatment facilities to produce water for potable use.

The information that LADWP will evaluate includes an analysis of pumping rates and treatment capacity that would be appropriate to capture contaminant mass and to help restore the beneficial use of the aquifers in each wellfield. LADWP also plans to evaluate ways to minimize the volume of water that would require treatment by giving priority to wells with higher levels of contamination, thereby minimizing the potential for contamination to spread to other wells that currently do not produce water with contaminant concentrations that require treatment.

These LADWP analyses will also evaluate other approaches, such as in situ treatment (treating contamination in the ground), construction of new extraction wells, and the purchase of replacement water alternatives, among other options.

LADWP will initially focus on response actions within its most productive wellfields in the San Fernando Basin (North Hollywood West, Rinaldi-Toluca, and Tujunga wellfields), where the impact of contamination on the beneficial use of the pumped groundwater is most severe, and at its Pollock water supply wells that lie along the Los Angeles River, just north of the location where surface water and groundwater flow out of the SFB. The North Hollywood East wellfield would not be part of this approach because groundwater pumped by this wellfield would be addressed through targeted treatment to be implemented by potentially responsible parties (PRPs) under the oversight of USEPA.

1.5.2 North Hollywood West Wellfield Treatment Project

The North Hollywood West (NHW) wellfield has been impacted by 1,4-dioxane contamination emanating from industrial landfills. As part of LADWP's efforts to restore and maintain the beneficial uses of the SFB and meet other cleanup objectives, an Interim Remedial Action (IRA) for the NHW wellfield was approved by the LADWP Board of Commissioners on August 1, 2017 in the form of an Interim Remedial Action Decision (IRAD). A pump and treat interim alternative was approved and adopted by LADWP. Groundwater will be pumped to an above-ground treatment system designed to break down or remove the contaminants. The above-ground treatment system selected for NHW will contain an Ultraviolet Advanced Oxidation Process (UV AOP) to remediate the contaminants present in groundwater pumped by the NHW wellfield. Other parts of the treatment system will include sand separators, cartridge filters and granular activated carbon (GAC) vessels. In the Fall of 2017 construction of the wellhead treatment facilities at NHW were initiated, and LADWP anticipates that construction will be completed in March 2022.

1.5.3 Mission Wellfield Improvement Project

The purpose of the Mission Wellfield Improvement Project is to allow LADWP to rehabilitate and replace its deteriorating groundwater facilities in the Sylmar Basin. The project includes the construction of three new production wells, new monitoring wells, new piping and pump station upgrades, electrical upgrades, and new controls. Once completed, the project goals are to provide up to 3,077 AFY of potable groundwater supply for the first 15 years, and 2,477 AFY thereafter.

An application has been submitted to California Division of Drinking Water to permit the operation of Well No. 10, one of the three new LADWP production wells in Sylmar Basin. The other two new wells, Nos. 8 and 9, will not be operated due to very low production capacity and TCE concentrations which exceed the State Maximum Contamination Level (MCL) for this contaminant, respectively. The recently constructed on-site Chlorination Generation System has been permitted and is in operation. LADWP anticipates that Well No. 10 will become operational in early-2021.

Electrical upgrades that consist of a new industrial station, switch station and appurtenances to provide 34.5 kV power to the site, and the construction, including start-up and testing activities of the new Pump Station Motor Control Center, have been completed by LADWP. Commissioning of the Pump Station Motor Control Center is anticipated in early-2021.

1.5.4 Van Norman Complex Investigation

Two exploratory wells designated VN-EW-01 and VN-EW-02, were drilled on the LADWP Van Norman Complex property in 2015 to investigate the possible occurrence and quality of groundwater at depth (approximately 1,500 ft below ground surface) within the underlying Saugus Formation. Results of short-term aquifer testing of these two exploratory wells in 2015 and 2017 indicated significant potential production capacity. Long-term testing was recommended by LADWP staff to study the feasibility and viability of producing groundwater from the Saugus Formation for use as a local supply source and as an emergency supply source. To support execution of the long-term aquifer testing, the Van Norman Exploratory Wells Project was conducted under the Water System's Capital Improvement Program (CIP). CIP Projects follow the Water System's project delivery process from the initial conception through planning, design, construction, and post construction. As of December 2020 this Project is in the Design phase.

1.5.5 Water Recycling Programs in the San Fernando Valley

LADWP completed the Griffith Park South Water Recycling Project in June 2019. This project included 7,800 feet of new recycled water mainline, a 1,400 gpm pump station and a 1-million-gallon steel water storage tank. The new pipeline, pump station, and tank will extend the existing recycled water system in Griffith Park to reach Roosevelt Golf Course. LADWP reports that this project will provide 370 AFY of recycled water for irrigation at the Roosevelt Golf Course and future areas of expansion within Griffith Park. All 38 acres of Roosevelt Golf Course will now be irrigated with recycled water; this will use approximately 120 AFY of recycled water. Recycled water deliveries to the golf course started in July 2020.

LADWP reports that there were no other new LADWP recycled water service connections in the San Fernando Valley during WY 2019-20.

1.5.6 City of Los Angeles Groundwater Replenishment Project

LADWP, in partnership with the Los Angeles Bureau of Sanitation (LASAN), is moving forward in a phased approach with the construction of the Groundwater Replenishment Project. For the initial phase, recycled water from the Donald C. Tillman WRP (Tillman WRP) will be conveyed through an existing recycled water pipeline to the Hansen spreading grounds for replenishment of the San Fernando Basin. This phase includes an ozone demonstration component and construction of an equalization tank to balance diurnal flows. Ozone units, which were installed at the Tillman WRP in 2019, will demonstrate the water quality benefits of using ozone in combination with the natural

treatment process in the soil, which occurs when the waters percolate into the soils. In this phase, up to 10,000 AFY of recycled water will become part of the groundwater supply. LADWP anticipates that the initial phase will begin operations in mid-2021, pending issuance of the recycled water permit from the Regional Water Quality Control Board. Future phases are oriented to increase the amount of recycled water available for spreading and to construct advanced treatment at the Tillman WRP.

1.5.7 LADWP Stormwater Capture Program

1.5.7.1 Completed Centralized Stormwater Capture Projects

Centralized projects implemented to date have increased the amount of stormwater captured on an annual basis by an average of 10,600 AFY, according to LADWP. Below are examples of recently implemented centralized projects:

- Big Tujunga Dam Seismic Retrofit Project
- Sheldon-Arleta Gas Management
- Hansen Spreading Grounds Upgrade

1.5.7.2 Completed Distributed Stormwater Capture Projects

LADWP's distributed projects within the San Fernando Basin that have already been implemented are estimated to have increased the amount of captured stormwater by an average of 519 AFY, according to LADWP. Below are examples of recently implemented distributed projects in ULARA:

- Bradley Green Alley
- Elmer Avenue Neighborhood Green Street / Elmer Paseo Green Alley Stormwater Infiltration Projects
- Garvanza Park Stormwater Capture Use and Infiltration Project
- Glenoaks-Sunland Stormwater Infiltration Projects
- Laurel Canyon Boulevard Green Street Stormwater Infiltration Project
- Los Angeles Beautification Team Stormwater Capture Project
- Los Angeles Unified School District Conserving for Our Kids Program
- North Hollywood Alley Retrofit BMP Demonstration Project
- Sun Valley Economic Development Administration Public Improvement Project
- Sun Valley Park Stormwater Infiltration Project
- Van Nuys Boulevard Great Street
- Woodman Avenue Median Stormwater Infiltration Project

A summary of existing distributed stormwater capture projects and estimates prepared by each Party that shows the annual volume of stormwater captured in ULARA via these distributed projects is presented in Appendix F.

1.5.7.3 Future Centralized Stormwater Capture Projects

Within the next five years, LADWP also expects the following centralized projects to be implemented within ULARA. These projects will provide an estimated 19,899 AF annually of increased groundwater recharge to the SFB, according to LADWP. Below is a list of these future centralized projects:

- Bull Creek Pipeline
- David M Gonzales Recreation Center
- Fernangeles Park Stormwater Capture
- Pacoima Spreading Grounds Upgrade
- North Hollywood Park Stormwater Capture
- San Fernando Regional Park
- Silver Lake Stormwater Capture
- Strathern Park North Stormwater Capture
- Tujunga Spreading Grounds Upgrade
- Valley Plaza Park North
- Valley Village Park North Stormwater Capture
- Valley Village Park South Stormwater Capture
- Whitnall Highway Stormwater Capture

1.5.7.4 Future Distributed Stormwater Capture Projects

Within the next five years, LADWP expects the following distributed projects to be implemented. These projects will provide an estimated 451 AFY of increased groundwater recharge, according to LADWP. Below is a list of these future distributed projects:

- Agnes Ave - Vanowen to Kittridge
- Ben and Victory GSI
- Burbank Boulevard BMP
- Glenoaks-Filmore
- Lankershim Great Street
- San Fernando Gardens

- Victory-Goodland Median

1.5.8 Crescenta Valley County Park Stormwater Recharge Study

CVWD received a $158,450 Local Groundwater Assistance Grant in March 2014 from DWR to study the feasibility of using portions of Crescenta Valley County Park (CVC Park) to recharge the Verdugo Basin with stormwater runoff. The study included installation of flow monitoring stations in the Verdugo Wash, installation of two monitoring wells, soil percolation testing and updating its own Verdugo Basin groundwater model. The study was completed in March 2017 and indicated that about 300 to 500 AFY of stormwater could be recharged into the Verdugo Basin. CVWD prepared a conceptual plan in WY 2018-19 for installation of infiltration galleries in CVC Park and construction of piping to direct storm water from the Verdugo Wash into the infiltration galleries. CVWD has met with Los Angeles County - Public Works Department, the City of Glendale and the City of Los Angeles regarding implementation of this project. During WY 2020-21, CVWD is planning to meet and confer with the City of Los Angeles regarding Pueblo Water Rights as they pertain to the proposed project. CVWD is also exploring the possibility of additional grant funding through DWR Proposition 1, Los Angeles County, Measure W, and partnerships with Los Angeles County, and the cities of Glendale and Los Angeles.

1.5.9 Burbank Participation in MWD Cyclic Storage Program

Burbank entered into a cyclic groundwater storage agreement with MWD beginning in WY 2016-17; 5,232.3 AF were spread by Burbank in the Lopez and Pacoima spreading grounds as part of this agreement during WY 2019-20. Purchases of “cyclical agreement” water are spread out over time on a schedule agreed upon between Burbank and MWD. For Watermaster purposes, there is no distinction between the spreading of “cyclic agreement” water or non-“cyclic agreement water” with respect to credit calculation, and no distinction is discussed in the remainder of this document.

1.6 SUMMARY OF WATER OPERATIONS IN ULARA

Highlights of the various elements of water operations within ULARA are summarized in Table 1-3 for WYs 2018-19 and 2019-20. Also shown on Table 1-3 are the values that are input into the Sustainable Groundwater Management Act (SGMA) website, and information showing how those values are calculated. Details of WY 2019-20 operations and hydrologic conditions are provided in Section 2 herein. The Groundwater Extractions Report provided in Appendix A summarizes the groundwater extractions during WY 2019-20 by all ULARA pumpers. Locations of the four ULARA groundwater basins are shown on Plate 1, whereas the individual water service areas of the Parties and

individual producers within ULARA are shown on Plate 2. Other pertinent hydrologic facilities used to measure precipitation, runoff, and water levels are provided on Plate 3.

1.6.1 Construction/Destruction of Water Wells

No municipal water-supply wells were reported to have been constructed or destroyed in any of the four groundwater basins in ULARA in WY 2019-20. The Sportsmen's Lodge well was reportedly abandoned and permanently destroyed in February 2020, in accordance with a workplan prepared by the site consultant and approved by the Los Angeles County Department of Public Health. The successor-in-interest to the Sportsmen's Lodge, SL Retail Owner, LLC, stated in a letter to LADWP (provided in Appendix G) that, in addition to the well destruction, SL Retail Owner, LLC "abandons any physical solution extraction rights under the [ULARA] Judgement".

Table 1-3 SUMMARY OF OPERATIONS IN ULARA

Item	Water Year 2018-19	Water Year 2019-20	Calculation	SGMA Section Reporting
Active Pumpers (parties and nonparties)	26	24		
Inactive Pumpers (parties)[1]	7	7		
Annual Weighted Average Rainfall, in inches				
Valley Floor	22.83	16.77		
Mountain Area	29.11	19.64		
Total ULARA	26.70	18.54		
Spreading Operations, in acre-feet				
Native Water Spread	37,560	16,033	A	Section C Water available for recharge or in-lieu use by source type (if available): Local Surface Deliveries
LAA Water Spread	248	0	B	
MWD Water Spread	13,366	5,232	C	
Groundwater Spread	0	0	D	
Total	**51,174**	**21,265**	E = A+B+C+D	
Extractions, in acre-feet	54,240	68,653	F	Section B Total Groundwater Extraction
Gross Imports, in acre-feet				
Los Angeles Aqueduct (LAA) Water [2]	320,029	250,883	G	
MWD Water [3]	140,295	200,738	H	
Total	**460,324**	**451,621**	I = G+H	
Exports, in acre-feet				
Los Angeles Aqueduct Water	161,990	123,166	J	
MWD Water	58,583	93,726	K	
Groundwater	23,470	34,904	L	
Total	**244,043**	**251,796**	M = J+K+L	
Net LAA Deliveried, in acre-feet	158,039	127,717	N = G-J	Section C Water available for recharge or in-lieu use by source type (if available): Local Imported
Net MWD Delivered, in acre-feet	81,712	107,012	O = H-K	Section C Water available for recharge or in-lieu use by source type (if available): Other
Net Groundwater Delivered in ULARA in acre-feet	30,770	33,749	P = F-L	Section D Water Use Met by Source Type: Groundwater
Net Imports Delivered in ULARA in acre-feet	239,751	234,729	Q = N+O	Section D Water Use Met by Source Type: Surface Water
Net Surface Water Used in ULARA in acre-feet	277,311	250,762	R = A+N+O	Section C Surface Water Supply
Recycled Water Used in acre-feet	16,673	16,059	S	Section D Water Use Met by Source Type: Recycled Water
Total Water Delivered in ULARA in acre-feet	287,194	284,537	T = P+Q+S	Section D Total Water Use in ULARA
Treated Wastewater, in acre-feet [4]	71,792	70,603		
Change in Groundwater Storage				
San Fernando Basin	39,722	5,703	U	
Sylmar Basin	4,158	4,074	V	
Verdugo Basin	4,346	4,243	W	
Eagle Rock Basin	(120)	(111)	X	
Total	**48,106**	**13,909**	Y = U+V+W+X	Section E Annual Change in Groundwater Storage

1. The seven inactive pumpers are Van de Kamp, Disney, Angelica, Santiago Estates, Greeff, Sears and Waste Management.
2. LAA Gross Imports include water spread for groundwater replenishment by the City of Los Angeles.
3. MWD Gross Imports include water spread for groundwater replenishment by the City of Burbank.
4. Most treated wastewater is discharged to the Los Angeles River, whereas a portion is delivered to the Hyperion Plant or to other locations which utilize recycled water.

1.7 ALLOWABLE PUMPING FOR THE FORTHCOMING WATER YEAR

Table 1-4 provides a summary of the allowable groundwater extraction rights for the municipal-supply Parties in each of the three major groundwater basins in ULARA for the forthcoming water year, along with the current Stored Water Credit, where applicable, for each Party. The method to determine these values is described in more detail in Section 2 herein.

Table 1-4 ALLOWABLE GROUNDWATER EXTRACTION RIGHTS FOR FORTHCOMING WY

(all units in acre-feet)	Native Safe Yield Credit [1]	Import Return Credit [2]	Total Native + Import	Stored Water Credit [3, 4] (as of Oct. 1, 2020)	Allowable Pumping 2020-21 Water Year[5]
San Fernando Basin					
City of Burbank	---	3,813	3,813	27,712	31,525
City of Glendale	---	4,399	4,399	17,923	22,322
City of Los Angeles	43,660	33,634	77,294	675,731	753,025
Total	43,660	41,846	85,506	721,366	806,872
Sylmar Basin					
City of Los Angeles	3,570	---	3,570	9,014	12,584
City of San Fernando	3,570	---	3,570	404	3,974
Total	7,140	---	7,140	9,418	16,558
Verdugo Basin					
CVWD	3,294	---	3,294	---	3,294
City of Glendale	3,856	---	3,856	---	3,856
Total	7,150	---	7,150	---	7,150

1. Native Safe Yield extraction right per page 11 of the Judgment.
2. Import Return extraction right per page 17 of the Judgment.
3. There is no Stored Water Credit assigned in Verdugo Basin.
4. See Table 2-17 for calculation of SFB Totals and Stored Water Credits in reserve; see Table 2-18 and Table 2-19 for Sylmar Basin credit calculation.
5. Allowable pumping in Sylmar Basin must not exceed the native safe yield by more than 1,200 AF in any given year. Pumping in excess of the Safe Yield must be reported to Watermaster in advance or as soon as is reasonably practicable.

2 WATER SUPPLY, OPERATIONS, AND HYDROLOGIC CONDITIONS

2.1 PRECIPITATION

Precipitation varies considerably throughout ULARA depending on such local factors as site location, topography, elevation, and season. Mean annual precipitation ranges from about 14 inches at the western end of the San Fernando Valley to approximately 33 inches near the higher elevations of the watershed in the San Gabriel Mountains in the northeasterly portion of ULARA. Approximately 80 percent of the annual precipitation in ULARA occurs from December through March.

Table 2-1 provides rainfall data from several rain gages (stations) on the valley floor areas and in the hill and mountain areas for the current WY. The locations of these rain gages are shown on Plate 3. Appendix B shows the actual monthly rainfall totals on the valley floor and in the hill and mountain areas in ULARA for the current WY for these rain gages. The specific rain gages reported on Table 2-1 are subject to substitution each water year with a nearby gage due to malfunction, data loss, maintenance, or other factors.

Because annual rainfall totals have a very important impact on the availability of surface water and recharge to the groundwater in the four ULARA groundwater basins, which in turn influence groundwater levels, the Watermaster acquired additional rainfall data available from the local City of Burbank Valley Pump Plant rain gage (Gage No. 041194, see Plate 3). The period of record for this gage extends from WY 1939-40 through WY 2019-20. These rainfall data were accessed through the website of the Western Regional Climate Center (WRCC). The available data recorded by this gage are shown as a bar graph of total rainfall for each water year (i.e., October 1 of one year through September 30 of the next year) on Figure 2-1.

To help identify possible trends in annual rainfall for each water year at this rain gage, the Watermaster created the accumulated rainfall departure graph shown on Figure 2-2. This graph illustrates the accumulated departure of annual rainfall for each water year from the long-term average annual rainfall at the Burbank Valley Pump Plant Gage (Gage No. 041194) gage. On this graph, the accumulated rainfall departure values have been plotted for each rainfall year relative to the long-term average annual rainfall for this Burbank rain gage. The purpose of the accumulated departure curve is to illustrate temporal trends in rainfall.

To prepare this accumulated departure curve of annual rainfall, the following steps were taken:

1. Calculate the average (mean) water year rainfall for the period of record (the long-term average).
2. Begin with the initial year of rainfall in the period of record and subtract that value from the long-term average rainfall.
3. Divide that difference by the long-term average annual rainfall. This quotient represents the value for the initial year of rainfall; it may be a negative or positive number, depending on whether the total rainfall in the initial year was less than, or greater than, respectively, the long-term average annual rainfall.
4. The percentage of departure from the long-term average is then calculated in a similar manner for each successive water year and this value is algebraically added to the result for the prior water year, and so on, through the final year of available data.

Interpretation of the accumulated departure curve presented on Figure 2-2 is as follows:

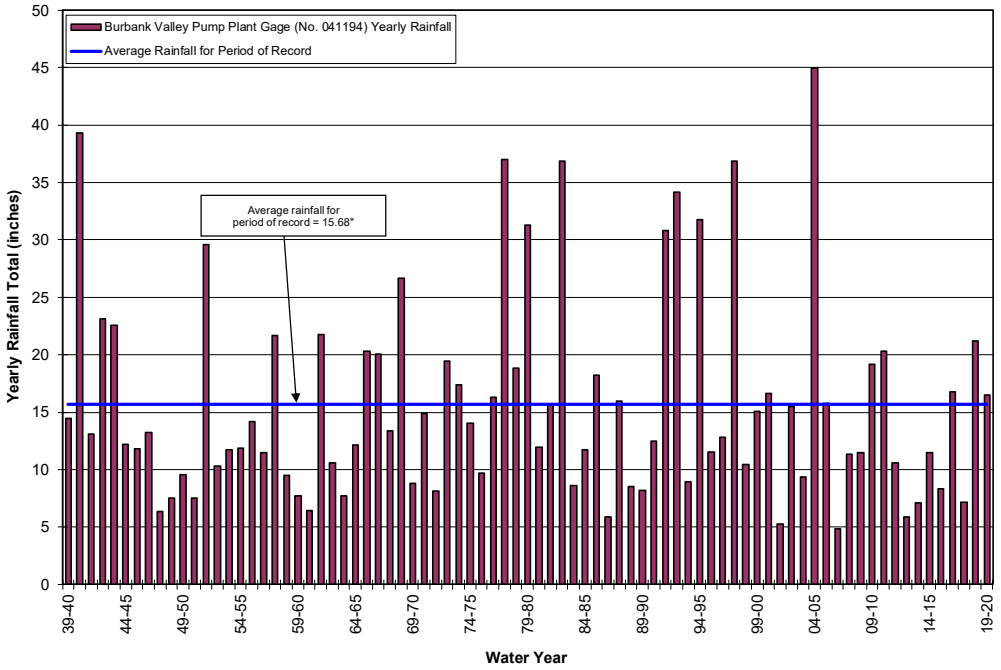
- When the accumulated departure curve descends over time to the right, the total rainfall in each water year during that period tended to be at or below the long-term average annual rainfall. Hence, such a period displayed generally deficient rainfall; in essence, a dry period or drought had occurred. Examples of such dry periods on Figure 2-2 are 1943-44 through 1975-76 and 1982-83 through 1990-91.
- In contrast, when the accumulated departure curve ascends over time to the right, the total rainfall in each water year during that period tended to be at or above the long-term average annual rainfall. Thus, such a period displayed generally abundant rainfall. In essence, a wet period occurred. Examples of such wet periods on Figure 2-2 are 1975-76 through 1982-83 and 1990-91 through 1997-98.

Table 2-1 WY 2019-20 PRECIPITATION

Water Year 2019-20 (inches)				
Gage No.	LACDPW Rain Gage Stations	2019-20 Precipitation	100-Year Mean (1881-1981)	Percent of 100-Year Mean
	Valley Floor Stations			
13C	North Hollywood - Lakeside	16.79	16.63	101%
1107D	La Tuna Debris Basin	13.09	14.98	87%
465C	Sepulveda Dam	17.92	15.30	117%
21B	Woodland Hills	16.89	14.60	116%
735H	Bell Canyon Debris Basin	14.21	15.19	94%
25C	Northridge - LADWP	16.23	15.16	107%
251C	La Crescenta	20.52	23.31	88%
1222	Northridge - Garland	18.31	17.32	106%
	Weighted Average[1]	**16.77**	**16.48**	**102%**
	Hill & Mountain Stations			
10A	Bel Air Hotel	16.90	18.50	91%
17	Sepulveda Canyon at Mulholland	20.53	16.84	122%
33A	Pacoima Dam	20.73	19.64	106%
47D	Clear Creek-City School	25.35	33.01	77%
53D	Colby's Ranch	18.74	29.04	65%
54C	Loomis Ranch-Alder Creek	15.20	18.62	82%
210C	Brand Park	17.61	19.97	88%
AL301	Brown's Canyon	18.27	17.52	104%
1074	Little Gleason	20.35	21.79	93%
	Weighted Average[1]	**19.64**	**21.76**	**90%**
	Weighted Average Valley/Mountain Areas[1]	**18.54**	**19.64**	**94%**

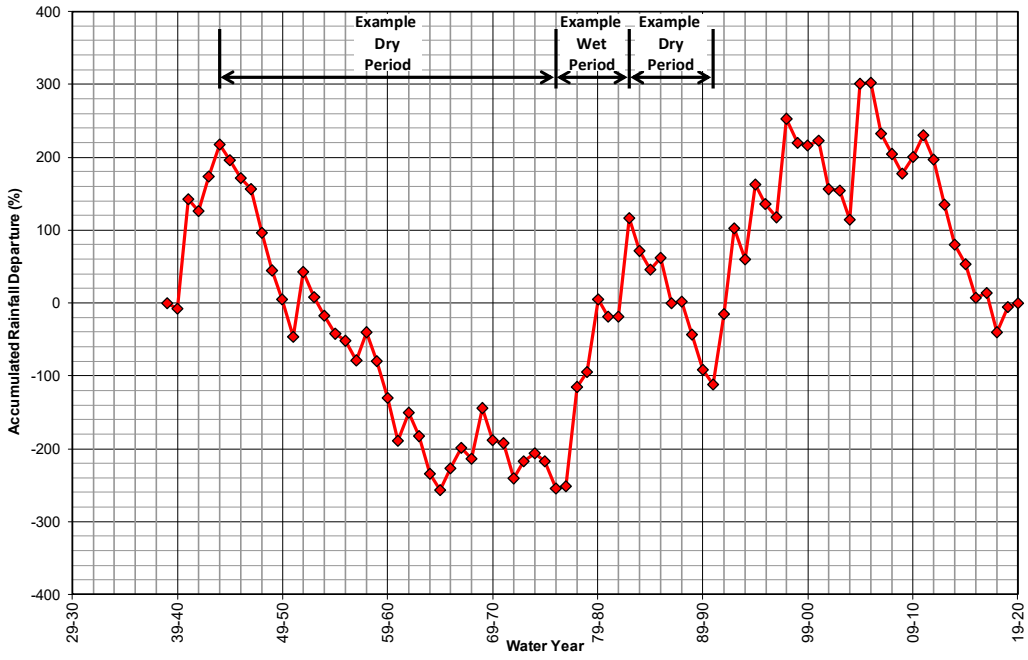
1. Weighted Averages calculated using methodology provided in the Report of Referee-July 1962. Hill & Mountain Station Weighted Average estimated due to incomplete data sets that exist in the 100-year period for which the average is calculated.

Figure 2-1 YEARLY RAINFALL TOTALS, BURBANK VALLEY PUMP PLANT RAIN GAGE



1. Yearly rainfall data compiled from Western Regional Climate Center (WRCC).
2. X-axis divisions are equal to 1 year.

Figure 2-2 ACCUMULATED RAINFALL DEPARTURE CURVE BURBANK VALLEY PUMP PLANT RAIN GAGE



2.2 RUNOFF AND OUTFLOW FROM ULARA

The entire ULARA watershed (including the surface areas of its four groundwater basins) contains 328,500 acres. Of this total, 205,700 acres lie within the tributary hill and mountain areas, whereas the remaining 122,800 acres represent the combined surface areas of the four groundwater basins within ULARA. The drainage system in ULARA is made up of the Los Angeles River and its tributaries. Surface flow in ULARA originates as: runoff from the hills and mountains; runoff from the impervious areas of the valley floor; industrial and sanitary waste discharges; runoff of excess domestic irrigation; and local areas of rising groundwater.

Several stream gaging stations (runoff gages) are maintained throughout ULARA by the Los Angeles County Department of Public Works (LACDPW) and the United States Geological Survey (USGS). For the Annual Watermaster Report, six key gaging stations have been utilized over the years to quantify surface water runoff from the main tributary areas of the ULARA watershed. From upstream to downstream, these six gaging stations (see locations on Plate 3) are as follows:

- Station F-118C-R, which monitors all releases from Pacoima Dam. Runoff below this point flows to the Los Angeles River through lined channels, or it can be diverted to the Lopez and Pacoima spreading grounds for artificial recharge purposes. Note that the downstream Station F-118C-R replaced Station F-118B-R beginning in June 2012.
- Station F-168B-R, which records all releases from Big Tujunga Dam. This dam lies in the hill and mountain area to the northeast and collects runoff from that northeastern portion of the watershed. Runoff below this point flows through Hansen Dam, and then into the Los Angeles River. Releases from this point can be diverted for artificial recharge purposes to the Hansen or Tujunga spreading grounds. Note that Station F-168B-R replaced Station F-168-R beginning in June 2012.
- Station F-300-R, which monitors all flow in the main channel of the Los Angeles River west of Lankershim Boulevard, includes the outflows from Pacoima and Hansen dams that are not otherwise diverted to spreading grounds. Records from this station also include flow through the Sepulveda Dam and releases of reclaimed wastewater discharged by the City of Los Angeles from the Tillman WRP.
- Station E-285-R, which monitors flow from the western slopes of the Verdugo Mountains and tributary areas in the ULARA watershed located east of Lankershim Boulevard. This station also records releases of reclaimed wastewater discharged by the City of Burbank.
- Station F-252-R, which monitors flow from Verdugo Canyon, includes flows from Dunsmore and Pickens Canyons.

- Station F-57C-R, which lies in the main channel of the Los Angeles River just north and upstream of its confluence with the Arroyo Seco, records all surface outflows from ULARA.

Table 2-2 summarizes the monthly runoff for these six gaging stations for WYs 2018-19 and 2019-20 as reported by LACDPW. The daily mean discharge volumes recorded during the current WY for these six gaging stations are summarized in Appendix B.

Table 2-2 MONTHLY RUNOFF AT SELECTED GAGING STATIONS

Station	Water Year	(acre-feet) OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
F-118C-R	2018-19	0	7	151	857	8,130	3,980	1,260	420	914	540	0	0	**16,259**
Pacoima Dam	2019-20	0	7	14	1	193	94	3,410	334	0	0	452	0	**4,505**
F-168B-R	2018-19	125	5	25	749	11,380	8,730	1,980	1,590	854	558	282	617	**26,895**
Big Tujunga Dam	2019-20	306	7	23	1	0	97	4,670	981	360	321	281	258	**7,305**
F-300-R	2018-19	4,520	7,270	12,780	30,670	48,600	14,250	4,130	6,880	3,560	2,990	2,370	2,130	**140,150**
L.A. River Tujunga Ave.	2019-20	1,460	6,620	15,690	2,950	2,210	11,910	12,480	2,520	1,830	2,330	2,280	2,420	**64,700**
E-285-R	2018-19	210	757	1,930	2,940	4,760	2,000	231	309	140	241	213	127	**13,858**
Burbank Storm Drain	2019-20	198	1,440	3,970	630	1,180	1,910	2,890	374	274	188	337	611	**14,002**
F-252-R	2018-19	333	1,150	1,530	3,760	4,220	248	233	213	148	176	109	81	**12,201**
Verdugo Wash	2019-20	95	462	1,760	141	99	1,480	1,770	153	58	62	55	37	**6,172**
F-57C-R	2018-19	5,820	10,030	16,650	40,650	56,660	22,360	6,600	8,860	4,270	4,050	3,850	3,330	**183,130**
L.A. River Arroyo Seco	2019-20	2,660	9,620	20,270	4,180	3,750	20,260	16,840	2,790	1,960	3,370	3,760	3,670	**93,130**

2.3 COMPONENTS OF SURFACE FLOW

The surface flow of the Los Angeles River at Gaging Station F-57C-R consists of:

1. Storm water runoff;
2. Treated wastewater from the Tillman, Burbank and Los Angeles-Glendale WRPs;
3. Industrial discharges and runoff of excess domestic irrigation; and
4. Rising groundwater.

Storm flows are typically the largest component of the total surface flow recorded at Gage F-57C-R, and these storm flows occur principally in the winter months (see Table 2-3 and also Appendix C for a detailed breakdown of the components of Los Angeles River flow).

A significant factor affecting surface water runoff in the Los Angeles River has been the releases of treated wastewater over time by the three local WRPs mentioned above. Specifically, releases from the Los Angeles-Glendale WRP, the Burbank WRP, and the Tillman WRP appear to have begun in 1976-77, 1967, and 1985, respectively.

Industrial discharges and runoff of excess irrigation water upstream of Gage F-57C-R are relatively small, but cumulatively they contribute a moderate amount of surface flow to the Los Angeles River. Field inspection during WY 1998-99 confirmed year-round unmetered flows of domestic irrigation runoff from residential areas, golf courses and industrial sites.

Rising groundwater is a constant source of groundwater loss from the Verdugo and San Fernando groundwater basins. Rising groundwater occurs above the Verdugo Wash Narrows and also in the unlined reach of the Los Angeles River immediately upgradient from Gage F-57C-R. Outflows at Gage F-57C-R include rising groundwater leaving the Verdugo Basin past Gage F-252-R. Table 2-3 provides calculated rising water values for the current WY.

Releases of treated (reclaimed) wastewater also have an influence on rising groundwater. These large year-round releases tend to keep the alluvium beneath the Los Angeles River saturated, even in dry years. Nevertheless, there is some opportunity for continuing percolation in the unlined reaches of this river, both upstream and downstream of the lined section of the river, near its confluence with the Verdugo Wash. Water percolating in the unlined reaches is thought to percolate through the shallow alluvial zones and to reappear as rising groundwater along the river downstream from Los Feliz Boulevard. There may also be up to 3,000 AFY of recharge from delivered water within the Los Angeles River Narrows-Pollock Wellfield area that contribute to this rising groundwater condition.

In the Report of Referee (1962, Volume II, Appendix O), procedures were developed for calculating the volume of rising groundwater for the original safe yield base period of 1928-1958. Some of the important factors that were active at the time of that study but have since been discontinued include: local releases of Owens River water; operation of the Chatsworth Reservoir; and operation of the Headworks spreading grounds. As shown on Figure O-2 of the Report of Referee (1962), excess rising groundwater was considered to have declined to essentially zero by the late-1950s. The January 1993 report by Brown and Caldwell, “Potential Infiltration of Chlorides from the Los Angeles River Narrows into the Groundwater Aquifer,” assessed groundwater levels along the course of the Los Angeles River; the then-current Watermaster provided the data for that 1993 evaluation. At the end of the drought period in 1977, groundwater levels in the Los Angeles River Narrows were very low; hence, there was very little potential for having excess rising groundwater at that time in that area. However, increased rainfall and runoff occurred during the 1978-83 period, combined with reduced pumping by the Crystal Springs, Grandview, and Pollock wellfields, created large rises in groundwater levels in the Los

Angeles River Narrows. Elevated groundwater levels, such as those that typically follow periods of heavy rainfall, tend to increase the volumes of rising groundwater in the Los Angeles River Narrows.

Finally, the methodology used to calculate rising groundwater (Table 2-3) needs to be improved. Over the years, many of the original gaging stations along the Los Angeles River and its tributaries have been lost, abandoned, or damaged. Actual data from some of these gaging stations have been replaced by estimates, and the LADWP-operated groundwater flow model has been used to check the results. Although the current methodology provides an approximation, it is considered to be less accurate than using actual gage data. To improve the calculation of rising groundwater, the abandoned, lost, damaged, or inaccurate gaging stations need to be identified, and then these stations should be either rehabilitated or replaced entirely.

The first site visit to these types of gages occurred in March 2014, when the current Watermaster visited gage site F-57C-R, along with representatives from the Los Angeles County Flood Control District (LACFCD) and LADWP. It was determined from this site visit that LACFCD field monitoring staff had begun experiencing problems in 2005 in obtaining accurate measurements of low runoff flows in the bottom of the lined river channel at Gage F-57C-R. Some of these problems were a result of vandalism and theft of copper wires required for electrical supply to the gage. High flows resulting from storm events have been and continue to be collected by LACFCD using a staff gage on the vertical concrete sides of the lined river channel near this gage. In 2011, the City of Los Angeles Bureau of Engineering (LABOE) also initiated construction of the nearby Riverside Drive Viaduct Replacement Project (including a new bridge). This new construction, which took place immediately above and surrounding Gage F-57C-R, further impacted gage operation. To help ensure accurate measurements of low runoff flows at Gage F-57C-R, the Watermaster participated in several meetings with all parties involved. As a result of these meetings, the Watermaster was satisfied that the low-flow stream measurements that were currently and would continue to be recorded at Gage F-57C-R by LACFCD were sufficiently accurate for ULARA Watermaster purposes, and that this gage will be maintained in the future by LACFCD to continue to provide accurate measurements. The Watermaster updated the Court on this specific matter in a Special Hearing before the Judge on April 25, 2014. Project construction ended in March 2016 and all nearby concrete K-rails were removed in roughly May 2016.

After the storms of January 2017, a large amount of debris settled into the Gage F-57C-R station and impacted the measurement accuracy of low flows (of 150 cfs and less); the data collected for the gage were more accurate at flows greater than 150 cfs at that time. This debris was partially removed in March 2017, which improved gage accuracy. The remaining debris was completely removed in April 2017, which returned the station to its normal operational condition. The monitoring at this station is currently functioning as intended, i.e., to monitor and record the surface water runoff flows at 5-minute intervals.

Table 2-3 ESTIMATED SEPARATION OF SURFACE FLOW, F-57C-R & F-252-R

	F-57C-R (acre-feet)				F-252-R (acre-feet)		
Water Year	Rising Groundwater[1]	Waste Discharge	Storm Runoff	Total Outflow[2]	Rising Groundwater[3,4]	Storm Runoff[4]	Total Outflow
2019-20	5,079	28,786	59,160	93,025	1,096	5,073	6,169
2018-19	6,155	69,395	140,181	215,731	2,724	9,475	12,199
2017-18	1,701	61,255	31,860	94,816	2,230	4,396	6,626
2016-17	5,616	71,965	72,815	150,396	4,536	9,306	13,842
2015-16	2,570	55,310	23,970	81,858	1,279	1,215	2,494
2014-15	3,300	63,757	38,777	105,834	3,974	747	4,721
2013-14	1,417	61,260	21,456	84,133	2,553	457	3,010
2012-13	1,754	67,865	27,711	97,330	1,156	1,098	2,254
2011-12	3,121	69,176	36,603	108,900	2,068	2,662	4,730
2010-11	6,588	88,541	135,815	230,945	2,397	18,023	20,420
2009-10	5,814	74,736	75,150	155,700	2,394	11,936	14,330
2008-09	2,698	73,983	66,882	142,563	2,097	7,808	9,905
2007-08	3,905	76,287	96,548	176,740	1,212	8,700	9,912
2006-07	1,720	72,544	21,236	95,500	1,272	6,668	7,943
2005-06	5,441	74,256	77,063	156,760	1,414	12,717	14,131
2004-05	6,309	70,828	423,293	500,430	5,198	31,874	37,072
2003-04	3,330	90,377	42,153	135,860	2,468	2,851	5,319
2002-03	3,869	75,159	106,862	185,890	3,167	5,183	8,350
2001-02	2,126	74,737	43,937	120,800	1,819	5,721	7,540
2000-01	3,000	91,795	94,065	188,860	1,500	6,370	7,870
1999-00	1,980	78,009	62,202	142,190	824	4,243	8,470
1998-99	2,000	72,790	39,110	113,900	1,000	2,534	7,250
1997-98	4,000	97,681	245,079	346,730	4,000	12,140	16,140
1996-97	3,000	75,827	76,485	155,312	3,000	13,860	16,860
1995-96	3,841	86,127	61,188	151,156	2,577	10,946	13,523
1994-95	4,900	66,209	367,458	438,567	4,809	28,881	33,696
1993-94	2,952	60,594	73,149	136,695	1,387	6,156	7,543
1992-93	4,900	77,000	478,123	560,023	3,335	20,185	23,520
1991-92	3,000	120,789	197,040	320,829	1,412	13,209	14,621
1990-91	3,203	75,647	117,779	196,629	1,157	6,865	8,022
1989-90	3,000	76,789	55,811	167,639	1,182	2,938	4,120
1988-89	3,000	80,020	56,535	136,843	1,995	4,453	6,448
1987-88	3,000	81,920	74,074	156,204	3,548	10,493	14,041
1986-87	3,000	64,125	19,060	83,295	2,100	1,690	3,790
1985-86	3,880	48,370	102,840	155,090	2,470	6,270	8,740
1984-85	3,260	21,600	46,300	71,160	2,710	3,970	6,680
1983-84	3,000	17,780	49,090	69,870	4,000	n/a	n/a
1982-83	3,460	17,610	384,620	405,690	5,330	21,384	26,714
1981-82	1,280	18,180	80,000	99,460	3,710	5,367	9,077
1980-81	4,710	19,580	51,940	76,230	5,780	2,917	8,697
1979-80	5,500	16,500	n/a	n/a	5,150	7,752	12,902
1978-79	2,840	16,450	119,810	139,100	2,470	n/a	n/a
1977-78	1,331	7,449	357,883	366,663	1,168	23,571	24,739
1976-77	839	7,128	58,046	66,013	1,683	2,635	4,318
1975-76	261	6,741	32,723	39,725	2,170	2,380	4,550
1974-75	427	7,318	56,396	64,141	1,333	4,255	5,588
1973-74	2,694	6,366	79,587	88,878	1,772	5,613	7,385
1972-73	4,596	8,776	100,587	113,959	1,706	7,702	9,408
1971-72	---	---	---	---	2,050	2,513	4,563
Average	3,320	57,196	108,052	169,874	2,498	8,238	10,856

1. Includes the influence of treated wastewater discharged to the Los Angeles River from the Los Angeles-Glendale WRP (as of WY 1976-77) and the Tillman WRP (as of September 1985).
2. Gage F-57-C, the major measurement point of discharge to the Los Angeles River and surface flow out of ULARA, is estimated for WY 2010-11 through March 2014 due to measurement inaccuracies and/or disruptions. Installation of new equipment and measurement practices by LACFCD at Gage F-57C-R increased reliability of the measurements to the satisfaction of the Watermaster.
3. Includes the influence of declining capacity at Verdugo Park Treatment Plant.
4. Includes the influence of dry weather runoff and perennial stream flow.

