

Attachment O – Housing Water Supply Study and Water Service Availability Letter

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KENSHO HOUSING WATER SUPPLY STUDY

LN 2022-034

September 19, 2022

Prepared By: Robert Scholl, P.E.

Approvals: PSW

GENERAL POLICY STATEMENT

This water supply study is based on current criteria. It is not a representation, expressed or implied, that the Vista Irrigation District (District) will furnish water at a future date. Applications for service are governed by separate rules and regulations, and are the subject of separate District proceedings, apart from this water supply study.

The location of existing improvements and the recommendations of this hydraulic analysis are presented in schematic form only. It is the responsibility of the Developer/Engineer to design the final improvements, including independent investigation of existing conditions.

This Study is based on the current adopted land use utilized in the City of Vista's General Plan 2030 (General Plan). The study addresses the incremental facility impacts of this Project only and does not include or consider any additional projects within District's service area that have deviated from General Plan land uses. Any land use changes within the vicinity of the Study area may necessitate a revision to the Study. The District shall determine if and when revisions to the Study are necessary. Costs for revising this Study shall be borne by the Developer.

INTRODUCTION AND PURPOSE

The proposed development (Project) consists of 183 multi-family dwelling units on 4.59 acres (APNs 179-024-09, 179-093-05, 18, 23, 30, 32 & 34). The property is located on the southeastern side of Guajome Street between Lado de Loma Drive and the North San Diego County Transit District railroad in the City of Vista. The Project is located within the District's Sphere of Influence and water service boundary.

The purpose of this study is to serve as a nexus document for setting development conditions. It evaluates the configuration of the proposed water system, District service rights, and the ability of the existing water distribution system to serve the Project during peak hour and maximum day plus fire flow demand conditions. Evaluation includes:

- Water distribution system; including the need to upsize or install new pipelines and appurtenances.
- Access and utility easements; including evaluation of the adequacy of existing easements, and the need for new easements.

SOURCE OF WATER, PROPOSED FACILITIES, AND EASEMENTS

The proposed Project lies completely within the District's 637 Pressure Zone, which is supplied from the 0.80 million gallon (MG) "C" Reservoir and multiple pressure regulating stations. Figures 1 through 3 show the development's location, existing water infrastructure within the vicinity of the development, and proposed facilities.

The site is mostly vacant with the exception of a single-family residence on APN 179-093-05, which is served by a 5/8-inch water meter (account #6540-0410). Based on the grading plans, the developer is proposing to bring access and utility service to the Project from Guajome Street just south of the North San Diego County Transit District railroad. New water services (master meters) and an 8-inch fire service would connect to the existing 8-inch pipeline in Guajome Street to provide domestic water, irrigation and private fire suppression. Three private fire hydrants would connect to the private fire suppression pipeline within the Project as shown in Figure 3.

The proposed Project does not lie within a District easement. Since an extension of the public water system would not occur, the District does not need any access and utility easements for the Project.

WATER FLOW PROJECTIONS AND DESIGN CRITERIA

The Project's existing zoning designation by the City of Vista's General Plan 2030 is Medium Density Residential, which allows up to 10 dwelling units per gross acre. The District's 2018 Potable Water Master Plan (Master Plan) based its water demand planning on this approved land use. The Project developer proposes to build 183 multi-family dwelling units on 4.59 acres, which equates to approximately 40 dwelling units per acre. In order to accommodate this dwelling unit density, the developer is proposing a Specific Plan Amendment to modify the property's land use to Multi-Family Residential.

Based on the unit demand factor of 3,650 gallons per day (gpd)/acre developed in the Master Plan for multi-family residential land use and site size of 4.59 acres, the projected average annual water demand for the Project is 16,754 gpd.

The Master Plan outlines the District's water system design criteria, which are as follows:

Peaking Factors

- Maximum day demands: 200% of average annual demands
- Peak hour demands: 300% of average annual demands

System Pressure

- Peak hour demand conditions: 40 pounds per square inch (psi) minimum
- Maximum day demand plus fire flow: 20 psi minimum
- Static: 150 psi maximum

Fire Flow

- The City of Vista Fire Marshal has set the required fire demand at 1,500 gallons per minute (gpm) for the Project.

