## Los Angeles County Waterworks District 40

# WATER SUPPLY ASSESSMENT

**FOR**

## Pacific Industrial Development

*DRAFT*

March 2025

Prepared for:

SIKAND

Prepared by:

AKEL
ENGINEERING GROUP, INC.

AKEL ENGINEERING GROUP, INC.

*Smart Planning Our Water Resources*

March 14, 2025

Sikand Engineering Associates
15230 Burbank Blvd., Suite 100
Sherman Oaks, CA 91411

*Draft*

Attention: Raman Gaur
Vice President / Project Director

**Subject: Water Supply Assessment for Pacific Industrial Development – Draft**
(SB 610 Requirements)

Dear Mr.Gaur

We are pleased to submit this Water Supply Assessment (WSA) draft report for Pacific Industrial Development. This report is intended to satisfy the requirements of SB 610 by evaluating the impact of this project on existing and future water supplies.

This report quantifies the project's water supply requirements, identifies the potential impact on the District's supply availability, includes discussions on the supply reliability, and provides supply vs. demand comparisons, along with conclusions on supply availability to meet the project. The report concludes that the total projected water supply availability of Los Angeles County Waterworks District 40, during normal, single-dry, and multiple-dry water years will meet the projected water demand for the Project over the next 20 years (through 2045).

We are extending our thanks to you for the guidance and valuable input and reviews during the completion of this study.

Sincerely,

AKEL ENGINEERING GROUP, INC.

Tony Akel, P.E.
Principal

Enclosure: Report

# Los Angeles County Waterworks District 40
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# For Pacific Industrial Development

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## Tables



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# Definitions and Abbreviations

| | |
|---|---|
| af | acre-foot/feet |
| afy | acre-foot/feet per year |
| Akel | Akel Engineering Group, Inc. |
| AVEK | Antelope Valley East Kern Water District |
| AVRWMG | Antelope Valley Regional Water Management Group |
| CEQA | California Environmental Quality Act |
| DWR | Department of Water Resources |
| EIR | Environmental Impact Report |
| ETAF | Evapotranspiration Adjustment Factor |
| ETo | Reference Evapotranspiration Factor |
| gpcd | gallons per capita per day |
| GP | General Plan |
| GWMP | Groundwater Management Plan |
| LA | Landscape Area |
| LACSD | Los Angeles County Sanitation District |
| LADWP | Los Angeles Department of Water and Power |
| MAWA | Maximum Applied Water Allowance |
| IRWMP | Integrated Regional Water Management Plan |
| PWD | Palmdale Water District |
| ROW | Right of Way |
| RWQCB | Regional Water Quality Control Board |
| SB | Senate Bill |
| SLA | Special Landscape Area |
| sqft | square foot |
| SGMA | Sustainable Groundwater Management Act |
| SWP | State Water Project |
| UWMP | Urban Water Management Plan |
| WRP | Wastewater Reclamation Plant |
| WSMP | Water System Master Plan |
| WSA | Water Supply Assessment |

# 1.0 PURPOSE

***Law***

*10910 (a)* *…Any city or county that determines that a project, as defined in Section 10912, is subject to the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) under Section 21080 of the Public Resources Code shall comply with this part.*

*10912 (a)(5)* *… "Project" means any of the following:*
*(1) A proposed residential development of more than 500 dwelling units.*
*(2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.*
*(3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.*
*(4) A proposed hotel or motel, or both, having more than 500 rooms.*
*(5) A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.*
*(6) A mixed-use project that includes one or more of the projects specified in this subdivision.*
*(7) A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.*

*SB 610 (2)* *…The bill would require the assessment to include, among other information, an identification of existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project and water received in prior years pursuant to those entitlements, rights, and contracts. The bill would require the city or county, if it is not able to identify any public water system that may supply water for the project, to prepare the water supply assessment after a prescribed consultation.*

This Water Supply Assessment (WSA) report is intended to satisfy the requirements of Water Senate Bill (SB) 610, which was adopted by the California State Legislature to address some of the uncertainties in the water supply and gain a more detailed understanding of the water availability for different projects.

The objective of this WSA is the proposed Pacific Industrial Development within the Los Angeles County Waterworks District 40 (District). This WSA assesses the water supply sufficiency to the projected water demands by evaluating the impact of the development's water demands on the water supply through 2045, as stipulated in the SB 610 requirements.

Pursuant to the California Water Code Division 6, Part 2.10, Sections 10910-10915, any city or county, which has proposed larger developments or land use plans that are subject to California Environmental Quality Act (CEQA), is required to prepare a WSA to document potential environmental impacts of the projects.

The total area of the proposed development is estimated at 67.0 acres. Since the development area exceeds 40 acres, it qualifies as a *Project* and requires a WSA pursuant to Sections 10912(a)(5). The WSA must be included in the environmental document addressing the potential environmental impacts of the project. To ensure project approval, the WSA must conclude that the supply of domestic water available to the development is adequate and will continue to be adequate over the next 20 years during normal, single-dry, and multiple-dry years.

This WSA is developed with the objective of aiding the District in meeting the requirements of SB 610.

# 2.0 PROJECT BACKGROUND

The following section includes a description of the proposed Pacific Industrial Development (Project) as well as the relevant documentation.

## 2.1 Project Description

The Project is a proposed development of 67.0 acres, located in Los Angeles County. The Project is bounded between Division Street on the west and Sierra Highway on the east, just north of East Rancho Vista Boulevard (**Figure 1**). The project site was included in the 2020 District UWMP and it was identified as an industrial land use in the 1993 City of Palmdale General Plan.

Based on the Project's Preliminary Grading Plan provided by Sikand Engineering in January 2025 (**Appendix A**), the Project has been identified as an industrial land use and was analyzed in this 2025 WSA. As displayed on **Table 1** and **Figure 2**, the Project's site includes the development of an industrial warehouse (22.7 acres) and two office spaces (0.2 acres), with another 9.0 acres planned for landscaping. The site also includes plans for a detention basin (3.2 acres), a bioretention basin (0.5 acres), and parking lots and roads (31.3 acres) built over the course of 1.5 years.

Per the Construction and Operational Analysis Data Request table provided by Sikand Engineering on December 10, 2024, a 1.5 -year buildout is expected with construction beginning on August 1, 2025, and ending on February 28, 2027 (**Table 2**).

## 2.2 Relevant Documentation

The District has either completed or participated in studies intended to document water supply sufficiency. This section documents the reports that were consulted during the preparation of this water supply assessment.