2.4 GROUNDWATER RECHARGE

Precipitation has a direct influence on groundwater recharge and, ultimately, on the amount of groundwater in storage in the four ULARA groundwater basins. Urban development in ULARA over time has resulted in a significant portion of the rainfall being collected and routed into storm drains and/or lined channels that discharge directly into the Los Angeles River. To partially offset the increased runoff due to urbanization, Pacoima, Big Tujunga and Hansen dams, which had originally been constructed for flood control purposes, are now being utilized to regulate storm flows and to allow for recapture of a portion of the flows and releases to existing downstream spreading basins operated by the LACDPW and the City of Los Angeles in the northeastern portion of the SFB.

The LACDPW operates the Branford, Hansen, Lopez, and Pacoima spreading grounds. The LACDPW, in cooperation with the City of Los Angeles, operates the Tujunga spreading grounds. These spreading grounds are primarily used for the artificial recharge of native water (stormwater runoff), but are also used to spread imported water, when available. Table 2-4 summarizes the spreading operations at all spreading basins in the SFB for the current WY, whereas Table 2-5 summarizes the estimates of the resulting recharge since the 1968-69 WY. Plate 1A shows the locations of these spreading grounds.

A summary table of existing distributed stormwater capture projects within ULARA is presented in Appendix F. Included on this table are estimates prepared by each Party of the annual volume of stormwater captured by each project listed therein.

Table 2-4 SPREADING OPERATIONS IN THE SAN FERNANDO BASIN

Agency	Spreading Facility	2019 OCT	NOV	DEC	2020 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
		(acre-feet)												
LACDPW														
	Branford	4	104	139	10	3	141	94	15	4	4	4	5	527
	Hansen	296	0	550	259	170	856	5,090	979	316	129	0	0	8,645
	Lopez [1]	402	501	724	0	0	2	494	1	0	0	0	0	2,124
	Pacoima [1,2]	2,040	1,550	1,050	0	115	930	2,440	348	0	0	172	0	8,645
	Tujunga	0	0	0	0	0	262	1,050	12	0	0	0	0	1,324
	Total	**2,742**	**2,155**	**2,463**	**269**	**288**	**2,191**	**9,168**	**1,355**	**320**	**133**	**176**	**5**	**21,265**
City of Los Angeles														
	Tujunga [3]	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	Basin Total	**2,742**	**2,155**	**2,463**	**269**	**288**	**2,191**	**9,168**	**1,355**	**320**	**133**	**176**	**5**	**21,265**
Imported Water to Spreading Facilities (Included in Spreading Basin Totals Above)														
City of Burbank														
	via MWD Connection B-06 [1]	2,192	1,807	1,233	0	0	0	0	0	0	0	0	0	5,232
City of Los Angeles														
	via Maclay Highline [2]	0	0	0	0	0	0	0	0	0	0	0	0	0

1. MWD water imported by Burbank and spread at Pacoima and/or Lopez spreading grounds is accounted for in the totals reported by LACDPW; the separate “City of Burbank” total reported below the “Basin Total” is for information purposes, and should not be added to the “Basin Total” as it is already accounted for. Burbank began spreading MWD water in the 2009-10 Water Year following completion of the Burbank B-6 MWD connection.
2. LAA water imported by City of Los Angeles and spread at Pacoima spreading grounds is accounted for in the total reported by LACDPW; the separate “City of Los Angeles” total reported below the “Basin Total” is for information purposes and should not be added to the “Basin Total” as it is already accounted for. City of Los Angeles re-established spreading LAA water in the 2018-19 Water Year following completion of the Maclay Highline LAA connection repairs.
3. Spread water is derived from backwashing of the Tujunga GAC vessels and discharged into Tujunga spreading grounds. In this water year, the backwash water was discharged to the sanitary sewer. Such sewer discharges will continue until all effluent permits are met for spreading operations.

   Note: The Headworks Spreading Basins no longer exist and have been removed from this table.

Table 2-5 ANNUAL SPREADING OPERATIONS IN THE SAN FERNANDO BASIN

Water Year	Los Angeles County Department of Public Works (Native + Imported [1,2]) (acre-feet)						City of Los Angeles (Imported) (acre-feet)			GRAND TOTAL (acre-feet)	City of Burbank (Imported [1]) Lopez / Pacoima (acre-feet)	City of Los Angeles (Imported [2]) Pacoima (acre-feet)	Rainfall (inches) Weighted Average Valley/Mtns.
	Branford	Hansen	Lopez	Pacoima	Tujunga	TOTAL	Headworks	Tujunga	TOTAL				
2019-20	527	8,645	2,124	8,645	1,324	21,265	0	0	0	21,265	5,232	0	18.54
2018-19	587	23,589	5,513	21,485	0	51,174	0	0	0	51,174	13,366	248	26.70
2017-18	326	616	1,293	9,014	0	11,249	0	0	0	11,249	8,095	---	8.53
2016-17	469	12,824	4,178	16,341	0	33,812	0	0	0	33,812	11,791	---	21.41
2015-16	547	1,137	42	1,298	523	3,548	0	0	0	3,548	306	---	10.05
2014-15	529	922	1	1,254	268	2,974	0	1	1	2,975	150	---	12.68
2013-14	474	1,667	661	7,442	195	10,439	0	4	4	10,443	7,000	---	7.98
2012-13	570	1,758	501	7,015	927	10,771	0	11	11	10,782	6,703	---	8.72
2011-12	529	9,357	104	3,482	101	13,573	0	4	4	13,577	1,371	---	11.55
2010-11	690	19,064	3,922	24,164	31,476	79,316	0	4	4	79,320	11,187	---	25.21
2009-10	535	16,766	274	9,080	12,849	39,504	0	7,509	7,509	47,013	34	---	20.55
2008-09	706	0	1	2,000	7,233	9,940	0	0	0	9,940	---	---	12.58
2007-08	570	10,517	634	5,025	4,892	21,638	0	0	0	21,638	---	---	17.27
2006-07	532	5,762	44	436	1,200	7,974	0	0	0	7,974	---	---	5.36
2005-06	576	20,840	958	7,346	14,895	44,615	0	0	0	44,615	---	---	17.42
2004-05	1,448	33,301	940	17,394	21,115	74,198	0	0	0	74,198	---	---	45.66
2003-04	444	6,424	144	1,731	1,322	10,065	0	0	0	10,065	---	---	12.21
2002-03	932	9,427	518	3,539	1,914	16,330	0	0	0	16,330	---	---	21.22
2001-02	460	1,342	0	761	101	2,664	0	0	0	2,664	---	---	6.64
2000-01	562	11,694	172	3,826	1,685	17,939	0	0	0	17,939	---	---	22.29
1999-00	468	7,487	578	2,909	2,664	14,106	0	0	0	14,106	---	---	16.77
1998-99	547	8,949	536	696	3,934	14,662	0	0	0	14,662	---	---	10.83
1997-98	641	28,129	378	20,714	11,180	61,042	0	77	77	61,119	---	---	38.51
1996-97	415	9,808	724	5,768	6,406	23,121	0	51	51	23,172	---	---	17.65
1995-96	345	8,232	363	4,532	7,767	21,239	0	0	0	21,239	---	---	14.48
1994-95	585	35,137	1,086	14,064	18,236	69,108	0	0	0	69,108	---	---	33.08
1993-94	462	12,052	182	3,156	4,129	19,981	0	0	0	19,981	---	---	11.86
1992-93	389	26,186	1,312	17,001	19,656	64,544	114	0	114	64,658	---	---	41.26
1991-92	653	15,461	1,094	12,914	9,272	39,394	230	0	230	39,624	---	---	32.39
1990-91	509	11,489	241	3,940	2,487	18,666	52	0	52	18,718	---	---	7.69
1989-90	327	2,029	90	1,708	0	4,154	0	0	0	4,154	---	---	9.55
1988-89	255	3,844	308	1,306	0	5,713	0	0	0	5,713	---	---	9.72
1987-88	352	17,252	1,037	4,520	0	23,161	0	0	0	23,161	---	---	21.36
1986-87	0	7,311	141	467	0	7,919	0	33	33	7,952	---	---	7.70
1985-86	290	18,188	1,735	6,704	0	26,917	0	1,433	1,433	28,350	---	---	23.27
1984-85	244	13,274	104	3,375	0	16,997	0	5,496	5,496	22,493	---	---	13.31
1983-84	213	10,410	0	3,545	0	14,168	0	24,115	24,115	38,283	---	---	11.18
1982-83	883	35,192	1,051	22,972	10,580	70,678	10	32,237	32,247	102,925	---	---	46.07
1981-82	345	14,317	243	5,495	0	20,400	3,853	0	3,853	24,253	---	---	20.16
1980-81	245	14,470	335	3,169	0	18,219	4,652	9,020	13,672	31,891	---	---	12.89
1979-80	397	31,087	1,097	15,583	0	48,164	5,448	19,931	25,379	73,543	---	---	33.66
1978-79	295	24,697	1,018	12,036	0	38,046	2,463	31,945	34,408	72,454	---	---	24.07
1977-78	2,142	28,123	445	20,472	12,821	64,003	3,200	18,247	21,447	85,450	---	---	44.84
1976-77	377	2,656	63	1,943	0	5,039	3,142	16	3,158	8,197	---	---	16.02
1975-76	470	3,128	562	1,308	0	5,468	3,837	5,500	9,337	14,805	---	---	14.20
1974-75	681	5,423	915	2,476	0	9,495	4,070	9,221	13,291	22,786	---	---	---
1973-74	672	6,287	946	2,378	0	10,283	6,205	0	6,205	16,488	---	---	---
1972-73	1,271	9,272	0	6,343	2,274	19,160	5,182	0	5,182	24,342	---	---	---
1971-72	161	1,932	0	1,113	0	3,206	7,389	0	7,389	10,595	---	---	---
1970-71	507	11,657	727	4,049	0	16,940	6,804	399	7,203	24,143	---	---	---
1969-70	674	11,927	0	1,577	2,380	16,558	11,021	0	11,021	27,579	---	---	---
1968-69	461	32,464	893	14,262	13,052	61,132	6,698	3,676	10,374	71,506	---	---	---
AVG.	544	12,760	774	7,188	4,401	25,667	1,430	3,249	4,679	30,346	5,930	124	

1. Spreading of imported MWD water by Burbank in the Lopez and Pacoima spreading grounds began in the 2009-10 Water Year following completion of the Burbank B-6 MWD connection. The volumes reported by LACDPW for these spreading grounds are inclusive of this imported water. These volumes are reported by LACDPW spreading data and are therefore included in the "Grand Total" column.
2. Spreading of imported LAA water by the City of Los Angeles in the Pacoima spreading grounds was re-established in the 2018-19 Water Year following completion of repairs to the Maclay Highline LAA connection. The volumes reported by LACDPW for this spreading grounds are inclusive of this imported water. The City of Los Angeles' spreading of imported LAA water is thus accounted for in the "Grand Total" column.

2.5 GROUNDWATER EXTRACTIONS

The original Trial Court adjudication of groundwater rights in ULARA, effective October 1, 1968, restricted all groundwater extractions to a total combined maximum safe yield value of approximately 104,040 AFY for all four ULARA groundwater basins. This value amounted to a reduction of approximately 50,000 AF from the average annual groundwater extractions by all Parties from these basins for the six years prior to 1968. The State Supreme Court's opinion, as implemented on remand in the Final Judgment of January 26, 1979, further restricted total groundwater pumping from each groundwater basin, and by each Party within each basin.

A summary of groundwater extractions from each ULARA basin is presented on Table 2-11, Table 2-12, Table 2-13, and Table 2-14 for the San Fernando Basin, Sylmar Basin, Verdugo Basin, and Eagle Rock Basin, respectively. Extraction rights for the San Fernando Basin and the Sylmar Basin are shown on Table 2-15 and Table 2-16, respectively. The Groundwater Extractions Report provided in Appendix A summarizes the groundwater extractions by each Party during the current water year, whereas Plates 1A through 1D show the general locations of the various wellfields owned by the five municipal-supply Parties in ULARA. Table 2-6 summarizes private party pumping in the SFB for the current water year.

Table 2-6 PRIVATE PARTY PUMPING – SAN FERNANDO BASIN

2019-20 Water Year
(acre-feet)

Nonconsumptive Use or Minimal Consumption	
Sportsmens' Lodge	0.00
Toluca Lake Property Owners	4.31
Vulcan (CalMat) [1] (Gravel washing)	1,020.71
Walt Disney Productions (3 wells inactive / not abandoned)	---
Total	**1,025.02**

Groundwater Dewatering	
Charged to Los Angeles' water rights	
BFI Sunshine Canyon Landfill	116.88
First Financial Plaza Site	12.47
Mercedes Benz of Encino	1.71
Metropolitan Transportation Agency	64.60
Metropolitan Water District	109.70
Trillium Corporation	12.00
Warner Properties Plaza 6 and 3	8.33
Total	**325.69**

Groundwater Cleanup	
Charged to Burbank's water rights	
B.F.Goodrich (Menasco/Coltec)	0.00
Home Depot U.S.A. Inc.	0.00
Subtotal	*0.00*
Charged to Los Angeles' water rights	
3M-Pharmaceutical	22.74
Honeywell International, Inc.	159.96
Subtotal	*182.70*
Total	**182.70**

Physical Solution	
Charged to Burbank's water rights	
Valhalla Memorial Park	0.00
Subtotal	*0.00*
Charged to Glendale's water rights	
Forest Lawn Cemetery Assn.	165.07
Subtotal	*165.07*
Charged to Los Angeles' water rights	
Hallelujah Prayer Ctr (Hathaway/deMille)	6.12
Toluca Lake Property Owners	30.00
Water Licenses	1.05
Wildlife Waystation	7.08
Debra and Donald Cecil [2]	0.66
RJ's Property Management [3]	7.56
Subtotal	*52.47*
Total	**217.54**

Total Extractions **1,750.95**

1. LADWP reports that the volume of water lost through evaporation is not available due to a lack of monthly recording of transducer readings by Vulcan, and that this evaporative loss is typically provided for information only.
2. Middle Ranch sold Well Nos. 6 & 7 to Debra L. Cecil and Donald R. Cecil.
3. Middle Ranch sold Spring 1 and 2, and Well Nos. 3, 4, 5 and 8 to RJ's Property Management.

2.6 IMPORTS AND EXPORTS OF WATER

The continued growth of residential, commercial, and industrial developments has required that more water be imported to supplement the availability of local groundwater supplies in ULARA over time. Imported supplies to ULARA are from the Los Angeles Aqueduct (LAA) and from MWD. Imported water from the LAA consists of runoff from the Eastern Sierra Nevada and groundwater from Owens Valley. The imported MWD supplies consist of water from both the State Water Project and the Colorado River Aqueduct.

Exports from ULARA include water imported from the LAA and from MWD (pass-through water), and groundwater extracted from the SFB by LADWP. Exports of wastewater not treated and released into the Los Angeles River are delivered via pipeline to the Hyperion Treatment Plant in the Playa Del Rey area of the City of Los Angeles (outside of ULARA, to the south).

Table 2-7 summarizes the imports and exports from ULARA during WYs 2018-19 and 2019-20. Constraints on water supply sources available to the City of Los Angeles from the Eastern Sierra Nevada and Owens Valley have reduced the amounts of water from these sources that can be imported into ULARA; however, the Parties have tried to manage this water supply challenge, in part, by enacting water conservation measures to help reduce the total overall water demand in ULARA.

Table 2-7 ULARA WATER IMPORTS AND EXPORTS

Source and Agency	Water Year (acre-feet) 2018-19	2019-20
Gross Imported Water		
Los Angeles Aqueduct		
City of Los Angeles [1]	320,029	250,883
MWD Water		
City of Burbank [1]	19,163	11,385
Crescenta Valley Water District	1,899	2,032
City of Glendale	13,784	14,913
City of Los Angeles	97,859	164,623
La Canada Irrigation District [2]	952	1,053
Las Virgenes Municipal Water District [2]	6,638	6,732
City of San Fernando	0	0
MWD Total	**140,295**	**200,738**
Grand Total	**460,324**	**451,621**
Exported Water (Pass-Through)		
Los Angeles Aqueduct		
City of Los Angeles	161,990	123,166
MWD Water		
City of Los Angeles	58,583	93,726
Total	**220,573**	**216,892**
Net Imported Water	**239,751**	**234,729**

1. Reported volume includes water imported for potable use and for groundwater replenishment (spreading).
2. Deliveries to those portions of these agency's service areas that are within ULARA.

2.7 RECYCLED WATER

Recycled water currently provides an additional source of water for irrigation, industrial, and recreational uses. In the future, wastewater recycling is planned to provide additional water for groundwater recharge at existing and/or new spreading basins, and possibly at new aquifer storage and recovery wells (ASR wells, a method to inject water directly into the aquifer systems). Four wastewater reclamation plants (WRPs) and their associated facilities are currently in operation in ULARA: Tillman WRP, Burbank WRP, Los Angeles-Glendale WRP, and Tapia WRF (Wastewater Reclamation Facility), the latter of which is operated by the Las Virgenes Municipal Water District (LVMWD). Although the Tapia WRF is located west of the southwestern boundary of ULARA, a portion of the water treated at this facility is used in ULARA. Table 2-8 summarizes the operations at these four plants and facilities in WY 2019-20 and Plate 3 shows the locations of these facilities.

Table 2-8 RECYCLED WATER OPERATIONS

2019-20 Water Year (acre-feet) Plant/Agency	Plant Influent [1]	Effluent to L.A. River	Flow to Hyperion	Recycled Water Use	Recycled Water Use [2] (%)	Recycled Water Delivered to SFB
City of Burbank	6,747	3,607	824 [3]	2,977	44%	2,977
Los Angeles-Glendale	18,731 [4]	10,553	1,747	5,676	30%	
Los Angeles				3,777		1,626
Glendale				1,899		1,604
Donald C. Tillman	45,125	27,145	12,293	5,871	13%	3,440
Las Virgenes MWD		96		1,535		1,535
Total	**70,603**	**41,401**	**14,864**	**16,059**		**11,182**

1. Does not include plant overflow/bypass.
2. Recycled water use is calculated as a percentage (%) of plant influent.
3. The volume of sewage exported from Burbank to the City of Los Angeles for treatment at the Los Angeles Hyperion Plant is an estimated quantity, based on the difference between gaged volumes measured at the Los Angeles North outfall sewer at the upper Burbank gaging station (near lakeside Golf Course) and the lower Burbank gaging station (near Travel Town in Griffith Park), with adjustments. Additional adjustments are made to account for Sun Valley (City of Los Angeles) sewage that passes through the Burbank system and other interconnections in accordance with the Los Angeles-Burbank Wastewater Contract. The resultant calculated volumes to Hyperion are negative numbers for some months and are conjectured to result from the Burbank WRP treating more flows received from the City of Los Angeles than Burbank discharges to the City of Los Angeles. Burbank Public Works is still working with the City of Los Angeles to understand these resultant negative flows.
4. Plant influent is not equal to the effluent due to metering error and/or in-plant use.

2.8 GROUNDWATER ELEVATIONS AND HYDROGRAPHS

Maps depicting simulated contours of the equal elevation of groundwater for the Spring (April) and the Fall (September) of 2020 for the SFB were created by the ULARA Watermaster Support Staff at LADWP using the SFB Groundwater Flow Model. The SFB model was initially developed during the Remedial Investigation (RI) study of groundwater contamination in the eastern portion of the San Fernando Valley in the early-1990s and was funded through USEPA's Superfund program.

The model is comprised of four hydrostratigraphic layers of varying thicknesses established by others in the deepest portion of the eastern SFB, and includes 6,883 cells, ranging in size from 1,000 by 1,000 feet to 3,000 by 3,000 feet. The model parameters were calibrated by matching the simulated hydraulic-head fluctuations with the historical water level fluctuations measured at selected key monitoring wells for a 10-year period. The simulated contours for SFB were estimated by incorporating the actual monthly recharge (e.g., the amount of spread water, precipitation, etc.) and groundwater extraction values as model inputs to simulate the actual operations in SFB during the period of October 2019 to September 2020. Simulated contours of equal groundwater elevation, as modeled by LADWP for April 30, 2020 (Spring 2020) and September 30, 2020 (Fall 2020), were then plotted utilizing groundwater contouring software.

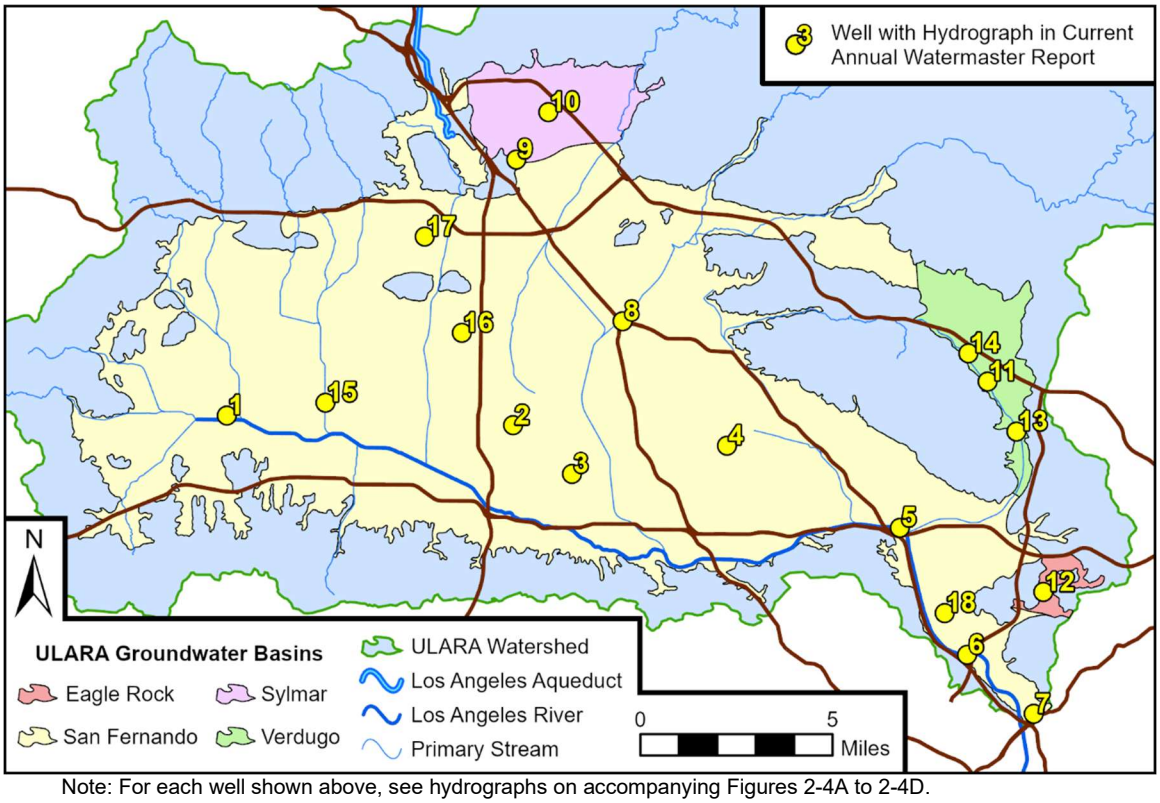
The simulated Groundwater Elevation Contour Maps for Spring and Fall 2020 are shown on Plates 4 and 5, respectively, to depict the regional direction of groundwater flow simulated by the LADWP groundwater model within SFB during these periods. Current groundwater elevations in different portions of the four ULARA groundwater basins may be obtained by submitting a data request; instructions for submitting a data request are available at ULARAwatermaster.com. Additional water level data may also be available from Los Angeles County via http://dpw.lacounty.gov/general/wells/.

Plate 6 was prepared to illustrate the model-simulated change in groundwater elevations from Fall 2019 to Fall 2020 for the SFB. The simulation shows that groundwater elevations in the region near the Hansen, Pacoima, and Tujunga spreading grounds decreased on the order of 6 feet in that one-year period. This water level decrease is attributed to the decreased volume of water that was recharged at these spreading grounds in the current WY (relative to the previous year's volume and to the long-term spreading average), and to the moderate volume of pumping at the Tujunga wellfield in the current WY.

Groundwater elevations near the LADWP-owned Rinaldi-Toluca and North Hollywood wellfields were simulated to increase by approximately 3 feet. These water level rises are also attributed to the moderate volume of groundwater production.

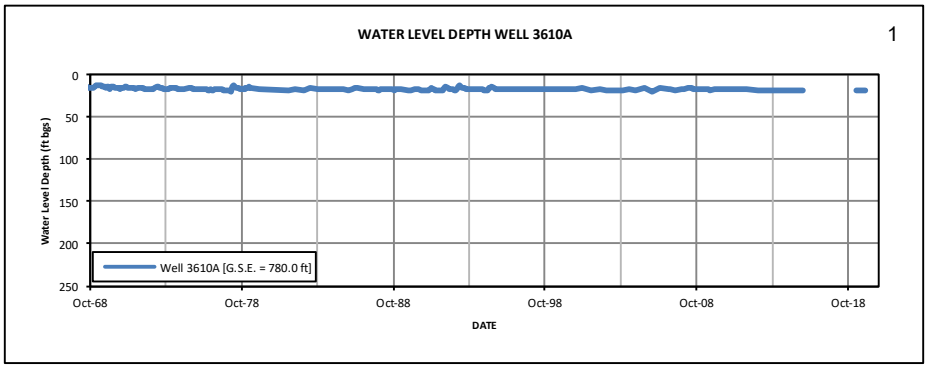
Water level data from 18 water level observation wells within the valley fill areas of ULARA continue to be monitored on a regular basis by LADWP and LACDPW. Water level records for these observation wells were used to create hydrographs (graphs of water levels versus time) for this Annual Watermaster Report. Figure 2-3 illustrates the locations of these 18 observation wells for which hydrographs were prepared, and the hydrographs for these 18 wells (and the wells which they replaced) are shown on Figure 2-4A through Figure 2-4D. The graphs illustrate the fluctuations in water levels in those wells on a seasonal basis for each year and also on a year-to-year basis in response to variations in seasonal/annual groundwater extractions and annual recharge. Actual water levels for each well are plotted on the hydrographs as depth to water for each available data point; the ground surface elevation (GSE) of each well is also listed on each respective hydrograph.

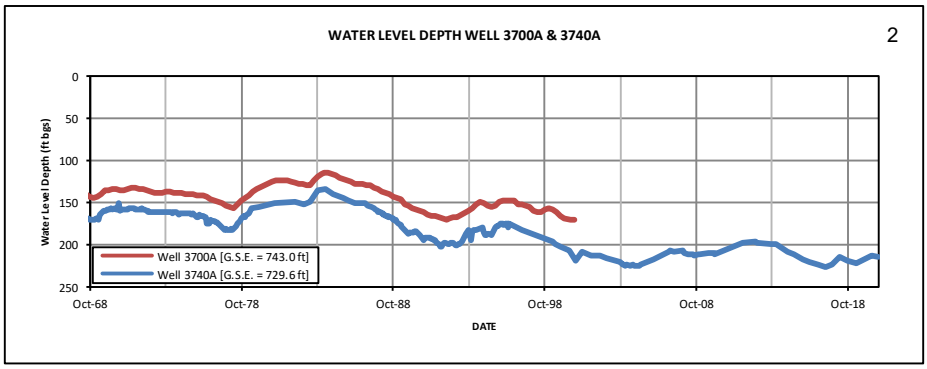
Figure 2-3 LOCATIONS OF WELLS WITH HYDROGRAPHS

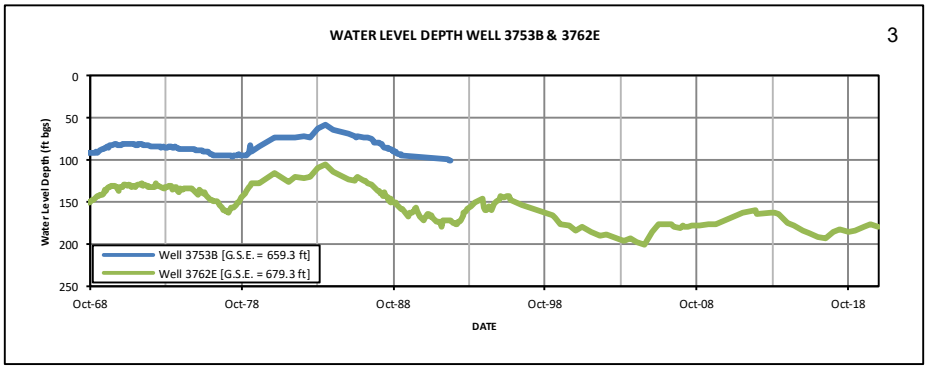


Note: For each well shown above, see hydrographs on accompanying Figures 2-4A to 2-4D.

Figure 2-4A SAN FERNANDO BASIN HYDROGRAPHS







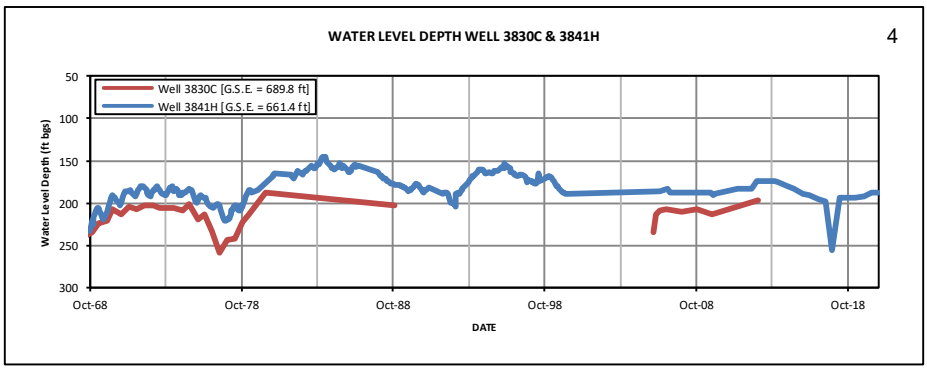
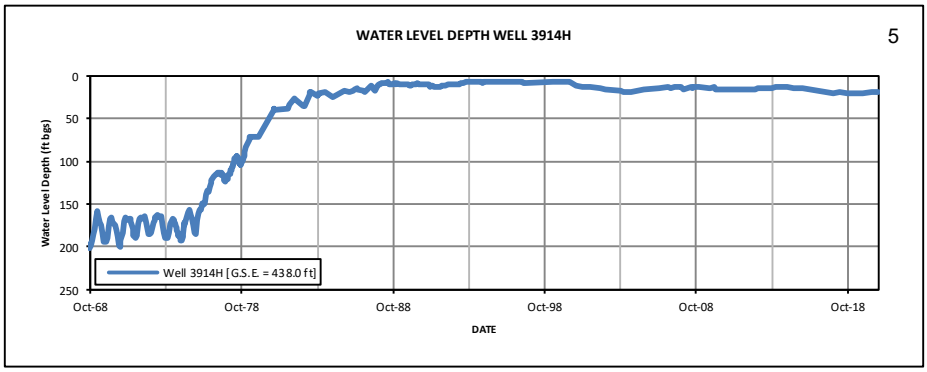
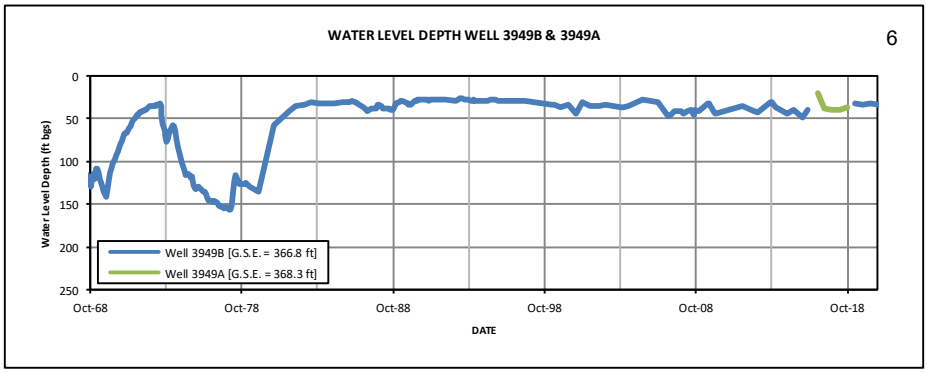
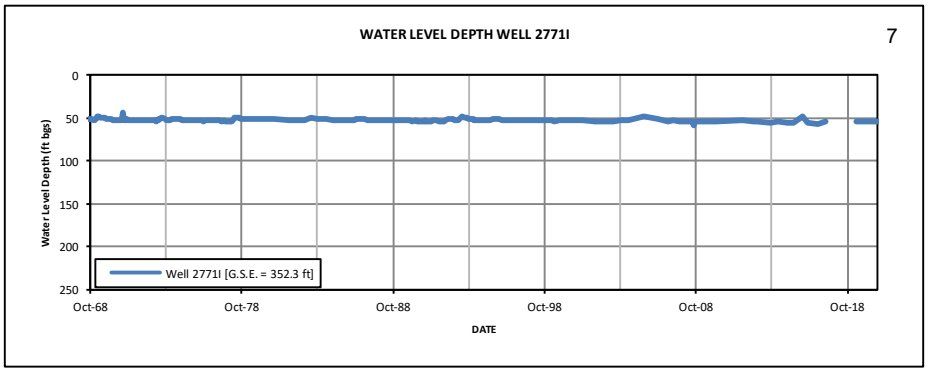


Figure 2-4A SAN FERNANDO BASIN HYDROGRAPHS, CONT'D







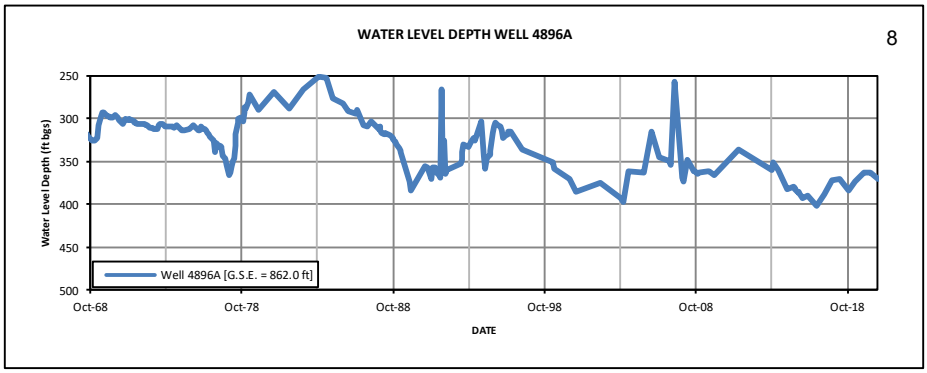
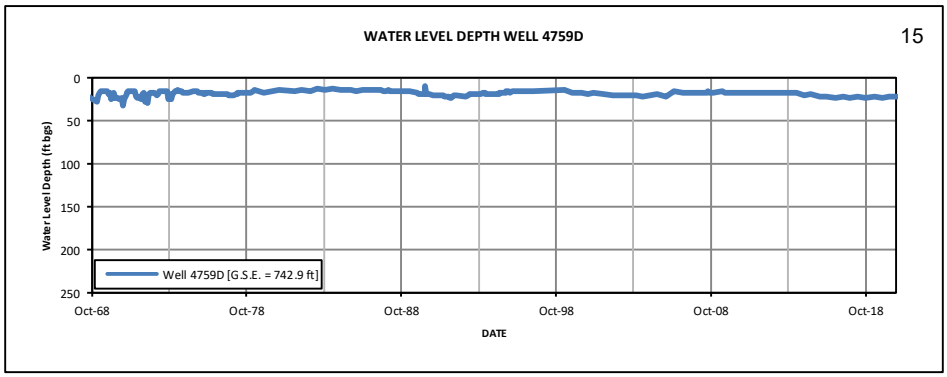
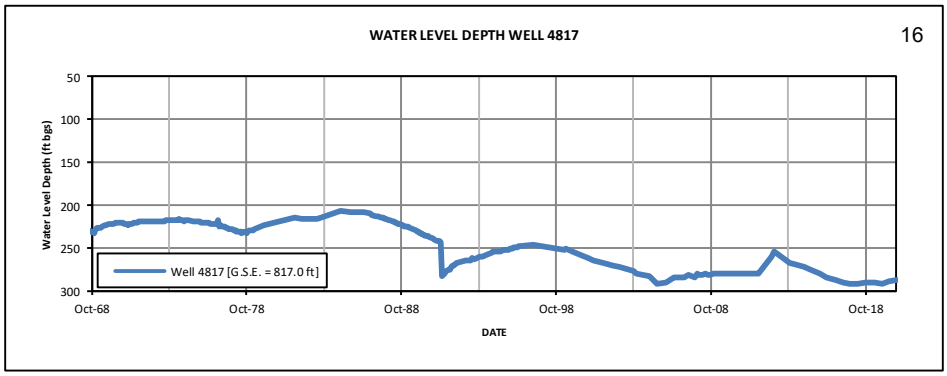
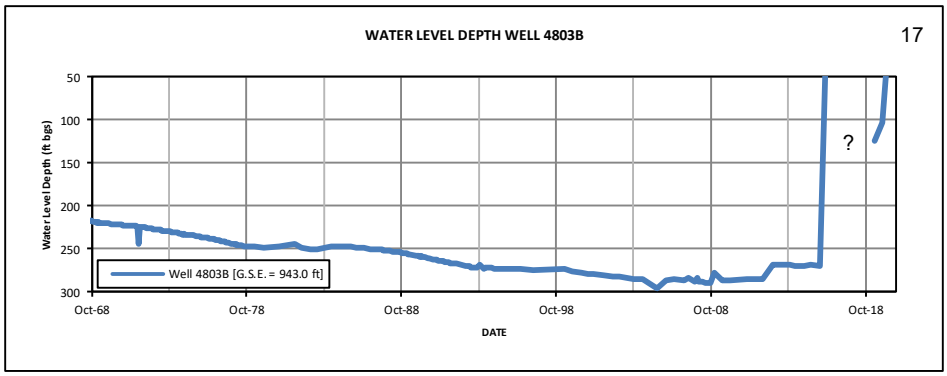