Pipeline Fluid Velocity

- Peak hour demand conditions: 8 feet per second (fps) maximum
- Maximum day demand plus fire flow: 16 fps maximum

Pipeline Diameter

- Short dead-end, no hydrants: 4-inch diameter minimum
- Feeding hydrants: 8-inch diameter minimum

HYDRAULIC ANALYSES

A hydraulic analysis was performed on the District’s distribution system with the proposed Project’s water demands and private facilities incorporated. The Project proposes an 8-inch private fire suppression system within the new development, connecting to the District’s 8-inch pipeline in Guajome Street as shown on Figure 3. Three private fire hydrants are proposed along the pipeline to provide fire protection.

The analysis was carried out using the District’s InfoWater® v12.5 water distribution computer model. The modeled pressure results at the Project’s connection to the District’s 8-inch pipeline in Guajome Street and at all three of the proposed fire hydrants along the development’s private fire pipeline extension are summarized in the table below.

Hydraulic Modeling Results

Node Location	Elevation (ft)	Static Pressure (psi)	Peak Hour Pressure (psi)	Max Day + FF Pressure (psi)*
Domestic Connection to Guajome Street	350	124	98	N/A
Proposed Private Fire Hydrant #1	360	120	N/A	11**
Proposed Private Fire Hydrant #2	371	115	N/A	2**
Proposed Private Fire Hydrant #3	379	112	N/A	0**

*Simulated fire flows are within the distribution system water mains, analyses do not represent actual flow available through a fire hydrant assembly or fire sprinkler system.

**Maximum day plus fire flow pressure results for the private infrastructure within the limits of the development assumes a 15-psi headloss through the reduced pressure detector assembly (RPDA) and an 8-inch private fire service pipeline.

As shown in the right-most column of the table above, the required fire demand of 1,500 gpm cannot be met at any of the proposed private fire hydrants; the Project fails the District's 20-psi maximum day plus fire flow demand pressure criteria.

Results from additional analyses show that the maximum fire flow available at the proposed private fire hydrants within the development while still meeting the above design criteria are:

- 1,410 gpm for private fire hydrant #1
- 1,320 gpm for private fire hydrant #2
- 1,250 gpm for private fire hydrant #3

In order to provide the full-required fire flow demand of 1,500 gpm, the following improvements are needed as shown on Figure 3:

- The installation of a 10-inch private fire suppression pipeline within the development instead of an 8-inch pipeline (10-inch diameter minimum is necessary to reduce head loss).
- The replacement of approximately 470 feet of existing 8-inch asbestos cement pipeline within Guajome Street with new 10-inch PVC pipeline from the development's entrance to Lado de Loma Drive.
- The replacement of approximately 290 feet of existing 6-inch steel pipeline within Lado de Loma Drive with new 10-inch PVC pipeline from Rancho Vista Road to Guajome Street.
- The replacement of approximately 720 feet of existing 6-inch steel pipeline within Rancho Vista Road with new 10-inch PVC pipeline from Lado de Loma Drive to Pina Lane.

With the above-mentioned improvements in place, modeled pressure results show that the fire flow design criteria are met at all three proposed fire hydrants within the development. Note that an extension of the District's 565 Pressure Zone pipeline from the intersection of Guajome Street and Mercantile Street southwest to the development is not considered feasible since this is a lower-pressure pipeline, and because of the North County Transit District's annual permitting and fee requirement for new railway crossings.

The District makes no guarantee that the available fire flow and pressures are presently available, nor guarantee that the flow and pressure will be available in the future due to continued growth that places additional demands for water on the water distribution system. Availability of flow and pressure is also subject to shutdowns and variations required by the operation of the District's distribution system.

