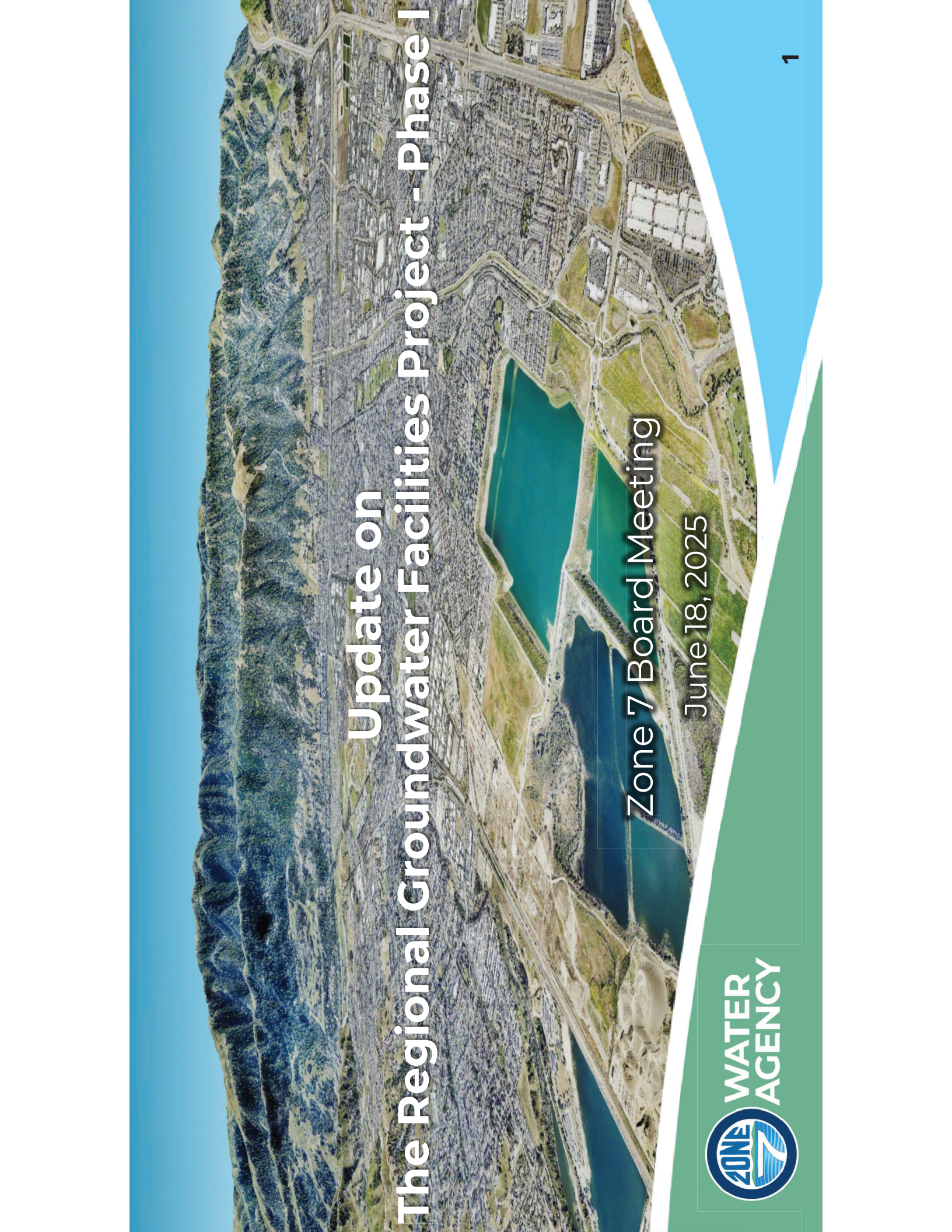


An aerial photograph showing a city nestled at the base of a large, rugged mountain range. The city features a mix of residential and commercial buildings, roads, and green spaces. In the foreground, there are several large, turquoise-colored reservoirs or lakes. The sky is clear and blue.