- Urban Water Management Plan 2020, October 2021 (2021 UWMP): This report includes a summary of the District's current water supply and demand conditions, water shortage contingency plan, and detailed documentation of their future water supply and demand strategies for the District.
- Water System Master Plan for Los Angeles County Waterworks District No.40 (Antelope Valley), April 1999 (1999 WSMP): This plan documents the City's existing and future water use, projected water duty factors, water supply, and water infrastructure. It evaluates the City's water system and recommends capacity improvements necessary to service the needs of existing users and for servicing the future growth of the City.
- Antelope Valley Integrated Regional Water Management Plan, 2019 Update (2019 IRWMP): This plan documents the latest groundwater basins' prioritization, adjudication, and overdraft conditions. It allows for multiple groundwater sustainability agencies coordinating under this single agreement to conduct groundwater sustainability projects and actions that cover the entire groundwater basin (Water Code §10727).
- Sustainable Groundwater Management Act 2019 Basin Prioritization, May 2020 (2019 SGMA-BP): This map documents the latest groundwater basins' prioritization, adjudication, and overdraft conditions.
- City of Palmdale General Plan, January 1993 (1993 GP): This plan documents the City's growth, the guiding framework for land uses, the policies of public services and urban design, and the approaches of sustainable development.
- City of Palmdale General Plan, March 2023 (2045 GP): This plan documents the City's 2045 future growth, the guiding framework for land uses, the policies of public services and urban design, and the approaches of sustainable development.
- 2020 Water Shortage Contingency Plan, July 2021 (2021 WSCP): This plan outlines the District's response to any water shortage conditions. It includes shortage response actions for multiple stages as well as an emergency response plan in case of natural disasters.

# 3.0 REQUIRED SB 610 DETERMINATIONS

## 3.1 SB 610 Determinations

Water Code Sections 10910 and 10912 state:

> *10910(a) Any city or county that determines that a project, as defined in Section 10912, is subject to the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) under Section 21080 of the Public Resources Code shall comply with this part.*
>
> *10912(a) "Project" means any of the following:*
> *(1) A proposed residential development of more than 500 dwelling units.*
> *(2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.*
> *(3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.*
> *(4) A proposed hotel or motel, or both, having more than 500 rooms.*
> *(5) A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.*
> *(6) A mixed-use project that includes one or more of the projects specified in this subdivision.*
> *(7) A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500-dwelling unit project.*

Based on the following assumptions, SB 610 does apply to the proposed project.

- The proposed project is subject to the California Environmental Quality Act (CEQA); therefore, an Environmental Impact Report (EIR) is required.

- The proposed project entails 67.0 acres and therefore meets the definition of a "Project" as specified in Water Code Section 10912(a) section (5).

## 3.2 Identified Public Water System

Water Code Sections 10910 and 10912 states:

> *10910(b) The city or county, at the time that it determines whether an environmental impact report, a negative declaration, or a mitigated negative declaration is required for any project subject to the California Environmental Quality Act pursuant to Section 21080.1 of the Public Resources Code, shall identify any water system that is, or may become as a result of supplying water to the project identified pursuant to this subdivision, a public water system, as defined by Section 10912, that may supply water for the project.*

*1012(c) "Public water system" means a system for the provision of piped water to the public for human consumption that has 3,000 or more service connections…*

The Project is located within the City of Palmdale's city limits and is within the District. The District is made up of eight regions to serve their customers. In 1993, Region 4 and Region 34 were integrated and now operate as one system. This Region 4 and 34: Lancaster and Desert Highlands is identified as this Project's public water system.

### 3.3 District's UWMP and Proposed Project Demand

Water Code Section 10910 states:

*10910(c)(1) The city or county, at the time it makes the determination required under Section 21080.1 of the Public Resources Code, shall request each public water system identified pursuant to subdivision (b) to determine whether the projected water demand associated with a proposed project was included as part of the most recently adopted urban water management plan adopted pursuant to Part 2.6 (commencing with Section 10610).*

The District adopted their 2020 UWMP in October, 2021. The UWMP includes the water demands for future developments both within the existing District limits as well as within future service areas currently outside the existing city limits. The water demand projections follow SB X7-7 and were calculated by multiplying the confirmed 2020 target gpcd of 225 and the projected population.

The projected water demand of the District is noted in the 2020 UWMP. The total water demand is estimated to be 55,164 afy in 2025 and increases to 67,602 afy by 2045. The proposed projected water demand of 35.6 gpm, or 57.4 afy, is included in the 2020 UWMP (see Section 5).

## 4.0 DISTRICT WATER SERVICE AREA

### 4.1 District Service Area

Los Angeles County Waterworks District 40 encompasses eight different regions to cover the entire District. Region 4 and Region 34 were consolidated to serve the City of Lancaster and the City of Palmdale. **Figure 1** details the City of Palmdale's city limits, Region 4 and 34 boundary, Palmdale Water District's boundary, and the Project area. The District's area currently encompasses approximately 232 square miles.

## 4.2 Population

The District served a population of 205,000 people in 2020 and is expected to increase to 263,000 people by 2045 with an assumed 1.0% growth rate (**Table 4**). An increase in population will likely impact the City's climate conditions.

## 4.3 Climate

Local climate plays a role in the amount of supply available. The District resides in the Mojave Desert where it tends to be a semi-arid climate with dry and warm summers and dry and cool winters. The maximum average temperature ranges from 94.6°F in July to 57.6 °F in December, and the average rainfall ranges from 1.07 inches in March to 0.01 inches in June. **Table 7** displays the historical average temperature (including high and low), with higher records during summer months, as well as the historical average precipitation values. Warmer months typically have lower precipitation values and require a higher water demand for landscapes.

# 5.0 WATER DEMANDS

This section includes a summary of the water duty factors, peaking factors, and the projected demand in this 2025 WSA.

## 5.1 Water Duty Factor

Domestic water duty factors are coefficients commonly used in the planning level analysis to estimate future average daily demands for predetermined land uses of a specific area. The water duty factor is multiplied by the number of gross acres to yield the average daily demand projections.

### 5.1.1 Indoor Demand Water Duty Factor

The water duty factor was extracted from Los Angeles Department of Water and Power (LADWP) – Alameda Street EIR, table 4.13.2-4. The water duty factor for the office is 170 gpd/ksf and the water duty factor for the industrial warehouse is 30 gpd/ksf.

### 5.1.2 Outdoor Demand Water Duty Factor

Maximum Applied Water Allowance (MAWA) equation is applied to calculate the outdoor demand.

$$MAWA = ETo \times 0.62 \times [\, ETAF \times LA) + ((1 - ETAF) \times SLA)]$$

where: Reference Evapotranspiration Factor (ETo) = 66.2 inches per year

0.62 = unit conversion factor

Evapotranspiration Adjustment Factor (ETAF) = 0.45 for future non-residential landscape

Landscape Area (LA) = 393,239 sqft

Special Landscape Area (SLA) = 0 sqft (assuming no areas using recycled water or no food production areas)

## 5.2 Peaking Factors

The peaking factors were extracted from the District's Water System Master Plan (1999). The maximum day demand is twice the average day demand, and the peak hour demand is twice the maximum day demand.

## 5.3 Project's Water Demand

Akel Engineering Group collaborated with Sikand Engineering and completed the domestic water demand calculations in August 2024. The Project's demand table (**Table 3**) was updated based on the development area changes provided by Sikand Engineering in January 2025 from the Project's Preliminary Grading Plan.