Figure 2-4A SAN FERNANDO BASIN HYDROGRAPHS, CONT'D







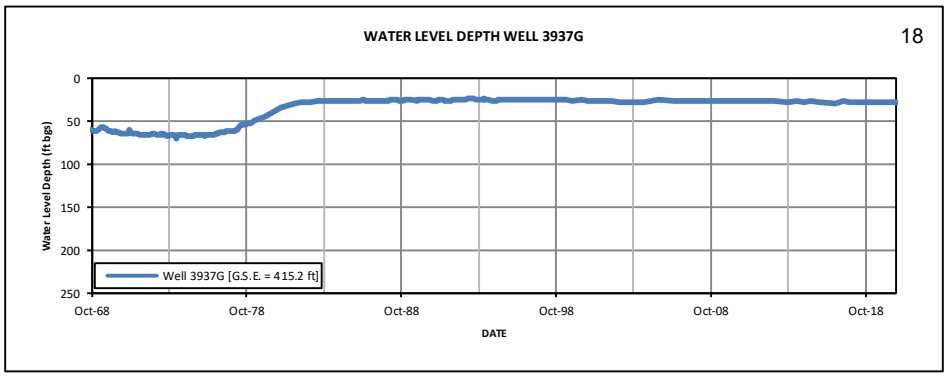
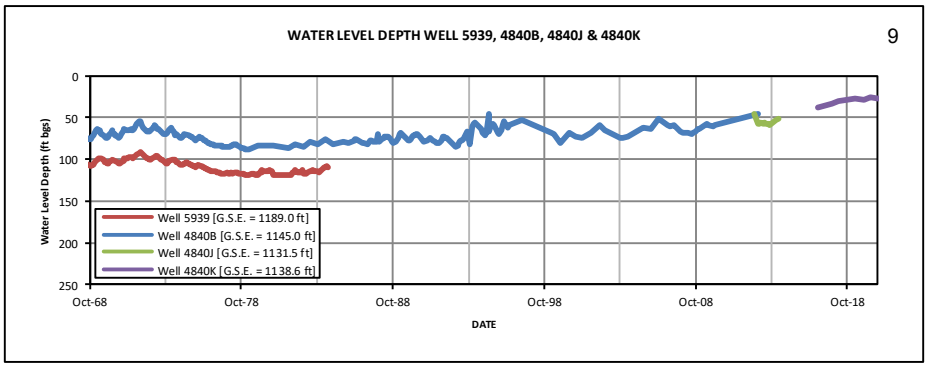


Figure 2-4B SYLMAR BASIN HYDROGRAPHS



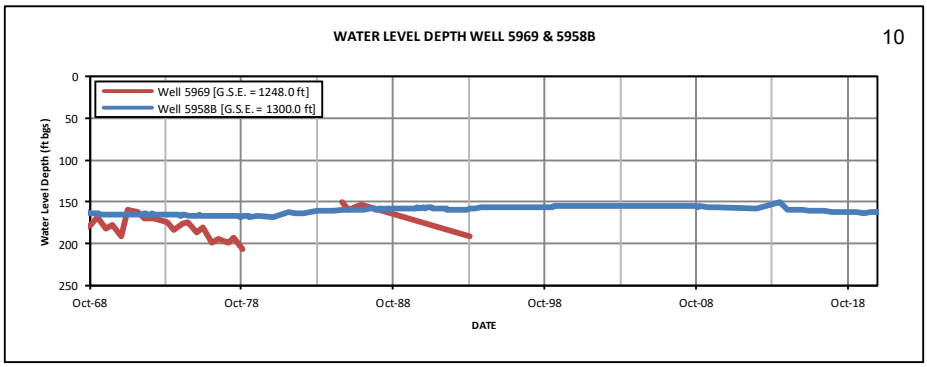


Figure 2-4C VERDUGO BASIN HYDROGRAPHS

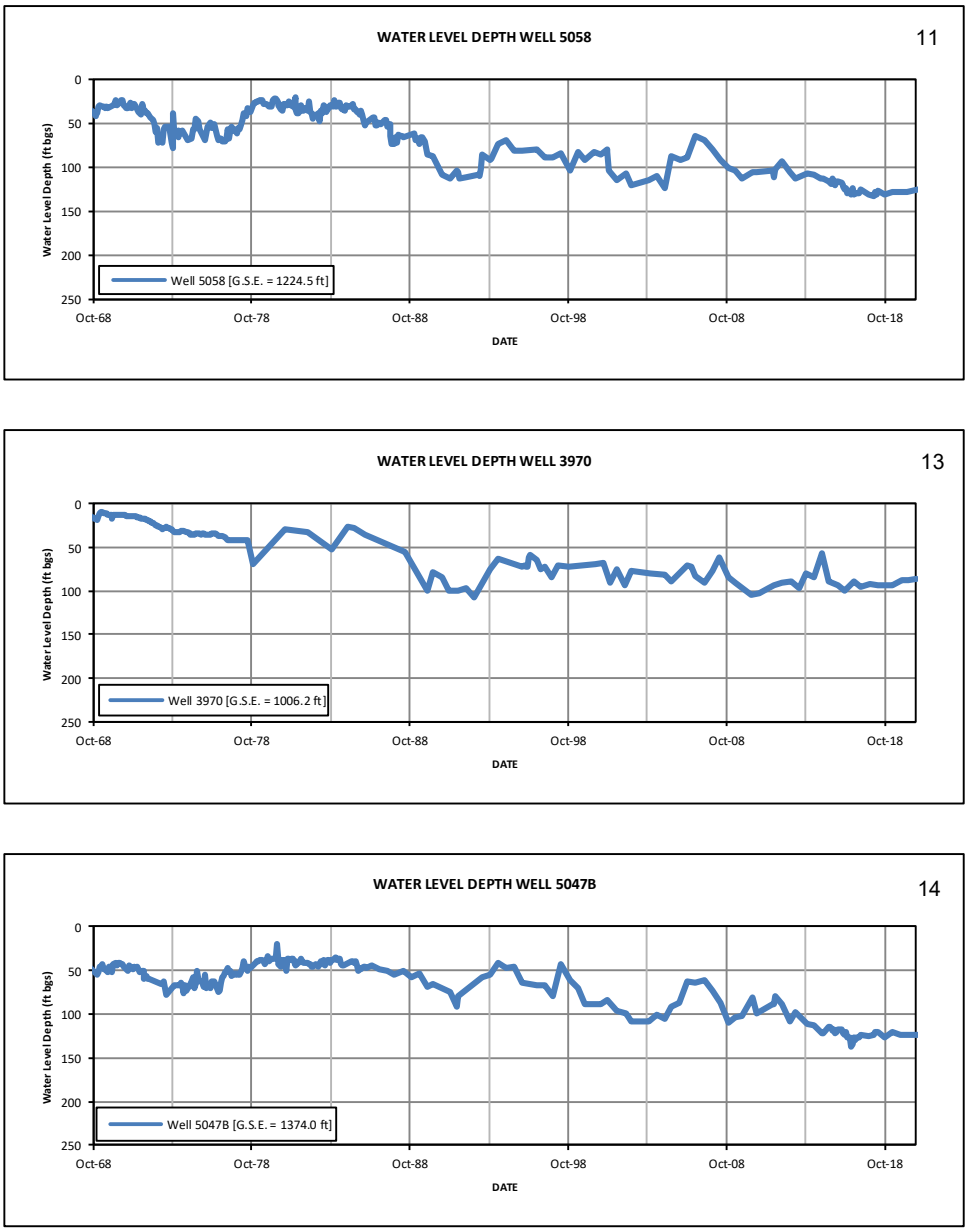
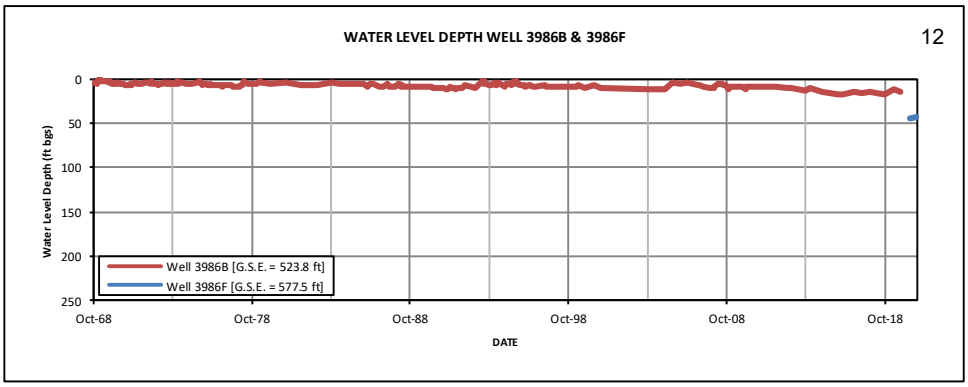


Figure 2-4D EAGLE ROCK BASIN HYDROGRAPH



2.9 GROUNDWATER IN STORAGE

2.9.1 San Fernando Basin

The change in the approximate volume of groundwater stored in the SFB is evaluated each year in three ways: between the current water year and the previous water year; for the cumulative change since Safe Yield Operation began in 1968; and for the cumulative change since 1928, the date at which sufficiently detailed records are considered to have become available for the original safe yield calculations.

In Fall 1968, following the Trial Court decision, Safe Yield Operation was implemented by the Court in an effort to halt the overdraft of the SFB that had begun in 1954 (refer to the blue-colored line on Plate 7). Methodology established by the State Water Rights Board, also referenced in Appendix R of the 1962 Report of Referee, was used to derive a regulatory requirement for groundwater in storage of 360,000 AF for the SFB that considered normal wet-dry cycles, operational flexibility, and annual pumping based on the calculated safe yield. The upper regulatory storage limit of 210,000 AF above the 1954 storage volume was established to help prevent excess rising groundwater from leaving the basin, whereas the lower regulatory storage limit of 150,000 AF below the 1954 storage level was established to help provide additional storage space for groundwater in wet years. It was determined that the amount of stored groundwater should be kept between the upper and lower limits of the regulatory storage range (indicated on Plate 7 by the two horizontal-dashed red lines). As shown on Plate 7, and with only a few brief exceptions, the SFB has rarely been operated within this regulatory storage range after 1968.

Plate 7 illustrates the estimated change in groundwater storage within the SFB by the blue line, and in tabular form on Table 2-9. Each year, groundwater levels are measured in numerous wells throughout the SFB. These groundwater levels are used to calculate the overall increase or decrease in volume of groundwater stored in this basin; the resulting change in storage is plotted on Plate 7 on an annual basis. The blue line on Plate 7 depicts the fluctuations over time in the calculated change in groundwater storage, beginning in approximately 1980; the very slight, but overall declining trend from 1980 to the present has occasionally been reversed during years of above-average rainfall and/or years of above-average spreading operations, and/or periods of decreased groundwater extractions. The long-term decline in groundwater in storage depicted on Plate 7 has been caused by a greater volume of water leaving the SFB than has been recharged on a long-term average annual basis. Causes of this decline include: pumping in excess of long-

term recharge; reduced natural recharge caused by increased urbanization and runoff leaving the basin; additional amounts of groundwater underflow and rising groundwater leaving the basin; reductions in irrigation return-flow recharge due to reductions in irrigation water use as a result of water conservation efforts in the region; and reductions in the volumes of artificial recharge due to restrictions at the spreading grounds located in the northeastern portion of SFB.

Fortunately, in recent years, the City of Los Angeles (through LADWP) and the LACDPW have been working together to seismically retrofit and/or enlarge the reservoir capacity of certain dams and to rehabilitate and/or enlarge the existing spreading basins in the eastern portion of ULARA; refer to Section 1 of this report for additional details. These projects are oriented, in part, to capture and store additional surface water runoff in the eastern portion of the SFB. Those agencies are also considering additional plans, such as optimizing the methods and/or timing for operating those reservoirs and spreading basins to further enhance recharge opportunities. Programs already completed and/or currently in progress between those two agencies and the annual volume of increased recharge at each facility in the SFB are shown on Table 2-10.

Table 2-9 shows a summary of the change in storage in the SFB over time, including the change in storage for the current WY as well as the cumulative total change in storage since 1968. The increase in storage in the current WY is attributed to above-average rainfall in the region, an increased volume of stormwater spreading compared to that in prior years and a decreased groundwater production relative to that in recent years. Based on those changes in storage calculations, the remaining storage space available in the SFB is illustrated on Plate 7. This available space can be used to capture and store additional native water or imported water supplies during wet (above-average rainfall) years. Basin storage space is a valuable resource; it has been the opinion of all ULARA Watermasters that this storage space should be available for use by the Parties.

2.9.2 Sylmar Basin

The groundwater storage capacity of the Sylmar Basin was previously calculated by others to be approximately 310,000 AF. The volume of groundwater in storage in this basin is estimated to have increased by 4,074 AF during the current water year.

2.9.3 Verdugo Basin

The groundwater storage capacity of the Verdugo Basin, as previously determined by others, is approximately 160,000 AF. The volume of groundwater in storage in this basin is estimated to have increased by 4,243 AF during the current water year.

2.9.4 Eagle Rock Basin

The volume of groundwater in storage in Eagle Rock Basin is estimated to have decreased by 111 AF during the current water year.

2.10 WATER SUPPLY AND DISPOSAL - BASIN SUMMARIES

Table 2-11, Table 2-12, Table 2-13, and Table 2-14 summarize water supply and disposal activities in the San Fernando, Sylmar, Verdugo, and Eagle Rock groundwater basins, respectively. Outflows from these basins are based on computations originally made by the State Water Rights Board in the 1962 Report of Referee.

Table 2-9 CHANGE IN GROUNDWATER IN STORAGE IN SFB

Water Year	Valley Floor Precipitation (in)	Artificial Recharge (acre-feet)	Change in Storage (acre-feet)	Cumulative Change in Storage (acre-feet)	Groundwater Extractions (acre-feet)
2019-20	16.77	21,265	5,703	106,242	62,791
2018-19	22.83	51,174	39,722	100,539	48,556
2017-18	7.14	19,344	(7,479)	60,817	56,844
2016-17	18.43	33,812	16,567	68,296	55,481
2015-16	8.53	3,548	(43,179)	51,729	92,126
2014-15	10.79	2,973	(39,722)	94,908	91,896
2013-14	6.23	10,621	(59,010)	134,630	99,672
2012-13	7.71	10,780	(12,157)	193,640	73,710
2011-12	10.81	14,944	(10,338)	205,797	69,764
2010-11	24.44	90,502	71,081	216,135	64,313
2009-10	19.08	47,013	17,856	145,054	80,487
2008-09	11.64	9,940	(15,750)	127,198	72,140
2007-08	15.10	21,638	9,443	142,948	67,228
2006-07	4.39	7,974	(33,693)	133,505	94,430
2005-06	16.46	44,615	16,303	167,198	59,375
2004-05	42.64	74,198	66,476	150,895	67,865
2003-04	9.52	10,065	(22,367)	84,419	89,346
2002-03	19.41	16,330	(15,835)	106,786	95,431
2001-02	5.95	2,664	(27,094)	122,621	87,992
2000-01	19.52	17,939	(6,930)	149,715	86,946
1999-00	14.84	14,106	(31,044)	156,645	116,357
1998-99	9.81	14,662	(82,673)	187,689	141,757
1997-98	37.04	61,119	44,113	270,362	94,682
1996-97	15.17	23,172	(35,737)	226,249	105,899
1995-96	12.03	21,239	(49,223)	261,986	82,862
1994-95	33.36	69,108	79,132	311,209	58,121
1993-94	10.19	19,981	(22,238)	232,077	62,990
1992-93	36.62	64,658	106,317	254,315	36,419
1991-92	30.05	39,624	411	147,998	76,213
1990-91	14.38	18,718	(14,122)	147,587	71,065
1989-90	8.20	4,154	(29,941)	161,709	81,466
1988-89	9.12	5,713	(30,550)	191,650	127,973
1987-88	18.62	23,161	(5,000)	222,200	105,470
1986-87	5.99	7,952	(31,940)	227,200	91,632
1985-86	20.27	28,350	(7,980)	259,140	86,904
1984-85	11.00	22,493	(31,690)	267,120	101,591
1983-84	9.97	38,283	(63,180)	298,810	115,611
1982-83	39.64	102,925	121,090	361,990	68,394
1981-82	17.18	24,253	(530)	240,900	84,682
1980-81	11.04	31,891	(32,560)	241,430	92,791
1979-80	30.25	73,543	99,970	273,990	58,915
1978-79	21.76	72,454	78,080	174,020	59,843
1977-78	35.43	85,450	136,150	95,940	66,314
1976-77	14.19	8,197	(50,490)	(40,210)	125,445
1975-76	9.90	14,805	(30,090)	10,280	103,740
1974-75	14.74	22,786	(22,580)	40,370	95,830
1973-74	15.75	16,488	(21,820)	62,950	88,017
1972-73	20.65	24,342	17,020	84,770	82,004
1971-72	8.10	10,595	(17,090)	67,750	84,140
1970-71	15.57	24,143	15,340	84,840	79,010
1969-70	10.50	27,579	(9,740)	69,500	88,856
1968-69	29.00	71,506	79,240	79,240 [1]	84,186
52 Year Average	**17.07**	**30,746**	**2,043**	**-----**	**83,376**

1. Accumulation of Storage calculation commenced as of October 1, 1968.

Table 2-10 PROJECTS TO ENHANCE RECHARGE CAPACITY IN THE SFB

Project	LADWP's Project Partner	Approx. Total Cost	LADWP Cost Share	Construction Start Date	Construction End Date	Expected Increase in Recharge (AFY)
Sheldon-Arleta Project	LASAN	$10M	$5.2M	2007	Completed Nov 2009	4,000
Big Tujunga Dam Seismic Retrofit Project	LACFCD	$94.7M	$9M	2007	Completed Feb 2012	4,500
Hansen Spreading Grounds Enhancement Project	LACFCD	$8.2M	$4.1M	2008	Completed Jan 2013	2,100
Woodman Ave. Stormwater Capture Project	LASAN	$3.4M	$1.2M	2012	Completed Feb 2014	55
Laurel Canyon Blvd. Green Street Project	LASAN	$2.8M	$0.8M	2016	2016	40
Burbank Blvd. BMP Project	LABOE	$8.3M	$1M	2017	2019	53
Sun Valley EDA Public Improvement Project	LABOE	$6.4M	$2.4M	2015	Completed March 2016	93
Valley Generating Station Stormwater Capture Project	LACFCD	$1.6M	$1.6M	2018	2019	37
Lopez Spreading Grounds Enhancement Project	LACFCD	$4M	$2M	2019	2021	480
Tujunga Spreading Grounds Enhancement Project	LACFCD	$28M	$18-$25M	2016	2018	8,000
Pacoima Spreading Grounds Enhancement Project	LACFCD	$30M	$15M	2017	2019	5,300
Whitnall Power Line Easement Project	LABOE	$1.6M	$1.6M	2018	2019	95
Branford Spreading Basin Enhancement Project	LACFCD	$2M	$0.6M	2017	2019	600
Rory M. Shaw Wetlands Park Project	LACFCD	$52M	$5M	2017	2022	590
San Fernando Valley Distributed Projects	LASAN	$15M	$15M	2017	2020	494
Big Tujunga Dam Sediment Removal Project	LACFCD	$33M	$10M	2018	2028	500
Pacoima Dam Sediment Removal Project	LACFCD	$85M	$10M	2019	2023	700

1. The future construction start and end dates and the expected increase in recharge listed in the chart are estimated and subject to change.

Table 2-11 SUMMARY OF WATER SUPPLY & DISPOSAL - SAN FERNANDO BASIN

2019-20 Water Year	(acre-feet)					
Water Source and Use	City of Burbank	City of Glendale	City of Los Angeles	City of San Fernando	All Others	Total
Extractions						
Municipal Use	10,561	7,566	42,913	---	0	61,040
Basin Account	---	---	---	---	0	0
Physical Solution	---	---	---	---	218 [1]	218
Cleanup/Dewaterers	---	---	---	---	508	508
Non-consumptive Use	---	---	---	---	1,025	1,025
Total	**10,561**	**7,566**	**42,913**	**0**	**1,751**	**62,791**
Imports						
LA Aqueduct Water	---	---	250,883 [2]	---	---	250,883
MWD Water	6,153 [2]	14,913	134,249	0	6,732 [3]	162,047
Groundwater from						
Sylmar Basin	---	---	3	2,560	---	2,563
Verdugo Basin	---	0	---	---	---	0
Total	**6,153**	**14,913**	**385,135**	**2,560**	**6,732**	**415,493**
Delivered Recycled Water[4]	2,977	1,604	5,066 [5]	0	1,535 [3]	11,182
Exports						
LA Aqueduct Water						
out of ULARA	---	---	120,190	---	---	120,190
to Verdugo Basin	---	---	366	---	---	366
to Sylmar Basin	---	---	5,125	---	---	5,125
to Eagle Rock Basin	---	---	3,250	---	---	3,250
MWD Water						
out of ULARA	---	---	64,456	---	---	64,456
to Verdugo Basin	---	2,052	196	---	---	2,248
to Sylmar Basin	---	---	2,742	---	---	2,742
to Eagle Rock Basin	---	---	1,598	---	---	1,598
Groundwater	14 [6]	34 [6]	34,657	---	---	34,705
Total	**14**	**2,086**	**232,580**	**0**	**0**	**234,680**
Delivered Water						
Groundwater Transfer	(614) [7]	---	614 [7]	---	---	---
Hill & Mountain Areas	---	---	39,446	---	---	39,446
Total - All Areas	19,063	21,997	201,148	2,560	10,018	254,786
Water Outflow						
Storm Runoff (F-57C-R)	---	---	---	---	59,160	59,160
Rising Groundwater (F-57C-R)	---	---	---	---	5,079	5,079
Subsurface	---	---	---	---	398	398
Recycled Water to the LA River	3,607	3,531	34,167	---	96 [3]	41,401
Wastewater to Hyperion	824 [8]	584 [9]	13,456 [9]	---	---	14,864

1. Includes pumping from Hill and Mountain areas tributary to SFB.
2. Does not include water imported for groundwater replenishment (spreading).
3. Recycled water delivered by LVMWD, primarily to the hill and mountain areas.
4. Referred to as “Reclaimed Water” in previous reports.
5. City of Los Angeles’ total recycled water use during the current WY was 9,648 AF of which 5,066 AF were delivered to valley fill and 4,582 AF were delivered to the hill and mountain areas and for other industrial uses.
6. Groundwater treated at the BOU and GOU that is discharged to the Los Angeles River or the sewer.
7. Groundwater Transfer from the City of Burbank to the City of Los Angeles, per an agreement between these Parties. Transfers under this agreement began in WY 2018-19.
8. The volume of sewage exported from Burbank to the City of Los Angeles for treatment at the Los Angeles Hyperion Plant is an estimated quantity, based on the difference between gaged volumes measured at the Los Angeles North outfall sewer at the upper Burbank gaging station (near Lakeside Golf Course) and the lower Burbank gaging station (near Travel Town in Griffith Park), with adjustments. Additional adjustments are made to account for Sun Valley (City of Los Angeles) sewage that passes through the Burbank system and other interconnections in accordance with the Los Angeles-Burbank Wastewater Contract. The resultant calculated volumes to Hyperion are negative numbers for some months and are conjectured to result from the Burbank WRP treating more flows received from the City of Los Angeles than Burbank discharges to the City of Los Angeles. Burbank Public Works is still working with the City of Los Angeles to understand these resultant negative flows.
9. Water discharged from Tillman and LAG WRPs. Volume assigned to each City from LAG WRP is derived from the proportion of the total recycled water delivered to each City.

Table 2-12 SUMMARY OF WATER SUPPLY & DISPOSAL - SYLMAR BASIN

2019-20 Water Year	(acre-feet)			
Water Source and Use	City of Los Angeles	City of San Fernando	All Others	Total
Total Extractions	3	2,813	0 [1]	2,816
Imports				
LA Aqueduct Water from SFB	5,125	--	--	5,125
MWD Water	--	0	--	0
MWD Water from SFB	2,742		--	2,742
Total	**7,867**	**0**	**0**	**7,867**
Exports - Groundwater				
to San Fernando Basin	3	2,560	0	2,563
Total Delivered Water	7,867	253	0	8,120
Water Outflow				
Storm Runoff	5,000 [2]	--	--	5,000
Subsurface	560 [3]	--	--	560
Total	**5,560**	**0**	**0**	**5,560**

1. Pumping for landscape irrigation by Santiago Estates. This well was capped in 1999.
2. Surface outflow is not measured. Estimate based on Mr. F. Laverty – SF Exhibits 57 and 64.
3. Estimated in the Report of Referee, and later revised by the Watermaster.

Table 2-13 SUMMARY WATER SUPPLY & DISPOSAL - VERDUGO BASIN

2019-20 Water Year	(acre-feet)					
Water Source and Use	Crescenta Valley Water District	City of Glendale	La Canada Irrigation District	City of Los Angeles	Other	Total
Total Extractions	1,970	867 [1]	---	---	10 [2]	2,847
Imports						
LA Aqueduct Water from SFB	---	---	---	366		366
MWD Water	2,032	2,052	1,053			5,137
MWD Water from SFB				196		196
Total	2,032	2,052	1,053	562		5,699
Exports						
San Fernando Basin	0	0	0	0		0
CVWD	---	0	0	0		0
Total	0	0	0	0		0
Delivered Recycled Water [3]		295		0		295
Total Delivered Water	4,002	3,214	1,053	562	10	8,841
Water Outflow						
Storm Runoff (Sta. F-252) [4]					5,073	5,073
Rising Groundwater (Sta. F-252)					1,096	1,096
Subsurface to:						
Monk Hill Basin	---	---	---	---	300 [5]	300
San Fernando Basin	---	---	---	---	80 [5]	80
Total	**0**	**0**	**0**	**0**	**6,549**	**6,549**

1. City of Glendale Total Extractions includes Rockhaven Well (CVWD 16) extractions.
2. Private party extractions.
3. Referred to as “Reclaimed Water” in previous reports.
4. Includes rising groundwater.
5. Estimated in the Report of Referee.

Table 2-14 SUMMARY OF WATER SUPPLY & DISPOSAL - EAGLE ROCK BASIN

2019-20 Water Year	(acre-feet)		
Water Source and Use	**City of Los Angeles**	**DS Services of America, Inc. (Sparkletts)**	**Total**
Total Extractions	0	199 [1]	199
Imports			
LA Aqueduct Water from SFB	3,250	--	3,250
MWD Water (LA35) [2] from SFB	1,598		1,598
MWD Water (LA17) [2]	30,374		30,374
Groundwater from SFB [3]	0	--	0
Total	**35,222**	**0**	**35,222**
Exports			
LA Aqueduct Water out of ULARA	2,976		2,976
MWD Water (LA35) [2] out of ULARA	1,463		1,463
MWD Water (LA17) [2] out of ULARA	27,807		27,807
Groundwater	0	199	199
Total	**32,246**	**199**	**32,445**
Total Delivered Water	2,976	0	2,976
Water Outflow			
Storm Runoff	--	--	--
Subsurface	50 [4]	--	50
Total	**50**	**0**	**50**

1. DS Services of America, Inc., formerly DS Waters, which was formed by the merger of Suntory/Deep Rock Water Co. and McKesson/Danone Water Products, is allowed to pump as successor to Deep Rock and Sparkletts, under a stipulated agreement with the City of Los Angeles, and is allowed to export equivalent amounts of water.
2. LA35 and LA17 are connections between the MWD and LADWP water systems where MWD imported water is supplied to the City of Los Angeles.
3. Groundwater meter flow data is unavailable due to metering issues.
4. Estimated in Supplement No. 2 to Report of Referee (1962).

2.11 EXTRACTION RIGHTS AND STORED WATER CREDITS

2.11.1 San Fernando Basin

Table 2-15 shows the calculation of extraction rights for the forthcoming water year in SFB, and Table 2-17 shows the Stored Water Credits for the cities of Burbank, Glendale and Los Angeles. All rights are based on the Final Judgment dated January 26, 1979 and the "Interim Agreement for the Preservation of the San Fernando Basin Water Supply, 2008" (document available at ULARAwatermaster.com).

2.11.2 Sylmar Basin

Table 2-16 shows the calculation of Sylmar Basin extraction rights for the forthcoming water year. Table 2-18 and Table 2-19 display the Stored Water Credits for the cities of Los Angeles and San Fernando within the Sylmar Basin. These rights are based on the March 22, 1984 Stipulation between the City of San Fernando and the City of Los Angeles, and the action by the Administrative Committee on July 16, 1996 to temporarily increase the safe yield of this basin from 6,210 AFY to 6,510 AFY. That 1996 temporary increase expired on October 1, 2005, but the safe yield was re-evaluated by the then-Watermaster in 2006. Another stipulation was prepared by the then-Watermaster on December 13, 2006, and this increased the safe yield of the Sylmar Basin to 6,810 AFY (effective October 1, 2006), subject to certain conditions that provided the basis for these water rights.

In July 2012, the current Watermaster prepared a new re-assessment of the safe yield of this basin titled "Final Report – Sylmar Basin Safe Yield, 5-Year Re-assessment". The resulting document was filed with the Court in June 2013; a copy of this document is available via ULARAwatermaster.com. In the 2012 re-assessment, the Watermaster temporarily and conditionally increased the total safe yield of Sylmar Basin from 6,810 AFY to 7,140 AFY. On October 31, 2016, the Watermaster extended the new and larger 2012 safe yield value for the subsequent five water years. Each of the above-listed reassessments of the safe yield of Sylmar Basin was performed using the same basic methodology originally devised by the first ULARA Watermaster, Mr. Melvin Blevins.

In addition to the increase in the safe yield value, the groundwater credit calculation for Sylmar Basin previously used by the two former ULARA Watermasters had to be revised by the current Watermaster as part of his work for the July 2012 safe yield re-assessment. Specifically, groundwater credits in Sylmar Basin are now being calculated by the current Watermaster directly according to the Judgment; that is, credits can no longer be carried

over for more than 5 years (Judgment, January 26, 1979; Subsection 5.2.2.3, p. 19-20). Table 2-19 shows the revised method of groundwater credit calculation for Sylmar Basin.

To address the potential loss of credits accumulated over time via the method of credit calculation utilized in the past by the former Watermasters, and as described in the July 2012 re-evaluation report (see ULARAwatermaster.com), each Party will remain credited with "frozen" groundwater credits (9,014 AF and 404 AF for the City of Los Angeles and the City of San Fernando, respectively); the initial accounting of these "frozen credits" is shown on Table 2-18. Both Parties will be able to exercise their right to use those accumulated, but now, "frozen" groundwater credits. However, neither city will be able to exercise its 5-year credits (shown on Table 2-19), even if one or both of the cities does not or cannot pump its new safe yield value, until such time as their individual, newly "frozen" credits are used entirely. Note that, at any time, either Party may permanently abandon its "frozen" credits and begin accessing its stored water credits accrued via the 5-year credit calculation method.

2.11.3 Verdugo Basin

Glendale and CVWD have rights to extract 3,856 and 3,294 AFY, respectively, from the Verdugo Basin. The City of Los Angeles has a right to extract its Import Return water in the Verdugo Basin, but has never exercised this right. No Stored Water Credits are currently permitted by the Judgment in the Verdugo Basin for any party.

2.11.4 Eagle Rock

The City of Los Angeles has the right to extract, or cause to be extracted, the entire safe yield of this basin. This safe yield consists mostly of return flows of delivered water by the City of Los Angeles. Neither this City, nor any other Parties, pump groundwater from the Eagle Rock Basin. DS Services of America, Inc., as successor to the Sparkletts and Deep Rock water companies, has a physical solution right to extract groundwater to supply its bottled drinking water facility in this basin.

Table 2-15 CALCULATION OF EXTRACTION RIGHTS – SAN FERNANDO BASIN

	(acre-feet)		
	City of Burbank	**City of Glendale**	**City of Los Angeles**
Total Delivered Water, WY2019-20	19,063	21,997	201,148
Water Delivered to Hill and Mountain Areas, WY2019-20	---	---	39,446
Water Delivered to Valley Fill, WY2019-20	19,063	21,997	161,702
Percent Recharge Credit	20.0%	20.0%	20.8%
Return Water Extraction Right	3,813	4,399	33,634
Native Safe Yield Credit	---	---	43,660
Annual Extraction Right for the 2020-21 Water Year[1]	**3,813**	**4,399**	**77,294**

1. Does not include Stored Water Credit and Physical Solution.

Table 2-16 CALCULATION OF EXTRACTION RIGHTS - SYLMAR BASIN

	(acre-feet)		
	City of Los Angeles	**City of San Fernando**	**All Others**
Annual Extraction Right for the 2020-21 Water Year[1]	3,570	3,570	--- [2]

1. Does not include Stored Water Credit. The safe yield of the Sylmar Basin was increased to 7,140 AFY effective October 1, 2012. Effective October 1, 1984 safe yield less pumping by Santiago Estates is equally shared by the cities of Los Angeles and San Fernando.
2. Santiago Estates (Home Owners Group) capped its well in 1999.

Table 2-17 CALCULATION OF STORED WATER CREDITS – SAN FERNANDO BASIN

Item Number and Description		(acre-feet) City of Burbank	City of Glendale	City of Los Angeles
1. Stored Water Credits (as of Oct. 1, 2019)		28,714	21,584	643,307
1a. Credits and Debits Recycled Water		45 [1]	0	(45) [1]
1b. Prior Year Adjustments Waterworks District No. 21, Kagel Canyon		0	(59) [2]	59 [2]
2. Extraction Right for the 2019-20 Water Year		3,668	4,129	76,498
3. WY2019-20 Extractions and Credits				
Party Extractions		10,561	7,566	42,913
Physical Solution Extractions		0	165	52
Clean-up/Dewaterers		0	0	509
Groundwater Transfer		(614) [3]	---	614 [3]
	Total	9,947	7,731	44,088
4. Spread Water 2019-20 Water Year		5,232	0	0
5. Stored Water Credits [4] per City (as of Oct. 1, 2020)		**27,712**	**17,923**	**675,731**

1. In the current WY, the City of Los Angeles received this volume of disinfected tertiary treated denitrified Title 22-compliant recycled water from Burbank in exchange for an equal amount of groundwater credits under Agreement No. WR-10-1026 Recycled Water Service to Los Angeles.
2. Stored water credit exchange between the cities of Glendale and Los Angeles for water delivered at Los Angeles County Waterworks District No. 21, Kagel Canyon in the previous WY.
3. Groundwater Transfer from the City of Burbank to the City of Los Angeles, per an agreement between these Parties. Transfers under this agreement began in WY 2018-19.
4. Item 5 = 1 +1a + 1b + 2 – 3 + 4.

Table 2-18 CALCULATION OF "FROZEN" STORED WATER CREDITS - SYLMAR BASIN

	(acre-feet)	
	City of Los Angeles	City of San Fernando
1. "Frozen" Water Credits (as of Oct. 1, 2019)	9,014	404
2. Extraction Right for the 2018-19 Water Year [1]	3,570	3,570
3. Total 2018-19 Extractions	3	2,813
Santiago Estates[2]	0.0	0.0
4. Total Extractions Less Extraction Right (= Item 3 - Item 2)	(3,567)	(757)
5. Remaining "Frozen" Water Credits[3] (as of Oct. 1, 2019)	**9,014**	**404**

1. The total safe yield of the Sylmar Basin was increased to 7,140 AFY as of October 1, 2012.
2. Santiago Estates pumping is subtracted equally from the rights of the cities of San Fernando and Los Angeles. Santiago Estates capped its well in 1999.
3. If Item 4 > 0, then Item 4 is deducted from "Frozen" Water Credits, otherwise, "Frozen" Water Credits remain unchanged. Per the Sylmar Basin Safe Yield re-evaluation, "Frozen" Stored Water Credits no longer accumulate, and can only be consumed (See 2012-dated Sylmar Safe Yield Evaluation available at ULARAwatermaster.com).

Table 2-19 CALC. OF STORED WATER CREDITS - 5-YEAR METHOD - SYLMAR BASIN

Party	Water Year	Annual Extraction Right (AF)	Total Extractions (AF)	Credits Consumed Due to Previous Year Overpumpage	Annual Volume of Accrued Credits (AF)	Remarks
City of Los Angeles	2015-16	3,570	683	0	2,887	Total extraction was less than annual extraction right.
	2016-17	3,570	0	0	3,570	Total extraction was less than annual extraction right.
	2017-18	3,570	0	0	3,570	Total extraction was less than annual extraction right.
	2018-19	3,570	1	0	3,569	Total extraction was less than annual extraction right.
	2019-20	3,570	3	0	3,567	Total extraction was less than annual extraction right.
			STORED WATER CREDITS (as of Oct. 1, 2020) =		17,163	
City of San Fernando	2015-16	3,570	3,008	0	562	Total extraction was less than annual extraction right.
	2016-17	3,570	2,777	0	793	Total extraction was less than annual extraction right.
	2017-18	3,570	2,896	0	674	Total extraction was less than annual extraction right.
	2018-19	3,570	2,731	0	839	Total extraction was less than annual extraction right.
	2019-20	3,570	2,813	0	757	Total extraction was less than annual extraction right.
			STORED WATER CREDITS (as of Oct. 1, 2020) =		3,625	

Note: Stored water credits in Table 2-19 are calculated by summing the "Annual Volume of Accrued Credits" column and subtracting the sum of the "Credits Consumed due to Previous Year Overpumpage" column.

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3 WATER QUALITY, TREATMENT, AND REMEDIAL INVESTIGATIONS

3.1 WATER QUALITY BY SOURCE

Various water sources are used within ULARA as described below. A representative summary of the total dissolved solids (TDS) concentrations and the general water quality character analyses of imported water, surface water and groundwater are provided in Appendix D.

3.1.1 Imported Water

Sources of imported water and their basic water character in ULARA are as follows:

1. *LOS ANGELES AQUEDUCT* water has a sodium bicarbonate character and is the highest quality water available to ULARA.
2. *COLORADO RIVER* water is predominantly sodium-calcium sulfate in character, but the quality of this water supply changes to a sodium sulfate character after it has been treated to reduce total hardness.
3. *NORTHERN CALIFORNIA* water (delivered via the State Water Project) is sodium bicarbonate-sulfate in character. It generally contains lower concentrations of TDS and is softer than either local groundwater or imported Colorado River water.
4. *COLORADO RIVER / NORTHERN CALIFORNIA* waters were first blended at the Weymouth Plant in mid-1975. Blending ratios vary over time depending on the availability of supply and area demands.

3.1.2 Surface Water

Surface runoff contains salts dissolved from the erosion of sediments and rocks in the tributary areas of ULARA and is considered to generally display a sodium/calcium to sulfate/bicarbonate water character.

3.1.3 Groundwater

Groundwater in the four ULARA groundwater basins is considered to be moderately hard to very hard. The character of groundwater from the major water-bearing formations is of two general types, each reflecting the composition of the sediments and the surface runoff

in each area. In the western part of the SFB the groundwater is generally calcium sulfate-bicarbonate in character, whereas in the eastern part of SFB (and also in the Sylmar and Verdugo Basins), groundwater generally displays a calcium bicarbonate character.

The overall quality of the groundwater in ULARA is generally within the recommended limits of the California Title 22 Drinking Water Standards, except for:

- areas in the eastern SFB which display high concentrations of certain VOCs like trichloroethene (TCE) and tetrachloroethene (PCE), along with CrVI, nitrate (NO_3), and 1,4-dioxane;
- areas in the western portion of the SFB which tend to have high concentrations of naturally-occurring sulfate (SO_4) and TDS;
- areas within the Verdugo Basin that have elevated concentrations of NO_3;
- areas within the Sylmar Basin that have elevated concentrations of NO_3 and certain VOCs.

Wherever the local groundwater is pumped and contains possible contaminants, it is being treated or blended to meet State Drinking Water Standards, or the impacted wells in each specific basin have been temporarily removed from active service.

3.2 SALT AND NUTRIENT MANAGEMENT PLAN DEVELOPMENT

The State Water Resources Control Board (SWRCB) adopted a Recycled Water Policy in February 2009. That Policy required that Salt and Nutrient Management Plans (SNMP) be developed for groundwater basins in the state to "facilitate basin-wide management of salts and nutrients from all sources in a manner that optimizes recycled water use while ensuring protection of groundwater supply and beneficial uses, agricultural beneficial uses, and human health." In accordance with the Recycled Water Policy, an SNMP is being developed for the four ULARA groundwater basins by the ULARA Watermaster.

Development of the SNMP for the ULARA groundwater basins is ongoing. The ULARA Watermaster continues to work closely with RWQCB-LA staff and the ULARA stakeholders as part of the SNMP development. As of December 2017, five technical memoranda (TM's) have been prepared. During the 2016-17 Water Year, the ULARA SNMP Technical Committee met on a monthly basis through May 2017, when TM-5 was completed.

A public information meeting regarding ongoing SNMP development was held on July 13, 2017. The basic purpose of the meeting was to provide a summary of the ULARA SNMP to interested parties and stakeholders, with a focus on the results of the mixing

model developed as part of the SNMP work. A public CEQA Scoping meeting regarding the ongoing SNMP development was held on October 17, 2017. Development of the CEQA documentation is also ongoing. Preparation of the necessary CEQA environmental documentation process is ongoing, and the Watermaster has been working with RWQCB-LA and ESA to move the documentation forward. Recently, the Watermaster reviewed the current concentrations of key constituents in ULARA, using data provided by the ULARA Parties, and presented those data to the LARWQCB. Analyses showed that the modeling work performed for the SNMP created reasonable predictions of current conditions.