CONCLUSION AND CONDITIONS

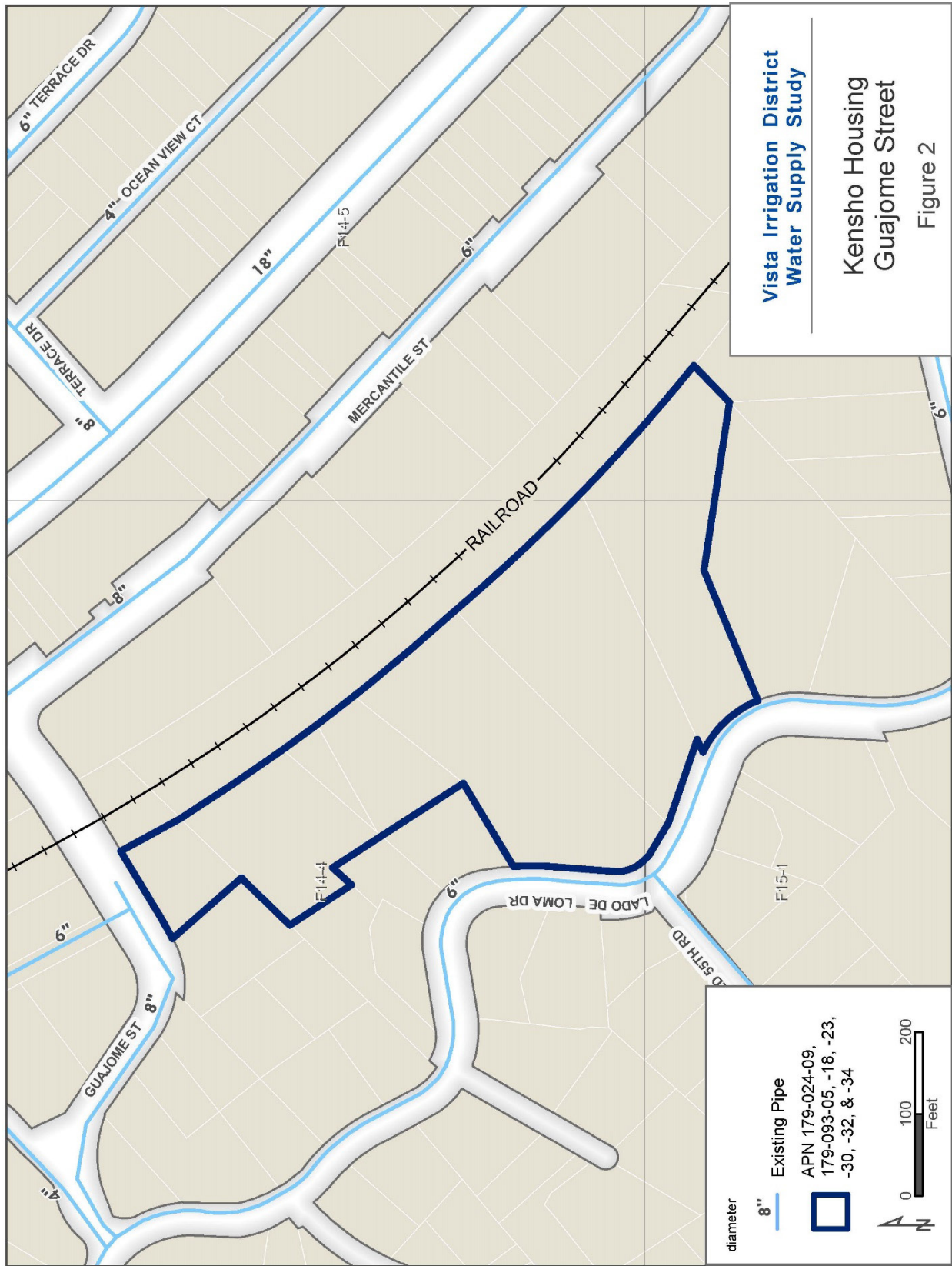
The Project is proposing a Specific Plan Amendment to modify the property's land use to Multi-Family Residential. Based on the unit demand factor of 3,650 gpd/acre for multi-family residential development and site size of 4.59 acres, the projected average annual water demand for the Project is 16,754 gpd.