Multiplying the water duty factor for each land use type by their respective area, gives the total average day of the indoor water demand for this Project to be 21.8 gpm (equivalent to 35.1 afy). The total maximum day of the indoor water demand is calculated to be 43.6 gpm (equivalent to 70.2 afy). The total peak hour of the indoor water demand is calculated to be 87.2 gpm (equivalent to 140.4 afy).

By applying the MAWA Equation, the total average day of the outdoor water demand for this Project is calculated to be 7.26 mgy, (equivalent to 22.2 afy). The total maximum day of the outdoor water demand is calculated to be 44.5 afy, and the total peak hour of the outdoor water demand is calculated to be 89.0 afy.

The total average day demand of the Project is 35.6 gpm (equivalent to 57.4 afy), the total maximum day demand is 71.2 gpm (equivalent to 114.7 afy), and the peak hour demand is 142.5 gpm (equivalent to 229.4 afy).

## 5.4 Future Water Demand Projections

The project site was included in the 2020 UWMP and was designed as an industrial land use area. Thus, future water demand of the Project has been calculated as part of the total projected demand in the 2020 UWMP, as shown on **Table 5**. The Development will not affect the projected water demand estimations in the 2020 UWMP.

# 6.0 DISTRICT'S WATER SUPPLIES

This section includes the District's water supply projections under different water years (normal, single-dry, and multiple-dry years). Drought planning efforts for the District are also discussed in this section.

## 6.1 District's Water Supply (Normal Year)

The District currently receives the entirety of their potable water supply from purchased water and groundwater. The recycled water is used for agricultural reuse, urban irrigation, construction, wetland water, and recreational impoundments.

### 6.1.1 Purchased Water

Purchased water is the primary source of potable water for the District. The District purchases water from the Antelope Valley East Kern Water District (AVEK), who supplies surface water to customers in order to offset groundwater pumping. AVEK receives 144,844 afy from the DWR per the State Water Project (SWP) and can purchase more if available. The District is expected to purchase 57,300 af in 2025 and 52,700 af in 2045 from AVEK (**Table 6**).

The District also participates in water banking to budget for when AVEK and the DWR do not have substantial supplies to meet the demand during dry years. They do this by purchasing excess water from AVEK during wet or low demand years and import it to the aquifer to be recovered later during dry or high demand years.

Both AVEK and the District are in the process of acquiring additional water supplies to meet the growing demand of the Antelope Valley area. AVEK is constructing groundwater banks and the District is implementing a Water Supply Entitlement Acquisition program that will allow new developments to acquire entitlements to additional purchased water.

### 6.1.2 Groundwater

Groundwater is a secondary source of the District's potable water supply. The groundwater basin underlying the District is the Antelope Valley Basin (06-044) (**Figure 3**). There are two main groups that are tasked with ensuring all requirements from the Sustainable Groundwater Management Act (SGMA) are met:

- The Watermaster Board: Includes one representative from both AVEK and the District, a public water supplier representative, and two landowner representatives. They are tasked with implementing and enforcing judgements related to pumping regulations.
- The Antelope Valley Regional Water Management Group (AVRWMG) (Formed in 2006): Encompasses 11 agencies, including both the District and AVEK, who developed the

Integrated Regional Water Management Plan (IRWMP) in 2007. The IRWMP meets the requirements of developing a groundwater management plan (GWMP).

In 2015, the Antelope Valley Groundwater Basin was found to be in overdraft, and the Superior Court of California ruled for the District to receive an additional water supply for groundwater production rights (6,789 afy), unused federal reserve rights (3,500 afy), imported water return flows (10,400 afy), and an additional lease from AVEK (2,600 afy) as seen in **Table 8**. This brings the entire groundwater supply for the District to 23,289 afy (**Table 6**). The Antelope Valley Basin is designated as an adjudicated basin and is currently classified as low priority, based on 2019 SGMA-BP. However, the basin is also subjected to land subsidence, which has caused further issues for the surrounding area.

With the rapidly growing cities of both Palmdale and Lancaster, the Antelope Valley Basin is the most pumped basin in the valley. Historically, groundwater pumping has decreased over time, where in 2016, 16,002 afy of water was pumped from the basin and in 2020, 14,266 afy was pumped from the basin.

### 6.1.3 Stormwater

The District currently does not use stormwater for any supply source. However, they are planning to implement the Upper Amargosa Creek Recharge project with the City of Palmdale, AVEK, and Palmdale Water District (PWD); which will increase the Antelope Valley's supply by 1,600-2,350 afy.

### 6.1.4 Wastewater and Recycled Water

Los Angeles County Sanitation District (LACSD) is responsible for the treatment and disposal of all wastewater within the District's service area besides anywhere the cities of Palmdale and Lancaster own and operate their own portions of the collection system within their respective city limits. LACSD 14 and 20 uses tertiary treated wastewater for irrigation, agriculture, and maintenance.

Currently, the existing recycled water treatment system is outside of the District's service area. It is operated by the Palmdale Recycled Water Authority, who manages all recycled water resources from LACSD 14 and 20. The Antelope Valley Backbone is planned to be connected to the Lancaster Wastewater Reclamation Plant (WRP) upon funding to link both the Lancaster WRP and the Palmdale WRP. Once they are connected, there will be a surplus of recycled water available for the District's use. Currently, recycled water is being used for agricultural use, urban irrigation, construction, wetland water, and recreational uses.

According to the 2020 UWMP, the District expects purchased water, groundwater, and recycled water to continue to be the supply source for potable water and will contribute a total of 79,033 afy in 2045 (**Table 6**).

### 6.1.5 Demand and Supply Comparison (Normal Year)

The demand and supply comparison for a normal year is shown on **Table 8**. There is an expected surplus of 27,922 afy in 2025, therefore, the District's total water supplies are sufficient to meet the District's water demands with the Project.

## 6.2 Drought Planning

This section summarizes the District's effort to increase drought resiliency, which includes the response to climate change by integrating mitigation programs. This section also summarizes the District's projected water supply under single and multiple-dry years.

### 6.2.1 Response to Climate Change

Due to the notable changes within the climate, the District's 2020 UWMP warns that changes in temperature, intensifying storm events, and extended droughts, are expected and may impact the available water supply.

### 6.2.2 Water Supply (Dry Years)

According to the 2020 UWMP, the District's available water supply during a single dry year will be unaffected by dry weather conditions. Due to the District's reliance on purchased or imported water, the water supply will consistently meet the water demands through 2045 during a single dry year, as shown on **Table 9.**

Similarly, there is no anticipation of the available water supply being affected during multiple dry years through 2045, as shown on **Table 10**. However, because the supply of water available from SWP can vary, the District takes caution by participating in water banking and preparing to implement the following projects:

- AVEK Westside Water Bank Interconnecting Pipeline and Pump Station: Involves the production of a pump station that allows AVEK to access stored water in the Westside Water Bank.
- AVEK Enterprise Bank: Includes the construction of a groundwater recharge and recovery facility that can deliver water from the bank to the aqueduct.
- Upper Amargosa Creek Recharge Project: Joint project that aims to recharge the Antelope Valley's water supply by preserving and restoring local habitats and basins.
- AVEK Southern Antelope Valley Intertie: Project to construct an interconnecting pipe and pump station to allow AVEK to transfer water to both ends of their service area.