Each of the TM's developed for the ULARA SNMP can be accessed through the ULARA Watermaster website via ULARAwatermaster.com/SNMP. In addition, information presented and distributed at various ULARA SNMP meetings are also available for download from the website. Important dates and updates regarding the ongoing development of the SNMP for ULARA are being distributed periodically via the website throughout the SNMP development process.

3.3 PRIVATE SEWAGE DISPOSAL SYSTEMS (PSDS)

To reduce the potential for groundwater contamination from septic tanks in the City of Los Angeles, the City enacted Ordinance No. 160388, Los Angeles Municipal Code Section 64.26 (LAMC Section 64.26) on September 17, 1985. This ordinance is entitled "Mandatory Abandonment of Private Sewage Disposal Systems (PSDS)."

LAMC Section 64.26 requires all owners of industrial, commercial and multiple dwelling residential (five or more units) properties to connect to the public sewer when the sewer becomes available, and to discontinue use of their PSDS within one year of the date of the issuance of a "Notice to Connect" by the City of Los Angeles. LAMC Section 64.26 also requires the Director of the Bureau of Sanitation (Director) to issue a "Reminder Notice" and a "Final Notice to Connect" to the owner of the property four (4) months and one (1) month prior to the compliance deadlines, respectively. LAMC Section 64.26 further requires the Director to take the following actions whenever a property is found to be in violation of the Code requirements:

- Request LADWP to discontinue water service to the subject property;
- Request the Superintendent of Buildings to order any building(s) on the subject property to be vacated; and

- Request the City Attorney to take the necessary legal action(s) against the property owner.

During WY 2019-20, Industrial Waste Management Division (IWMD) did not receive any referrals from the Financial Management Division and Wastewater Engineering Services Division to investigate properties and determine the applicability of the provisions of LAMC Section 64.26.

The City of Los Angeles is continuously looking for areas to add sewer and encourages owners of PSDS to properly abandon their septic systems and connect to the sewer. This City is also seeking grant funding opportunities to implement septic-to-sewer projects to encourage residents to properly abandon their onsite wastewater treatment systems (OWTS) and connect to the public sewer. Plate 8 shows the locations of proposed sewer improvement projects in the City of Los Angeles. Additional Information regarding the City of Los Angeles's efforts to reduce PSDS and OWTS sites can be found at their website, as follows:

https://www.lacitysan.org/san/faces/home/portal/s-lsh-wwd/s-lsh-wwd-cw/s-lsh-wwd-cw-ssps?_adf.ctrl-state=1cyuj3unrg_4&_afrLoop=13296318219627425#.

3.4 LANDFILLS

There are active and closed landfills throughout ULARA (at locations shown on Plate 9) that may have impacted, or have the potential to impact, the quality of surface water and groundwater in ULARA. The California Water Code was amended to include Section 13273, requiring the SWRCB to develop a ranked list of all known landfills throughout the state on the basis of each landfill's threat to water quality. Section 13273 also required the operator of each solid waste disposal site on the ranked list to submit to the appropriate RWQCB the results of a groundwater assessment, referred to as a solid waste water quality assessment test (SWAT), to determine if the solid waste disposal site was leaking. The SWAT reports were required on a yearly basis, submitted by rank, beginning with Rank 1 in 1987.

SWAT reports for major SWAT rank (Rank 1 to Rank 4) landfills in the ULARA have all been completed and previously submitted to the RWQCB-LA. The reports that have been reviewed by the RWQCB-LA are listed in Table 3-1. Further updates to the SWAT reports are triggered by proposals for post-closure land use. The current regulatory status of each site (as determined by the RWQCB-LA) and updated groundwater monitoring data for

each landfill site may be found within the SWRCB GeoTracker data system, accessible via http://geotracker.waterboards.ca.gov/.

3.5 SUMMARY OF RECENT ACTIVITIES AT HEWITT PIT LANDFILL

The RWQCB-LA issued a California Water Code (CWC) section 13267 Investigative Order (Investigative Order) to Vulcan Materials Company (Vulcan), the owner of the Hewitt Pit landfill, in January 2014. The Investigative Order required information about historical and current operations and activities at the landfill, and also a proposal for a landfill groundwater monitoring program. In May 2014 Vulcan submitted a report in response to the January 2014 Investigative Order that indicated that the landfill is affecting groundwater quality; the dominant contaminant of potential concern (COPC) was documented to be 1,4-dioxane. Vulcan began quarterly groundwater monitoring in the fourth quarter of 2014 and began implementation of a site assessment work plan in February 2015. The RWQCB-LA issued a Draft Cleanup and Abatement Order (CAO) to Vulcan in May of 2015. Vulcan submitted quarterly groundwater monitoring reports throughout 2015, and site assessment summary reports in May and July 2015; the reports document an evolving understanding of environmental conditions at the landfill that indicate that this landfill is leaking waste constituents (including 1,4-dioxane) to the environment, including groundwater below the site, and included information on the occurrence of landfill leachate not previously encountered in the middle of the eastern portion of the landfill. Vulcan submitted a work plan for additional site assessment, as required by the September 2015 Final CAO, in October 2015. The October 2015 work plan was approved by the RWQCB-LA in November 2015. An interim Remedial Action Plan (RAP) prepared by Golder Associates was submitted in April 2016 to the RWQCB-LA. Following review and comments of that document by the RWQCB-LA and other stakeholders, including LADWP, an amended interim action plan was approved by the RWQCB-LA in February 2018. In August 2018, RWQCB-LA requested that PFAS (Per- and polyfluoroalkyl substances) sampling and analysis be voluntarily performed, and in October 2018, a work plan for PFAS sampling and analysis was approved by RWQCB-LA.

In addition to these State-level regulatory activities, USEPA reached a settlement with Vulcan requiring the company to design several extraction wells and a treatment system for 1,4-dioxane in the groundwater beneath its property. The design is scheduled to be completed in 2019.

Updated information for this site can be found at the RWCQCB GeoTracker website: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000004448.

Table 3-1 LANDFILLS WITH SWAT INVESTIGATION

Name	Rank	Current Owner	Location	SWAT Report Completed	Final SWAT Submitted	Phase II SWAT Req.	Approved by RWQCB
Open							
CalMat (Sun Valley #3)	2	CalMat Properties	Sun Valley District, NE of Glenoaks Blvd	Jul-88	Nov-90		Jun-92
Scholl Canyon	1	City of Glendale	San Rafael Hills, 1 mile West of Rose Bowl	Jul-87	Apr-88		Aug-90
Stough Park	2	City of Burbank	Bel Air Drive & Cambridge Drive	Jun-88	Dec-88		Apr-90
Sunshine Cyn. LA City/LA County	2	Browning - Ferris Industries	SE Santa Susana Mtns W of Golden State Fwy	Jul-88	Jul-89		Apr-94
Closed							
Bradley East	2	WMDSC	SE of Sheldon St	Jun-87	Nov-90		Apr-92
Bradley West	1	WMDSC	Sun Valley, SE of Sheldon St.	Jun-87	Nov-90		Apr-92
Bradley West Extension	3	WMDSC	Near Canyon Blvd & Sheldon St	Jul-88	Jul-89		Apr-92
Branford	2	City of Los Angeles Bureau of Sanitation	Sun Valley District, NW of Tujunga Wash	Jul-88	Oct-90	X	Jun-92
Gregg Pit/Bentz	2	CalMat Properties	Between Pendleton St & Tujunga Ave	Jul-89	Jul-89		Feb-90
Hewitt Pit	2	CalMat Properties	North Hollywood District Hollywood Fwy, Laurel	Jun-88	Jul-89		May-91
Lopez Canyon	2	City of Los Angeles Bureau of Sanitation	N of Hansen Dam near Lopez and Kagel Cyn	Jun-88	Jun-88	X	
Newberry	3	Los Angeles (LA By-Products Co.)	N of Strathern St, Tujunga Ave	Jun-88	Jul-89		Sep-89
Pendleton St.	4	City of Los Angeles Bureau of Sanitation	Sun Valley, Pendelton St & Glenoaks Blvd	Jul-90	May-91		Jun-92
Penrose	2	Los Angeles (LA By-Products Co.)	N of Strathern St, Tujunga Ave	Jun-88	Jul-89		Sep-89
Scholl Canyon	2	City of Glendale	San Rafael Hills, 1 mile West of Rose Bowl	Jul-87	Aug-90		Dec-93
Sheldon-Arleta	1	City of Los Angeles Bureau of Sanitation	Sun Valley District near Hollywood & Golden State Fwys	May-87	May-87		Feb-90
Sunshine Cyn. LA City	2	Browning - Ferris Industries	SE Santa Susana Mtns W of Golden State Fwy	Jul-88	Jul-89		Apr-94
Toyon Canyon	2	City of Los Angeles Bureau of Sanitation	Griffith Park	Jun-88	Mar-89		Apr-91
Tuxford Pit	2	Aadlin Bros. (LA By-Products Co.)	Sun Valley District, SW of Golden State Fwy & Tujunga Ave	Jun-88	Dec-90		Jun-92
Incomplete							
Strathern		Never completed. Application 12/88.	Strathern St. & Tujunga Ave				

Note: Additional information including the historic landfill use, ongoing monitoring, leak information, etc., can be found at the SWRCB GeoTracker data system, accessible via http://geotracker.waterboards.ca.gov/.

3.6 WATER TREATMENT

3.6.1 USEPA Operable Units - SFB

USEPA is proceeding with enforcement actions against PRPs as part of their overall, long-term groundwater remediation activities in the SFB. Below is a brief summary of the various USEPA Operable Units (OUs) in SFB.

On November 22, 2016, USEPA released the San Fernando Valley Superfund Site Community Involvement Plan. This Plan covers all areas within the scope of the North Hollywood Operable Unit (NHOU) and Pollock Wells Treatment Plant (PWTP) and "organizes EPA's public participation efforts to actively involve the public in the cleanup decision-making process. It is based on a series of community interviews conducted with local stakeholders, and is in accordance with EPA's cleanup rules and guidance." The Plan can be accessed via the USEPA website: https://semspub.epa.gov/work/09/1162541.pdf.

3.6.1.1 North Hollywood Operable Unit (NHOU)

The NHOU began operating in December 1989 in response to elevated concentrations of certain chlorinated VOCs, including TCE and PCE. The NHOU operates by pumping groundwater from the LADWP-owned North Hollywood Aeration wellfield wells into an aeration tower where the TCE and PCE are removed from the water by an air stripper. Treated water is chlorinated and blended with other sources of clean water before distribution in the public water supply.

More recently, USEPA has detected emerging contaminants in some NHOU wells, including CrVI and 1,4-dioxane. An increase in chromium (Cr) contamination has caused two of the eight extraction wells in this wellfield to be removed as sources of potable water supply.

In September 2009, USEPA recommended enhanced treatment methods, which included treatment for CrVI and 1,4-dioxane, expanding the combined treatment system, and construction of additional monitoring wells and groundwater extraction wells. In 2015, Lockheed Martin Corporation and Honeywell International, Inc. prepared and submitted a groundwater Modeling Memorandum to USEPA for the design of the Second Interim Remedy for groundwater remediation at the NHOU. The Second Interim Remedy is intended to upgrade and expand the existing NHOU wellfield, and to address treatment of emerging contaminants.

For more information about the NHOU, the USEPA website may be accessed via: https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0902251.

3.6.1.2 Burbank Operable Unit (BOU)

The BOU, funded by Lockheed-Martin under a USEPA Consent Decree, is owned and operated by the City of Burbank at the expense of Lockheed Martin. This BOU uses air stripping and liquid-phase GAC to remove VOCs from groundwater (local groundwater also contains elevated concentrations of NO_3 and Cr), and then blends the treated water with imported water from the MWD for delivery within the City of Burbank.

The City of Burbank is also concerned about CrVI in the groundwater produced by BOU wells and has been blending the pumped groundwater with imported water to keep the concentration of total Cr at or below 7 µg/L; the BOU treatment facility was not designed to treat Cr.

More information about the BOU can be found via the USEPA Website: https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0902251.

3.6.1.3 Glendale Operable Unit (GOU)

Construction of the GOU allowed for treated water to be available for delivery in August 2000. The system includes four Glendale North Operable Unit (GNOU) extraction wells (with a total pumping capacity of 3,300 gpm) and five Glendale South Operable Unit (GSOU) extraction wells (with a total capacity of 2,525 gpm). The most recently constructed GOU well, Well GS-5, was completed and began operational pumping in October 2016. The treatment process uses aeration and liquid-phase GAC to treat VOC-contaminated groundwater, weak base anion exchange to remove CrVI from water extracted from Well GN-3, and thereafter the treated water is delivered to the Grandview Basin. The treated water is blended with imported MWD water, as needed, to further reduce the CrVI concentration prior to being delivered to the City's potable water distribution system.

Information from the USEPA can be found via their website at:
https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0902252.

3.6.1.4 Glendale Chromium Operable Unit (GCOU)

Established in 2007, the GCOU was created to help characterize the extent of Cr contamination in groundwater in the Glendale area, and to determine appropriate remedial action. USEPA is working with the DTSC and the RWQCB-LA to identify and clean up sources of Cr contamination. Remedial investigation of Cr contamination in groundwater

in the GCOU began in 2011. To date, at least 29 groundwater monitoring wells have been constructed to help evaluate the location and extent of the Cr contamination in soils and groundwater beneath the area.

Information for the GCOU is available from the USEPA via: https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0902252.

3.6.1.5 Superfund Area 4 - Pollock Wells Treatment Plant (PWTP)

San Fernando Valley (Area 4) is an area of contaminated groundwater covering approximately 5,860 acres near the Pollock Wellfield in the City of Los Angeles. This area is a part of SFB where groundwater is contaminated with various chlorinated VOCs, specifically TCE and PCE.

USEPA completed an interim investigation of the Pollock Wellfield in April 1994 and concluded that selecting and implementing a Superfund remedy for the Pollock area was not immediately necessary because LADWP planned to conduct a wellhead treatment project in its Pollock Wellfield. In March 1999, LADWP reactivated wells in this wellfield to extract and treat the groundwater using liquid-phase GAC. The treated water is delivered to LADWP's distribution system for a drinking water end use. Emerging contaminants in the Pollock Wellfield include 1,4-dioxane. LADWP plans to upgrade the existing plant to include treatment for 1,4-dioxane.

USEPA and the California Regional Water Quality Control Board entered into a Cooperative Agreement to perform an investigation of potential sources of contamination in the SFB. USEPA is currently conducting a search for PRPs within the Pollock Site 4 Area, as well as a data gap analysis to identify where additional sampling and site characterization are needed. Following these activities, USEPA will conduct a Remedial Investigation and Feasibility Study to identify the extent of contamination and evaluate clean-up alternatives.

More information about Superfund Area 4 and the PWTP is available via the USEPA website: https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0902253.

3.6.2 Other Treatment Facilities

3.6.2.1 Verdugo Park Water Treatment Plant (VPWTP)

Glendale's VPWTP serves as a filtration and disinfection facility.

3.6.2.2 Glenwood Nitrate Water Treatment Plant

CVWD's Glenwood Nitrate Water Treatment Plant uses an ion-exchange process for NO_3 removal. CVWD uses the plant to increase groundwater usage within their service area. The plant was operational during the current water year.

3.6.2.3 CVWD Well 2 Nitrate Removal Plant

CVWD received a $705,775, Proposition 84, 2015 Integrated Regional Water Management Grant from the California Department of Water Resources (DWR) for the construction of a new Nitrate Removal Treatment System and to re-activate its Well 2 in July 2015. The grant was a 40/60 split, with DWR funding $705,775 and CVWD funding $1,119,225. The proposed Nitrate Removal Treatment System will use the "ARoNite" fixed-film biological process system, which uses a biofilm to reduce NO_3 concentrations below its MCL, according to CVWD. Equipment for the project will include a new 150-gpm pump and motor for Well 2, onsite piping, an operations building, electrical and telemetry systems, sewer line for pump-to-waste purposes, and other onsite improvements. The project design was completed in May 2017, construction began in November 2017, and the project construction was completed in July 2018. DDW approved this project in June 2019. CVWD reports that this project was in operation for all twelve months of WY 2019-20, with only short down times for adjustments and repairs to the facility.

3.6.2.4 City of San Fernando Nitrate Treatment

The City of San Fernando has completed construction of a water treatment plant to address excessive concentrations of NO_3 that affect the groundwater pumped by a few of its wells in Sylmar Basin. The plant began operation in Fall of 2019.

3.6.2.5 Burbank GAC Treatment Plant

The City of Burbank GAC system (Lake St wells) was shut down in March 2001 because of elevated concentrations of CrVI in the groundwater. Since then, the plant has been used only when necessary to obtain water quality data from the wells and when needed for limited, non-potable powerplant use. In WY 2019-20, the GAC Treatment Plant was operated for sampling and powerplant use. If the plant is returned to full service in the future, production may be considered as part of the average pumping goal of 9,000 gpm for the BOU.

3.6.2.6 Temporary Tujunga Wellfield Treatment Study Project

The Tujunga Wellfield was constructed in 1992 to produce groundwater from 12 municipal-supply water wells in the SFB. However, certain VOCs, like TCE and PCE, were detected in these wells. Over time, VOC concentrations increased sharply above their respective

Federal and State MCLs, requiring the shutdown of multiple wells, and at times the entire wellfield. In 2010, LADWP and MWD completed a wellhead treatment project with the installation of liquid-phase GAC adsorption vessels on two of the most severely impacted wells owned by LADWP. The treatment plant is capable of providing a treated flow rate of 8,000 gpm. Other constituents of concern in this wellfield include 1,4-dioxane, carbon tetrachloride and 1,1-dichloroethene (1,1-DCE).

Liquid-phase GAC adsorption vessels designed to remove VOCs from groundwater were installed at two wells (Tujunga Well Nos. 6 and 7) and this work has restored more than 20,000 AFY of pumping capacity that had been unavailable due to water quality constraints.

In the event either Well No. 6 or No. 7 is taken out of service due to mechanical and/or maintenance needs, groundwater flow should be maintained through the vessels in order to minimize the possibility of bacteriological growth and leaching of metals in the GAC. In response, a backup piping system has been installed to maintain the flow of raw well water from Well No. 8. It is necessary for groundwater pumped by Well No. 8 to supplement flows from either Tujunga Well Nos. 6 or 7 in the event of a shut down since neither well can individually provide the minimum flow requirements to operate more than one GAC treatment system.

LADWP has requested a permit amendment from the Division of Drinking Water (DDW) to operate this System.

3.7 GROUNDWATER QUALITY INVESTIGATIONS

There are numerous ongoing groundwater quality investigations in ULARA, particularly in the SFB. The reader can obtain current information and more details for the sites mentioned below, which are regulated by the RWCQCB-LA, via that agency's GeoTracker website: http://geotracker.waterboards.ca.gov/. The DTSC website, also contains information regarding groundwater quality investigations and cleanup sites within the ULARA groundwater basins and can be accessed at: http://www.envirostor.dtsc.ca.gov/public/.

Below are brief descriptions of several groundwater quality investigations for contaminated and/or potentially contaminated sites within ULARA. Note that the discussion below does not provide an exhaustive list of these sites within ULARA. Any omission of a site from

the list below does not imply that the omitted site is not important or not of concern to the Watermaster or to the Parties to the Judgment.

3.7.1 DriLube, 711 W. Broadway and 718 W. Wilson, Glendale

DriLube Company, a plating facility located in Glendale, was issued a CAO by the RWQCB-LA in 2002. DriLube was named a PRP by USEPA as the source responsible for discharging contaminants from its site into the groundwater affecting the original GSOU. The results of subsurface investigations to date by others have detected chlorinated solvents, petroleum hydrocarbons, polychlorinated bisphenyls (PCBs), and heavy metals (including Cr) within the underlying soils and groundwater.

Although previously managed as a single site, this property was reportedly separated into two addresses (711 W. Broadway and 718 W. Wilson) for cleanup management purposes. USEPA, which previously managed the entire site, returned the 711 W. Broadway site back to the RWQCB-LA in August 2009. The site was determined to have no metals contamination, but rather has been reported to be contaminated only with VOCs. The site was transferred back to USEPA in October 2014 and USEPA will assume lead oversight responsibilities for the ongoing VOC cleanup.

Management of the 718 W. Wilson site remains within the purview of USEPA due to Cr contamination; VOC contamination also exists at the site. In 2010, approximately 460 tons of CrVI-contaminated soils were removed from the site. During this removal work, infrastructure (piping) was installed to facilitate future in-situ remediation of the CrVI. This in-situ treatment will focus on adding amendments to the impacted source soils to reduce CrVI to trivalent chromium (CrIII).

3.7.2 PRC-DeSoto International, Inc., 5430 San Fernando Rd, Glendale

The RWQCB-LA issued a CAO to PRC-DeSoto (formerly Courtaulds Aerospace) in August 2002. This facility has been named a PRP by USEPA as a source for releasing chlorinated organic solvents within the groundwater in the original GSOU; this facility is considered a PRP for the GOU. Historically, the principal industrial activities at the facility involved chemical formulation of adhesives and sealants used by the U.S. Department of Defense for various aerospace applications. 1,1,1-Trichloroethane (1,1,1-TCA), dichloroethane (DCA), TCE, PCE, Cr, CrVI, and nickel have been found in the soils and groundwater beneath the facility. Groundwater monitoring continues on a quarterly basis as part of the CAO.

Cleanup operations regarding Cr and VOCs in the soils have reportedly been completed. Work toward closure of the site in regard to soils contamination will begin with the RWQCB-LA. Work regarding Cr contamination within the local groundwater will be transferred to USEPA. PRC DeSoto has been identified by USEPA as a PRP for the GCOU.

3.7.3 Excello Plating, 4057 Goodwin Ave., Los Angeles

The RWQCB-LA issued a CAO to Excello Plating in June 2003 that was later revised and re-issued in June 2005. The facility's owners were identified under CERCLA as having responsibility for releasing VOCs, CrVI, nickel, cadmium, zinc and lead into the subsurface. The basic purpose of this CAO was to ensure that Excello Plating completes the onsite and offsite assessment to help define the lateral and vertical extent of heavy metal contamination (specifically Cr) and, as necessary, undertake remediation. Additionally, USEPA considers this site as a source of the contaminants that impact the GOU. Semi-annual groundwater monitoring is reportedly ongoing.

3.7.4 B.F. Goodrich (formerly Menasco/Coltec Ind., Inc.) 100 E. Cedar Ave., Burbank

The RWQCB-LA issued a CAO to Coltec Industries, Inc. on July 5, 2002. Through a series of acquisitions, the environmental liability of the facility is now reportedly owned by United Technologies. This facility was identified as a PRP by USEPA as a source of discharging contaminants to the groundwater and affecting the original GNOU. Additionally, USEPA has issued a General Notice Letter and a 104E Letter to the site owner(s), and the facility is considered by USEPA to be a PRP for the GCOU. The former industrial activities at this facility involved machining, manufacturing, metal plating, and anodizing of parts and equipment used by the U.S. Department of Defense for various aerospace applications. VOCs, including TCE, PCE, 1,1-DCE and 1,1,1-TCA, and CrVI, have been detected in the soils and in the groundwater underlying the site.

Continuous soil vapor extraction (SVE) operations were conducted between 1998 and 2004 in an effort to reduce VOC concentrations in the soils beneath the site. The decommissioning of the SVE system was approved by the RWQCB-LA in February 2014. Additionally, both a groundwater extraction system and in-situ bioremediation treatment have been used to further remediate the shallow perched-groundwater zone. The groundwater extraction system was decommissioned in January 2015. The site was purchased by IKEA, Inc in late-2013, and an IKEA furniture retail store was eventually constructed on the property in 2017.

3.7.5 ITT/Home Depot, 1200 S. Flower St., Burbank

A few years ago, Home Depot completed construction of its large store and parking lot on the site of this former ITT Aerospace Controls (ITT) property. ITT was a parts manufacturer, metal finisher and metal plater. By agreement between Home Depot and ITT, Home Depot is responsible for the soil assessment and remediation from ground surface down to the depth of a continuous clay layer that is reported to underlie the property. The contamination in the groundwater beneath the clay layer has been the responsibility of ITT. Groundwater contamination at the site reportedly consists of VOCs, petroleum hydrocarbons, nickel, and CrVI. In 2004, Home Depot constructed a subsurface slurry wall around the site to help prevent lateral migration of the contamination in the shallow groundwater. A naturally-occurring low-permeability zone reportedly located 50 feet below ground surface has been expected by others to reduce vertical migration of the contaminants. Reportedly, ITT is responsible for cleanup of the area below the bottom of the Home Depot's slurry wall barrier. Groundwater monitoring at this site continues on a semi-annual basis; USEPA considers this site to be a source of contamination affecting the GOU.

3.7.6 Honeywell (formerly Allied Signal/Bendix) 11600 Sherman Way, North Hollywood

Honeywell was issued a CAO on February 21, 2003 and an amended CAO followed in September 2004. The facility was directed to prepare a work plan for additional onsite and offsite subsurface assessment of soil and groundwater. This work plan was submitted and approved, and the field work has been completed. A final report has been submitted and was reviewed by the RWQCB-LA. The facility prepared and submitted a RAP for in-situ Cr remediation. The RAP has been approved and is being implemented in conjunction with the facility's General WDR permit. Construction of additional offsite groundwater monitoring wells was approved by USEPA and the RWQCB-LA, and these new monitoring wells have been constructed.

The facility was required to submit a wellhead treatment work plan for treating CrVI and 1,4-dioxane at LADWP's NHE-2 extraction well. This well was previously shut down by LADWP because elevated concentrations of total Cr were detected in the pumped groundwater. Honeywell's work plan was approved along with their short-term remediation plan. Honeywell submitted its long-term remediation plan for NHE-2 wellhead treatment to the RWQCB-LA for its review and comment/approval. However, the long-term remediation plan was not approved or implemented because Honeywell entered into

negotiations with USEPA, LADWP, and CDPH regarding the proposed remediation approach and its association with USEPA's NHOU interim remedy approach. In January 2013, a second NHOU extraction well (NHE-3) was shut down by LADWP because of elevated concentrations of total Cr and CrVI in the pumped groundwater.

In September 2008, Honeywell began pumping NHE-2 and processing the pumped groundwater through a wellhead treatment system to remove VOCs before discharging the effluent to the sanitary sewer system. Because the concentrations of VOCs and other contaminants were below the limits identified in the sewer discharge permit, Honeywell was allowed to remove the wellhead treatment system and discharge the groundwater from NHE-2 directly into the sanitary sewer. Honeywell is currently working with LADWP and CDPH to comply with CDPH Policy Memorandum 97-005 by preparing a Source Water Assessment and Treatment Report. This would recommend construction of a wellhead treatment system to remove VOCs and Cr such that the treated effluent is Title 22 compliant and the groundwater would then be able to be distributed by LADWP.

Honeywell has utilized its consultants in the past few years to site, design and construct multiple groundwater monitoring wells to further characterize the water quality and hydrogeology in the eastern portion of the SFB. As of January 2021, groundwater monitoring at this site is ongoing.

3.7.7 Price Pfister Site, 13500 Paxton St, Pacoima

The former Price Pfister site, located at 13500 Paxton Street, was used from the late-1950's to 2002 for manufacturing plumbing fixtures. Manufacturing processes involved casting, machining, and chrome plating. These processes required the use of various cleaning solvents such as PCE, lubricating and cutting oils, and metal plating solutions. Over the years, these chemicals have contaminated the local soils and groundwater.

Since 2002, the RWQCB-LA has been the lead agency overseeing the investigation, monitoring, and remediation of the soil and groundwater contamination at this former Price Pfister site. On March 11, 2009, the RWQCB-LA approved a No Further Action (NFA) for VOCs in soil in all the study areas beneath the site, except for Area 7. The NFA was based on excavation/removal and SVE of the VOC-contaminated soil. A significant quantity of soil contaminated with heavy metals (such as CrVI), total petroleum hydrocarbons, and 1,4-dioxane was also removed during the excavation from different

areas of the site. This brownfield site was re-developed in 2010 into a Costco, a Lowe's, and a Best Buy shopping center.

In August 2007, 1,4-dioxane was detected at a concentration of 950 µg/L in the local groundwater. Concentrations of CrVI as high as 8,300 µg/L were initially detected in August 2010 in the groundwater beneath the former plating area of the Price Pfister site. On June 17, 2014, the RWQCB-LA approved the remedial design/remedial action workplan for full-scale treatment of CrVI in groundwater. As specified in the workplan, an emulsified vegetable oil solution in potable water was injected into the area in March 2015. The remedial action was conducted under the RWQCB-LA WDR Order No. R4-2007-0019. On August 28, 2013, the RWQCB-LA approved a 1,4-Dioxane Microcosm Study Workplan; the technical report of the study was submitted to the RWQCB-LA in March 2015. In July 2018, the RWQCB-LA approved a work plan for Area 7 assessment of soil, free hydrocarbon product, and groundwater. The ongoing remediation was reported to be effective in a December 2018 report by the site remediation consultant, AECOM. That AECOM report recommended no further active remediation, but it did recommend further sampling and laboratory testing of the groundwater for certain constituents. As of January 2021, groundwater monitoring at this site is ongoing.

3.7.8 General Electric, 2940 and 2960 North Hollywood Way, Burbank

The site was formerly occupied by Pacific Airmotive (PAC) and is currently owned by General Electric. Activities conducted by PAC at the site included testing, maintenance, repair and overhaul of commercial and military aircraft engines. Those activities resulted in VOC impacts to soil and groundwater. Contaminants at the site reportedly include PCE, TCE, and 1,1,1-TCA. An SVE system was used to remove VOCs (primarily PCE) in soil vapor from underneath 2960 No. Hollywood Way between January 2002 and February 2014. The RWQCB-LA is overseeing the soil cleanup of the site; the groundwater cleanup is overseen by USEPA. As of September 2011, PAC water quality data are included in the Lockheed-Martin semi-annual groundwater report for the BOU. Confirmation soil samples were collected in 2015 that reportedly showed the effectiveness of SVE remediation, per a report submitted by others to RWQCB-LA in December 2015.

3.7.9 Former Chase Chemical/Holchem Site, 13546 Desmond St, Pacoima

The former Chase Chemical/Holchem property is located on an approximately two-acre site that was reportedly used by the Chase Chemical Company from 1967 to 1987 to store industrial chemicals in underground storage tanks, aboveground storage tanks, and other

containers for packaging and resale. Holchem, Inc. leased the property in 1987, purchased it in 1999, and continued the storage and resale of industrial chemicals; site operation ended in 2001. A significant VOC contaminant plume was identified in the Pacoima area near the intersection of the 118 Freeway and San Fernando Road. This area is approximately 3 miles upgradient from LADWP's Tujunga wellfield, which can supply as much as 47,000 gpm of groundwater. LADWP constructed two groundwater monitoring wells downgradient of this reported contaminant plume. Semi-annual groundwater monitoring is ongoing; PCE and TCE have been two of the main VOCs detected beneath the site. Additional VOCs, such as *cis*-1,2-dichloroethene (*cis*-1,2-DCE), 1,1-DCE, and 1,4-dioxane also continue to be detected in the local groundwater. Groundwater monitoring at this site continues, as of March 2021.

3.8 EPA SHALLOW ZONE CONTAMINATION MAPS

USEPA occasionally provides the Watermaster and others with contamination "plume" maps for the Shallow Aquifer Zone in the eastern portion of the SFB. Appendix E shows the generalized two-dimensional approximations of contaminant contours within the Shallow Aquifer Zone in SFB, as interpreted by USEPA and/or their subcontractors, for the contaminants CrVI, 1,4-dioxane, TCE, and PCE. USEPA reports on the maps in Appendix E that "areas of contamination are based on the most recent sample taken from each well shown between January 2014 and June 2019. In any given year, the maximum contaminant concentration at any well or group of adjacent wells, regardless of depth, was used for developing the plume extent."

Plates

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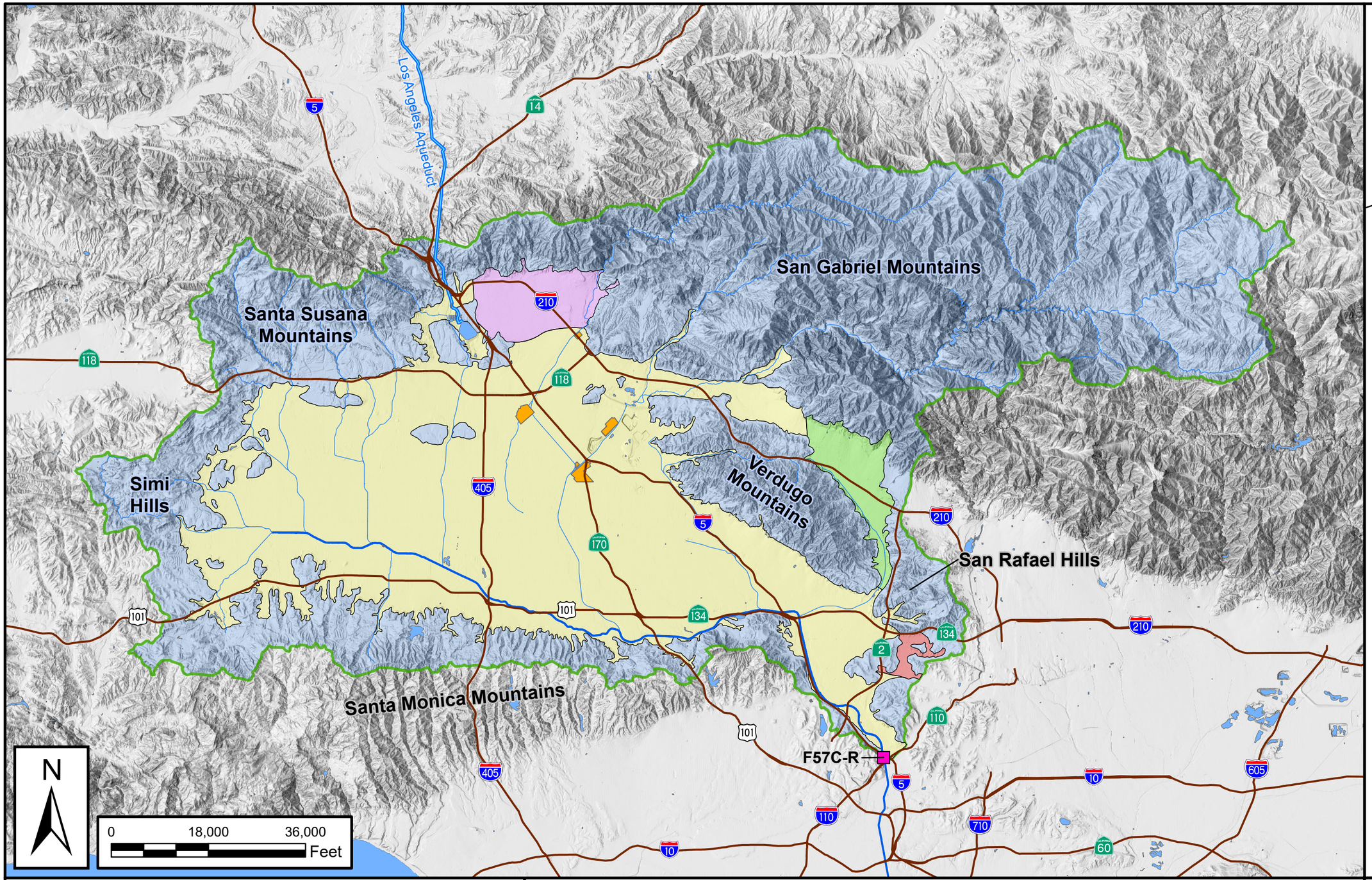

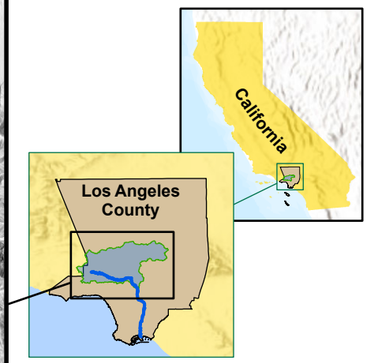

LEGEND

- Los Angeles River
- Primary Stream
- Los Angeles Aqueduct
- Surface Water
- ULARA Watershed
- Spreading Ground
- Runoff Gage

Groundwater Basins

- Sylmar
- San Fernando
- Verdugo
- Eagle Rock

2019-20 Water Year
ULARA Watermaster Report

Upper Los Angeles River Area:
Location Map

Plate 1

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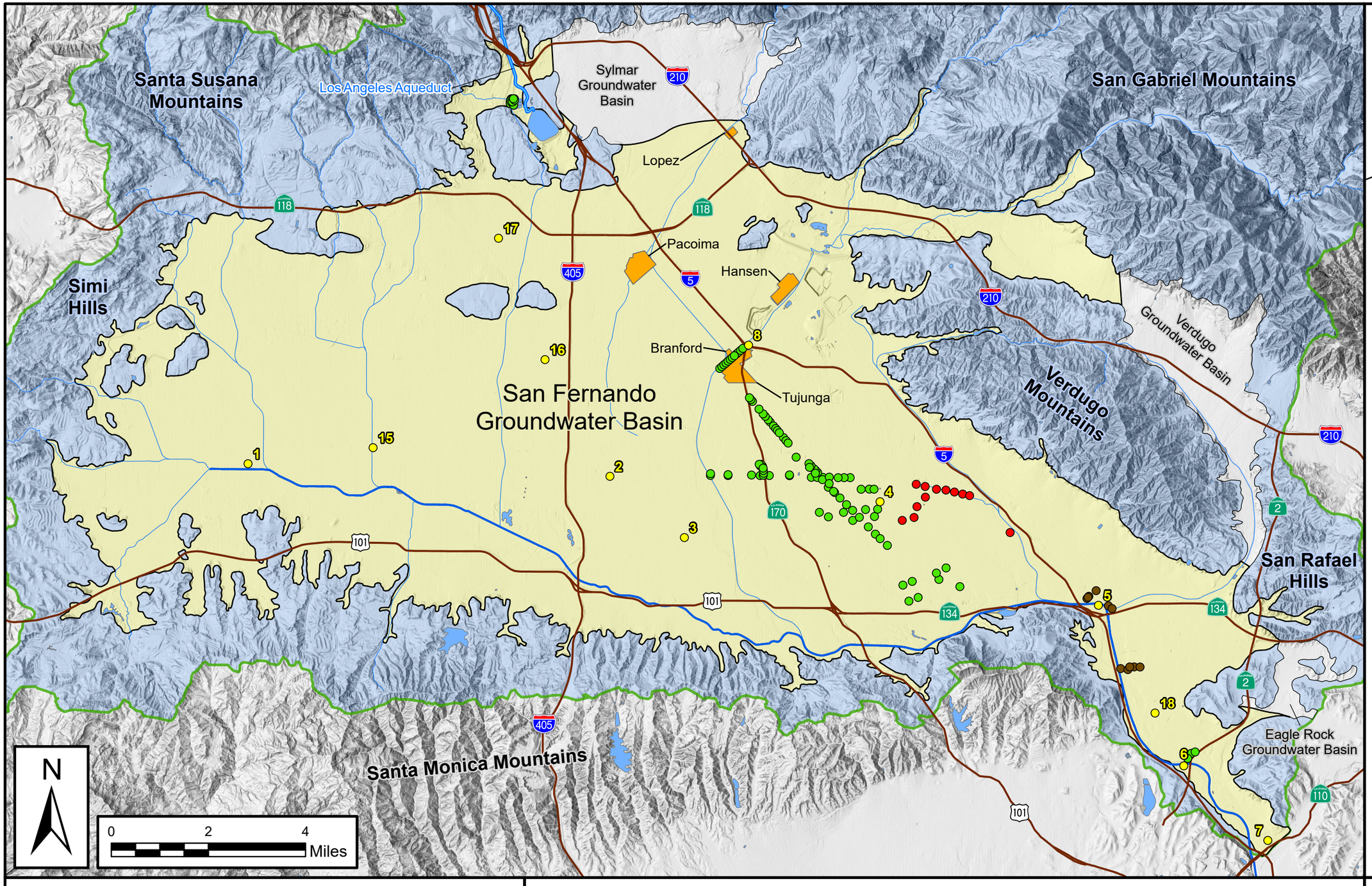