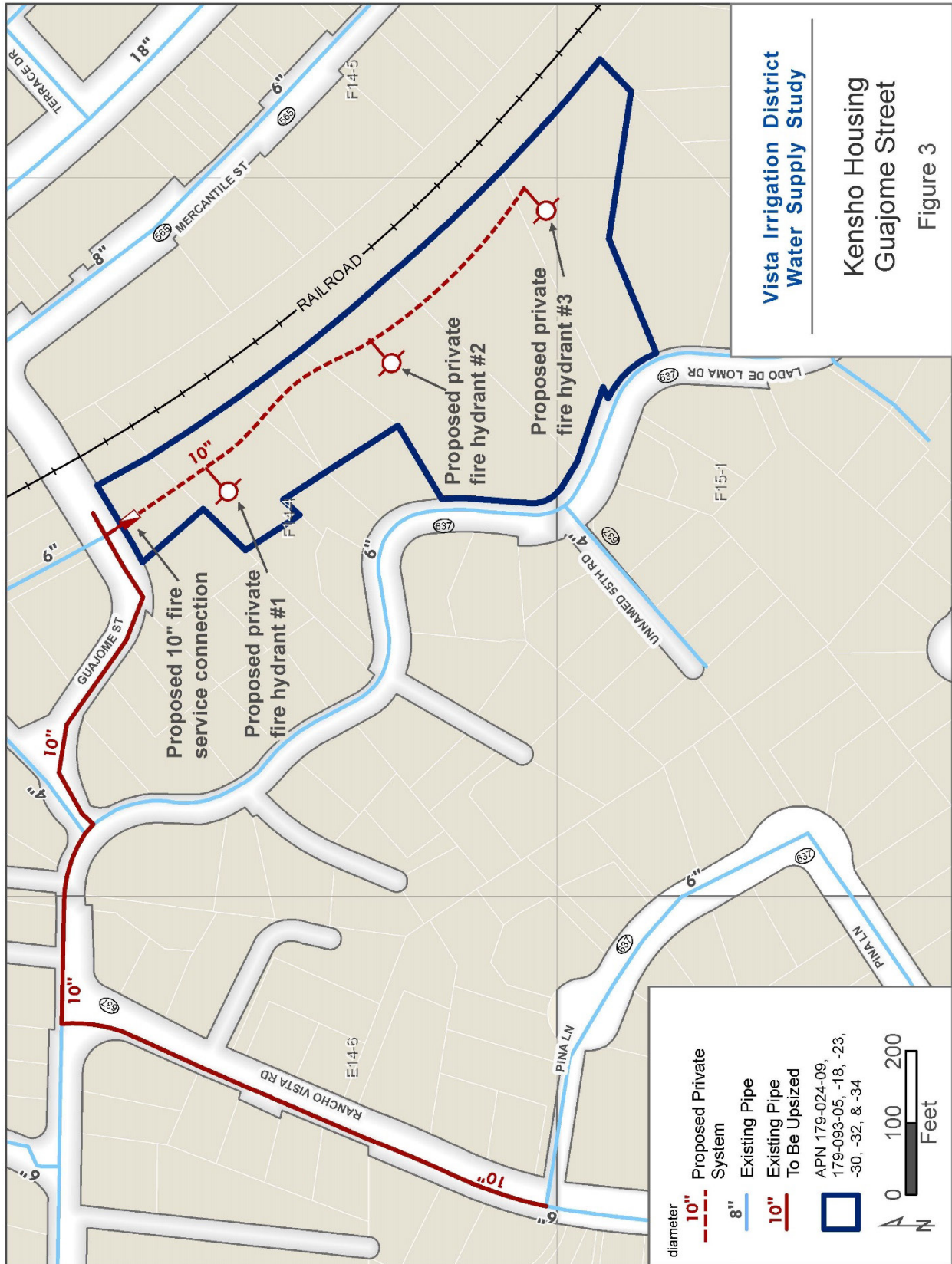
The Study did not identify any existing system deficiencies within the Project limits or in the vicinity of the development during the peak hour demand scenario. However, existing system

deficiencies were identified during the maximum day plus fire flow demand scenario. The following improvements are needed to meet District system design criteria while meeting the required fire demand of 1,500 gpm:

- The installation of an RPDA and a 10-inch private fire suppression pipeline within the development instead of an 8-inch pipeline (10-inch diameter minimum is necessary to reduce head loss).
- The replacement of approximately 470 feet of existing 8-inch asbestos cement pipeline within Guajome Street with new 10-inch PVC pipeline from the development's entrance to Lado de Loma Drive.
- The replacement of approximately 290 feet of existing 6-inch steel pipeline within Lado de Loma Drive with new 10-inch PVC pipeline from Rancho Vista Road to Guajome Street.
- The replacement of approximately 720 feet of existing 6-inch steel pipeline within Rancho Vista Road with new 10-inch PVC pipeline from Lado de Loma Drive to Pina Lane.
- Purchase of water capacity and installation of water meters sufficient to cover projected demands.









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December 12, 2022

City of Vista
Planning Division
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Vista CA 92084-6240

Owner Tideline Guajome LLC Location 212 Guajome Street LN 2022-034
Impact Statement TSM No. TPM No.
PC No P22-0282 SDP Parcel No. 179-024-09, 179-093-05, 18, 23, 30, 32 & 34

NOTICE: This is a preliminary review of the project. Additional requirements may be imposed should conditions warrant. This letter does not constitute a commitment for water service. Commitments for water service are made by separate documents, such as accepted meter applications or executed construction contracts, or by separate letters of commitment. Water service will only be provided under the Rules and Regulations of the District, after all required fees have been paid and all District conditions have been satisfied. This letter is for informational purposes and intended for planning purposes only.