### 6.2.3 Demand and Supply Comparison (Dry Years)

The total water supply and demand can be compared during single-dry and multiple-dry years. These results are summarized in **Table 9** and **Table 10**. The tables verify that the District's total water supplies are sufficient to meet the District's water demands with the addition of the Project under different water years.

## 7.0 SUMMARY

This water supply assessment was prepared for the Project with the intent of meeting the requirements of SB 610. The analysis and findings in this WSA indicate the following:

- Los Angeles County Waterworks District 40, Region 4 and 34: Lancaster and Desert Highlands has been identified as the public water distributor for the Pacific Industrial Development. It should be noted that the Antelope Valley Basin, which underlies the District, is adjudicated and is currently classified as low priority.
- The proposed land use types are extracted from the Project's Preliminary Grading Plan provided by Sikand Engineering, the net acreage of the project is estimated by ArcGIS Georef based on the Preliminary Grading Plan, and landscape area is provided by Sikand Engineering.
- There is a 3-year buildout with construction starting August 1, 2025 and finishing by February 28, 2027 per the Construction and Operational Analysis Data Request provided by Sikand Engineering on December 10, 2024.
- Akel Engineering Group collaborated with Sikand Engineering and completed the domestic water demand calculations in August 2024. The Project's demand table was updated based on the change of the building areas from the Project's Preliminary Grading Plan provided by Sikand Engineering in January 2025. The total average day demand of the Project is 35.6 gpm, the total maximum day demand is 71.2 gpm, and the peak hour demand is 142.5 gpm.
- The Pacific Industrial Project was designed as an industrial land use type and was accounted for in the 2020 UWMP. Therefore, the Development will not affect the projected water demand estimations in the 2020 UWMP.
- The District's total water supplies are sufficient to meet the District's water demands with the addition of the Project under different water years.

# Tables

## Table 1 Future Land Use Inventory

Pacific Industrial Development - Water Supply Assessment
Los Angeles County Waterworks Districts

PRELIMINARY

| Land Use Type[1] | Lot Area (ac) | Floor Area (sf) |
|---|---|---|
| **Demand Generating[2]** | | |
| Industrial Warehouse[2] | 22.73 | 990,000 |
| Office[2] | 0.23 | 10,000 |
| Landscape[3] | 9.03 | 393,239 |
| **Total Area of Demand Generating Land Use** | **31.98** | **1,393,239** |
| **Non-Demand Generating** | | |
| Detention Basin[4] | 3.21 | 140,000 |
| Bioretention Basin[5] | 0.53 | 23,087 |
| Parking/Roads[5] | 31.27 | 1,362,194 |
| **Total Area of Non-Demand Generating Land Use** | **35.02** | **1,525,281** |
| **Total[2]** | | |
| | **67.00** | **2,918,520** |

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2/20/2025

Notes:

1. Project land use extracted from Preliminary Grading Plan for Pacific Industrial, prepared by Sikand on January 6, 2025.
2. Lot and floor areas provided by Sikand Engineering Staff on February 20, 2025.
3. The landscape area was provided by Sikand staff on August 20, 2024.
4. Basin area extracted from Preliminary Grading Plan for Pacific Industrial, prepared by Sikand on January 6, 2025.
5. Lot and floor areas estimated by ArcGIS Georef based on Preliminary Grading Plan for Pacific Industrial, prepared by Sikand on January 6, 2025.

**Table 2 Future Land Use Inventory in 5-year Increments**

Pacific Industrial Development - Water Supply Assessment

Los Angeles County Waterworks Districts

PRELIMINARY

| Land Use Type[1] | Units | 2025 | 2030 | 2035 | 2040 | 2045 | Buildout |
|---|---|---|---|---|---|---|---|
| **Industrial Generating** | | | | | | | |
| Industrial Warehouse | acre | | 22.73 | | | | 22.73 |
| Office | acre | | 0.23 | | | | 0.23 |
| Landscape | acre | | 9.03 | | | | 9.03 |
| **Non-Demand Generating** | | | | | | | |
| Detention Basin | acre | | 3.21 | | | | 3.21 |
| Bioretention Basin | acre | | 0.53 | | | | 0.53 |
| Parking/Roads | acre | | 31.27 | | | | 31.27 |

AKEL ENGINEERING GROUP, INC.

2/20/2024

Note:

1.Construction will begin on August 1, 2025, and is scheduled for completion on February 28, 2027, according to the Construction and Operational Analysis Data Request table provided by the Sikand Engineering on December 10, 2024.

## Table 3 Domestic Water Demands and Fire Flow Requirements

Pacific Industrial Development - Water Supply Assessment
Los Angeles County Waterworks Districts

PRELIMINARY

| Land Use Classification[1] | Area[1] (sqft) | Water Demand Factor[2] (gpd/ksf) | Average Day Demand (gpm) | Average Day Demand (afy) | Maximum Day Demand[3] (gpm) | Maximum Day Demand[3] (afy) | Peak Hour Demand[3] (gpm) | Peak Hour Demand[3] (afy) |
|---|---|---|---|---|---|---|---|---|
| **A. Domestic Water Demands** | | | | | | | | |
| **Indoor Demands** | | | | | | | | |
| Building - Office | 10,000 | 170 | 1.2 | 1.9 | 2.4 | 3.8 | 4.7 | 7.6 |
| Building - Industrail Warehouse | 990,000 | 30 | 20.6 | 33.2 | 41.3 | 66.4 | 82.5 | 132.8 |
| Subtotal | 1,000,000 | - | 21.8 | 35.1 | 43.6 | 70.2 | 87.2 | 140.4 |
| **Outdoor Demands** | | | | | | | | |
| Landscape[4] | 393,239 | MAWA Equation[5] | 13.8 | 22.2 | 27.6 | 44.5 | 55.3 | 89.0 |
| Subtotal | 393,239 | - | 13.8 | 22.2 | 27.6 | 44.5 | 55.3 | 89.0 |
| **Total Water Demand (Indoor & Outdoor)** | | | | | | | | |
| | | | 35.6 | 57.4 | 71.2 | 114.7 | 142.5 | 229.4 |
| **B. Fire Flow Requirements** | | | | | | | | |
| For 1,000,000 sqft Building | 8,000 gpm for 4 hours[6] | | (without sprinkler) | | | | | |
| | 4,000 gpm for 4 hours[7] | | (with sprinkler, 50% reduction) | | | | | |

AKEL ENGINEERING GROUP, INC.