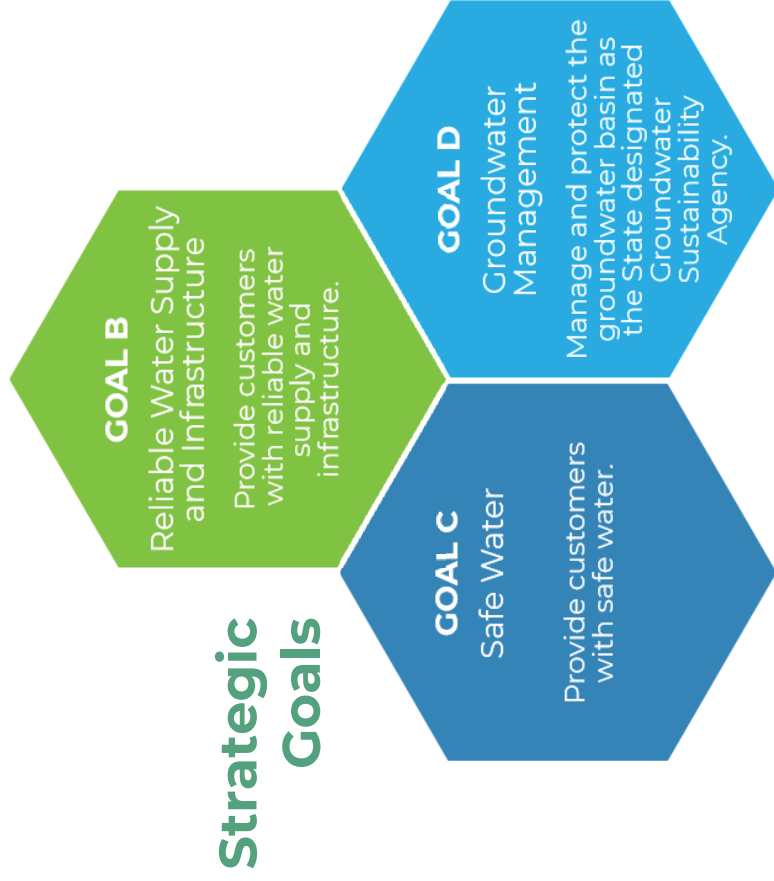
Update on The Regional Groundwater Facilities Project - Phase I

Zone 7 Board Meeting

June 18, 2025



Supporting Strategic Goals and Initiatives



Initiatives

5

Develop a diversified water supply plan and implement supported projects and programs

9

Implement the PFAs Management Strategy

11

Manage the Groundwater Sustainability Agency and implement the Groundwater Sustainability Plan

Topics of Discussion

- Project Objectives
- Scope of Work
- Project Workflow
- Exploratory Drilling
- Yield Testing and Water Quality Analyses
- Upcoming Tasks
- Q&A



Project Objectives

Zone 7

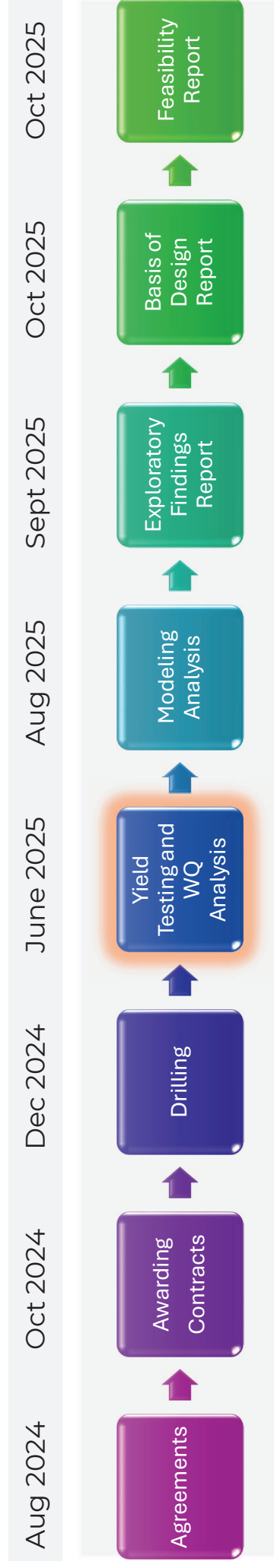
The City of Pleasanton

• To implement PFAS management strategy	• To recover 3,500 acre-feet of Groundwater Production Quota
• To enhance water supply reliability	• To improve water supply reliability
• To become more resilient to multiyear droughts	• To reduce wholesale water purchase costs
• To gain operational flexibility and redundancy	• To reduce operational complexity
• To achieve cost savings through economies of scale	• To achieve cost savings through economies of scale
• To minimize impact on the local community and environment	• To meet future drinking water regulations