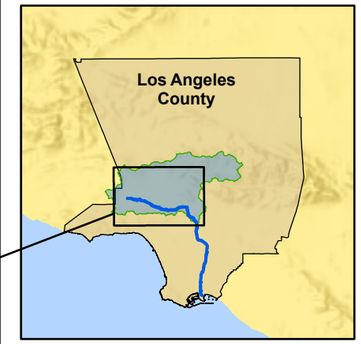

LEGEND

- San Fernando Groundwater Basin
- Los Angeles River
- Primary Stream
- Los Angeles Aqueduct
- Surface Water
- Spreading Ground
- ULARA Watershed
- City of Burbank Water Well
- City of Glendale Water Well
- LADWP Water Well
- 3 Well with Hydrograph in Current Annual Watermaster Report

2019-20 Water Year
ULARA Watermaster Report

Upper Los Angeles River Area:
San Fernando Groundwater Basin Map

Plate 1A

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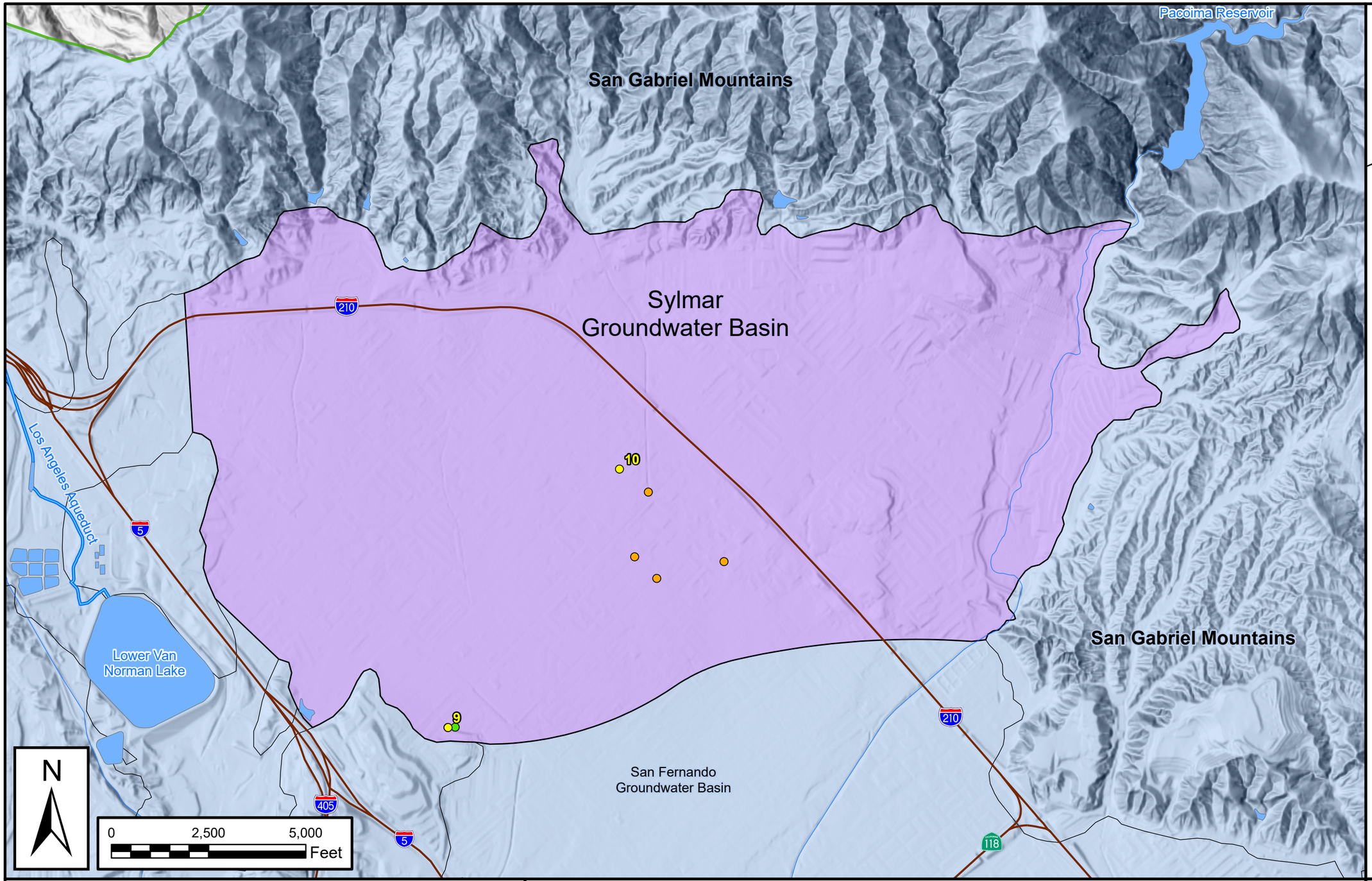

LEGEND

- Sylmar Groundwater Basin
- Los Angeles Aqueduct
- Primary Stream
- Surface Water
- ULARA Watershed
- City of San Fernando Water Well
- LADWP Water Well
- 9 Well with Hydrograph in Current Annual Watermaster Report

2019-20 Water Year
ULARA Watermaster Report

Upper Los Angeles River Area:
Sylmar Groundwater Basin Map

Plate 1B

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San Fernando
Groundwater Basin

Verdugo
Groundwater Basin

San Gabriel
Mountains

Verdugo Mountains

San Fernando
Groundwater Basin

San Rafael
Hills

210

5

2

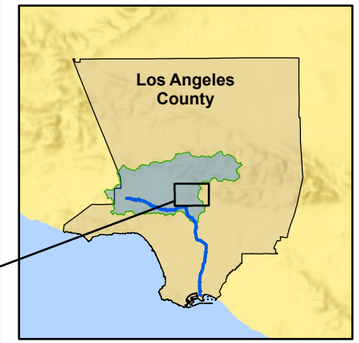
14

11

13

N

0 4,000 8,000 Feet



LEGEND

- Verdugo Groundwater Basin
- Primary Stream
- Surface Water
- ULARA Watershed
- City of Glendale Water Well
- CVWD Water Well
  Includes Pickens Tunnel
- 11 Well with Hydrograph in Current Annual Watermaster Report

2019-20 Water Year
ULARA Watermaster Report

Upper Los Angeles River Area:
Verdugo Groundwater Basin Map

Plate 1C

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San Fernando
Groundwater Basin

San Rafael
Hills

Eagle Rock
Groundwater Basin

12

134

2

110

N

0 2,000 4,000
Feet

Los Angeles
County

LEGEND

- Eagle Rock Groundwater Basin
- Primary Stream
- Surface Water
- ULARA Watershed
- 12 Well with Hydrograph in Current Annual Watermaster Report

2019-20 Water Year
ULARA Watermaster Report

Upper Los Angeles River Area:
Eagle Rock Groundwater Basin Map

Plate 1D

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Los Angeles Aqueduct

Santa Susana Mountains

San Gabriel Mountains

Simi Hills

Verdugo Mountains

San Rafael Hills

Santa Monica Mountains

LEGEND

- Los Angeles River
- Primary Stream
- Los Angeles Aqueduct
- Surface Water
- Spreading Ground
- ULARA Watershed

Water Service Areas

- City of Burbank
- City of Glendale
- City of Los Angeles
- City of Pasadena
- City of San Fernando
- Crescenta Valley Water District
- La Cañada Irrigation District
- Las Virgenes Municipal Water District

Groundwater Basins

- Sylmar
- San Fernando
- Verdugo
- Eagle Rock

N

0 12,000 24,000 Feet

2019-20 Water Year ULARA Watermaster Report

Upper Los Angeles River Area: Water Service Areas of Public Agencies

Plate 2

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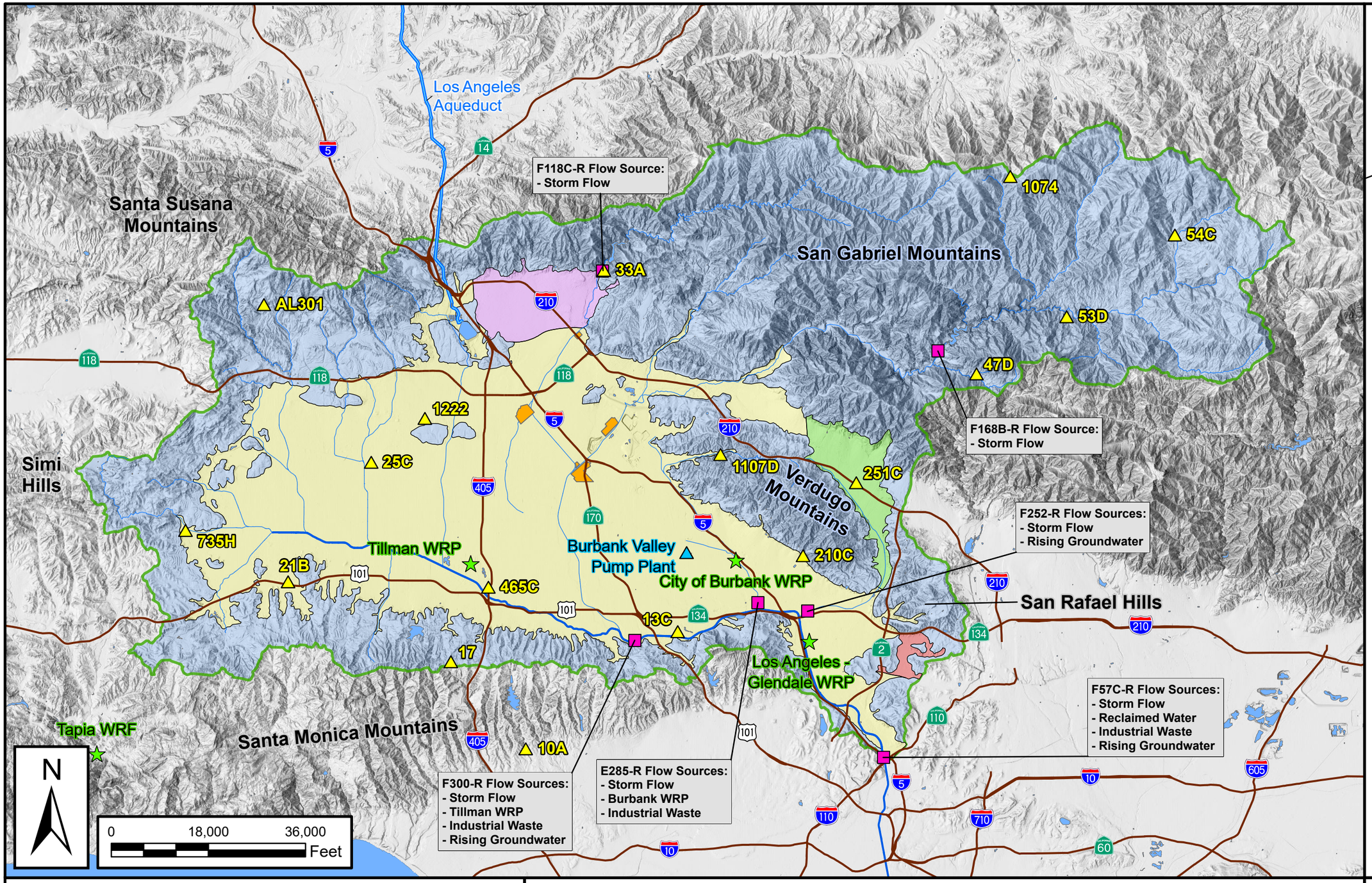

LEGEND

- Los Angeles River
- Primary Stream
- Los Angeles Aqueduct
- Surface Water
- Spreading Ground
- ULARA Watershed

Rainfall Gages

25C — Gage used to calculate area-weighted average rainfall for current water year (Table 2-1)

Long-term rainfall gage (Figures 2-1 & 2-2)

Runoff Gage

Water Reclamation Plant / Facility

Groundwater Basins

- Sylmar
- San Fernando
- Verdugo
- Eagle Rock

2019-20 Water Year
ULARA Watermaster Report

Upper Los Angeles River Area:
Components of Los Angeles River Flow

Plate 3

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Santa Susana Mountains

Los Angeles Aqueduct

San Gabriel Mountains

Simi Hills

Verdugo Mountains

San Rafael Hills

Santa Monica Mountains

1000 1100 900 800 700 1100 1200 1300 1400 800 700 600 600 700 800 900 800 700 600 500 400

210 118 5 405 101 170 134 2 110

N

0 2 4 Miles

Los Angeles County

LEGEND

- Los Angeles River
- Primary Stream
- Los Angeles Aqueduct
- Surface Water
- ULARA Watershed
- Spreading Ground
- Model Layer 1 Active Area

Groundwater Elevations (MSL)

- 100-ft Interval Contour
- 20-ft Interval Contour
- Generalized Flow Direction

Color gradient within Model Active Area represents groundwater elevations in feet above mean sea level (ft MSL)

300-ft 1,490-ft

2019-20 Water Year
ULARA Watermaster Report

Upper Los Angeles River Area: Simulated Groundwater Elevation Contour Map Spring (April) 2020

Plate 4

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Santa Susana Mountains

Los Angeles Aqueduct

San Gabriel Mountains

Simi Hills

Verdugo Mountains

San Rafael Hills

Santa Monica Mountains

1100
1000
900
800
700
1300
1400
600
300
400

N

0 2 4 Miles

LEGEND

- Los Angeles River
- Primary Stream
- Los Angeles Aqueduct
- Surface Water
- ULARA Watershed
- Spreading Ground
- Model Layer 1 Active Area

Groundwater Elevations (MSL)

- 100-ft Interval Contour
- 20-ft Interval Contour
- Generalized Flow Direction

Color gradient within Model Active Area represents groundwater elevations in feet above mean sea level (ft MSL)

300-ft 1,485-ft

2019-20 Water Year
ULARA Watermaster Report

Upper Los Angeles River Area: Simulated Groundwater Elevation Contour Map Fall (September) 2020

Plate 5

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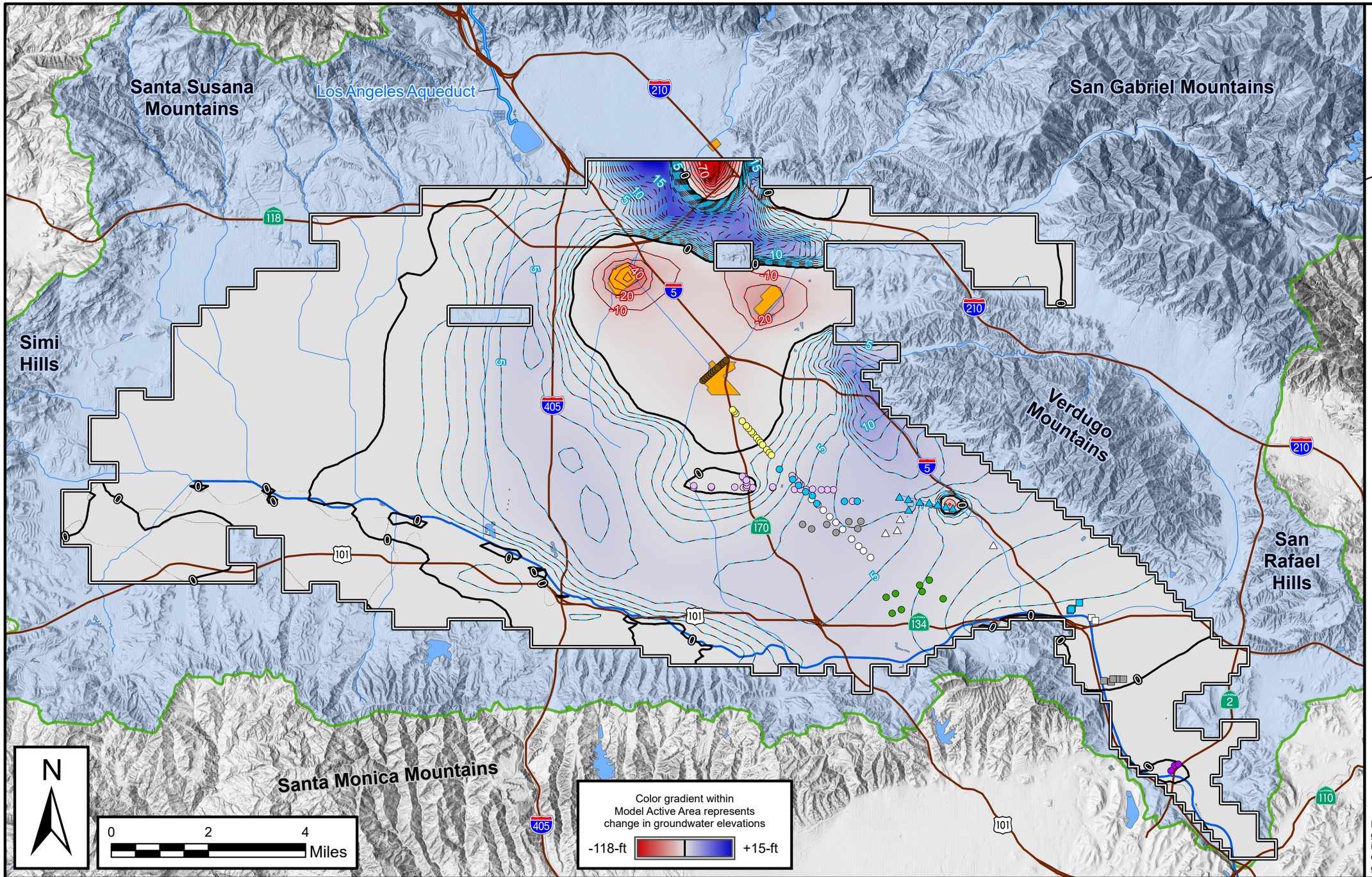

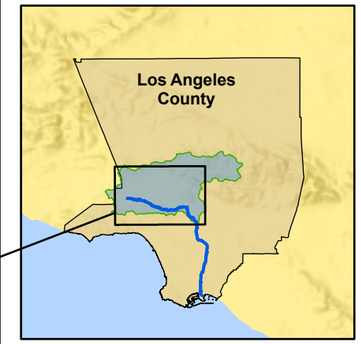

LEGEND

- Los Angeles River
- Primary Stream
- Los Angeles Aqueduct
- Surface Water
- ULARA Watershed
- Spreading Ground
- Model Layer 1 Active Area

Groundwater Elevation Changes

- Zero-Change Contour
- +1-ft Interval Contour *(Elevation Increase)*
- -10-ft Interval Contour *(Elevation Decrease)*

City of Burbank Water Wells

- Burbank OU (BOU)
- Other Burbank Water Well

City of Glendale Water Wells

- Glendale North OU (GNOU)
- Glendale South OU (GSOU)
- Other Glendale Water Well

City of Los Angeles Water Wells

- Aeration (NHOU)
- North Hollywood
- Rinaldi-Toluca
- Verdugo
- Erwin
- Pollock
- Tujunga
- Whitnall

Note: To better represent the model-estimated groundwater elevation changes, the contour intervals in regions where groundwater elevations increased are different than the contour intervals in regions where groundwater elevations decreased.

2019-20 Water Year
ULARA Watermaster Report

Upper Los Angeles River Area: Simulated Change in Groundwater Elevations, Fall 2019 - Fall 2020

Plate 6

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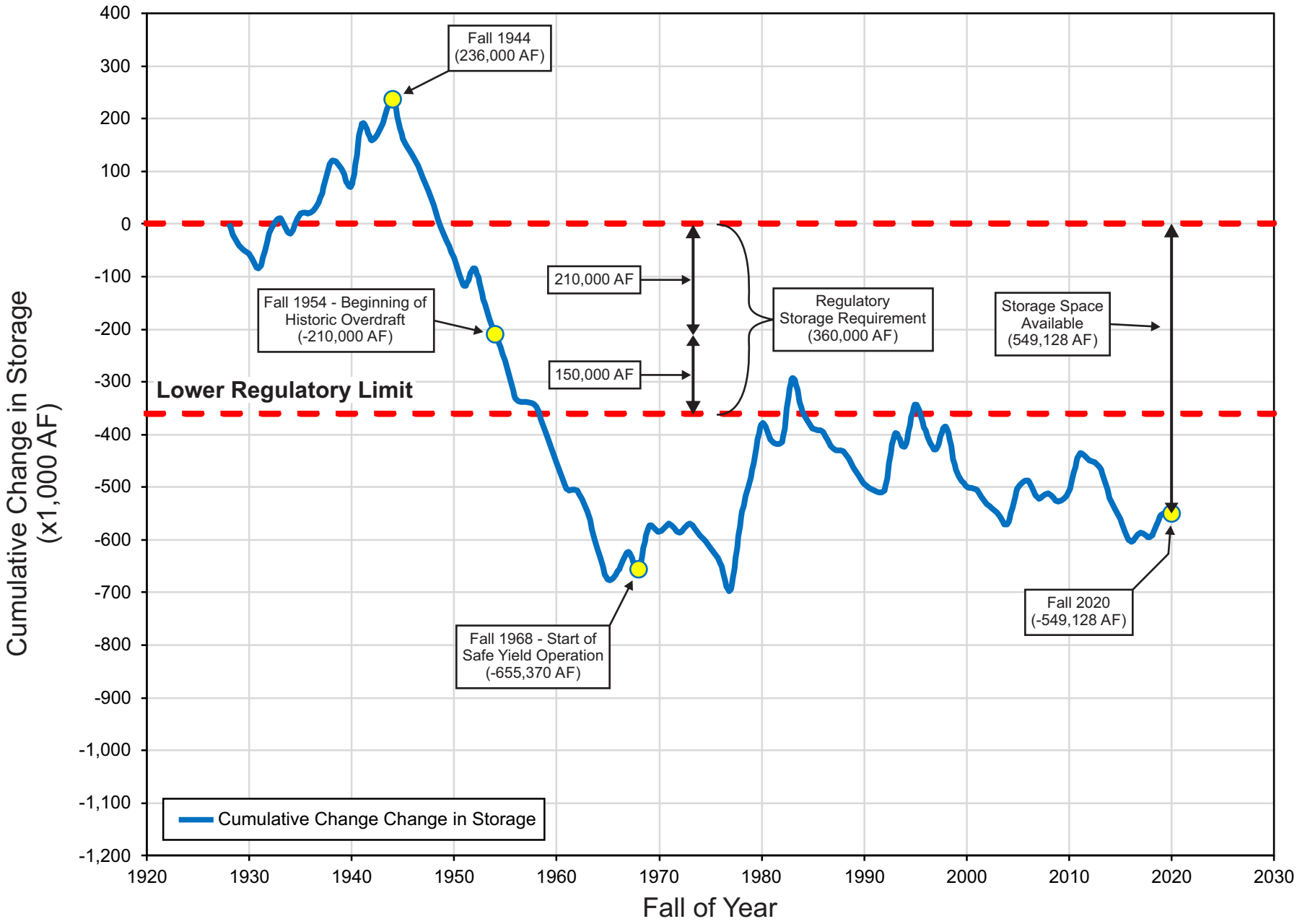

2019-20 Water Year **ULARA Watermaster Report**	**San Fernando Basin:** **Cumulative Change in Groundwater Storage**	**Plate 7**

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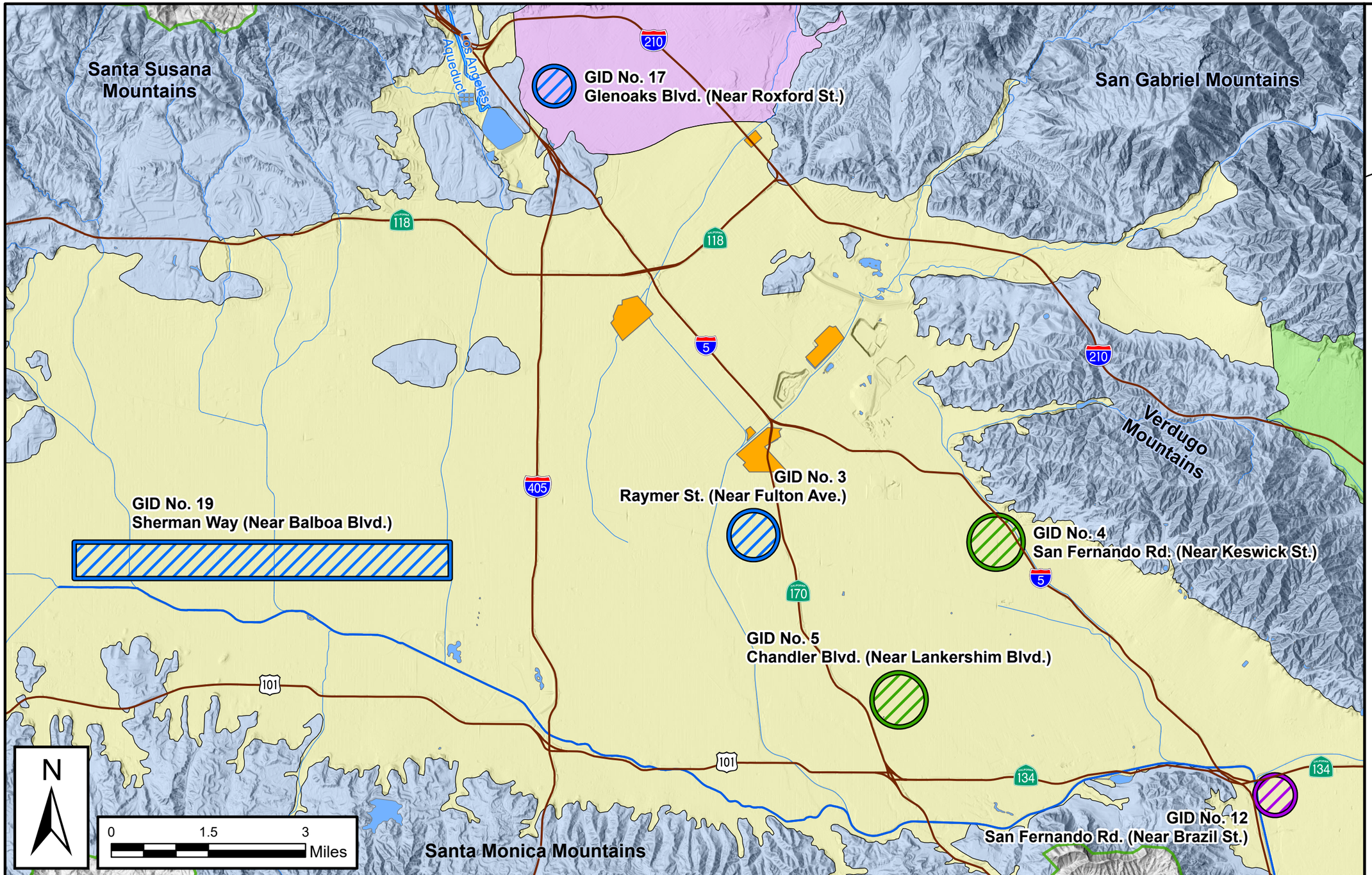

LEGEND

- Los Angeles River
- Primary Stream
- Los Angeles Aqueduct
- Surface Water
- ULARA Watershed
- Spreading Ground

Sewer Construction Status

- Ready For Construction
- Design Completed
- Under Design

Groundwater Basins

- Sylmar
- San Fernando
- Verdugo
- Eagle Rock

2019-20 Water Year
ULARA Watermaster Report

Upper Los Angeles River Area: Los Angeles Bureau of Sanitation Sewer Construction Program for Commercial Parcels

Plate 8

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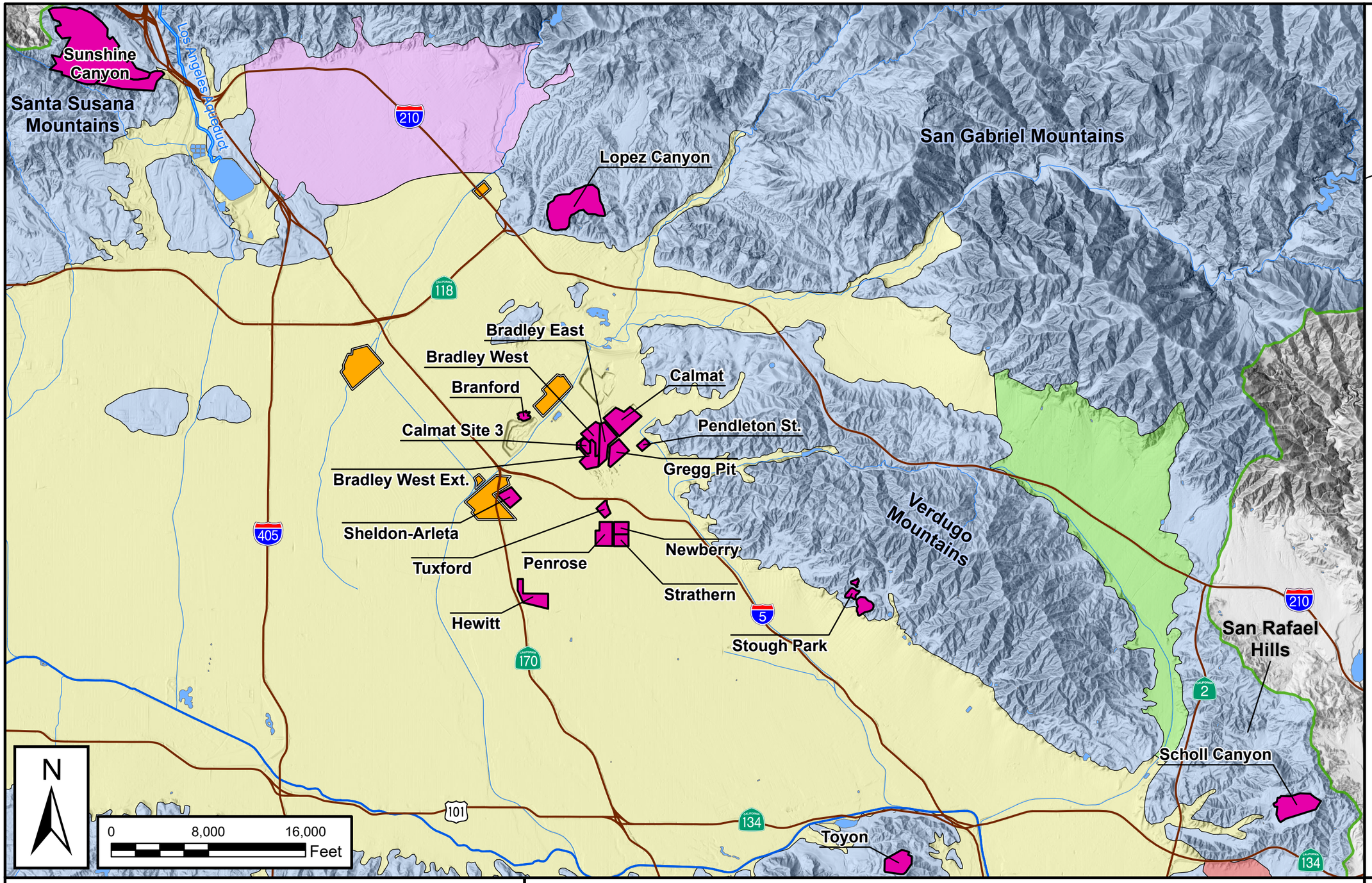

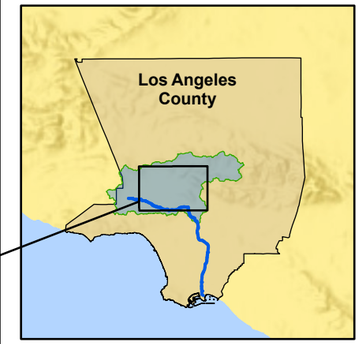

LEGEND

- Los Angeles River
- Primary Stream
- Los Angeles Aqueduct
- Surface Water
- ULARA Watershed
- Spreading Ground
- Landfill

Groundwater Basins

- Sylmar
- San Fernando
- Verdugo
- Eagle Rock

2019-20 Water Year
ULARA Watermaster Report

Upper Los Angeles River Area:
Landfill Locations

Plate 9

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Appendix A

Groundwater Extractions

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2019-20 WATER YEAR
(acre-feet)

LACDPW Well No.	Owner Well No.	2019 Oct.	2019 Nov.	2019 Dec.	2020 Jan.	2020 Feb.	2020 Mar.	2020 Apr.	2020 May	2020 June	2020 July	2020 Aug.	2020 Sept.	TOTAL
San Fernando Basin														
A. W. Warner Properties														
---	Plaza Three	0.28	0.27	0.28	0.30	0.24	0.34	0.52	0.36	0.46	0.35	0.24	0.25	3.89
---	Plaza Six	0.38	0.30	0.38	0.36	0.32	0.37	0.44	0.42	0.46	0.38	0.34	0.29	4.44
	Total:	0.66	0.57	0.66	0.66	0.56	0.71	0.96	0.78	0.92	0.73	0.58	0.54	8.33
Bally, Nico (WLA No. 10014)														
---	---	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.72
BFI Sunshine Canyon Landfill														
---	---	7.65	8.94	10.96	9.80	9.79	9.97	11.15	9.65	10.28	10.01	9.76	8.94	116.88
Boeing (Rockwell International No further pumping until 2000)														
---	E-1 to E-9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Burbank, City of														
3841C	6A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3882P	7	3.49	9.84	0.00	0.00	0.00	0.00	0.00	0.00	17.43	25.62	6.05	9.79	72.22
3851E	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3851K	13A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total:	3.49	9.84	0.00	0.00	0.00	0.00	0.00	0.00	17.43	25.62	6.05	9.79	72.22
Burbank Operable Unit														
3871L	VO-1	167.21	108.23	144.71	110.50	0.00	14.27	7.14	113.34	128.20	173.35	174.50	79.43	1,220.88
3861G	VO-2	22.81	117.74	148.10	165.60	0.00	63.95	52.91	143.39	160.47	170.72	134.66	121.73	1,302.08
3861K	VO-3	135.75	118.52	108.93	116.92	0.00	46.41	43.52	136.40	137.01	158.65	104.73	153.56	1,260.40
3861L	VO-4	143.02	128.18	120.69	125.58	0.00	43.50	43.37	0.00	0.00	1.05	109.15	119.93	834.47
3850X	VO-5	186.66	111.58	155.00	144.38	0.00	60.79	113.30	146.13	173.41	199.25	199.61	187.69	1,677.80
3850Z	VO-6	160.32	123.96	147.66	98.12	0.00	89.14	131.27	95.91	169.10	209.72	230.17	218.04	1,673.41
3850AB	VO-7	80.46	201.50	138.25	172.87	0.00	43.80	8.97	8.31	14.14	0.00	0.00	0.00	668.30
3851C	VO-8	201.32	191.80	154.32	154.70	0.00	129.56	170.01	190.34	97.27	157.54	204.18	200.21	1,851.25
	Total:	1,097.55	1,101.51	1,117.66	1,088.67	0.00	491.42	570.49	833.82	879.60	1,070.28	1,157.00	1,080.59	10,488.59
Cecil, Debra L. and Donald R. (previously Middle Ranch; successor to estate of Cecil B. DeMille)														
4940-3	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4940-2	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.39	0.04	0.00	0.00	0.66
	Total:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.39	0.04	0.00	0.00	0.66
Douglas Emmett Management, LLC (Trillium)														
---	Well #1	0.48	0.99	0.94	0.93	1.16	1.24	0.20	0.35	0.24	0.12	0.21	0.11	6.97
---	Well #2	0.85	0.75	0.02	0.03	0.00	0.26	0.09	0.23	0.08	0.43	0.43	1.86	5.03
	Total:	1.33	1.74	0.96	0.96	1.16	1.50	0.29	0.58	0.32	0.55	0.64	1.97	12.00
First Financial Plaza Site														
---	F.F.P.S.	0.91	0.91	0.91	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	12.47
Forest Lawn Memorial Park														
3947B	3	7.96	3.44	0.29	1.66	6.64	2.22	3.72	6.38	5.08	2.94	2.42	0.91	43.66
3947C	4	11.24	5.04	0.44	2.47	9.78	3.45	6.36	11.86	14.36	20.53	17.68	15.25	118.46
3947M	8	2.94	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.95
	Total:	22.14	8.48	0.74	4.13	16.42	5.67	10.08	18.24	19.44	23.47	20.10	16.16	165.07
Glendale, City of														
3924N	STPT 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.04	0.02	0.00	0.00	0.13
3924R	STPT 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.04	0.02	0.00	0.00	0.13
Glendale Operable Unit North/South														
---	GN-1	60.77	34.41	61.69	66.04	76.61	78.01	85.23	67.52	84.94	98.36	35.26	0.00	748.84
---	GN-2	63.41	29.45	61.71	69.97	80.25	80.26	85.16	65.15	83.64	96.28	80.68	106.10	902.06
---	GN-3	82.36	74.84	82.22	82.37	76.67	82.02	76.36	81.53	79.51	82.73	79.29	77.66	957.56
---	GN-4	164.67	41.92	164.41	128.95	153.50	164.06	152.67	164.50	157.91	163.05	156.46	158.37	1,770.47
---	GS-1	50.67	12.77	47.49	46.33	43.75	44.97	43.39	45.50	41.51	42.54	40.22	38.16	497.30
---	GS-2	70.71	62.24	71.14	68.38	66.97	67.08	58.02	62.56	59.47	60.81	55.88	52.14	755.40
---	GS-3	82.40	57.33	82.24	79.17	76.69	81.81	76.32	82.15	79.46	82.68	79.37	79.47	939.09
---	GS-4	0.15	30.10	0.42	2.44	1.19	1.40	0.31	0.22	0.25	0.38	0.22	1.71	38.79
---	GS-5	83.13	67.79	83.03	83.20	73.70	82.60	76.96	82.73	80.05	83.50	79.69	80.26	956.64
	Total:	658.27	410.85	654.35	626.85	649.33	682.21	654.42	651.86	666.74	710.33	607.07	593.87	7,566.15

2019-20 WATER YEAR
(acre-feet)

LACDPW Well No.	Owner Well No.	2019 Oct.	Nov.	Dec.	2020 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	TOTAL
					San Fernando Basin (cont'd)									
Grigsby, Wood (WLA No, 010011)														
---	---	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.33
Hallelujah Prayer Center of USA (prev. Hathaway Child and Family Services; successor to estate of Cecil B. deMille)														
---	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
---	2	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	6.12
---	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total:	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	6.12
Home Depot U.S.A., Inc.														
---	---	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Honeywell International, Inc.														
---	NHE-2	10.20	14.94	12.61	18.13	9.93	12.84	15.96	8.44	17.36	10.66	13.24	15.65	159.96
---	NHE-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
---	NHE-3R													
---	NHE-4R	*Wells are not in service. NHE-3R anticipated to come online in 2021. Uncertain of NHE-4R and NHE-5R.*												
---	NHE-5R													
	Total:	10.20	14.94	12.61	18.13	9.93	12.84	15.96	8.44	17.36	10.66	13.24	15.65	159.96
Jose Diaz (WLA No. 10022)														
---	---	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Khatcher Atamian (WLA No. 10006)														
---	---	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lopez-Zamarripa (WLA No. 10007T)														
---	---	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Menasco/Coltec Site														
---	---	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mercedes Benz of Encino (Auto Stiegler)														
---	---	0.20	0.20	0.20	0.17	0.17	0.17	0.10	0.10	0.10	0.10	0.10	0.10	1.71
Metropolitan Transportation Authority														
---	1065	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.00	0.00	0.48
---	1075	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
---	1130	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.17	0.17	3.70
---	1140	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.08
---	1150	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.20
---	1070	4.09	4.09	4.09	4.09	4.09	4.09	4.09	4.09	4.09	4.09	9.62	9.62	60.13
---	1133	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	Total:	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	9.81	9.81	64.60
Metropolitan Water District														
---	Jensen	8.60	8.90	8.90	9.10	8.70	9.50	9.20	9.80	9.60	9.80	9.50	8.10	109.70
Raytheon (Formerly Hughes Missile Systems)														
---	---	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RJ's Property Management (previously Middle Ranch; successor to estate of Cecil B. deMille)														
4931 x	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4940-1	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
---	5	0.16	0.14	0.04	0.06	0.08	0.04	0.09	0.16	0.11	0.15	0.11	0.12	1.26
---	8	0.61	0.60	0.26	0.36	0.53	0.17	0.22	0.74	0.58	0.68	0.60	0.63	5.98
---	Spring 1 & 2	0.03	0.03	0.01	0.02	0.03	0.02	0.03	0.03	0.02	0.03	0.04	0.03	0.32
	Total:	0.80	0.77	0.31	0.44	0.64	0.23	0.34	0.93	0.71	0.86	0.75	0.78	7.56