2/20/2025

Notes :

1. Area provided by Sikand Engineering Staff on February 20, 2025.
2. Source: LADWP - Alameda Street EIR, Table 4.13.2-4.
3. Peaking factors extracted from LACWD District 40 Water System Master Plan (1999).
   - 3a. MDD = 2.0 x ADD
   - 3b. PHD = 2.0 x MDD
4. The landscape area was provided by Sikand staff on August 20, 2024.
5. Maximum Applied Water Allowance (MAWA) = ETo × 0.62 × [ ( ETAF × LA ) + ( ( 1 - ETAF ) × SLA ) ]
   - 5a. Reference Evapotranspiration Factor (ETo) = 66.2 inches per year
   - 5b. 0.62 = unit conversion factor.
   - 5c. Evapotranspiration Adjustment Factor (ETAF) = 0.45 for future non-residential landscape.
   - 5d. Landscape Area (LA) = 393,239 sq.ft
   - 5e. Special Landscape Area (SLA) = 0 sq.ft, assumed no areas using recycled water or food production areas.
   - 5f. MAWA = 7.26 mgy = 22.3 afy = 13.8 gpm
6. Source: 2022 California Fire Code, Title 24, Part 9 Table B105.1(2).
7. Source: Los Angeles County Fire Code, Title 32, Table B105.2.

## Table 4 Population - Current and Projected

Pacific Industrial Development - Water Supply Assessment

Los Angeles County Waterworks Districts

PRELIMINARY

| Population[1] | Current and Projected Years | | | | | |
|---|---|---|---|---|---|---|
| | 2020 | 2025 | 2030 | 2035 | 2040 | 2045 |
| Population Served | 205,000 | 216,000 | 227,000 | 238,000 | 250,000 | 263,000 |

AKEL ENGINEERING GROUP, INC.

2/9/2025

Note:

1. Source: 2020 UWMP for Los Angeles County Waterworks Districts No.40 Antelope Valley, Table 3-1.

## Table 5 Future Water Demand Projections

Pacific Industrial Development - Water Supply Assessment
Los Angeles County Waterworks Districts

PRELIMINARY

| Land Use | Projected Future Potable and Non-Potable Water Demand | | | | |
|---|---|---|---|---|---|
| | 2025 (afy) | 2030 (afy) | 2035 (afy) | 2040 (afy) | 2045 (afy) |
| **2020 LACWD UWMP[1]** | | | | | |
| Single Family Residential | 40,919 | 43,706 | 46,599 | 49,601 | 52,116 |
| Multi Family Residential | 2,212 | 2,364 | 2,518 | 2,683 | 2,819 |
| Commercial | 3,112 | 2,617 | 2,178 | 1,780 | 1,870 |
| Industrial | 3,315 | 3,546 | 3,777 | 4,022 | 4,226 |
| Institutional/Govermental | 1,035 | 870 | 726 | 595 | 625 |
| Losses | 3,808 | 3,998 | 4,202 | 4,419 | 4,643 |
| **Total Potable Water Demand of 2020 LACWD UWMP** | **54,400** | **57,100** | **60,000** | **63,100** | **66,300** |
| Recycled Water Demand (from DWR Table 6-4) | 764 | 902 | 1,102 | 1,302 | 1,302 |
| **Total Water Demand of 2020 LACWD UWMP** | **55,164** | **58,002** | **61,102** | **64,402** | **67,602** |
| **Total Water Demand (2020 LACWD UWMP + Pacific Industrial Development[2,3,4])** | | | | | |
| **Total** | **55,164** | **58,002** | **61,102** | **64,402** | **67,602** |

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2/10/2025

Notes:

1. Source: 2020 LACWD UWMP, Tables 4-2 and 4-3.
2. The proposed project site is located within the LACWD service area from 2020 UWMP.
3. Demand of the proposed project is included in the 2020 UWMP.
4. Construction will begin on August 1, 2025, and is scheduled for completion on February 28, 2027, according to the Construction and Operational Analysis Data Request table provided by the Sikand Engineering on December 10, 2024.

## Table 6 Future Water Supply Projections for Normal Year

Pacific Industrial Development - Water Supply Assessment

Los Angeles County Waterworks Districts

PRELIMINARY

| Water Supply Source | Projected Future Potable Water Supply | | | | |
|---|---|---|---|---|---|
| | 2025 (afy) | 2030 (afy) | 2035 (afy) | 2040 (afy) | 2045 (afy) |
| Purchased or imported water | 57,300 | 55,800 | 54,200 | 52,700 | 52,700 |
| District's Groundwater Production Rights | 6,789 | 6,789 | 6,789 | 6,789 | 6,789 |
| District's Unused Federal Reserve Right | 3,500 | 3,500 | 3,500 | 3,500 | 3,500 |
| District's Imported Water Return Flows | 10,400 | 10,400 | 10,400 | 10,400 | 10,400 |
| District/AVEK Lease | 2,600 | 2,600 | 2,600 | 2,600 | 2,600 |
| Purchased or imported water (New supply from AVEK) | 1,733 | 1,733 | 1,733 | 1,733 | 1,733 |
| Recycled water | 764 | 902 | 1,102 | 1,302 | 1,302 |
| **Total** | **83,086** | **81,724** | **80,324** | **79,024** | **79,024** |

AKEL ENGINEERING GROUP, INC.

2/10/2025

Note:

1. Source: 2020 LACWD UWMP, Table 7-2.

## Table 7 Monthly Average Climate Data Summary

Pacific Industrial Development - Water Supply Assessment
Los Angeles County Waterworks Districts

PRELIMINARY

| Monthly Average Climate Data Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Parameter | January | February | March | April | May | June | July | August | September | October | November | December |
| Standard Average ETo, inch | 2.3 | 3.07 | 4.85 | 6.59 | 8.21 | 9.23 | 9.63 | 8.87 | 6.50 | 4.59 | 2.94 | 2.02 |
| Average Rainfall, inch | 1.02 | 0.91 | 1.07 | 0.22 | 0.13 | 0.01 | 0.08 | 0.26 | 0.15 | 0.16 | 0.39 | 0.92 |
| Average Maximum Temperature, °F | 59.9 | 63.1 | 67.1 | 72.7 | 79.6 | 89.4 | 94.6 | 94.2 | 89.9 | 78.6 | 68.2 | 57.6 |
| Average Minimum Temperature, °F | 29.2 | 31.8 | 35.4 | 40.2 | 47.3 | 54.4 | 61.1 | 59.4 | 52.8 | 41.9 | 33.4 | 28.3 |

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2/19/2025

Note:

1. Source: 2020 LACWD UWMP, Table 3-1.
2. Period of record is 2006-2020 from CIMIS Station 197 Palmdale.

## Table 8 Normal Year Demand and Supply Comparison

Pacific Industrial Development - Water Supply Assessment

Los Angeles County Waterworks Districts

PRELIMINARY

| | 2025 (afy) | 2030 (afy) | 2035 (afy) | 2040 (afy) | 2045 (afy) |
|---|---|---|---|---|---|
| **Demand**[1,2] | | | | | |
| 2020 LACWD UWMP + Pacific Industrial Development | 55,164 | 58,002 | 61,102 | 64,402 | 67,602 |
| **Supply**[1] | | | | | |
| AVEK SWP | 57,300 | 55,800 | 54,200 | 52,700 | 52,700 |
| District's Groundwater Production Rights | 6,789 | 6,789 | 6,789 | 6,789 | 6,789 |
| District's Unused Federal Reserve Right | 3,500 | 3,500 | 3,500 | 3,500 | 3,500 |
| District's Imported Water Return Flows | 10,400 | 10,400 | 10,400 | 10,400 | 10,400 |
| District/AVEK Lease | 2,600 | 2,600 | 2,600 | 2,600 | 2,600 |
| New Supply from AVEK | 1,733 | 1,733 | 1,733 | 1,733 | 1,733 |
| Recycled water | 764 | 902 | 1,102 | 1,302 | 1,302 |
| **Supply Total** | 83,086 | 81,724 | 80,324 | 79,024 | 79,024 |
| **Demand vs. Supply** | | | | | |
| **Surplus (+) / Deficit (-)** | **27,922** | **23,722** | **19,222** | **14,622** | **11,422** |

AKEL ENGINEERING GROUP, INC.

2/19/2025

Notes:

1. Source: 2020 LACWD UWMP, Table 7-2.

2. The proposed project site is located within the LACWD's service area. Demand of the proposed project is included in the 2020 UWMP.

## Table 9 Single Dry Year Demand and Supply Comparison

Pacific Industrial Development - Water Supply Assessment
Los Angeles County Waterworks Districts

PRELIMINARY

| | 2025 (afy) | 2030 (afy) | 2035 (afy) | 2040 (afy) | 2045 (afy) |
|---|---|---|---|---|---|
| **Demand**[1,2] | | | | | |
| 2020 LACWD UWMP + Pacific Industrial Development | 55,164 | 58,002 | 61,102 | 64,402 | 67,602 |
| **Supply**[1] | | | | | |
| AVEK SWP | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 |
| AVEK Groundwater from Banked Supplies | 24,378 | 27,078 | 29,978 | 33,078 | 36,278 |
| District's Groundwater Production Rights | 6,789 | 6,789 | 6,789 | 6,789 | 6,789 |
| District's Unused Federal Reserve Right | 3,500 | 3,500 | 3,500 | 3,500 | 3,500 |
| District's Imported Water Return Flows | 10,400 | 10,400 | 10,400 | 10,400 | 10,400 |
| District/AVEK Lease | 2,600 | 2,600 | 2,600 | 2,600 | 2,600 |
| New Supply from AVEK | 1,733 | 1,733 | 1,733 | 1,733 | 1,733 |
| Recycled water | 764 | 902 | 1,102 | 1,302 | 1,302 |
| **Supply Total** | 55,164 | 58,002 | 61,102 | 64,402 | 67,602 |
| **Demand vs. Supply** | | | | | |
| **Surplus (+) / Deficit (-)** | **0** | **0** | **0** | **0** | **0** |

AKEL ENGINEERING GROUP, INC.

2/19/2025

Notes:

1. Source: 2020 LACWD UWMP, Table 7-3.

2. The proposed project site is located within the LACWD's service area. Demand of the proposed project is included in the 2020 UWMP.

## Table 10 Multiple Dry Years Demand and Supply Comparison

Pacific Industrial Development - Water Supply Assessment

Los Angeles County Waterworks Districts

PRELIMINARY

| | 2025 (afy) | 2030 (afy) | 2035 (afy) | 2040 (afy) | 2045 (afy) |
|---|---|---|---|---|---|
| **First Year** | | | | | |
| Demand totals | 55,164 | 58,002 | 61,102 | 64,402 | 67,702 |
| Supply totals | 55,164 | 58,002 | 61,102 | 64,402 | 67,702 |
| **Surplus (+) / Deficit (-)** | **0** | **0** | **0** | **0** | **0** |
| **Second Year** | | | | | |
| Demand totals | 55,164 | 58,002 | 61,102 | 64,402 | 67,702 |
| Supply totals | 59,776 | 59,914 | 61,102 | 64,402 | 67,702 |
| **Surplus (+) / Deficit (-)** | **4,612** | **1,912** | **0** | **0** | **0** |
| **Third Year** | | | | | |
| Demand totals | 55,164 | 58,002 | 61,102 | 64,402 | 67,702 |
| Supply totals | 55,164 | 58,002 | 61,102 | 64,402 | 67,702 |
| **Surplus (+) / Deficit (-)** | **0** | **0** | **0** | **0** | **0** |
| **Fourth Year** | | | | | |
| Demand totals | 55,164 | 58,002 | 61,102 | 64,402 | 67,702 |
| Supply totals | 55,164 | 58,002 | 61,102 | 64,402 | 67,702 |
| **Surplus (+) / Deficit (-)** | **0** | **0** | **0** | **0** | **0** |
| **Fifth Year** | | | | | |
| Demand totals | 55,164 | 58,002 | 61,102 | 64,402 | 67,702 |
| Supply totals | 55,164 | 58,002 | 61,102 | 64,402 | 67,702 |
| **Surplus (+) / Deficit (-)** | **0** | **0** | **0** | **0** | **0** |