- X Totally within the Vista Irrigation District.
X Payment to the Vista Irrigation District for this Water Availability Letter has not been made and will be due when payment for all other processing fees are made.
X All Grading and Improvement plans are required to be submitted to District for review and approval, including all City/County conditioned offsite improvements that are required in proximity to existing waterlines. All offsite improvements must be disclosed to the District and may require waterline replacement or relocation due to resulting encroachments.
X One or more of the following requirements apply in order for the District to supply water to this project:
- A public waterline extension
- Installation of a reduced pressure detector assembly (RPDA) to serve your private system
- Installation of water facilities off existing District Waterlines(s)
- All lots being created must be adjacent to a public water main and served through individual water meter(s) and/or RPDA(s).
X A Specific Easement (ref. Vista Irrigation District Standard Drawing 5-1) is necessary for any public water facilities within private property. In addition, the District may require easements through the property for future extensions. If any off-site easements are needed, the owner of the property is responsible for obtaining them and for the expenses that may be incurred.
District Blanket Easement No. encumbers the property. Specific Easement No. encumbers the property. (Owners shall not erect, construct or permit to be erected or constructed any buildings, walls, fences, streets or any other improvements, including but not limited to trees, shrubs or other landscape improvements within the limits of said right of way without the written consent of Vista Irrigation District.)
X Existing District waterlines, 8-inch AC within Guajome Street and 6-inch AC within Lado De Loma Drive, are adjacent to the land being developed (see-attached plat) and should be shown on the final map. These waterlines may need to be replaced or relocated due to the grading operations, proposed improvements or project configuration, including but not limited to any grade changes, curb, gutter, retaining wall, trees, vehicle parking areas and/or sidewalk improvements impacting existing District facilities.

X Pursuant to Water Code Section 537 et seq. (or subsequent California Building Standards Code updates conforming to Section 537), all newly constructed multiunit residential and newly constructed mixed-use residential and commercial structures, for which an application for water service is submitted after January 1, 2018, are required to measure the quantity of water supplied to each individual residential dwelling unit as a condition of new water service (District Rules and Regulations Section 3.12.3.J Meter Rules). The owner of the structure shall be responsible for installing and reading sub-meters and complying with all applicable laws and regulations.

_____ An off-site meter is being created by this minor/major subdivision and is subject to further rules and regulations.

X Service is being provided via existing water meters (5/8" meter Acct 6540-0170 serving APN 179-024-09, 1" meter Acct 6540-0400 serving APN 179-093-18 and 5/8" meter Acct 6540-0410 serving APN 179-093-05). Additional meters or water facilities will be needed. There are existing offsite service laterals located off Lado De Loma Drive (the laterals must be severed at the main at owner's expense).

X This project is subject to payment of the District's Capacity Fee as well as the San Diego County Water Authority's Capacity Charge at the time application is made for water service.

X In order to provide fire protection reliability and minimize water quality concerns, this project may require more than one connection to the District's system in order to create a loop.

X The Water Supply Study completed September 19, 2022 determined available domestic service pressures, fire flow availability, on-site and/or off-site system improvements required to serve the project.

X When the required fire flow amount and fire hydrant locations are known, the developer and his engineer must meet with District staff to discuss water service to the site.

X The District's water system design criteria recommends that a **minimum residual** pressure of 40 psi during peak hour conditions be provided **at each water meter** required for the project. Additionally, required fire flows for the project must maintain a minimum of 20 psi during maximum day conditions. The District has an 8-inch size waterline in Guajome Street and a 6-inch size waterline in Lado De Loma Drive with a maximum hydraulic gradient of 637 feet. The owner shall contact the Fire Agency having jurisdiction over this project to obtain fire flow requirements and fire control facilities needed to serve the project and inform the District to determine if a fire flow analysis is necessary.

Meters serving commercial, industrial, agricultural, governmental, or multi-family residential zoned lands; any property with a well, private pumping system, auxiliary water supply, where substances harmful to health have the potential to enter the water supply, or where cross-connections are likely to occur; and dedicated fire protection and irrigation uses are required to have a District approved backflow prevention device. The project may trigger the requirement under District Rules and Regulations for existing water service facilities of private customers in proximity to the project to install a District approved backflow prevention device as a result of this development. Notice to all affected District customers of this potential requirement must be provided by the project applicant in connection with public noticing requirements for the project and prior to project approval, and the applicant may obtain addresses and contact information from the District to accomplish such notice. If fire hydrants are required which are not adjacent to any District waterlines or which are adjacent to undersized waterlines, a waterline extension may be required which may also require specific easements.

If you have any questions, please contact me at (760) 597-3123.

Sincerely,



Jeanette Bradshaw
Engineering Specialist II