2019-20 WATER YEAR
(acre-feet)

LACDPW Well No.	Owner Well No.	2019 Oct.	Nov.	Dec.	2020 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	TOTAL
San Fernando Basin (cont'd)														
Quaranto, John (WLA No. 10004)														
---	---	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Sportsmen's Lodge														
3785A	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stallcup, Jackosn & Susan (WLA No. 10021)														
---	---	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3M-Pharmaceuticals														
---	---	1.94	2.44	2.24	2.23	2.18	1.48	1.57	1.83	2.07	1.63	1.61	1.52	22.74
Toluca Lake Property Owners Association														
3845F	3845F	2.18	2.18	0.34	0.34	2.97	0.03	0.03	2.82	5.27	5.27	4.91	7.97	34.31
Valhalla Memorial Park and Mortuary														
3840K	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vulcan Materials														
4916	1	12.24	9.33	6.27	12.65	12.34	11.13	7.24	13.59	12.16	0.00	0.00	0.00	96.95
4916A	2	38.49	40.32	23.25	34.39	30.73	25.50	19.40	28.47	21.99	0.00	0.00	0.00	262.54
4916x	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
---	Sheldon Pond	86.74	91.81	60.01	92.12	78.28	70.43	50.07	75.41	56.35	0.00	0.00	0.00	661.21
	Total:	137.47	141.46	89.53	139.15	121.34	107.07	76.70	117.47	90.51	0.00	0.00	0.00	1,020.71
Waste Management Disposal Services of Calif. (Inactive)														
4916D		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Walt Disney Pictures and Television (Inactive)														
3874E	EAST	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3874F	WEST	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3874G	NORTH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Walt Disney Riverside Building (Inactive)														
---	---	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waterworks District No. 21														
---	---	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wildlife Waystation														
---	Rehab Canyon	0.19	0.19	0.19	0.19	0.19	0.19	0.69	0.69	0.69	0.69	0.69	0.69	5.28
---	Foreman Hill Spring	0.22	0.22	0.22	0.22	0.22	0.22	0.08	0.08	0.08	0.08	0.08	0.08	1.80
	Total:	0.41	0.41	0.41	0.41	0.41	0.41	0.77	0.77	0.77	0.77	0.77	0.77	7.08

2019-20 WATER YEAR
(acre-feet)

LACDPW Well No.	Owner Well No.	2019 Oct.	Nov.	Dec.	2020 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	TOTAL
					San Fernando Basin (cont'd)									
Los Angeles, City of														
Aeration (A)														
3800E	A-1						No Production - used for monitoring							
3810U	A-2						A-2 and A-3 reported by Honeywell							
3810V	A-3						A-2 and A-3 reported by Honeywell							
3810W	A-4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3820H	A-5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3821J	A-6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3830P	A-7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3831K	A-8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A Total:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Erwin (E)														
3831H	E-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3821I	E-2A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3831G	E-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3821F	E-4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3831F	E-5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3821H	E-6	0.23	0.00	0.00	0.23	0.00	0.23	0.00	0.00	0.00	0.00	0.25	0.00	0.94
3811F	E-10	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.73
	E Total:	0.23	0.00	0.00	0.71	0.00	0.23	0.00	0.00	0.00	0.25	0.25	0.00	1.67
Headworks (H)	**Inactive Well Field**													
3893Q	H-27A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3893R	H-28A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3893S	H-29A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3893T	H-30A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	H Total:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
North Hollywood (NH)														
3800	NH-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3780A	NH-4	0.37	0.37	0.18	0.55	99.56	0.00	0.18	0.37	92.57	137.81	123.55	119.74	575.25
3770	NH-7	0.41	0.28	0.14	0.28	60.77	0.28	0.14	0.28	47.38	77.89	69.83	67.79	325.47
3810A	NH-13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3810B	NH-14A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3790B	NH-15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3820D	NH-16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3820C	NH-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3820B	NH-18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3790C	NH-22	0.92	0.62	0.62	0.62	82.74	0.60	0.30	149.54	152.33	215.40	193.09	187.44	984.22
3790D	NH-23	1.38	0.92	0.92	0.92	20.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24.34
3790F	NH-25	0.57	0.37	0.37	0.18	78.67	0.18	0.37	0.00	96.60	143.60	128.93	124.95	574.79
3790E	NH-26	0.92	0.62	0.62	0.62	127.36	0.60	0.30	149.22	53.55	0.00	0.00	0.30	334.11
3820F	NH-27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3810K	NH-28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3810L	NH-29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3800D	NH-30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3770C	NH-32	0.46	0.46	0.23	0.46	101.61	0.46	0.23	0.46	101.82	167.77	150.64	146.01	670.61
3780C	NH-33	0.60	0.60	0.30	0.90	131.20	0.30	0.60	145.45	152.33	215.70	193.39	187.44	1,028.81
3790G	NH-34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3830N	NH-35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3790H	NH-36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3790J	NH-37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3810M	NH-38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3810N	NH-39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3810P	NH-40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3810Q	NH-41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3810R	NH-42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3790K	NH-43A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3790L	NH-44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3790M	NH-45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NH Total:	5.63	4.24	3.38	4.53	702.11	2.42	2.12	445.32	696.58	958.17	859.43	833.67	4,517.60
Pollock (P)														
3959E	P-4	176.19	173.79	178.93	180.84	166.87	179.55	204.80	162.66	110.31	174.32	173.63	167.16	2,049.05
3958H	P-6	0.08	0.16	0.07	0.09	0.12	0.12	0.12	0.09	0.10	0.11	0.09	0.09	1.24
3958J	P-7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	P Total:	176.27	173.95	179.00	180.93	166.99	179.67	204.92	162.75	110.41	174.43	173.72	167.25	2,050.29

2019-20 WATER YEAR
(acre-feet)

LACDPW Well No.	Owner Well No.	2019 Oct.	2019 Nov.	2019 Dec.	2020 Jan.	2020 Feb.	2020 Mar.	2020 Apr.	2020 May	2020 June	2020 July	2020 Aug.	2020 Sept.	TOTAL
					San Fernando Basin (cont'd)									
Rinaldi-Toluca (RT)														
4909E	RT-1	321.44	0.55	0.55	0.55	0.55	1.65	0.55	1.65	0.56	0.55	1.12	0.55	330.27
4898A	RT-2	0.00	0.00	0.07	0.00	0.07	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.21
4898B	RT-3	1.03	2.07	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.13
4898C	RT-4	356.84	0.60	0.60	0.60	1.22	1.22	0.60	368.53	322.14	436.57	383.17	371.42	2,243.51
4898D	RT-5	0.53	0.53	0.00	1.06	1.06	1.06	1.06	316.80	289.85	394.05	344.86	334.80	1,685.66
4898E	RT-6	316.09	0.53	0.53	0.53	1.08	1.61	0.53	325.90	204.17	181.86	0.00	0.00	1,032.83
4898F	RT-7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4898G	RT-8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4898H	RT-9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4909G	RT-10	0.00	0.67	1.33	1.33	0.67	2.00	1.33	1.33	0.67	0.67	1.33	0.67	12.00
4909K	RT-11	0.60	0.60	0.60	0.60	0.60	1.79	0.60	1.19	348.43	132.23	0.00	1.33	488.57
4909H	RT-12	0.67	1.35	0.00	0.67	1.35	1.35	0.00	0.00	0.00	0.00	0.00	0.00	5.39
4909J	RT-13	0.60	0.60	0.60	0.60	0.60	1.79	0.60	1.19	0.71	1.42	0.71	1.42	10.84
4909L	RT-14	0.57	0.00	0.57	1.72	0.57	1.72	0.57	0.57	0.58	1.15	0.57	0.57	9.16
4909M	RT-15	0.55	0.55	0.55	1.10	0.55	0.55	0.55	1.10	1.66	1.65	0.55	1.65	11.01
	RT Total:	998.92	8.05	6.43	8.76	8.32	14.81	6.39	1,018.26	1,168.77	1,150.15	732.31	712.41	5,833.58
Tujunga (T)														
4887C	T-1	550.90	511.39	619.28	501.52	534.18	268.23	131.45	691.48	400.73	541.09	540.36	490.91	5,781.52
4887D	T-2	521.65	482.85	188.25	168.14	0.00	206.93	518.07	653.88	390.91	528.79	528.79	461.27	4,649.53
4887E	T-3	533.33	493.66	155.74	313.68	388.61	155.74	4.41	0.73	0.73	0.73	1.47	0.73	2,049.56
4887F	T-4	586.66	543.02	210.90	578.58	427.46	171.30	233.52	715.96	441.71	592.42	525.09	158.72	5,185.34
4887G	T-5	0.71	0.71	1.42	1.42	0.71	0.71	0.71	1.42	0.71	0.71	0.71	0.71	10.65
4887H	T-6	454.98	421.14	511.39	433.06	440.56	400.46	451.24	570.94	346.08	409.53	467.31	423.35	5,330.04
4887J	T-7	346.30	458.01	543.00	458.01	303.47	366.69	505.79	639.26	387.07	522.64	522.64	454.50	5,507.38
4887K	T-8	0.73	0.73	0.73	0.73	0.73	1.47	0.00	1.47	1.47	0.73	0.73	0.73	10.25
4886B	T-9	0.57	0.57	0.57	0.57	0.57	0.00	0.57	0.57	0.00	0.00	0.57	0.57	5.13
4886C	T-10	0.73	0.73	0.73	0.73	1.47	0.00	1.47	0.73	0.74	0.73	0.73	0.00	8.79
4886D	T-11	0.00	0.00	0.00	2.07	0.69	1.38	1.38	0.71	0.00	1.38	0.69	0.69	8.99
4886E	T-12	0.73	0.00	0.73	1.47	0.73	0.76	20.06	0.73	390.50	553.40	486.46	502.07	1,957.64
	T Total:	2,997.29	2,912.81	2,232.74	2,459.98	2,099.18	1,573.67	1,868.67	3,277.88	2,360.65	3,152.15	3,075.55	2,494.25	30,504.82
Van Norman (VN)														
---	VN-1	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
---	VN-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
---	VN-3	0.06	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18
---	VN-4	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
---	VN-5	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
---	VN-6	0.04	0.04	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.30
---	VN-7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
---	VN-8	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
---	VN-9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
---	VN-10	0.25	0.25	0.25	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	1.65
---	VN-11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VN Total:	0.41	0.41	0.41	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	2.31

2019-20 WATER YEAR
(acre-feet)

LACDPW Well No.	Owner Well No.	2019 Oct.	2019 Nov.	2019 Dec.	2020 Jan.	2020 Feb.	2020 Mar.	2020 Apr.	2020 May	2020 June	2020 July	2020 Aug.	2020 Sept.	TOTAL
					San Fernando Basin (cont'd)									
Verdugo (V)														
3863H	V-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3863P	V-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3863J	V-4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3863L	V-11	0.32	0.00	0.00	0.32	0.00	0.32	0.00	0.00	0.00	0.62	0.00	0.00	1.58
3853G	V-13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
---	V-16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3854F	V-22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3844R	V-24	0.32	0.00	0.00	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	1.24
	V Total:	0.64	0.00	0.00	0.64	0.00	0.32	0.00	0.00	0.00	0.62	0.60	0.00	2.82
Whitnall (W)														
3820E	W-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3821B	W-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3821C	W-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3821D	W-4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3821E	W-5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3831J	W-6A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3832K	W-7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3832L	W-8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3832M	W-9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3842E	W-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	W Total:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Los Angeles, City of Total:	4,179.39	3,099.46	2,421.96	2,655.67	2,976.72	1,771.24	2,082.22	4,904.33	4,336.53	5,435.89	4,841.98	4,207.70	42,913.09
	San Fernando Basin Total:	6,138.28	4,818.68	4,327.82	4,562.89	3,806.50	3,100.63	3,440.47	6,567.90	6,064.25	7,312.21	6,685.55	5,965.94	62,791.13

2019-20 WATER YEAR
(acre-feet)

LACDPW Well No.	Owner Well No.	2019 Oct.	Nov.	Dec.	2020 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	TOTAL
					Sylmar Basin									
Los Angeles, City of														
Plant	**Mission**													
4840K	6	0.14	0.16	0.03	0.15	0.00	0.00	0.15	0.00	0.62	0.25	0.19	1.36	3.05
4840S	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total:	0.14	0.16	0.03	0.15	0.00	0.00	0.15	0.00	0.62	0.25	0.19	1.36	3.05
Santiago Estates (Inactive; well capped in 1999)														
5998	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
San Fernando, City of														
5969D	2A	200.93	169.87	148.90	152.35	165.56	143.23	138.79	199.35	196.45	212.83	252.01	213.54	2,193.81
5959	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5969	4A	27.23	26.88	21.75	24.34	24.45	23.00	21.66	29.91	28.17	27.06	31.50	21.12	307.07
5968	7A	33.50	32.47	12.44	20.56	14.86	25.86	27.05	20.55	30.77	43.87	9.95	39.91	311.79
	Total:	261.66	229.22	183.09	197.25	204.87	192.09	187.50	249.81	255.39	283.76	293.46	274.57	2,812.67
	Sylmar Basin Total:	261.80	229.38	183.12	197.40	204.87	192.09	187.65	249.81	256.01	284.01	293.65	275.93	2,815.72
					Verdugo Basin									
Crescenta Valley Water District														
5058B	1	10.98	11.93	9.27	10.53	10.57	8.74	9.79	11.46	10.80	10.83	11.43	11.03	127.36
5036A	2	8.59	11.28	6.67	11.93	10.60	10.79	0.28	0.98	10.05	10.67	10.85	6.36	99.05
5058H	5	39.21	37.40	38.33	38.73	35.12	37.80	36.50	37.19	36.12	36.79	36.29	35.34	444.82
5058	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5047B	7	24.84	26.05	21.55	24.57	23.56	20.21	22.76	26.00	24.82	25.95	25.87	25.09	291.27
5069J	8	21.10	22.01	21.69	22.05	18.91	22.08	21.27	21.98	21.16	21.64	22.08	20.74	256.71
5047D	9	9.52	9.68	8.17	9.27	8.49	6.83	8.31	9.49	8.06	8.76	8.93	8.46	103.97
5058D	10	8.89	9.24	10.50	11.22	10.00	11.21	10.93	10.73	10.08	10.63	10.15	9.72	123.30
5058E	11	8.02	7.57	7.97	7.61	6.57	7.96	7.64	7.36	0.00	2.81	10.68	9.59	83.78
5058J	12	11.44	10.87	11.93	12.03	10.69	12.96	12.48	12.49	11.52	11.90	11.72	11.19	141.22
5069F	14	19.15	20.40	20.28	22.40	19.44	20.03	18.87	23.02	24.03	23.96	23.66	23.23	258.47
---	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
---	PICKENS (CVWD)	3.73	3.68	3.68	3.86	3.01	3.16	3.05	3.16	3.27	3.08	3.27	3.07	40.02
	Total:	165.47	170.11	160.04	174.20	156.96	161.77	151.88	163.86	159.91	167.02	174.93	163.82	1,969.97
Knowltons														
---	PICKENS	0.96	0.81	0.81	0.81	0.80	0.80	0.80	0.89	0.80	0.80	0.80	0.80	9.88
Glendale, City of														
3971	GL-3	12.45	11.73	12.32	12.23	11.44	12.31	11.88	12.08	11.65	12.00	12.23	12.01	144.33
3961	GL-4	37.47	36.58	38.12	37.80	35.61	37.97	36.64	38.19	36.96	38.60	38.46	37.34	449.74
3970	GL-6	16.31	16.36	16.67	16.24	14.81	15.53	14.09	15.07	14.56	15.19	14.69	14.00	183.52
---	VPCKP (Combined flow from Verdugo Wells A & B)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5036	FHW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
---	RHW (CVWD #16)	0.04	0.00	0.00	0.00	1.02	0.00	6.61	16.73	14.14	16.42	17.77	17.16	89.89
	Total:	66.27	64.67	67.11	66.27	62.88	65.81	69.22	82.07	77.31	82.21	83.15	80.51	867.48
	Verdugo Basin Total:	232.70	235.59	227.96	241.28	220.64	228.38	221.90	246.82	238.02	250.03	258.88	245.13	2,847.33
					Eagle Rock Basin									
DS Services of America, Inc. (Sparkletts)														
3987A	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3987B	2	6.14	7.04	4.87	7.68	7.18	7.56	8.87	7.63	9.07	7.23	8.93	9.11	91.31
3987F	3	1.94	2.94	1.15	2.57	2.21	2.13	2.53	3.87	2.41	1.71	1.83	1.86	27.15
3987G	4	7.27	7.84	5.18	8.26	6.92	7.26	6.67	6.79	7.12	5.51	4.75	6.94	80.51
	Total:	15.35	17.82	11.20	18.51	16.31	16.95	18.07	18.29	18.60	14.45	15.51	17.91	198.97
	Eagle Rock Basin Total:	15.35	17.82	11.20	18.51	16.31	16.95	18.07	18.29	18.60	14.45	15.51	17.91	198.97
	ULARA Total:	4,394.46	3,314.46	2,567.05	2,866.03	3,173.48	1,943.95	2,233.01	5,099.67	4,518.89	5,519.89	4,930.36	4,284.03	68,653.15

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Appendix B

Key Gaging Stations of Surface Runoff and Precipitation Data

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

MARK PESTRELLA, Director

900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803-1331
Telephone: (626) 458-5100
http://dpw.lacounty.gov

ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

IN REPLY PLEASE
REFER TO FILE: SWE-3

December 7, 2020

Mr. Richard C. Slade
Upper Los Angeles River Area Watermaster
14051 Burbank Boulevard, Suite 300
Sherman Oaks, CA 91401

Dear Mr. Slade:

REQUESTED HYDROLOGIC DATA FOR WATER YEAR 2019-20

The following data is enclosed as requested in your recent letter:

- Summary of water spread for the 2019-20 Water Year at Branford, Pacoima, Lopez, Hansen, and Tujunga Spreading Grounds.

- Gaging station summaries for Stations: F252-R, E285-R, F168B-R, F300-R, F118C-R, and F57C-R.

- Available static water level data within the range of Well Nos. 3504A through 5077C for fall 2020. Incomplete or unavailable data is denoted.

- Seasonal precipitation for the 2018-19 Water Year at Stations: 10A, 13C, 1107D, 465C, 17, 21B, 735H, 25C, 33A, 47D, 53D, 54C, 210C, 251C, AL301, 1222, and 1074. Several stations have either incomplete data or have been discontinued. Data from nearby stations have been substituted.

    - The records for Stations 11D, 23B, 797, and 293B are incomplete and have been substituted with the data from Stations 10A, 735H, AL301, and 1222, respectively. These stations are owned and operated by the City of Los Angeles Department of Water and Power and they have not submitted the complete data despite our requests.

As you requested, electronic data files will be e-mailed to Slade@ularawatermaster.com with a cc to Assistant Watermaster at Hicke@ularawatermaster.com.

If you have any questions regarding the data, please contact Mr. Arthur Gotingco at (626) 458-6379 or agoting@pw.lacounty.gov.

Very truly yours,

MARK PESTRELLA
Director of Public Works

ADAM ARIKI
Assistant Deputy Director
Stormwater Engineering Division

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Summary Report

Site: 4SGTOTALWC Branford Spreading Basin Total Water Conserved.
USGS #:
Beginning Date: 10/01/2019
Ending Date: 09/30/2020

Daily Mean Discharge in Cubic feet/second Water Year Oct 2019 to Sep 2020

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.05	.06	.10	.05	.07	.06	.05	.06	.05	.06	.07	.07
2	.05	.05	.06	.05	.10	.09	.05	.09	.05	.07	.06	.06
3	.05	.06	.05	.05	.05	.10	.05	.07	.05	.08	.07	.08
4	.07	.07	15.2	.05	.07	.09	.05	.06	.06	.08	.06	.08
5	.05	.05	.07	.05	.05	.05	7.79	.06	.06	.07	.06	.07
6	.06	.07	.41	.05	.05	.08	23.4	.05	.05	.06	.05	.07
7	.06	.05	1.93	.05	.06	.05	14.0	.06	.06	.08	.05	.05
8	.05	.07	7.83	.05	.05	.05	-1.79	.05	.06	.07	.05	.05
9	.09	.05	.08	.05	.07	.05	2.00	.06	.05	.07	.05	.07
10	.05	.06	.05	.05	.06	2.47	-.30	.08	.07	.07	.07	.05
11	.05	.12	.05	.05	.05	.15	.12	.08	.08	.06	.08	.06
12	.05	.12	.05	.05	.06	42.5	.63	.10	.06	.08	.08	.05
13	.06	.06	.09	.05	.06	-.80	.20	.06	.07	.08	.08	.06
14	.07	.05	.05	.05	.07	1.30	.10	.07	.06	.08	.07	.06
15	.05	.06	.05	.05	.05	1.38	.05	.05	.06	.06	.07	.07
16	.06	.05	.05	.37	.06	6.90	.05	.06	.07	.06	.06	.07
17	.05	.05	.05	3.40	.07	.41	.05	.07	.07	.06	.06	.11
18	.07	.05	.05	.05	.05	.07	.05	5.46	.07	.06	.07	.08
19	.05	.05	.05	.05	.06	1.46	.05	.06	.06	.07	.07	.08
20	.05	.35	.05	.05	.05	.07	.05	.05	.07	.06	.07	.07
21	.06	.06	.05	.05	.05	.05	.05	.06	.06	.07	.07	.07
22	.05	.06	7.34	.06	.06	15.9	.05	.05	.05	.07	.07	.08
23	.06	.05	17.4	.05	.06	-1.91	.05	.05	.06	.07	.07	.08
24	.05	.05	.06	.05	.05	.06	.05	.07	.06	.06	.07	.10
25	.06	.05	15.7	.05	.05	.13	.07	.05	.07	.07	.07	.27
26	.06	.05	2.70	.05	.05	.05	.05	.06	.07	.07	.07	.14
27	.10	14.3	.06	.05	.08	.05	.05	.06	.07	.06	.08	.13
28	.06	36.5	.05	.05	.05	.05	.06	.06	.07	.07	.08	.14
29	.08	-.40	.05	.05	.05	.05	.06	.06	.08	.07	.08	.07
30	.05	.30	.05	.05	------	.05	.06	.07	.06	.06	.08	.06
31	.05	------	.05	.05	------	.05	------	.05	------	.07	.08	------
Total	1.82	52.57	69.83	5.23	1.71	71.06	47.20	7.34	1.88	2.12	2.12	2.50
Mean	.059	1.75	2.25	.17	.059	2.29	1.57	.24	.063	.068	.068	.083
Max	.10	36.5	17.4	3.40	.10	42.5	23.4	5.46	.08	.08	.08	.27
Min	.05	-.40	.05	.05	.05	-1.91	-1.79	.05	.05	.06	.05	.05
Acre-Ft	3.6	104	139	10	3.4	141	94	15	3.7	4.2	4.2	5.0

Wtr Year 2020	Total	265.38	Mean	.73	Max	42.5	Min	-1.91	Inst Max	42.5	Acre-Ft	526
Cal Year 2019	Total	342.30	Mean	.94	Max	36.5	Min	-.40	Inst Max	36.5	Acre-Ft	679

Summary Report

Site: 17SGTOTALWC Pacoima Spreading Grounds Total Water Conserved
USGS #:
Beginning Date: 10/01/2019
Ending Date: 09/30/2020

Daily Mean Discharge in Cubic feet/second Water Year Oct 2019 to Sep 2020

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	43.1	0	0	0	0	31.7	43.2	0	0	0	0
2	21.6	43.1	0	0	0	0	16.1	43.1	0	0	0	0
3	34.6	41.5	0	0	11.5	0	0	43.2	0	0	0	0
4	35.2	42.3	51.3	0	29.7	0	0	18.9	0	0	0	0
5	35.9	37.0	0	0	16.6	0	11.1	0	0	0	0	0
6	39.5	33.0	0	0	0	0	125	0	0	0	0	0
7	41.8	34.3	0	0	0	0	106	0	0	0	0	0
8	41.6	33.3	7.39	0	0	0	27.1	0	0	0	0	0
9	36.2	33.4	21.2	0	0	0	40.9	0	0	0	0	0
10	32.8	33.4	36.0	0	0	9.00	40.0	0	0	0	0	0
11	32.8	33.5	36.0	0	0	2.33	44.8	0	0	0	0	0
12	31.5	33.7	36.1	0	0	169	44.8	0	0	0	0	0
13	31.1	33.4	36.0	0	0	94.5	43.6	0	0	0	2.38	0
14	31.6	33.5	36.2	0	0	0	41.4	0	0	0	12.0	0
15	32.7	33.3	35.2	0	0	0	38.9	0	0	0	11.9	0
16	31.8	32.4	17.1	0	0	87.9	41.5	0	0	0	12.4	0
17	31.7	31.5	0	0	0	0	40.8	0	0	0	17.6	0
18	31.2	32.3	0	0	0	0	28.9	27.0	0	0	20.7	0
19	31.1	16.7	0	0	0	6.62	41.5	0	0	0	9.57	0
20	30.5	0	0	0	0	0	41.5	0	0	0	0	0
21	30.4	0	0	0	0	0	40.4	0	0	0	0	0
22	37.8	0	19.3	0	0	78.7	40.6	0	0	0	0	0
23	39.4	0	61.8	0	0	6.66	42.0	0	0	0	0	0
24	36.9	0	0	0	0	0	44.7	0	0	0	0	0
25	36.3	0	45.4	0	0	0	43.5	0	0	0	0	0
26	35.5	0	88.6	0	0	0	39.7	0	0	0	0	0
27	35.1	28.8	0	0	0	0	39.6	0	0	0	0	0
28	30.4	98.1	0	0	0	0	46.2	0	0	0	0	0
29	30.1	0	0	0	0	0	45.0	0	0	0	0	0
30	38.3	0	0	0	------	0	44.0	0	0	0	0	0
31	42.1	------	0	0	------	14.3	------	0	------	0	0	------
Total	1027.5	781.6	527.59	0	57.8	469.01	1231.3	175.4	0	0	86.55	0
Mean	33.1	26.1	17.0	0	1.99	15.1	41.0	5.66	0	0	2.79	0
Max	42.1	98.1	88.6	0	29.7	169	125	43.2	0	0	20.7	0
Min	0	0	0	0	0	0	0	0	0	0	0	0
Acre-Ft	2040	1550	1050	0	115	930	2440	348	0	0	172	0

Wtr Year 2020	Total	4356.75	Mean	11.9	Max	169	Min	0	Inst Max	169	Acre-Ft	8640
Cal Year 2019	Total	10647.86	Mean	29.2	Max	158	Min	0	Inst Max	158	Acre-Ft	21120

DT

Summary Report

Site: 16SGTOTALWC Lopez Spreading Grounds Total Water Conserved
USGS #:
Beginning Date: 10/01/2019
Ending Date: 09/30/2020

Daily Mean Discharge in Cubic feet/second Water Year Oct 2019 to Sep 2020

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	7.98	0	0	0	0	.07	0	0	0	0
2	0	0	7.98	0	0	0	0	.05	0	0	0	0
3	0	0	8.46	0	0	0	0	.05	0	0	0	0
4	0	0	10.3	0	0	0	0	.05	0	0	0	0
5	0	6.29	10.0	0	0	0	.01	.02	0	0	0	0
6	0	10.1	9.94	0	0	0	.38	0	0	0	0	0
7	0	10.1	9.94	0	0	0	.15	0	0	0	0	0
8	0	10.1	10.0	0	0	0	6.05	0	0	0	0	0
9	5.55	10.1	10.3	0	0	0	13.7	0	0	0	0	0
10	8.06	10.1	10.9	0	0	0	14.2	0	0	0	0	0
11	8.14	10.1	10.5	0	0	0	13.9	0	0	0	0	0
12	8.25	10.1	9.97	0	0	.05	14.0	0	0	0	0	0
13	8.25	10.1	9.74	0	0	.11	13.9	0	0	0	0	0
14	8.22	10.1	9.81	0	0	.09	13.9	0	0	0	0	0
15	8.20	10.0	9.94	0	0	.05	14.0	0	0	0	0	0
16	8.24	9.96	12.4	0	0	.08	14.2	0	0	0	0	0
17	8.23	9.92	14.2	0	0	.06	14.2	0	0	0	0	0
18	8.23	9.94	14.0	0	0	.05	14.1	.03	0	0	0	0
19	8.16	10.5	14.0	0	0	.05	14.0	.03	0	0	0	0
20	8.13	10.8	14.5	0	0	.05	13.9	.02	0	0	0	0
21	8.13	10.0	14.7	0	0	.05	13.9	0	0	0	0	0
22	10.6	9.81	14.7	0	0	.07	13.8	0	0	0	0	0
23	12.9	9.81	14.8	0	0	.07	10.6	0	0	0	0	0
24	12.3	9.73	14.6	0	0	.07	8.10	0	0	0	0	0
25	12.1	9.59	14.4	0	0	.07	8.12	0	0	0	0	0
26	12.0	9.55	14.3	0	0	.05	8.13	0	0	0	0	0
27	11.9	9.42	14.1	0	0	.05	8.10	0	0	0	0	0
28	11.9	9.34	14.2	0	0	.05	3.34	0	0	0	0	0
29	11.7	9.22	14.4	0	0	.02	.07	0	0	0	0	0
30	3.33	8.02	14.5	0	------	0	.07	0	0	0	0	0
31	0	------	5.29	0	------	0	------	0	------	0	0	------
Total	202.52	252.80	364.85	0	0	1.09	248.82	0.32	0	0	0	0
Mean	6.53	8.43	11.8	0	0	.035	8.29	.010	0	0	0	0
Max	12.9	10.8	14.8	0	0	.11	14.2	.07	0	0	0	0
Min	0	0	5.29	0	0	0	0	0	0	0	0	0
Acre-Ft	402	501	724	0	0	2.2	494	.63	0	0	0	0

Wtr Year 2020	Total	1070.40	Mean	2.92	Max	14.8	Min	0	Inst Max	14.8	Acre-Ft	2120
Cal Year 2019	Total	2553.93	Mean	7.00	Max	15.1	Min	0	Inst Max	15.1	Acre-Ft	5070

DT

Summary Report

Site: 12SGTOTALWC Hansen Spreading Grounds Total Water Conserved
USGS #:
Beginning Date: 10/01/2019
Ending Date: 09/30/2020

Daily Mean Discharge in Cubic feet/second Water Year Oct 2019 to Sep 2020

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.68	0	0	6.38	3.29	2.75	48.1	26.6	8.42	4.35	0	0
2	5.97	0	0	5.74	3.30	2.65	81.8	26.2	7.67	4.18	0	0
3	6.73	0	0	5.33	3.17	2.52	115	26.2	6.57	3.88	0	0
4	7.13	0	14.5	5.05	3.06	2.51	72.8	26.1	6.10	3.70	0	0
5	7.30	0	7.17	4.92	3.11	2.54	34.2	24.7	6.42	3.53	0	0
6	7.29	0	3.50	4.70	3.17	2.53	108	23.8	7.05	3.42	0	0
7	7.33	0	3.47	4.66	3.17	2.53	97.3	23.0	6.49	3.35	0	0
8	7.44	0	6.56	4.54	3.17	2.51	145	19.9	5.61	3.29	0	0
9	7.73	0	5.43	4.47	3.24	2.42	88.3	19.2	5.37	3.23	0	0
10	7.81	0	3.76	4.31	2.94	2.98	107	19.0	5.10	3.14	0	0
11	6.84	0	3.49	4.29	2.90	6.14	74.2	18.4	4.82	2.92	0	0
12	6.11	0	3.35	4.25	2.97	19.7	56.4	17.8	4.89	2.78	0	0
13	6.00	0	3.20	4.18	3.02	40.1	52.6	16.8	5.02	2.79	0	0
14	6.20	0	3.15	4.16	2.96	21.4	116	15.2	4.92	2.88	0	0
15	5.37	0	2.83	4.14	2.91	16.5	167	14.1	4.82	2.94	0	0
16	3.73	0	1.26	4.09	2.92	30.0	170	13.5	4.92	2.97	0	0
17	4.40	0	0	4.42	2.96	60.7	167	12.4	4.91	2.88	0	0
18	3.90	0	.94	4.06	2.94	28.9	163	14.0	5.06	2.74	0	0
19	3.79	0	2.16	4.01	2.91	19.2	153	13.6	5.06	2.61	0	0
20	3.46	0	2.14	3.94	2.83	14.8	142	12.7	4.97	2.63	0	0
21	3.32	0	2.14	3.87	2.81	12.2	85.9	12.0	4.81	.96	0	0
22	3.24	0	2.24	3.77	2.79	14.1	46.9	12.0	4.66	0	0	0
23	3.14	0	11.6	3.71	2.82	29.2	38.4	11.2	4.51	0	0	0
24	2.84	0	4.27	3.67	2.87	17.2	37.8	10.7	4.43	0	0	0
25	2.84	0	3.86	3.57	2.82	13.8	36.1	9.97	4.41	0	0	0
26	2.92	0	105	3.54	2.69	12.5	35.0	9.67	4.31	0	0	0
27	3.02	0	33.3	3.47	2.75	11.0	34.2	9.01	4.24	0	0	0
28	2.85	0	17.1	3.47	2.74	10.2	34.5	8.73	4.55	0	0	0
29	2.98	0	13.9	3.41	2.68	9.78	29.1	9.08	4.67	0	0	0
30	1.76	0	9.68	3.37	------	9.34	27.5	9.14	4.39	0	0	0
31	0	------	7.06	3.34	------	9.09	------	8.90	------	0	0	------
Total	149.12	0	277.06	130.83	85.91	431.79	2564.1	493.60	159.17	65.17	0	0
Mean	4.81	0	8.94	4.22	2.96	13.9	85.5	15.9	5.31	2.10	0	0
Max	7.81	0	105	6.38	3.30	60.7	170	26.6	8.42	4.35	0	0
Min	0	0	0	3.34	2.68	2.42	27.5	8.73	4.24	0	0	0
Acre-Ft	296	0	550	259	170	856	5090	979	316	129	0	0

Wtr Year 2020	Total	4356.75	Mean	11.9	Max	170	Min	0	Inst Max	170	Acre-Ft	8640
Cal Year 2019	Total	12223.61	Mean	33.5	Max	407	Min	0	Inst Max	407	Acre-Ft	24250

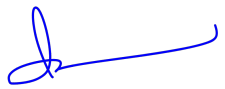
Summary Report

Site: 33SGTOTALWC Tujunga Spreading Grounds Total Water Conserved
USGS #:
Beginning Date: 10/01/2019
Ending Date: 09/30/2020

Daily Mean Discharge in Cubic feet/second Water Year Oct 2019 to Sep 2020

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	130	0	0	0	0	0
7	0	0	0	0	0	0	134	0	0	0	0	0
8	0	0	0	0	0	0	32.8	0	0	0	0	0
9	0	0	0	0	0	0	160	0	0	0	0	0
10	0	0	0	0	0	0	73.8	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	47.4	0	0	0	0	0	0
13	0	0	0	0	0	44.2	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	5.90	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	35.8	0	0	0	0	0	0
23	0	0	0	0	0	4.87	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	------	0	0	0	0	0	0	0
31	0	------	0	0	------	0	------	0	------	0	0	------
Total	0	0	0	0	0	132.27	530.6	5.90	0	0	0	0
Mean	0	0	0	0	0	4.27	17.7	.19	0	0	0	0
Max	0	0	0	0	0	47.4	160	5.90	0	0	0	0
Min	0	0	0	0	0	0	0	0	0	0	0	0
Acre-Ft	0	0	0	0	0	262	1050	12	0	0	0	0

Wtr Year 2020	Total	668.77	Mean	1.83	Max	160	Min	0	Inst Max	160	Acre-Ft	1330
Cal Year 2019	Total	0	Mean	0	Max	0	Min	0	Inst Max	0	Acre-Ft	0



Summary Report

Site: F57C Los Angeles River Above Arroyo Seco
USGS #:
Beginning Date: 10/01/2019
Ending Date: 09/30/2020

Daily Mean Discharge in Cubic feet/second Water Year Oct 2019 to Sep 2020

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59.7	39.7	63.0	65.7	61.6	96.6	23.4	48.9	38.7	26.8	55.6	64.8
2	60.8	41.8	52.6	64.7	62.7	149	25.7	50.0	38.4	32.9	65.6	64.3
3	63.2	40.7	54.2	64.3	68.1	121	25.1	46.5	38.0	36.5	65.2	61.9
4	46.9	40.2	1860	63.9	63.4	78.0	29.3	43.6	37.7	45.2	63.3	61.6
5	48.9	39.6	73.1	63.6	56.9	72.9	39.3	43.1	37.4	51.1	64.5	59.1
6	46.3	40.9	71.8	62.3	53.4	68.0	3660	39.2	36.0	50.7	60.5	60.5
7	44.1	41.2	124	61.2	46.0	63.3	1440	38.4	35.7	56.2	63.4	61.5
8	41.2	42.6	555	60.8	40.8	46.9	404	38.8	35.4	63.4	65.9	58.9
9	42.8	43.2	73.0	60.8	191	45.7	1210	38.7	35.1	59.7	67.7	60.7
10	41.6	43.1	51.4	59.1	37.3	507	716	38.6	34.9	59.5	64.8	61.0
11	36.6	40.7	49.1	58.5	34.1	220	46.7	37.5	34.6	57.3	57.1	59.6
12	36.7	43.2	46.2	58.1	34.0	2890	40.9	37.7	34.3	65.6	52.1	65.6
13	40.0	41.2	47.3	56.6	39.3	2340	53.8	37.0	34.6	57.2	53.6	68.2
14	38.2	44.4	45.5	55.9	39.6	189	35.1	37.8	35.0	62.0	58.7	66.2
15	40.2	46.1	45.3	55.4	46.6	169	34.7	37.9	33.6	61.4	63.0	63.2
16	37.7	45.6	44.5	56.1	51.4	985	34.4	38.0	32.6	49.2	66.5	64.4
17	36.0	45.7	44.4	306	53.0	156	35.9	37.6	32.9	51.1	64.3	63.8
18	39.8	46.2	43.5	62.7	57.7	34.3	44.1	225	32.4	56.2	59.8	62.1
19	43.2	45.8	41.1	60.9	66.1	35.7	38.9	40.9	31.4	60.8	61.5	60.4
20	43.8	158	40.2	60.5	70.1	29.6	42.8	37.9	31.2	55.5	60.1	65.3
21	40.0	61.5	42.8	60.4	68.5	24.5	43.4	37.1	30.9	53.3	61.1	62.7
22	41.1	58.6	59.2	60.4	125	1020	40.8	36.4	29.7	54.7	62.2	68.7
23	41.2	55.7	2220	60.3	73.8	683	45.4	36.8	29.6	58.0	66.0	64.9
24	41.3	56.5	57.1	60.1	72.3	28.1	48.5	37.3	29.4	63.0	68.4	44.9
25	39.7	56.0	166	59.3	73.6	24.7	54.7	36.8	28.5	64.0	62.7	50.0
26	41.9	59.1	3900	59.7	74.0	23.8	58.0	37.2	28.5	65.9	62.2	60.2
27	45.0	1010	76.6	59.5	74.8	22.3	62.4	37.8	28.5	64.7	45.3	60.3
28	42.1	1930	70.6	58.3	75.8	22.7	61.1	37.2	28.5	63.7	47.0	61.8
29	41.7	536	69.4	57.9	80.0	23.3	47.1	37.7	27.5	60.2	59.6	64.0
30	41.4	56.1	67.6	57.5	------	23.5	50.6	38.5	26.8	44.1	65.6	61.6
31	40.1	------	67.0	58.3	------	22.6	------	39.0	------	49.2	63.1	------
Total	1343.2	4849.4	10221.5	2108.8	1890.9	10215.5	8492.1	1404.9	987.8	1699.1	1896.4	1852.2
Mean	43.3	162	330	68.0	65.2	330	283	45.3	32.9	54.8	61.2	61.7
Max	63.2	1930	3900	306	191	2890	3660	225	38.7	65.9	68.4	68.7
Min	36.0	39.6	40.2	55.4	34.0	22.3	23.4	36.4	26.8	26.8	45.3	44.9
Acre-Ft	2660	9620	20270	4180	3750	20260	16840	2790	1960	3370	3760	3670