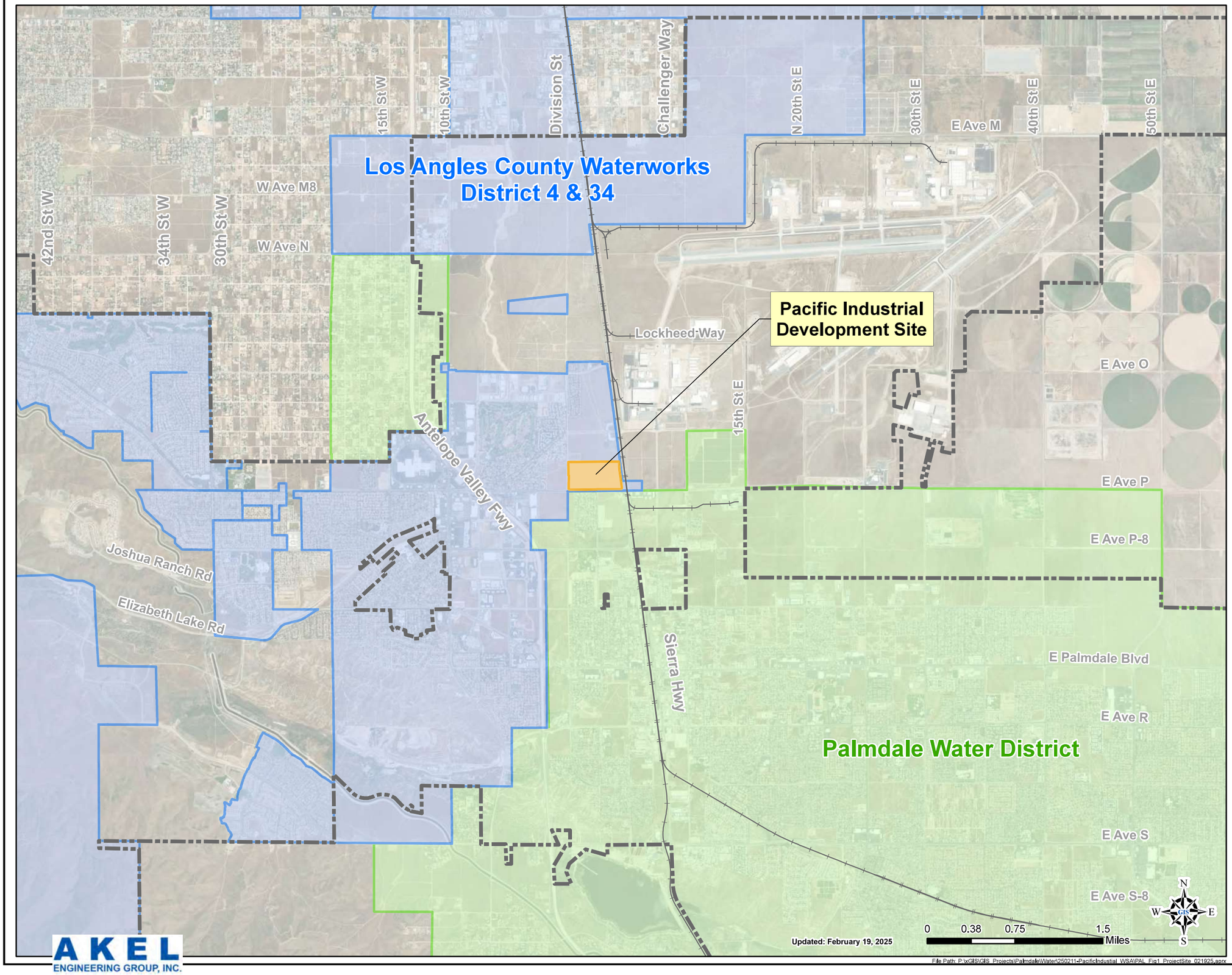
AKEL ENGINEERING GROUP, INC.

2/19/2025

Notes:

1. Source: 2020 LACWD UWMP, Table 7-4.
2. The proposed project site is located within the LACWD's service area. Demand of the proposed project is included in the 2020 UWMP.

# Figures




## Legend

**Development Site**

- Pacific Industrial Development

**Water District Boundaries**

- Los Angeles County Waterworks District 4 & 34
- Palmdale Water District

**Other**

- Railroad
- Palmdale City Limits

**PRELIMINARY**

**Figure 1**
**Project Site**
Pacific Industrial Development
Water Supply Assessment
Los Angeles County Waterworks Districts

AKEL ENGINEERING GROUP, INC.

LACWD
LOS ANGELES COUNTY WATERWORKS DISTRICTS


File Path: P:\xGIS\GIS_Projects\Palmdale\Water\250211-PacificIndustrial_WSA\PAL_Fig2_OnSiteLU_021925.aprx

## Legend

**Development Site**

Land Use Type

- Industrial Warehouse
- Office
- Detention Basin
- Bioretention Basin
- Parking/Roads
- Landscape

**Other**

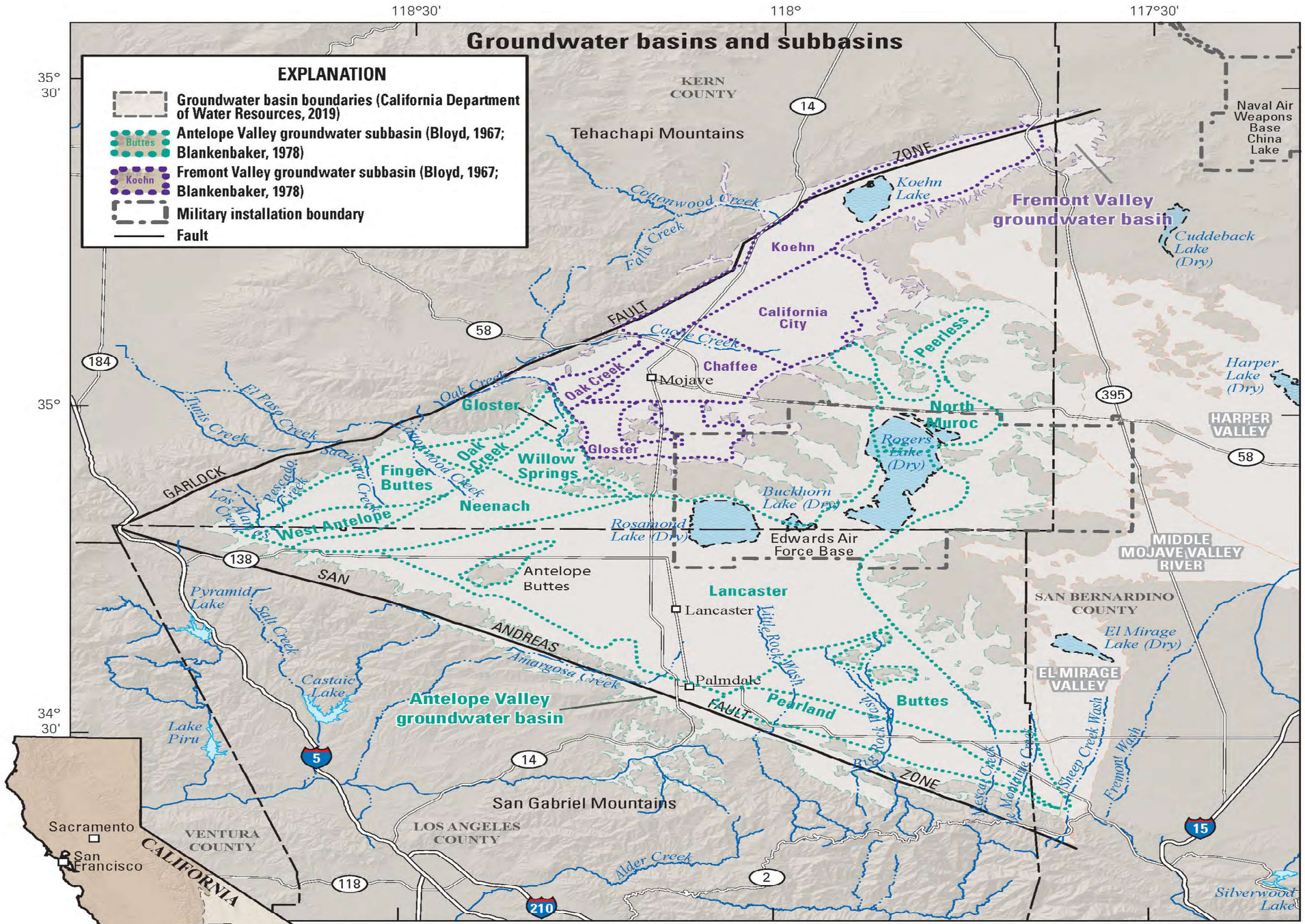
- Railroad

**PRELIMINARY**

**Figure 2**
**On-Site Land Use Plans**
Pacific Industrial Development
Water Supply Assessment
Los Angeles County Waterworks Districts

AKEL ENGINEERING GROUP, INC.

# Groundwater basins and subbasins




Base from U.S. Geological Survey and other Federal and State digital data, various scales Universal Transverse Mercator projection, zone 11; North American Datum of 1983

0 5 10 MILES
0 5 10 KILOMETERS

**Source:** California Department of Water Resources. California's Groundwater Update 2020.

**Updated: February 20, 2025**

File Path: P:\vGIS\GIS_Projects\Los Angeles\Sikand Engineering\250220-PacificIndustrial\MSA\LACWD_Fig3_GroundwaterBasins_022025.aprx

AKEL ENGINEERING GROUP, INC.

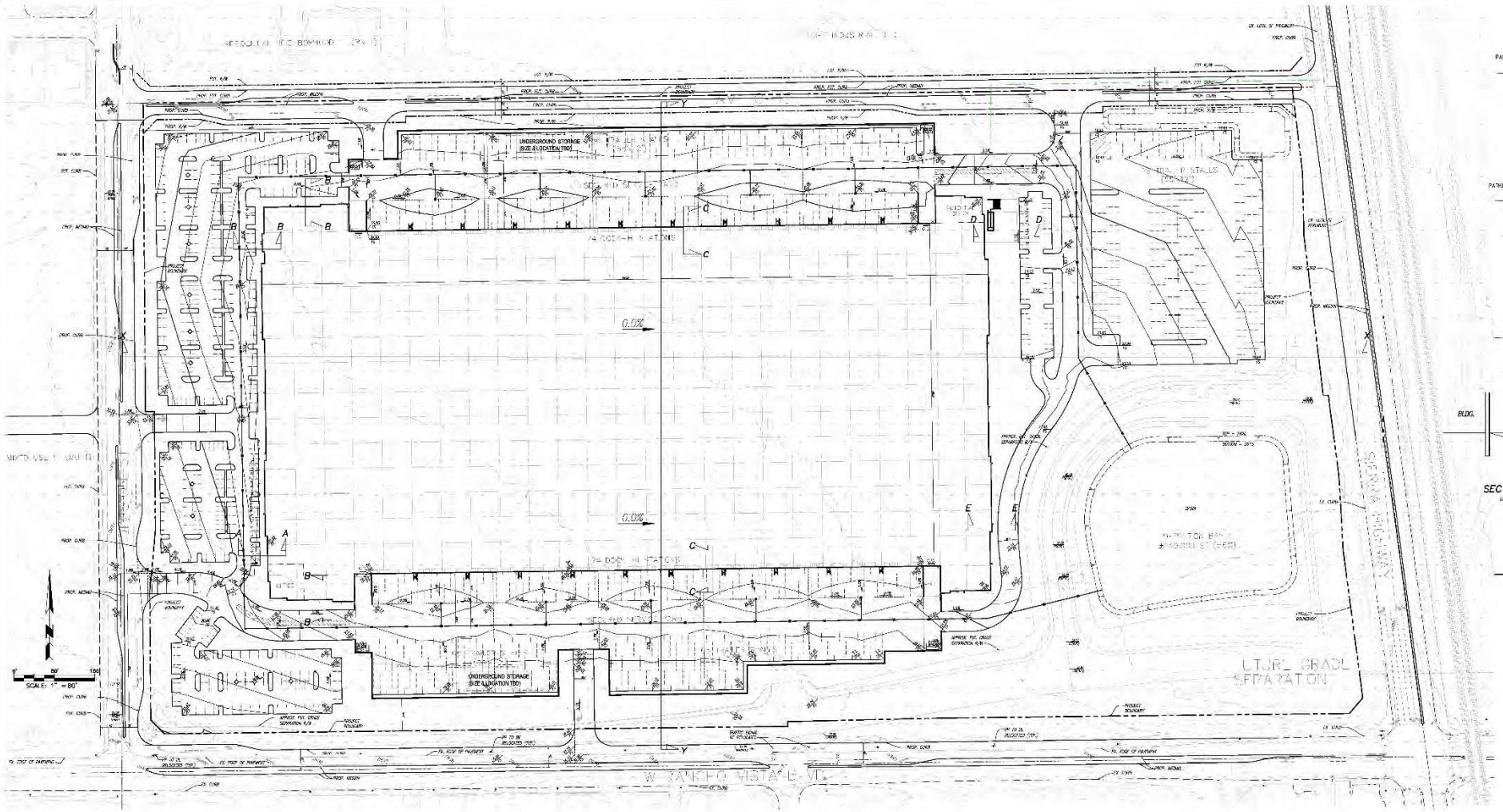
**PRELIMINARY**

**Figure 3**
**Groundwater Basins and Subbasins**
Pacific Industrial Development
Water Supply Assessment
Los Angeles County Waterworks Districts

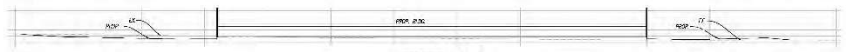
LACWD
LOS ANGELES COUNTY WATERWORKS DISTRICTS

# Appendix A

## Preliminary Grading Plan
## for Pacific Industrial Development




SECTION X–X
NOT TO SCALE



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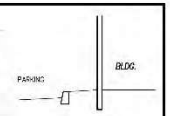


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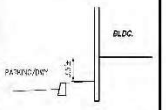


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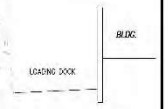


SECTION C–C
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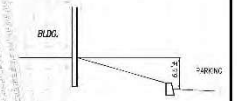


SECTION D–D
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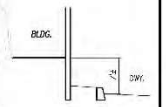


SECTION E–E
NOT TO SCALE

PREPARED FOR:

PACIFIC INDUSTRIAL

PACIFIC INDUSTRIAL
6272 E. PACIFIC COAST HIGHWAY, STE E
LONG BEACH, CA 90803

| NO. | REVISIONS | BY | DATE |
|---|---|---|---|

REGISTERED PROFESSIONAL ENGINEER — CIVIL — No. 49041 — Exp. 09-30-2026 — STATE OF CALIFORNIA

PREPARED BY:

SIKAND
Engineering | Planning | Surveying

15230 Burbank Blvd,
Van Nuys, CA 91411
Tel: (818) 787-8550
Fax: (818) 901-7451
info@sikand.com

# CITY OF PALMDALE

## PRELIMINARY GRADING PLAN
FOR
## PACIFIC INDUSTRIAL
W. RANCHO VISTA BLVD. & SIERRA HWY.
(TENTATIVE PARCEL MAP NO. 84510)

DATE: 01-06-2025
DRAWING NO.: 5124.003
SHEET NUMBER: 1 OF 1 SHEETS
SCALE: AS SHOWN