Wtr Year 2020	Total	46961.8	Mean	128	Max	3900	Min	22.3	Inst Max	21100	Acre-Ft	93150
Cal Year 2019	Total	92359.5	Mean	253	Max	4460	Min	36.0	Inst Max	34500	Acre-Ft	183200

Summary Report

Site: F118C Pacoima Creek below Pacoima Dam
USGS #:
Beginning Date: 10/01/2019
Ending Date: 09/30/2020

Daily Mean Discharge in Cubic feet/second Water Year Oct 2019 to Sep 2020

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	0	0	0	0	49.4	45.5	0	0	0	0
2	0	0	0	0	0	0	27.5	41.0	0	0	0	0
3	0	0	0	0	29.0	0	0	44.8	0	0	0	0
4	0	0	0	0	44.8	0	0	27.3	0	0	0	0
5	0	0	0	0	23.4	0	2.91	6.98	0	0	0	0
6	0	0	0	0	0	0	37.9	0	0	0	0	0
7	0	3.68	0	0	0	0	32.9	0	0	0	0	0
8	0	0	0	0	0	0	49.1	0	0	0	0	0
9	0	0	0	0	0	0	69.3	0	0	0	0	0
10	0	0	0	0	0	.07	73.2	0	0	0	0	0
11	0	0	0	0	0	0	75.1	0	0	0	0	0
12	0	0	0	0	0	4.48	68.8	0	0	0	0	0
13	0	0	0	0	0	2.15	64.3	0	0	0	23.0	0
14	0	0	0	0	0	0	63.4	0	0	0	34.5	0
15	0	0	0	0	0	.37	63.7	0	0	0	35.2	0
16	0	0	0	.07	0	2.62	68.4	0	0	0	35.4	0
17	0	0	0	.27	0	0	71.5	0	0	0	41.2	0
18	0	0	0	0	0	0	73.5	2.75	0	0	43.6	0
19	0	0	0	0	0	0	73.8	0	0	0	15.2	0
20	0	0	0	0	0	0	77.4	0	0	0	0	0
21	0	0	0	0	0	0	78.5	0	0	0	0	0
22	0	0	.05	0	0	1.97	74.2	0	0	0	0	0
23	0	0	1.63	0	0	0	73.5	0	0	0	0	0
24	0	0	0	0	0	0	71.1	0	0	0	0	0
25	0	0	1.06	0	0	0	74.2	0	0	0	0	0
26	0	0	4.07	0	0	0	68.5	0	0	0	0	0
27	0	0	0	0	0	0	64.7	0	0	0	0	0
28	0	0	0	0	0	0	54.8	0	0	0	0	0
29	0	0	0	0	0	0	61.7	0	0	0	0	0
30	0	0	0	0	------	0	57.1	0	0	0	0	0
31	0	------	0	0	------	35.7	------	0	------	0	0	------
Total	0	3.68	6.81	0.34	97.2	47.36	1720.41	168.33	0	0	228.1	0
Mean	0	.12	.22	.011	3.35	1.53	57.3	5.43	0	0	7.36	0
Max	0	3.68	4.07	.27	44.8	35.7	78.5	45.5	0	0	43.6	0
Min	0	0	0	0	0	0	0	0	0	0	0	0
Acre-Ft	0	7.3	14	.67	193	94	3410	334	0	0	452	0

Wtr Year 2020	Total	2272.23	Mean	6.21	Max	78.5	Min	0	Inst Max	275	Acre-Ft	4510
Cal Year 2019	Total	8133.21	Mean	22.3	Max	410	Min	0	Inst Max	590	Acre-Ft	16130

Summary Report

Site: F300 Los Angeles River at Tujunga Avenue
USGS #:
Beginning Date: 10/01/2019
Ending Date: 09/30/2020

Daily Mean Discharge in Cubic feet/second Water Year Oct 2019 to Sep 2020

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28.3	23.4	285	47.6	39.2	31.5	22.5	38.5	38.9	25.6	32.8	43.1
2	30.1	22.5	41.4	47.2	40.0	32.8	34.0	41.7	37.4	26.4	44.9	41.6
3	30.1	22.2	39.8	40.0	38.6	30.6	37.9	42.3	37.1	29.7	45.7	42.8
4	29.2	23.3	1190	39.1	38.1	34.4	46.7	43.9	36.7	33.0	42.5	41.6
5	28.9	22.6	50.3	37.6	37.9	28.6	72.9	45.6	34.6	35.8	40.7	39.8
6	28.0	25.2	56.5	37.8	38.8	28.0	2520	41.9	34.3	38.7	39.4	36.7
7	25.2	25.0	105	37.7	37.8	19.3	757	43.8	35.8	41.7	39.0	47.0
8	21.6	26.4	268	50.8	38.1	7.99	243	42.8	33.5	40.0	40.8	40.8
9	23.4	25.8	42.1	40.9	57.0	11.1	980	42.3	31.3	42.4	43.1	42.6
10	22.1	24.8	32.8	39.5	36.8	203	561	40.9	29.3	39.4	36.1	41.1
11	19.5	25.9	27.4	44.5	35.0	53.4	98.5	36.8	28.8	39.1	28.6	41.5
12	20.2	25.8	31.5	46.0	37.2	1700	69.0	35.6	28.8	42.0	28.4	46.0
13	21.0	22.7	35.4	42.6	36.7	963	59.7	34.5	39.8	39.3	34.0	43.5
14	21.3	26.2	33.1	43.4	39.5	137	49.8	36.8	34.6	43.3	38.6	43.4
15	18.9	25.2	31.3	42.7	37.8	116	52.1	39.0	31.8	38.4	40.4	43.6
16	19.6	25.6	32.7	40.7	38.2	711	52.8	41.0	31.4	26.7	39.8	43.8
17	20.7	24.6	34.0	234	38.0	133	54.3	41.5	34.5	35.9	37.6	44.6
18	22.5	27.1	31.6	42.8	36.7	41.0	62.3	141	34.9	37.8	37.9	40.1
19	24.1	28.0	26.4	41.4	40.1	39.4	50.2	41.3	33.9	40.1	36.3	41.8
20	24.3	63.3	30.9	42.1	37.7	39.0	52.9	35.4	30.7	42.5	37.2	41.8
21	24.7	37.0	33.4	42.9	34.8	24.9	47.2	31.8	30.2	36.2	36.3	43.0
22	22.6	39.4	529	46.4	77.1	1150	35.5	29.7	29.9	41.6	39.2	47.1
23	23.8	38.3	1310	43.6	26.5	262	44.7	32.8	27.4	43.8	38.4	37.1
24	22.2	41.2	51.1	44.9	34.2	38.5	42.1	31.6	14.2	46.3	38.3	14.6
25	22.6	44.4	581	40.0	32.1	30.2	46.8	31.6	17.5	46.8	38.2	32.0
26	23.7	40.8	2710	41.2	32.1	26.7	43.9	33.2	27.1	47.9	34.1	38.0
27	25.0	611	69.6	39.2	34.8	24.0	51.8	33.4	26.3	48.7	17.3	40.0
28	24.0	1610	52.9	37.8	32.8	23.8	43.8	34.4	24.9	43.9	27.2	41.3
29	24.6	212	47.7	37.7	32.3	24.7	24.7	33.5	24.7	34.6	37.4	41.9
30	22.5	126	47.5	37.0	------	21.1	36.6	35.0	21.7	16.7	41.2	38.8
31	22.5	------	50.5	38.1	------	20.4	------	38.6	------	29.7	40.0	------
Total	737.2	3335.7	7907.9	1487.2	1115.9	6006.39	6293.7	1272.2	922.0	1174.0	1151.4	1221.0
Mean	23.8	111	255	48.0	38.5	194	210	41.0	30.7	37.9	37.1	40.7
Max	30.1	1610	2710	234	77.1	1700	2520	141	39.8	48.7	45.7	47.1
Min	18.9	22.2	26.4	37.0	26.5	7.99	22.5	29.7	14.2	16.7	17.3	14.6
Acre-Ft	1460	6620	15690	2950	2210	11910	12480	2520	1830	2330	2280	2420

Wtr Year 2020	Total	32624.59	Mean	89.1	Max	2710	Min	7.99	Inst Max	17600	Acre-Ft	64710
Cal Year 2019	Total	70250.5	Mean	192	Max	4700	Min	18.9	Inst Max	22100	Acre-Ft	139300

Summary Report

Site: F168B Big Tujunga Creek below Big Tujunga Dam
USGS #:
Beginning Date: 10/01/2019
Ending Date: 09/30/2020

Daily Mean Discharge in Cubic feet/second Water Year Oct 2019 to Sep 2020

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.5	0	.31	.17	0	0	159	33.3	9.06	5.94	4.35	4.58
2	10.8	0	.07	.09	0	.05	189	33.9	6.65	5.90	4.62	4.24
3	10.8	0	.01	0	0	.01	123	33.7	5.86	6.04	4.70	4.12
4	10.8	0	1.02	0	.01	0	46.3	33.4	5.78	5.94	4.65	4.04
5	10.7	0	.43	0	0	0	2.36	33.7	6.00	5.87	4.67	4.01
6	10.6	0	.21	0	0	0	10.1	33.5	6.13	5.76	4.70	3.90
7	10.3	0	.32	0	0	.04	3.34	21.6	6.02	6.03	4.66	4.16
8	10.5	0	1.15	0	0	.02	3.54	13.6	6.05	6.03	4.63	4.35
9	10.7	0	.43	0	0	.05	3.69	13.4	5.93	5.28	4.69	4.38
10	10.0	0	.05	0	.01	.11	2.24	12.9	5.98	5.40	4.69	4.72
11	9.13	0	0	0	0	.06	1.19	11.5	6.17	5.61	4.36	4.51
12	9.34	0	0	0	0	1.37	.90	10.8	6.03	5.30	4.69	4.32
13	9.29	0	0	0	0	1.27	59.2	11.1	6.04	5.47	4.89	4.55
14	9.45	0	0	0	0	.51	192	11.0	6.11	5.29	4.54	4.71
15	8.84	0	0	0	0	.41	225	11.0	5.98	4.94	4.17	4.54
16	.70	0	0	0	0	2.90	225	11.2	5.51	5.15	4.52	4.22
17	1.44	0	0	.01	0	1.84	197	11.3	5.60	5.51	4.36	4.06
18	.38	0	0	0	0	1.02	183	11.5	5.79	5.14	4.39	4.00
19	0	0	0	0	0	.77	185	11.3	5.92	5.46	4.41	4.20
20	0	0	0	0	0	.70	118	11.3	6.02	5.30	4.38	4.05
21	0	0	0	0	0	.54	38.9	11.3	6.23	5.31	4.90	4.13
22	0	0	.04	0	0	.83	37.2	11.2	6.20	5.16	4.70	4.31
23	0	0	1.33	0	0	1.31	44.2	11.3	6.20	4.89	4.64	4.38
24	0	0	.48	0	0	.70	47.2	11.4	6.04	4.55	4.39	4.25
25	0	0	.65	0	0	.69	47.4	11.2	5.82	4.55	4.44	4.53
26	0	0	2.76	0	0	.63	48.1	11.1	5.67	4.03	4.27	4.69
27	0	.47	.99	0	0	.40	48.7	10.6	5.42	4.13	4.39	4.70
28	0	1.70	.55	0	0	.30	44.5	10.3	5.68	4.61	4.70	4.26
29	0	.89	.40	0	0	.24	34.2	10.4	5.66	4.44	4.89	4.44
30	0	.53	.38	0	------	.16	34.9	10.5	5.79	4.25	4.49	4.81
31	0	------	.26	0	------	32.1	------	10.4	------	4.35	4.81	------
Total	154.27	3.59	11.84	0.27	0.02	49.03	2354.16	494.7	181.34	161.63	141.69	130.16
Mean	4.98	.12	.38	.009	.001	1.58	78.5	16.0	6.04	5.21	4.57	4.34
Max	10.8	1.70	2.76	.17	.01	32.1	225	33.9	9.06	6.04	4.90	4.81
Min	0	0	0	0	0	0	.90	10.3	5.42	4.03	4.17	3.90
Acre-Ft	306	7.1	23	.54	.04	97	4670	981	360	321	281	258

Wtr Year 2020	Total	3682.70	Mean	10.1	Max	225	Min	0	Inst Max	241	Acre-Ft	7300
Cal Year 2019	Total	13645.84	Mean	37.4	Max	363	Min	0	Inst Max	742	Acre-Ft	27070

Summary Report

Site: E285 Burbank-Western Storm Drain
USGS #:
Beginning Date: 10/01/2019
Ending Date: 09/30/2020

Daily Mean Discharge in Cubic feet/second Water Year Oct 2019 to Sep 2020

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.32	0	34.5	10.8	9.63	12.9	13.0	8.00	4.42	5.53	0	9.05
2	3.29	.74	8.38	11.0	9.94	11.5	11.4	7.55	4.71	5.53	0	9.05
3	3.97	2.45	8.46	11.2	10.2	10.8	9.98	7.04	4.25	5.53	0	9.05
4	4.03	3.73	381	12.3	9.88	10.2	9.40	7.00	4.76	5.53	0	9.73
5	4.10	3.85	77.4	12.8	9.55	9.59	10.9	6.45	4.97	5.25	0	10.2
6	4.17	3.76	53.9	14.0	9.21	9.00	245	6.35	5.09	4.94	0	10.2
7	4.25	3.67	83.8	14.4	8.88	8.42	251	6.32	4.63	4.74	.52	10.2
8	4.32	3.60	257	13.1	8.55	7.88	120	5.61	4.53	4.74	1.92	9.87
9	4.40	4.36	72.4	11.9	39.8	7.47	127	5.64	4.27	4.74	2.88	9.29
10	4.82	4.97	43.9	10.3	63.6	7.39	123	5.67	3.97	4.74	4.16	9.05
11	4.55	4.88	30.3	8.93	52.6	7.46	93.1	5.69	4.08	4.74	5.12	9.05
12	3.99	4.79	14.2	8.09	43.4	227	72.4	5.72	4.20	4.74	5.93	9.66
13	3.51	4.70	8.44	7.05	37.2	133	58.4	5.75	4.31	4.74	6.32	10.2
14	3.19	5.33	6.24	6.49	32.4	12.6	46.6	5.78	4.43	4.74	6.77	10.2
15	3.18	5.30	4.53	6.38	28.1	7.55	37.2	5.11	4.54	4.74	7.11	10.2
16	2.55	5.40	3.75	6.59	24.1	108	30.0	5.17	4.66	4.74	7.11	10.2
17	1.98	5.91	3.88	10.9	21.7	50.3	24.8	5.20	4.29	4.34	7.11	9.31
18	1.28	5.82	3.75	11.3	19.1	12.6	21.3	6.87	4.09	3.00	7.56	9.28
19	.52	5.73	3.43	10.9	17.1	6.55	18.7	7.93	4.21	2.37	7.90	10.2
20	.35	6.47	2.38	10.7	15.7	6.11	17.3	6.88	4.32	2.37	7.90	10.2
21	0	7.13	1.81	11.0	15.3	7.42	16.0	6.20	4.44	1.75	7.90	10.2
22	0	7.11	5.49	10.4	14.9	110	14.4	5.99	4.55	1.05	7.90	10.2
23	5.28	7.11	357	10.4	14.5	70.9	13.0	6.02	4.67	.32	7.90	11.0
24	4.78	7.11	36.3	9.79	14.1	27.6	12.2	6.05	4.78	0	7.90	11.5
25	4.49	7.70	3.97	9.85	13.9	13.5	11.4	6.08	4.90	0	7.90	11.5
26	3.94	7.90	405	9.46	13.7	10.7	10.9	6.10	5.01	0	8.59	11.5
27	3.36	136	35.5	9.28	13.5	9.55	9.99	6.13	5.13	0	9.05	11.5
28	2.93	207	18.8	9.58	13.3	9.08	9.16	5.55	5.24	0	8.24	11.5
29	2.06	143	13.9	9.90	13.1	10.3	9.16	5.39	5.36	0	8.21	12.1
30	2.38	108	11.1	9.47	------	12.0	8.70	4.72	5.47	0	9.05	12.8
31	4.74	------	11.0	9.32	------	13.2	------	4.66	------	0	9.05	------
Total	99.73	723.52	2001.51	317.58	596.94	960.57	1455.39	188.62	138.28	94.91	170.00	307.99
Mean	3.22	24.1	64.6	10.2	20.6	31.0	48.5	6.08	4.61	3.06	5.48	10.3
Max	5.28	207	405	14.4	63.6	227	251	8.00	5.47	5.53	9.05	12.8
Min	0	0	1.81	6.38	8.55	6.11	8.70	4.66	3.97	0	0	9.05
Acre-Ft	198	1440	3970	630	1180	1910	2890	374	274	188	337	611

Wtr Year 2020	Total	7055.04	Mean	19.3	Max	405	Min	0	Inst Max	2000	Acre-Ft	13990
Cal Year 2019	Total	8349.59	Mean	22.9	Max	514	Min	0	Inst Max	6470	Acre-Ft	16560

PRELIMINARY SUBJECT TO CHANGE

Summary Report

Site: F252 Verdugo Wash At Estelle Avenue
USGS #:
Beginning Date: 10/01/2019
Ending Date: 09/30/2020

Daily Mean Discharge in Cubic feet/second Water Year Oct 2019 to Sep 2020

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.70	1.01	1.87	2.97	.57	1.83	.20	2.92	1.46	.63	1.01	.63
2	.66	1.01	1.67	3.01	.60	1.54	.82	2.57	1.46	.63	1.01	.63
3	.71	1.01	1.46	2.92	.61	1.87	.87	2.57	1.46	.63	1.01	.63
4	1.22	1.22	150	2.83	.42	1.74	1.40	2.13	1.46	.63	1.01	.63
5	1.91	1.46	11.9	2.74	1.50	1.81	1.53	1.98	1.46	.63	1.01	.63
6	2.72	1.46	5.86	2.39	1.85	1.89	336	1.98	1.46	.63	1.01	.63
7	3.63	1.70	13.9	2.41	1.80	1.91	164	1.98	1.46	.63	1.01	.63
8	2.85	1.69	91.7	2.57	1.76	1.58	193	1.98	1.46	.63	1.01	.63
9	1.61	1.68	11.1	2.57	6.46	1.44	43.0	1.98	1.46	.98	.65	.63
10	1.46	1.63	3.74	2.44	7.55	13.7	46.4	1.98	1.46	1.01	.63	.63
11	1.35	1.75	2.44	2.20	3.58	16.4	18.0	1.96	1.46	1.33	.63	.63
12	1.01	1.76	1.98	2.31	2.44	162	8.68	1.46	1.03	1.44	.63	.63
13	1.01	1.95	1.98	2.29	2.18	134	13.3	1.46	1.01	1.17	.63	.63
14	1.39	1.83	1.98	1.98	1.04	19.2	8.81	1.46	1.01	1.46	.63	.63
15	1.46	1.46	1.98	1.46	1.01	10.2	6.05	1.46	.72	1.46	.92	.63
16	1.46	1.46	1.98	1.48	.92	115	4.58	1.46	.63	1.46	1.01	.63
17	1.46	1.46	1.98	11.2	.94	48.6	3.90	1.46	.63	1.46	1.01	.63
18	1.46	3.48	1.98	3.31	.91	1.49	3.90	11.0	.63	1.46	1.01	.63
19	1.46	1.46	1.98	1.67	.87	5.56	3.90	7.90	.63	1.04	1.01	.63
20	1.46	5.22	1.98	1.46	.88	3.48	3.46	3.73	.63	1.01	1.01	.63
21	1.46	1.65	1.98	1.83	.91	1.45	3.21	3.02	.63	1.01	1.01	.63
22	1.69	1.94	2.25	2.30	2.66	49.2	3.21	2.57	.63	1.01	1.01	.63
23	1.46	1.95	161	2.45	2.41	145	3.21	2.15	.63	1.01	1.01	.63
24	1.46	1.46	9.20	1.72	1.36	1.98	3.21	1.98	.63	1.01	1.01	.63
25	1.61	1.46	24.2	1.49	1.28	.74	3.21	1.98	.63	1.01	1.01	.63
26	1.64	1.68	349	1.17	1.17	.88	3.21	1.98	.63	1.01	1.01	.63
27	1.67	40.1	11.8	1.21	.91	.50	3.21	1.98	.63	1.01	1.01	.63
28	1.56	130	4.92	1.04	.50	.20	3.21	1.91	.63	1.01	.90	.63
29	1.58	15.1	2.89	.63	.63	.04	3.21	1.46	.63	1.01	.63	.63
30	1.63	1.74	1.98	.52	------	.02	3.21	1.46	.63	1.01	.63	.63
31	1.24	------	2.32	.55	------	0	------	1.46	------	1.01	.63	------
Total	47.99	232.78	885.00	71.12	49.72	745.25	893.90	77.37	29.28	31.43	27.71	18.90
Mean	1.55	7.76	28.5	2.29	1.71	24.0	29.8	2.50	.98	1.01	.89	.63
Max	3.63	130	349	11.2	7.55	162	336	11.0	1.46	1.46	1.01	.63
Min	.66	1.01	1.46	.52	.42	0	.20	1.46	.63	.63	.63	.63
Acre-Ft	95	462	1760	141	99	1480	1770	153	58	62	55	37

Wtr Year 2020	Total	3110.45	Mean	8.50	Max	349	Min	0	Inst Max	2710	Acre-Ft	6170
Cal Year 2019	Total	5797.03	Mean	15.9	Max	635	Min	.66	Inst Max	5350	Acre-Ft	11500

Los Angeles County Dept of Public Works HYDAY V139 Output 11/30/2020

Site 10A Bel Air Hotel Year 2019/20
Variable 11.03 Rainfall in Inches, ALERT Transmitted Table Type Rain
Figures are for period ending 24:00

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Day
1													1
2													2
3													3
4			1.25										4
5							0.12						5
6			0.09				1.40						6
7			0.05				0.40						7
8			0.21			0.05	0.06						8
9					0.08		0.73						9
10						0.26	0.34						10
11													11
12						1.85							12
13						0.88	0.02						13
14						0.28							14
15						0.11							15
16				0.49		0.62							16
17				0.02		0.05							17
18								0.13					18
19													19
20		0.15											20
21		0.02		0.01									21
22			1.58			1.32							22
23			0.74			0.05							23
24													24
25			1.14										25
26			0.51										26
27		0.85											27
28		1.02											28
29		0.01											29
30		0.01											30
31													31
Mean	0.00	0.07	0.18	0.02	0.00	0.18	0.10	0.00	0.00	0.00	0.00	0.00	
Maximum	0.00	1.02	1.58	0.49	0.08	1.85	1.40	0.13	0.00	0.00	0.00	0.00	
Minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Total	0.00	2.06	5.57	0.52	0.08	5.47	3.07	0.13	0.00	0.00	0.00	0.00	

Summaries

Annual Mean	0.05
Annual Total	16.90

	Maximum	Minimum
Daily	1.85	0.00

Notes
All recorded data is continuous and reliable

Preliminary Records
Subject to Revision

Los Angeles County Dept of Public Works HYDAY V139 Output 11/30/2020

Site 13C North Hollywood - Lakeside Year 2019/20
Variable 11.01 Rainfall in Inches, Daily manual reading Table Type Rain
Figures are for a 24-hour period

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Day
1			0.05$										1
2													2
3													3
4			1.15$										4
5			0.05$										5
6							1.25$						6
7			0.20$				0.51$						7
8			0.05$				1.25$						8
9			0.25$				0.10$						9
10					0.16$	0.18$	0.80$						10
11						0.22$	0.12$						11
12													12
13						2.23$	0.04$						13
14						0.17$							14
15						0.12$							15
16													16
17				0.25$		0.64$							17
18							0.02$						18
19													19
20						0.06$		0.10$					20
21		0.40$		0.02$									21
22													22
23			1.41$		0.25$	1.20$							23
24			0.11$										24
25													25
26			1.43$										26
27													27
28		1.10$											28
29		0.90$											29
30									$			$	30
31	$									$	$		31
Mean	0.00$	0.08$	0.15$	0.01$	0.01$	0.16$	0.14$	0.00$	0.00$	0.00$	0.00$	0.00$	
Maximum	0.00$	1.10$	1.43$	0.25$	0.25$	2.23$	1.25$	0.10$	0.00$	0.00$	0.00$	0.00$	
Minimum	0.00$	0.00$	0.00$	0.00$	0.00$	0.00$	0.00$	0.00$	0.00$	0.00$	0.00$	0.00$	
Total	0.00$	2.40$	4.70$	0.27$	0.41$	4.82$	4.09$	0.10$	0.00$	0.00$	0.00$	0.00$	

Summaries

Annual Mean	0.05$
Annual Total	16.79$

	Maximum	Minimum
Daily	2.23$	0.00$

---------- Notes ----------
All recorded data is continuous and reliable
except where the following tags are used...
$ ... Daily Read

Preliminary Records
Subject to Revision

Los Angeles County Dept of Public Works HYDAY V139 Output 11/30/2020

Site 1107D La Tuna Debris Basin Year 2019/20
Variable 11.03 Rainfall in Inches, ALERT Transmitted Table Type Rain
Figures are for period ending 24:00

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Day
1													1
2													2
3													3
4			0.95										4
5							0.23						5
6			0.05				0.88						6
7			0.11				1.28						7
8			0.32				0.03						8
9							0.42						9
10						0.40	0.28						10
11						0.02							11
12						1.62	0.05						12
13						0.55	0.10						13
14						[ ]M							14
15						[ ]M							15
16				0.05		[ ]M							16
17				0.04		[ ]M							17
18						[ ]M	0.01	0.30					18
19						[ ]M							19
20		0.21				[ ]M							20
21						[ ]M							21
22			0.39		0.06	[ ]M							22
23			0.79			[ ]M							23
24													24
25			1.06			0.01							25
26			1.27										26
27		0.62											27
28		0.93											28
29													29
30		0.06											30
31													31
Mean	0.00	0.06	0.16	0.00	0.00	0.12	0.11	0.01	0.00	0.00	0.00	0.00	
Maximum	0.00	0.93	1.27	0.05	0.06	1.62	1.28	0.30	0.00	0.00	0.00	0.00	
Minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Total	0.00	1.82	4.94	0.09	0.06	2.60	3.28	0.30	0.00	0.00	0.00	0.00	
Missing Days	0	0	0	0	0	10	0	0	0	0	0	0	

Summaries

Annual Mean	0.04
Annual Total	13.09
Missing Days	10

	Maximum	Minimum
Daily	1.62	0.00

Notes
All recorded data is continuous and reliable
except where the following tags are used...
M ... Missing Data or Malfunction

Preliminary Records
Subject to Revision

Los Angeles County Dept of Public Works HYDAY V139 Output 11/30/2020

Site 465C Sepulveda Dam Year 2019/20
Variable 11.01 Rainfall in Inches, Daily manual reading Table Type Rain
Figures are for a 24-hour period

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Day
1			0.02$										1
2													2
3													3
4			1.07$										4
5													5
6			0.05$				1.88$						6
7			0.05$				0.12$						7
8			0.07$			0.01$	0.55$						8
9							0.70$						9
10						0.23$	0.62$						10
11						0.06$							11
12						1.41$							12
13						1.52$							13
14						0.16$							14
15						0.08$							15
16						0.54$							16
17				0.14$		0.52$							17
18								0.06$					18
19						0.01$							19
20		0.06$				0.03$							20
21													21
22													22
23			2.16$			1.16$							23
24													24
25													25
26			2.39$										26
27		0.69$											27
28		1.42$											28
29		0.12$			$								29
30		0.02$							$			$	30
31	$									$	$		31
Mean	0.00$	0.08$	0.19$	0.00$	0.00$	0.18$	0.13$	0.00$	0.00$	0.00$	0.00$	0.00$	
Maximum	0.00$	1.42$	2.39$	0.14$	0.00$	1.52$	1.88$	0.06$	0.00$	0.00$	0.00$	0.00$	
Minimum	0.00$	0.00$	0.00$	0.00$	0.00$	0.00$	0.00$	0.00$	0.00$	0.00$	0.00$	0.00$	
Total	0.00$	2.31$	5.81$	0.14$	0.00$	5.73$	3.87$	0.06$	0.00$	0.00$	0.00$	0.00$	

Summaries

Annual Mean	0.05$
Annual Total	17.92$

	Maximum	Minimum
Daily	2.39$	0.00$

---------- Notes ----------
All recorded data is continuous and reliable
except where the following tags are used...
$ ... Daily Read

Preliminary Records
Subject to Revision

Los Angeles County Dept of Public Works HYDAY V139 Output 11/30/2020

Site 17 Sepulveda Canyon At Mulholland - Fire Station # 109 Year 2019/20
Variable 11.03 Rainfall in Inches, ALERT Transmitted Table Type Rain
Figures are for period ending 24:00

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Day
1													1
2													2
3													3
4			1.26				0.22						4
5			0.01				2.35						5
6			0.14				0.28						6
7			0.04			0.01	0.09						7
8			0.23		0.11		0.77						8
9						0.78	0.43						9
10						0.01							10
11						2.14							11
12						0.79							12
13						0.21							13
14						0.18							14
15				0.36		0.87							15
16						0.08							16
17								0.08					17
18						0.04							18
19		0.29				0.01							19
20		0.01		0.01									20
21			1.89		0.01	1.24							21
22			0.73			0.07							22
23													23
24			1.13			0.03							24
25			1.05										25
26		1.23											26
27		1.28								0.01			27
28													28
29		0.06											29
30													30
31													31
Mean	0.00	0.10	0.21	0.01	0.00	0.21	0.14	0.00	0.00	0.00	0.00	0.00	
Maximum	0.00	1.28	1.89	0.36	0.11	2.14	2.35	0.08	0.00	0.01	0.00	0.00	
Minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Total	0.00	2.87	6.48	0.37	0.12	6.46	4.14	0.08	0.00	0.01	0.00	0.00	

Summaries

Annual Mean	0.06
Annual Total	20.53

	Maximum	Minimum
Daily	2.35	0.00

---------- Notes ----------
All recorded data is continuous and reliable

Preliminary Records
Subject to Revision

Los Angeles County Dept of Public Works HYDAY V139 Output 11/30/2020

Site 21B Woodland Hills Year 2019/20
Variable 11.01 Rainfall in Inches, Daily manual reading Table Type Rain
Figures are for a 24-hour period

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Day
1			0.05$										1
2						0.01$							2
3													3
4			1.00$										4
5													5
6			0.05$				1.63$						6
7			0.13$				0.19$						7
8			0.14$				0.26$						8
9					0.01$		0.81$						9
10							0.53$						10
11						0.75$							11
12						1.05$							12
13						1.42$							13
14						0.07$							14
15						0.21$							15
16				0.11$									16
17						1.23$							17
18								[ ]					18
19													19
20		0.01$											20
21						0.06$							21
22					0.23$	0.10$							22
23			1.71$			1.07$							23
24													24
25						0.02$							25
26			1.93$										26
27		0.51$											27
28		1.20$											28
29		0.37$											29
30		0.03$							$			$	30
31	$									$	$		31
Mean	0.00$	0.07$	0.16$	0.00$	0.01$	0.19$	0.11$	0.00	0.00$	0.00$	0.00$	0.00$	
Maximum	0.00$	1.20$	1.93$	0.11$	0.23$	1.42$	1.63$	0.00	0.00$	0.00$	0.00$	0.00$	
Minimum	0.00$	0.00$	0.00$	0.00$	0.00$	0.00$	0.00$	0.00	0.00$	0.00$	0.00$	0.00$	
Total	0.00$	2.12$	5.01$	0.11$	0.24$	5.99$	3.42$	0.00	0.00$	0.00$	0.00$	0.00$	
Missing Days	0	0	0	0	0	0	0	1	0	0	0	0	

Summaries

Annual Mean	0.05$
Annual Total	16.89$
Missing Days	1

	Maximum	Minimum
Daily	1.93$	0.00$

Notes
All recorded data is continuous and reliable
except where the following tags are used...
$ ... Daily Read
[ ] Data Not Recorded

Preliminary Records
Subject to Revision

Los Angeles County Dept of Public Works HYDAY V139 Output 11/30/2020

Site 735H Bell Canyon Debris Basin Year 2019/20
Variable 11.03 Rainfall in Inches, ALERT Transmitted Table Type Rain
Figures are for period ending 24:00

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Day
1													1
2													2
3													3
4			0.91										4
5							0.08						5
6			0.08				1.18						6
7			0.04				0.43						7
8			0.16										8
9							0.98						9
10						0.63	0.20						10
11						0.04							11
12						1.42							12
13						0.79							13
14						0.28							14
15						0.04							15
16				0.20		0.71							16
17						0.08							17
18								0.08					18
19													19
20													20
21													21
22			1.50			1.10							22
23			0.24			0.08							23
24													24
25			1.10										25
26			0.43										26
27		0.51											27
28		0.87											28
29		0.04											29
30		0.04											30
31													31
Mean	0.00	0.05	0.14	0.01	0.00	0.17	0.10	0.00	0.00	0.00	0.00	0.00	
Maximum	0.00	0.87	1.50	0.20	0.00	1.42	1.18	0.08	0.00	0.00	0.00	0.00	
Minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Total	0.00	1.46	4.45	0.20	0.00	5.16	2.87	0.08	0.00	0.00	0.00	0.00	

Summaries

Annual Mean 0.04
Annual Total 14.21

	Maximum	Minimum
Daily	1.50	0.00

---------- Notes ----------
All recorded data is continuous and reliable

Preliminary Records
Subject to Revision

Los Angeles County Dept of Public Works HYDAY V139 Output 11/30/2020

Site 25C Northridge - LADWP Year 2019/20
Variable 11.03 Rainfall in Inches, ALERT Transmitted Table Type Rain
Figures are for period ending 24:00

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Day
1													1
2													2
3													3
4			1.02										4
5							0.03						5
6			0.07				1.18						6
7			0.15				0.47						7
8			0.26				0.14						8
9			0.01				0.77						9
10						0.80	0.35						10
11													11
12						1.81							12
13						0.76							13
14						0.07							14
15						0.12							15
16				0.17		0.44							16
17				0.01		0.16							17
18							0.01	0.17					18
19						0.03							19
20		0.03				0.03							20
21													21
22			1.07		0.02	1.52							22
23			0.48			0.01							23
24													24
25			1.11										25
26			0.83										26
27		0.48											27
28		1.59											28
29													29
30		0.06											30
31													31
Mean	0.00	0.07	0.16	0.01	0.00	0.19	0.10	0.01	0.00	0.00	0.00	0.00	
Maximum	0.00	1.59	1.11	0.17	0.02	1.81	1.18	0.17	0.00	0.00	0.00	0.00	
Minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Total	0.00	2.16	5.00	0.18	0.02	5.75	2.95	0.17	0.00	0.00	0.00	0.00	

Summaries

Annual Mean	0.04
Annual Total	16.23

	Maximum	Minimum
Daily	1.81	0.00

---------- Notes ----------
All recorded data is continuous and reliable

Preliminary Records
Subject to Revision

Los Angeles County Dept of Public Works HYDAY V139 Output 11/30/2020

Site 33A Pacoima Dam Year 2019/20
Variable 11.01 Rainfall in Inches, Daily manual reading Table Type Rain
Figures are for a 24-hour period

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Day
1			0.09$										1
2						0.01$							2
3													3
4			0.50$										4
5			0.38$				0.10$		0.03$				5
6							2.51$		0.02$				6
7			0.24$				0.72$						7
8			0.36$				1.39$						8
9			0.37$				0.24$						9
10							0.83$						10
11						0.42$	0.05$						11
12							0.03$						12
13						2.57$	0.29$						13
14			T			0.86$							14
15						0.50$							15
16						0.01$							16
17				0.41$		0.95$							17
18				T		0.03$		0.19$					18
19								0.51$					19
20						0.03$							20
21		0.04$		T									21
22													22
23			0.82$		0.01$	1.03$							23
24						0.01$							24
25													25
26			2.20$			0.02$							26
27		0.01$	0.01$										27
28		1.19$											28
29		0.75$											29
30												$	30
31	$									$	$		31
Mean	0.00$	0.07$	0.16$	0.01$	0.00$	0.21$	0.21$	0.02$	0.00$	0.00$	0.00$	0.00$	
Maximum	0.00$	1.19$	2.20$	0.41$	0.01$	2.57$	2.51$	0.51$	0.03$	0.00$	0.00$	0.00$	
Minimum	0.00$	0.00$	0.00$	0.00$	0.00$	0.00$	0.00$	0.00$	0.00$	0.00$	0.00$	0.00$	
Total	0.00$	1.99$	4.97$	0.41$	0.01$	6.44$	6.16$	0.70$	0.05$	0.00$	0.00$	0.00$	

Summaries

Annual Mean	0.06$
Annual Total	20.73$

	Maximum	Minimum
Daily	2.57$	0.00$

---------- Notes ----------
All recorded data is continuous and reliable
except where the following tags are used...
$ ... Daily Read
T ... Trace

Preliminary Records
Subject to Revision

Los Angeles County Dept of Public Works HYDAY V139 Output 11/30/2020

Site 47D Clear Creek-City School Year 2019/20
Variable 11.04 Rainfall in Inches, Data Logger (Not in DST) Table Type Rain
Figures are for period ending 24:00

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Day
1						0.04							1
2													2
3													3
4			0.79										4
5							0.79						5
6			0.08				4.49		0.12				6
7			0.71				1.18						7
8			0.91				0.39		0.04				8
9							0.79						9
10						0.43	0.16						10
11													11
12						1.73	0.04						12
13						0.67							13
14						0.39							14
15						0.39							15
16				0.24		2.24							16
17				0.12									17
18						0.04		0.43					18
19						0.28							19
20		0.59											20
21													21
22			0.16		0.12	0.83							22
23			1.22			0.28							23
24			0.04										24
25			0.67			0.12							25
26			1.61										26
27		0.47											27
28		1.57											28
29						0.08							29
30		0.12											30
31													31
Mean	0.00	0.09	0.20	0.01	0.00	0.24	0.26	0.01	0.01	0.00	0.00	0.00	
Maximum	0.00	1.57	1.61	0.24	0.12	2.24	4.49	0.43	0.12	0.00	0.00	0.00	
Minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Total	0.00	2.76	6.18	0.35	0.12	7.52	7.83	0.43	0.16	0.00	0.00	0.00	

Summaries

Annual Mean	0.07
Annual Total	25.35

	Maximum	Minimum
Daily	4.49	0.00

Notes

All recorded data is continuous and reliable

Los Angeles County Dept of Public Works HYDAY V139 Output 11/30/2020

Site 53D Colby's Ranch Year 2019/20
Variable 11.04 Rainfall in Inches, Data Logger (Not in DST) Table Type Rain
Figures are for period ending 24:00

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Day
1						0.04							1
2													2
3													3
4			1.14										4
5							0.04						5
6			0.08				2.87						6
7			0.39				0.83						7
8			0.59				0.24						8
9							0.31						9
10						0.35	0.16						10
11													11
12						1.30							12
13						0.24							13
14						0.04							14
15						0.08							15
16				0.04		1.61							16
17				0.08									17
18								0.16					18
19						0.20							19
20		0.39											20
21													21
22			0.24		0.04	0.59							22
23			1.57		0.04	0.24							23
24													24
25			0.83			0.12							25
26			1.34										26
27		0.91	0.20										27
28		0.91											28
29		0.43				0.04							29
30		0.08											30
31													31
Mean	0.00	0.09	0.21	0.00	0.00	0.16	0.15	0.01	0.00	0.00	0.00	0.00	
Maximum	0.00	0.91	1.57	0.08	0.04	1.61	2.87	0.16	0.00	0.00	0.00	0.00	
Minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Total	0.00	2.72	6.38	0.12	0.08	4.84	4.45	0.16	0.00	0.00	0.00	0.00	

Summaries

Annual Mean	0.05
Annual Total	18.74

	Maximum	Minimum
Daily	2.87	0.00

Notes

All recorded data is continuous and reliable

Los Angeles County Dept of Public Works HYDAY V139 Output 11/30/2020

Site 54C Loomis Ranch-Alder Creek Year 2019/20
Variable 11.04 Rainfall in Inches, Data Logger (Not in DST) Table Type Rain
Figures are for period ending 24:00

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Day
1			0.31										1
2													2
3													3
4			1.02										4
5							0.12						5
6			0.08				1.46						6
7			0.35				0.87						7
8			0.35				0.31						8
9							0.47						9
10						0.55	0.24						10
11													11
12						1.73							12
13						0.43							13
14						0.04							14
15						0.08							15
16						0.79							16
17				0.04									17
18								0.12					18
19						0.16							19
20		0.39											20
21													21
22			0.04		0.12	0.47							22
23			0.91			0.20							23
24			0.04										24
25			0.08			0.12							25
26			0.79										26
27		0.59	0.63										27
28													28
29		0.43											29
30		0.87											30
31													31
Mean	0.00	0.08	0.15	0.00	0.00	0.15	0.12	0.00	0.00	0.00	0.00	0.00	
Maximum	0.00	0.87	1.02	0.04	0.12	1.73	1.46	0.12	0.00	0.00	0.00	0.00	
Minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Total	0.00	2.28	4.61	0.04	0.12	4.57	3.46	0.12	0.00	0.00	0.00	0.00	

Summaries

Annual Mean 0.04
Annual Total 15.20

	Maximum	Minimum
Daily	1.73	0.00

Notes

All recorded data is continuous and reliable

Los Angeles County Dept of Public Works HYDAY V139 Output 11/30/2020

Site 210C Brand Park Year 2019/20
Variable 11.03 Rainfall in Inches, ALERT Transmitted Table Type Rain
Figures are for period ending 24:00

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Day
1						0.03							1
2													2
3													3
4			1.45										4
5							0.20		0.01				5
6			0.04				1.78						6
7			0.09				1.39						7
8			0.21				0.02						8
9					0.54		0.61						9
10						0.30	0.32						10
11													11
12						1.44	0.27						12
13						0.74	0.10						13
14						0.23							14
15						0.08							15
16				0.09		0.58							16
17				0.08									17
18							0.02	0.39					18
19						0.04							19
20		0.03											20
21													21
22			0.35			1.00							22
23			0.70			0.12							23
24													24
25			0.83										25
26			1.85										26
27		0.74											27
28		0.90											28
29													29
30		0.04											30
31													31
Mean	0.00	0.06	0.18	0.01	0.02	0.15	0.16	0.01	0.00	0.00	0.00	0.00	
Maximum	0.00	0.90	1.85	0.09	0.54	1.44	1.78	0.39	0.01	0.00	0.00	0.00	
Minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Total	0.00	1.71	5.52	0.17	0.54	4.56	4.71	0.39	0.01	0.00	0.00	0.00	

Summaries

Annual Mean	0.05
Annual Total	17.61

	Maximum	Minimum
Daily	1.85	0.00

Notes
All recorded data is continuous and reliable

Preliminary Records
Subject to Revision

Los Angeles County Dept of Public Works HYDAY V139 Output 11/30/2020

Site 251C La Crescenta Year 2019/20
Variable 11.01 Rainfall in Inches, Daily manual reading Table Type Rain
Figures are for a 24-hour period

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Day
1													1
2													2
3													3
4			1.05$				A						4
5			0.21$				2.37A		0.02$				5
6			0.06$				0.13$		0.02$				6
7			A				0.34$						7
8			0.99A				1.15$						8
9					0.24$		0.69$						9
10						0.44$	0.47$						10
11						0.17$	A						11
12						0.86$	A						12
13						1.67$	0.44A						13
14						0.45$							14
15				A									15
16						0.09$							16
17				0.26A		0.80$							17
18						0.21$		0.50$					18
19													19
20		0.10$											20
21													21
22					0.05$								22
23			A			1.20$							23
24			A										24
25			A			0.01$							25
26			3.66A										26
27		0.64$											27
28		A											28
29		A			0.02$								29
30		1.21A										$	30
31	$									$	$		31
Mean	0.00$	0.06A	0.19A	0.01A	0.01$	0.19$	0.19A	0.02$	0.00$	0.00$	0.00$	0.00$	
Maximum	0.00$	1.21A	3.66A	0.26A	0.24$	1.67$	2.37A	0.50$	0.02$	0.00$	0.00$	0.00$	
Minimum	0.00$	0.00A	0.00A	0.00A	0.00$	0.00$	0.00A	0.00$	0.00$	0.00$	0.00$	0.00$	
Total	0.00$	1.95A	5.97A	0.26A	0.31$	5.90$	5.59A	0.50$	0.04$	0.00$	0.00$	0.00$	

Summaries

Annual Mean	0.06A
Annual Total	20.52A

	Maximum	Minimum
Daily	3.66A	0.00A

Notes

All recorded data is continuous and reliable except where the following tags are used...

$ ... Daily Read
A ... Accumulated Data

Preliminary Records
Subject to Revision

Los Angeles County Dept of Public Works HYDAY V139 Output 11/30/2020

Site AL301 Brown's Canyon Year 2019/20
Variable 11.03 Rainfall in Inches, ALERT Transmitted Table Type Rain
Figures are for period ending 24:00

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Day
1													1
2							0.04						2
3													3
4			1.34										4
5							0.12						5
6			0.16				1.18						6
7			0.47				0.71						7
8			0.35				0.08						8
9							0.98						9
10						0.51	0.24						10
11						0.04							11
12						1.57	0.12						12
13						1.02	0.04						13
14						0.39							14
15						0.08							15
16				0.51		0.59							16
17				0.04		0.24							17
18								0.47					18
19						0.12							19
20		0.04				0.08							20
21													21
22			0.91		0.04	1.22							22
23			0.35			0.16							23
24						0.04							24
25			1.18										25
26			0.55										26
27		0.87											27
28		1.26											28
29		0.04											29
30		0.12											30
31													31
Mean	0.00	0.08	0.17	0.02	0.00	0.20	0.12	0.02	0.00	0.00	0.00	0.00	
Maximum	0.00	1.26	1.34	0.51	0.04	1.57	1.18	0.47	0.00	0.00	0.00	0.00	
Minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Total	0.00	2.32	5.31	0.55	0.04	6.06	3.50	0.47	0.00	0.00	0.00	0.00	

Summaries

Annual Mean	0.05
Annual Total	18.27

	Maximum	Minimum
Daily	1.57	0.00

Notes

All recorded data is continuous and reliable

Preliminary Records
Subject to Revision

Los Angeles County Dept of Public Works HYDAY V139 Output 11/30/2020

Site 1222 Northridge - Garland Year 2019/20
Variable 11.01 Rainfall in Inches, Daily manual reading Table Type Rain
Figures are for a 24-hour period

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Day
1			0.06$										1
2		T											2
3													3
4			1.17$										4
5													5
6			0.05$				1.73$						6
7			0.20$				0.08$						7
8			0.23$				0.78$						8
9					0.04$		0.77$						9
10						0.30$	0.60$						10
11						0.08$							11
12						1.03$							12
13						1.78$							13
14						0.18$							14
15						0.24$							15
16						0.42$							16
17				0.30$		0.50$							17
18								0.34$					18
19						0.05$							19
20						0.04$							20
21													21
22			1.30$			0.10$							22
23					0.05$	1.28$							23
24													24
25						T							25
26			2.22$										26
27		0.60$											27
28		1.00$											28
29		0.74$											29
30		0.05$							$			$	30
31	$									$	$		31
Mean	0.00$	0.08$	0.17$	0.01$	0.00$	0.19$	0.13$	0.01$	0.00$	0.00$	0.00$	0.00$	
Maximum	0.00$	1.00$	2.22$	0.30$	0.05$	1.78$	1.73$	0.34$	0.00$	0.00$	0.00$	0.00$	
Minimum	0.00$	0.00$	0.00$	0.00$	0.00$	0.00$	0.00$	0.00$	0.00$	0.00$	0.00$	0.00$	
Total	0.00$	2.39$	5.23$	0.30$	0.09$	6.00$	3.96$	0.34$	0.00$	0.00$	0.00$	0.00$	

Summaries

Annual Mean	0.05$
Annual Total	18.31$

	Maximum	Minimum
Daily	2.22$	0.00$

---------- Notes ----------
All recorded data is continuous and reliable
except where the following tags are used...
$ ... Daily Read
T ... Trace

Preliminary Records
Subject to Revision

Los Angeles County Dept of Public Works HYDAY V139 Output 11/30/2020

Site 1074 Little Gleason Year 2019/20
Variable 11.03 Rainfall in Inches, ALERT Transmitted Table Type Rain
Figures are for period ending 24:00

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Day
1			0.16			0.12							1
2			0.08										2
3													3
4			0.71				0.04						4
5							0.87		0.04				5
6			0.08				2.95		0.35				6
7			0.43				0.67						7
8			0.47			0.04	0.31						8
9							0.39						9
10						0.83	0.91						10
11													11
12						1.46	0.20						12
13						1.73							13
14						0.43							14
15						0.43							15
16				0.04		0.47							16
17				0.31		0.04							17
18						0.24	0.04	1.02					18
19						0.16							19
20		0.31				0.20							20
21		0.12											21
22					0.04	1.14							22
23			0.83			0.87							23
24						0.04							24
25						0.12							25
26			0.12			0.16							26
27			0.04										27
28													28
29		0.08											29
30		0.24	0.04										30
31													31
Mean	0.00	0.02	0.10	0.01	0.00	0.27	0.21	0.03	0.01	0.00	0.00	0.00	
Maximum	0.00	0.31	0.83	0.31	0.04	1.73	2.95	1.02	0.35	0.00	0.00	0.00	
Minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Total	0.00	0.75	2.95	0.35	0.04	8.46	6.38	1.02	0.39	0.00	0.00	0.00	

Summaries

Annual Mean	0.06
Annual Total	20.35

	Maximum	Minimum
Daily	2.95	0.00

---------- Notes ----------
All recorded data is continuous and reliable

Preliminary Records
Subject to Revision

Los Angeles County Public Works

Stormwater Engineering Division
Hydrologic Engineering Records Group
900 South Fremont Avenue, 2nd Floor
Alhambra, CA 91803-1331
(626) 458-6146, FAX (626) 979-5436
www.pw.lacounty.gov

GROUNDWATER LEVEL DATA UPPER LOS ANGELES RIVER AREA WATERMASTER, FALL 2020

COUNTY WELL NUMBER	MEASURED DATE	REFERENCE POINT ELEVATION (ft)	REFERENCE POINT TO WATER SURFACE (ft)	WATER SURFACE ELEVATION (ft)
3540A	10/08/2020	871.1	28.5	842.6
3561L	10/08/2020	842.2	30.3	811.9
3580C	10/08/2020	803.9	19.2	784.7
3922	10/08/2020	613.1	174.7	438.4
4705	10/21/2020	909.7	104.2	805.5
4806	10/15/2020	844.0	230.7	613.3
4841B	10/15/2020	1046.8	11.0	1035.8
4842A	10/15/2020	1001.5	351.5	650.0
4850L	10/15/2020	1141.1	34.4	1106.7
4865	10/13/2020	910.5	Dry @ 411.2	-
4905H	10/13/2020	904.8	Dry @ 364.3	-
4936B	10/13/2020	854.7	267.4	587.3
4969B	10/13/2020	680.5	Dry @ 263.6	-

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Appendix C

Components of Los Angeles River Flow

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UPPER LOS ANGELES RIVER AREA: COMPONENTS OF LOS ANGELES RIVER FLOW			
2019-20 WATER YEAR			
TOTAL FLOW AT GAGE F-57C-R			F-57C-R: Storm, Reclaimed, Industrial, Rising Ground Water
			F300-R: Storm, Tillman, Industrial Waste, and Rising Water
Total:	93,025		E285-R :Storm, Burbank WRP, Industrial Waste
			F252-R: Storm, Rising Water
I. RECLAIMED WATER DISCHARGED TO L.A. RIVER IN ULARA			
Tillman:	469	: Record	
L.A.-Glendale:	10,553	: Record	
Burbank WRP:	3,607	: Record	
Total:	**14,629**		
II. INDUSTRIAL WATER and STORM FLOWS DISCHARGED TO L.A. RIVER IN ULARA			
Upstream of F300-R			
Industrial Water	14		: From F300-R separation of flow
F168	7,300		
F118	4,510		
Storm Flows @300	33,726		Storm flows less F168 and F118
	45,550		
Between F300-R and E-285			
Burbank OU	14		Burbank Operable Unit
MTA	65		
Storm Drains and Unaccounted water	5,852	Adjusted	8.08 cfs assumes 5,852 AF
Headworks:	0		: pilot project record
Western Drain:	2,097		: From E285-R separation of flow
Storm Flows @285	8,551		
	16,579		
Between E-285 and F57C-R			
Storm Flows, DryWeather Flow, perennial stream flow, VPWTP @ 252	5,073		: From F252-R separation of flow
Glendale Operable Unit	34		
Eagle Rock Blow Off	0		
Pollock Treatment	0		
Sycamore Canyon	1,100		Estimated from historic flows
Storm Drains and Unaccounted water	4,982	Adjusted	6.88 cfs assumes 4,982 AF
Total Storm + Industrial Flows at F-57C	**11,188**		
Total Part II	**73,317**		
III. RISING WATER IN L.A. RIVER IN ULARA			
Total:	5,079		: See Section 2.3 of the Watermaster's Report

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Appendix D

Water Quality Data

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REPRESENTATIVE MINERAL ANALYSES OF WATER

Well Number or Source	Date Sampled	Spec. Cond. µS/cm	Mineral Constituents in milligrams per liter (mg/L)												TDS mg/L	Hardness as $CaCO_3$ mg/L
			pH	Ca	Mg	Na	K	CO_3	HCO_3	SO_4	Cl	NO_3 (as NO_3)	F	B		
Imported Water																
Colorado River Water at Lake Havasu	2019/20 FY	928	8.12	71	25	88	4.4	0	160	214	86	1.2	0.3	0.130	578	276
State Water Project at Joseph Jensen Filtration Plant (efffluent)	2019/20 FY	475	8.39	26	12	50	2.7	0	97	57	59	1.8	0.7	0.170	269	114
Colorado River/ State Water Project Blend Point at the Weymouth Treatment Plant (effluent)	2019/20 FY	706	8.25	44	18	72	3.5	0	113	140	74	0.9	0.7	0.110	417	183
LA Aqueduct No 1. Influent	2019/20	295.4	7.9	21.8	4.9	31.9	4.1	ND	120.0	18.9	20.6	ND	0.6	0.5	180.0	74.0
LA Aqueduct Filtration Plant Influent	2019/20	343.1	8.1	25.4	7.8	38.1	3.8	ND	120.5	31.7	23.3	0.9	0.5	0.4	215.0	97.3
Surface Water																
Tillman Rec. Plant Discharge to LA River	2019/20 FY	-	7.03	-	-	-	-	-	-	90	114	24.4	0.618	0.531	510	136
Los Angeles River at Arroyo Seco	9/95	981.0	8.0	68.1	24.3	96.5	9.8	ND	171.0	191.0	108.0	32.8	0.3	0.6	666.0	270.0
LA/Glendale Rec. Plant Discharge to LA River	2019/20 FY	-	7.36	-	-	-	-	-	-	144	140	20.7	0.588	0.353	656	231
Groundwater																
(San Fernando Basin - Western Portion)																
4759D Reseda Well No. 10	7/13/2020	1330	7.44	157	35.2	50.7	2.39	0	292.8	235	33.7	38.9	0.541	-	670	480
(San Fernando Basin - Eastern Portion)																
3800 (North Hollywood No. 33)	2019/20	-	7.6	-	-	-	-	-	-	-	-	2.7	-	-	-	-
3851C VO-8/Burbank No. 10	4/8/2020	700	7.8	85	22	31	4.6	< 2.0	366	68	26	17	0.48	0.150	400	300
Glendale OU GN-1	4/14/2020 & 8/3/2020	870	7.6	100	27	45	5.1	< 2	270	160	-	32	0.34	0.16	580	360
(San Fernando Basin - L.A. Narrows)																
3959E (Pollock No. 4)	2019/20	870.2	7.0	90.0	31.5	60.1	3.1	ND	246.0	138.0	84.0	28.8	0.4	0.2	596.0	354.0
3958H (Pollock No. 6)	2019/20	910.3	7.0	101.0	35.9	50.8	2.8	ND	275.0	143.0	83.7	39.4	0.2	0.1	641.0	400.0
(Sylmar Basin)																
4840K (Mission No. 6)	2019/20	-	7.7	-	-	-	-	-	-	-	-	5.3	0.4	-	-	-
5969 (San Fernando No. 4A)	1/31/2018	570	7.7	64	12	32	4.5	ND	210	52	24	32	0.22	0.13	360	210
(Verdugo Basin)																
3971 (Glorietta No. 3)	10/3/2019	1100	7	101	38.4	45	3.6	ND	240	150	-	8.2	0.16	-	630	410
5069F (CVWD No. 14)	2/11/2020	810	7.55	84	27	31	2.9	ND	210	110	74	39.8	0.22	-	560	320

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Appendix E

EPA Shallow Zone Contamination Maps

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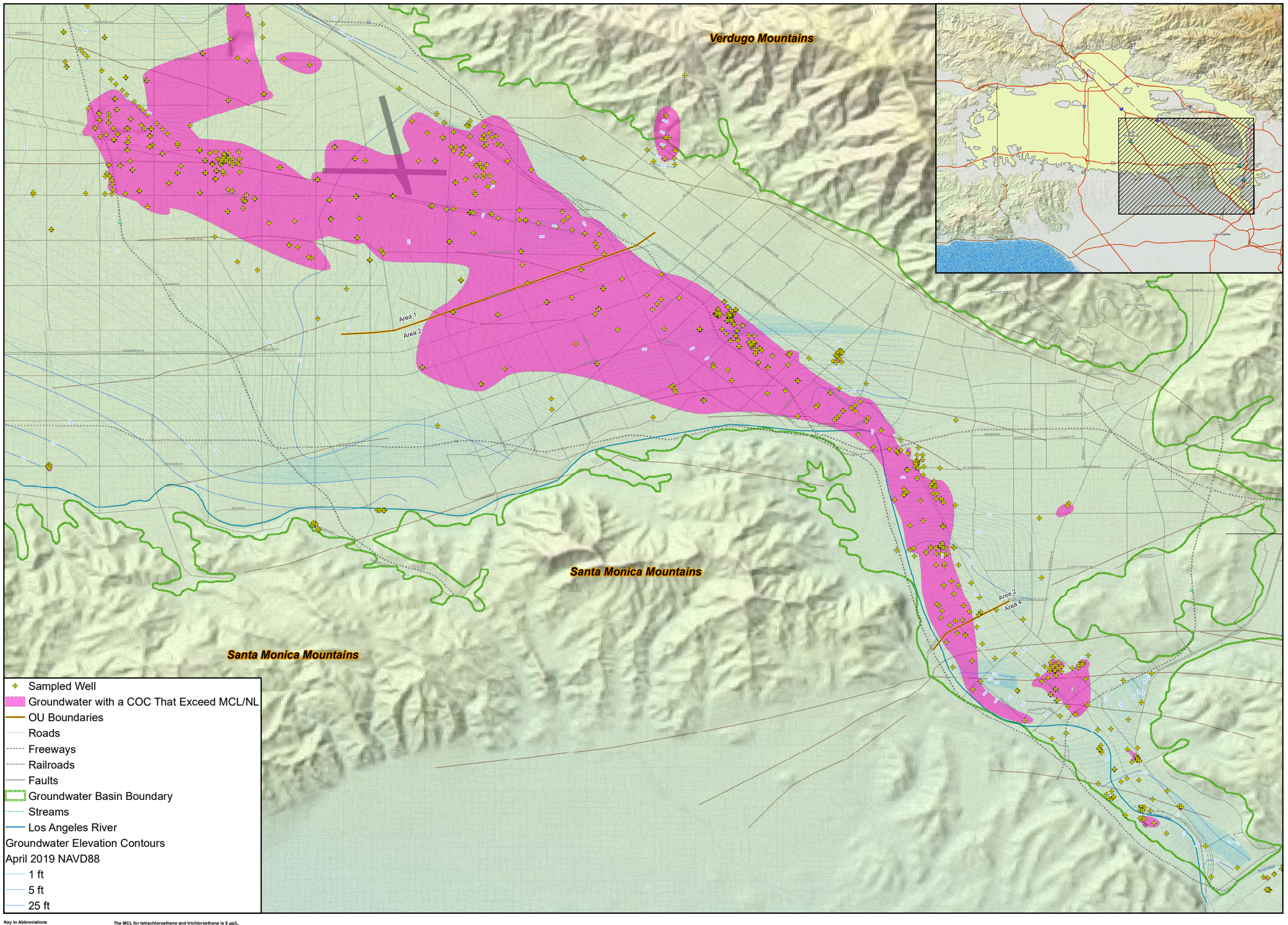

Key to Abbreviations
COC - Contaminant of Concern
MCL - Maximum Contaminant Level
NAVD88 - North American Vertical Datum 1988
NL - Notification Level
µg/L - micrograms per liter

The MCL for tetrachloroethene and trichloroethene is 5 µg/L.
The MCL for total chromium, 50 µg/L, is being used as the MCL for hexavalent chromium.
The NL for 1,4-Dioxane is 1 µg/L.

Estimated Extent of Groundwater With at Least One COC Exceedng the MCL or NL
San Fernando Valley Superfund Site
2019*

* The U.S. EPA has released this contaminant plume map to update the public on the current status of the San Fernando Valley Superfund groundwater site. The areas of contamination shown on this map represent two-dimensional approximations based on water quality data from groundwater monitoring wells in the eastern part of the San Fernando Valley. Areas of contamination are based on the most recent sample taken from each well shown between January 2014 and June 2019. In any given year, the maximum contaminant concentration at any well or group of adjacent wells, regardless of depth, was used for developing the plume extent. This map is not intended to identify any specific source(s) of contamination and does not reflect where contamination originated or its path of migration in the groundwater.

EPA United States Environmental Protection Agency

N

0 0.5 1 2
Miles

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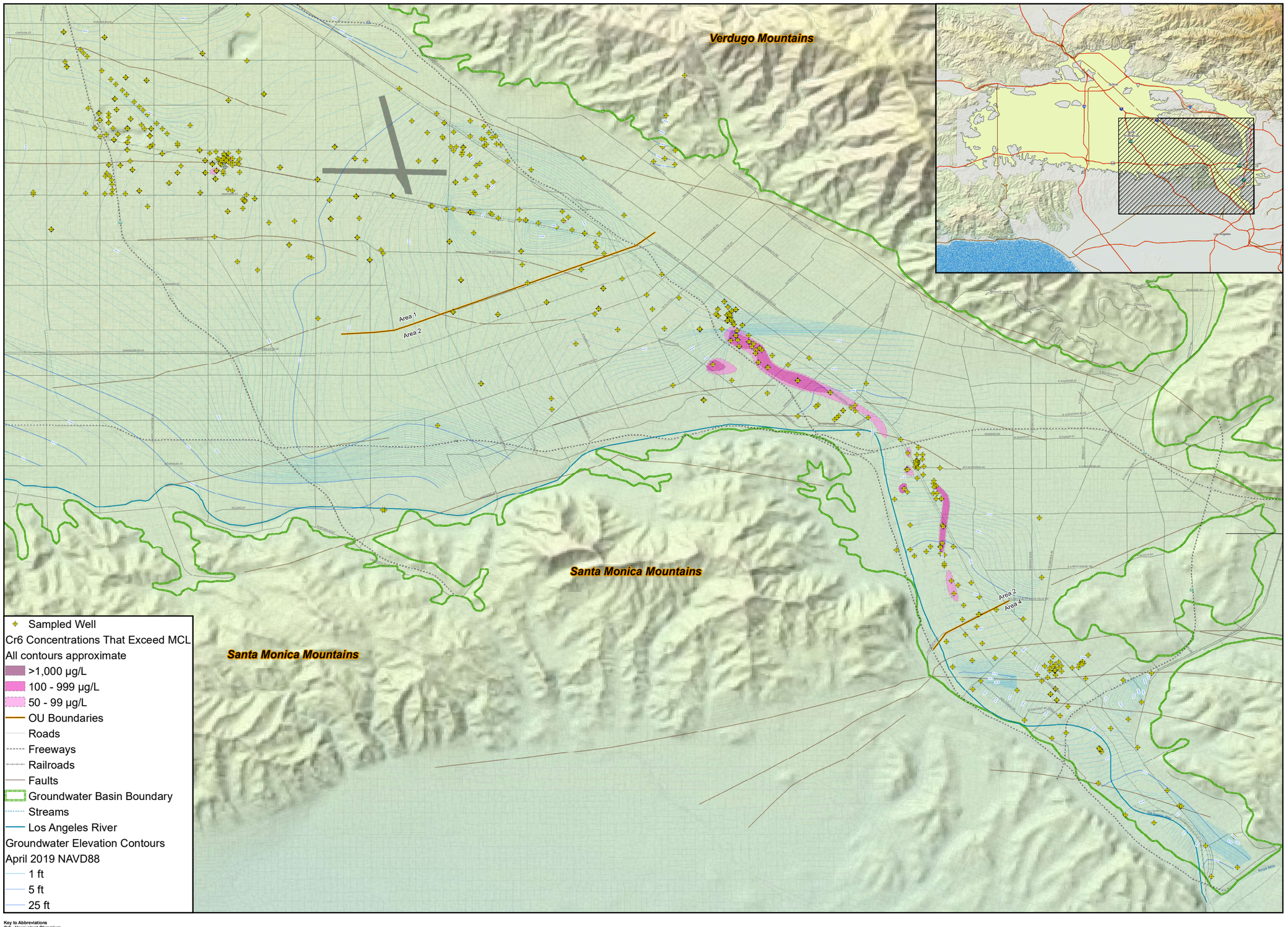

Key to Abbreviations
Cr6 - Hexavalent Chromium
MCL -Maximum Contaminant Level
NAVD88 - North American Vertical Datum 1988
µg/L - micrograms per liter
There is no MCL for Cr6. The MCL for total chromium is used instead, 50 µg/L.

Estimated Extent of Hexavalent Chromium (Cr6) in Groundwater Exceedng the MCL
San Fernando Valley Superfund Site
2019*

United States Environmental Protection Agency

N

0 0.5 1 2

Miles

* The U.S. EPA has released this contaminant plume map to update the public on the current status of the San Fernando Valley Superfund groundwater site. The areas of contamination shown on this map represent two-dimensional approximations based on water quality data from groundwater monitoring wells in the eastern part of the San Fernando Valley. Areas of contamination are based on the most recent sample taken from each well shown between January 2014 and June 2019. In any given year, the maximum contaminant concentration at any well or group of adjacent wells, regardless of depth, was used for developing the plume extent. This map is not intended to identify any specific source(s) of contamination and does not reflect where contamination originated or its path of migration in the groundwater.

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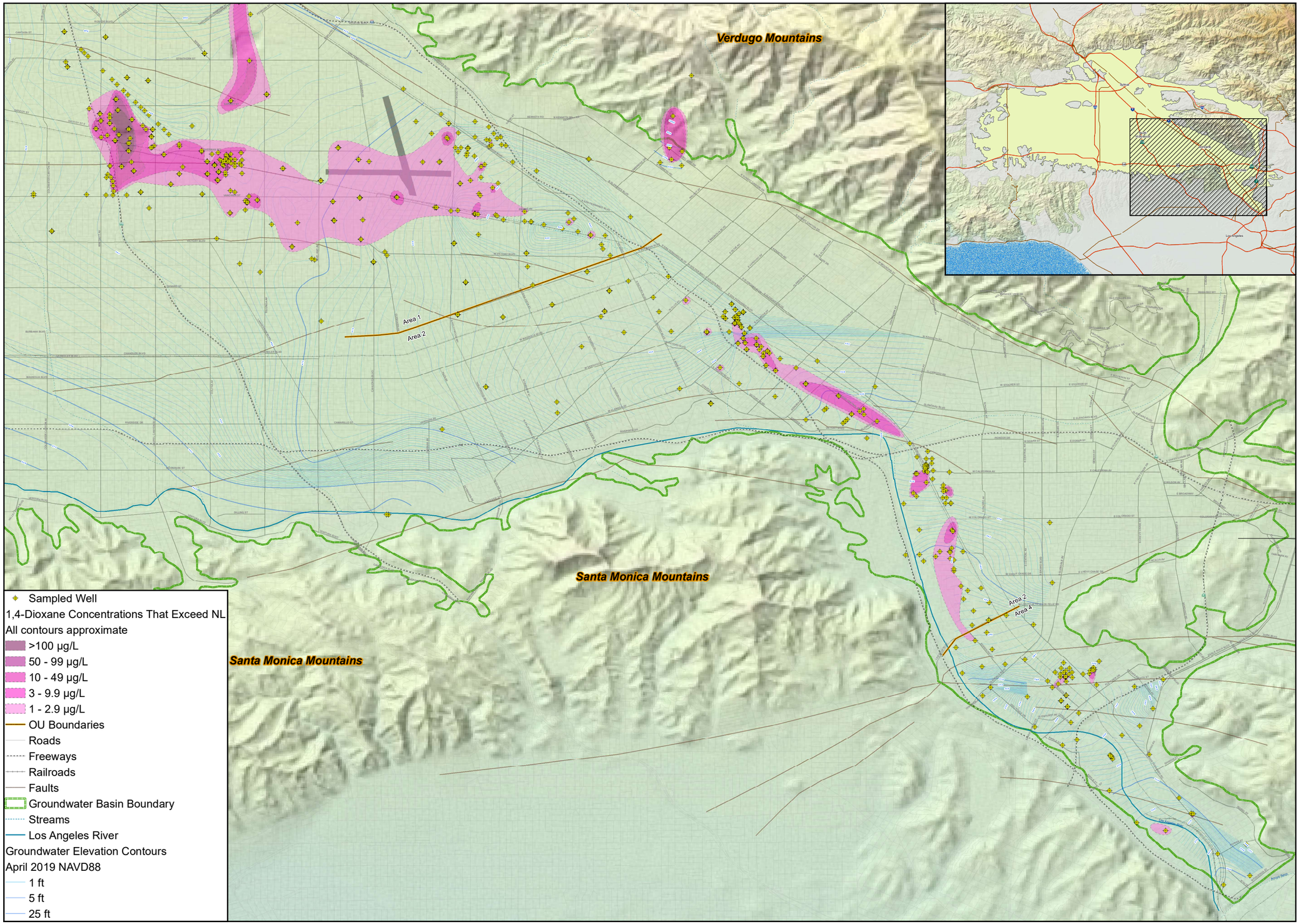

Key to Abbreviations
NAVD88 - North American Vertical Datum 1988
NL - Notification Level
µg/L - micrograms per liter
The NL for 1,4-Dioxane is 1 µg/L.

Estimated Extent of 1,4-Dioxane in Groundwater Exceedng the NL
San Fernando Valley Superfund Site
2019*

EPA United States Environmental Protection Agency

N

0 0.5 1 2
Miles

* The U.S. EPA has released this contaminant plume map to update the public on the current status of the San Fernando Valley Superfund groundwater site. The areas of contamination shown on this map represent two-dimensional approximations based on water quality data from groundwater monitoring wells in the eastern part of the San Fernando Valley. Areas of contamination are based on the most recent sample taken from each well shown between January 2014 and June 2019. In any given year, the maximum contaminant concentration at any well or group of adjacent wells, regardless of depth, was used for developing the plume extent. This map is not intended to identify any specific source(s) of contamination and does not reflect where contamination originated or its path of migration in the groundwater.

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Verdugo Mountains

Santa Monica Mountains

Santa Monica Mountains

Area 1

Area 2

Area 2

Area 4

Sampled Well
PCE Concentrations That Exceed MCL
All Contours Approximate
>1000 µg/L
500-999 µg/L
100-499 µg/L
50-99 µg/L
5-49 µg/L
OU Boundaries
Roads
Freeways
Railroads
Faults
Groundwater Basin Boundary
Streams
Los Angeles River
Groundwater Elevation Contours
April 2019 NAVD88
1 ft
5 ft
25 ft

Key to Abbreviations
MCL - Maximum Contaminant Level
NAVD88 - North American Vertical Datum 1988
PCE - Tetrachloroethene
µg/L - micrograms per liter
The MCL for PCE is 5 µg/L.

Estimated Extent of Tetrachloroethene (PCE) in Groundwater Exceedng the MCL
San Fernando Valley Superfund Site
2019*

EPA United States Environmental Protection Agency

N

0 0.5 1 2
Miles

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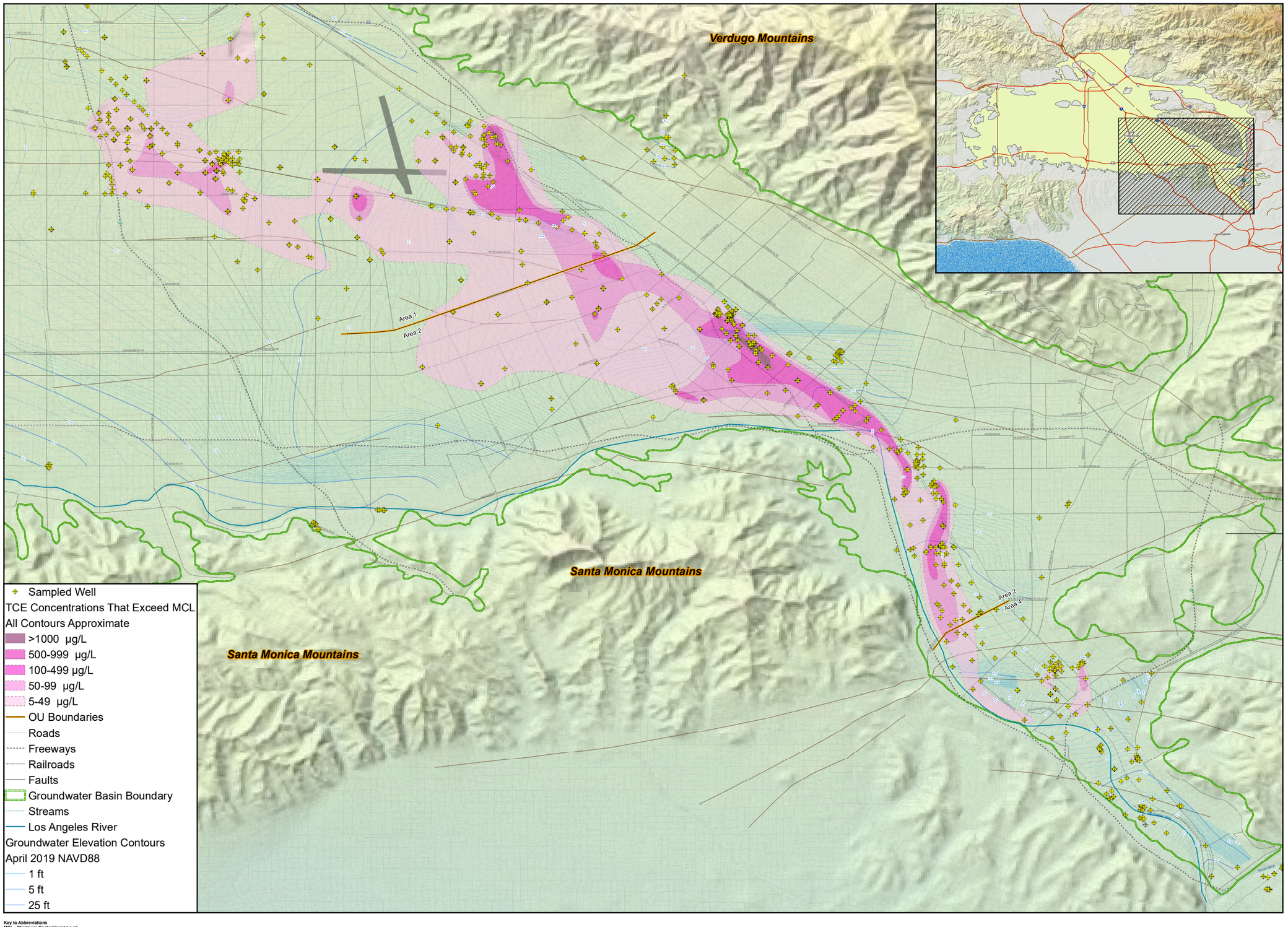

Key to Abbreviations
MCL - Maximum Contaminant Level
NAVD88 - North American Vertical Datum 1988
TCE - Trichloroethene
µg/L - micrograms per liter
The MCL for TCE is 5 µg/L.

Estimated Extent of Trichloroethene (TCE) in Groundwater Exceedng the MCL
San Fernando Valley Superfund Site
2019*

EPA United States Environmental Protection Agency

N

0 0.5 1 2
Miles

* The U.S. EPA has released this contaminant plume map to update the public on the current status of the San Fernando Valley Superfund groundwater site. The areas of contamination shown on this map represent two-dimensional approximations based on water quality data from groundwater monitoring wells in the eastern part of the San Fernando Valley. Areas of contamination are based on the most recent sample taken from each well shown between January 2014 and June 2019. In any given year, the maximum contaminant concentration at any well or group of adjacent wells, regardless of depth, was used for developing the plume extent. This map is not intended to identify any specific source(s) of contamination and does not reflect where contamination originated or its path of migration in the groundwater.

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Appendix F

Summary of Distributed Stormwater Capture Projects

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APPENDIX F - Summary of Distributed Stormwater Capture Projects

(acre-feet)

Agency	Distributed Spreading Facility	WY2019-20 OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
City of Los Angeles [1, 2]														
	Green Stormwater Infrastructure	0.00	476.00	1,066.00	54.00	51.00	943.00	717.00	0.00	0.00	0.00	0.00	0.00	3,307.00
	City of Los Angeles Total	**0.00**	**476.00**	**1,066.00**	**54.00**	**51.00**	**943.00**	**717.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**3,307.00**
City of Glendale														
	Harvard Green Street Demonstration Project	0.00	0.05	0.14	0.01	0.01	0.10	0.10	0.00	0.00	0.00	0.00	0.00	**0.41**
	Riverside Dr and Chavez Ave Bioswale	0.00	0.02	0.05	0.00	0.00	0.04	0.03	0.00	0.00	0.00	0.00	0.00	**0.14**
	1120 Tyler Street Drywell	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	**0.04**
	5700 San Fernando Road Drywell	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	**0.04**
	Scholl Canyon Park Entrance Drywell	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	**0.04**
	City of Glendale Total	**0.00**	**0.09**	**0.22**	**0.01**	**0.02**	**0.17**	**0.16**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.66**

1. Distributed facilities spreading figures only account for single-day storm events exceeding 0.1" of rainfall. Values are based on flow telemetry software available at each facility. Figures are reported by LADWP and are modeled estimates based on amount of precipitation and the specific project hydrology.
2. Distributed facility spreading is cumulatively represented by "Green Stormwater Infrastructure".

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Appendix G

Abandonment of Sportsmen's Lodge Physical Solution Extraction Rights Letter

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Midwood

Midwood Investment & Development
430 Park Avenue, Second Floor
New York, NY 10022

p (212) 682 9595 **f** (212) 983 9697
info@midwoodid.com
midwoodid.com

February 28, 2020

Mr. David Pettijohn
Director of Water Resources
Los Angeles Department of Water and Power
111 N. Hope Street, Room 1460
Los Angeles, CA 90012

Attn: Water Rights and Resource Management Group

Dear Mr. Pettijohn:

Please accept this letter as notice that, at the direction of SL Retail Owner, LLC, successor-in-interest to the Sportsman's Lodge, Los Angeles County Department of Public Work Well No. 3785A, located at 12833 Ventura Blvd., Los Angeles CA, has been permanently destroyed. The abandonment and destruction of the well was conducted in accordance with the work plan that Los Angeles County Department of Public Health approved on February 18, 2020. A final destruction report will be provided to the Los Angeles Department of Water and Power and the Watermaster for the Upper Los Angeles River Area.

Given that SL Retail Owner, LLC has destroyed the well and ceased extracting water from the San Fernando Basin, no further need exists for the physical solution granted to Sportsman's Lodge in Sections 9.3 and 9.3.1 of the judgment entered in *The City of Los Angeles v. City of San Fernando*, Los Angeles Superior Court Case No. 650079, on January 26, 1979. Accordingly, SL Retail Owner, LLC abandons any physical solution extraction rights under the judgment.

Please contact me if you have any questions. I can be reached at bbesley@midwoodid.com or (310) 403-3515.

Thank you,

Ben Besley
Senior Vice President
Midwood Management Corp.

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