Scope of Work

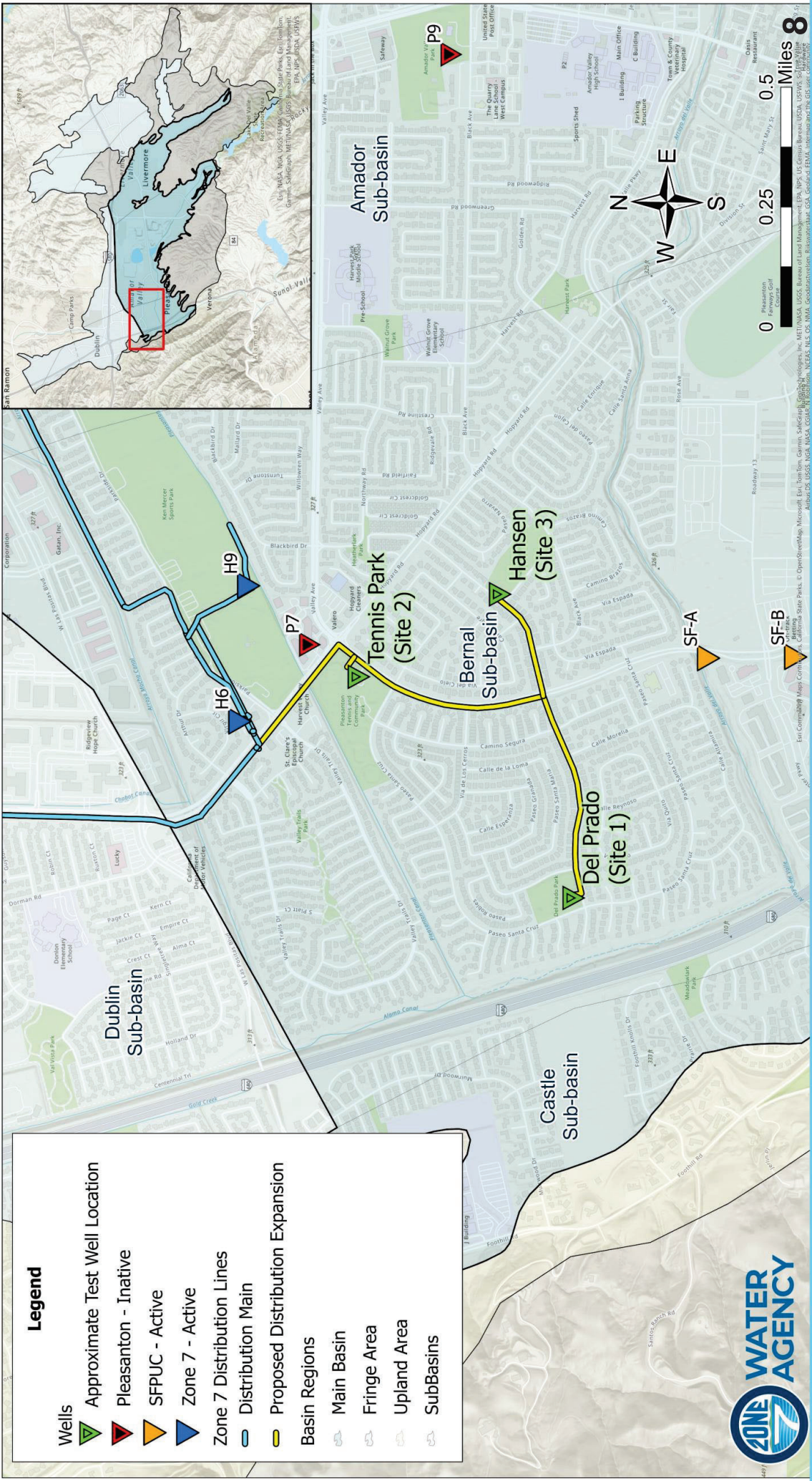
- Drill exploratory bore holes and construct three test wells at:
 1. Del Prado Park
 2. Pleasanton Tennis & Community Park
 3. Hansen Park
- Conduct Yield and Water Quality Testing at all sites
- Run Model Scenarios to analyze sustainability and PFAS mobilization
- Basis of Design
- Feasibility Study

Project Workflow



Exploratory Drilling





Legend

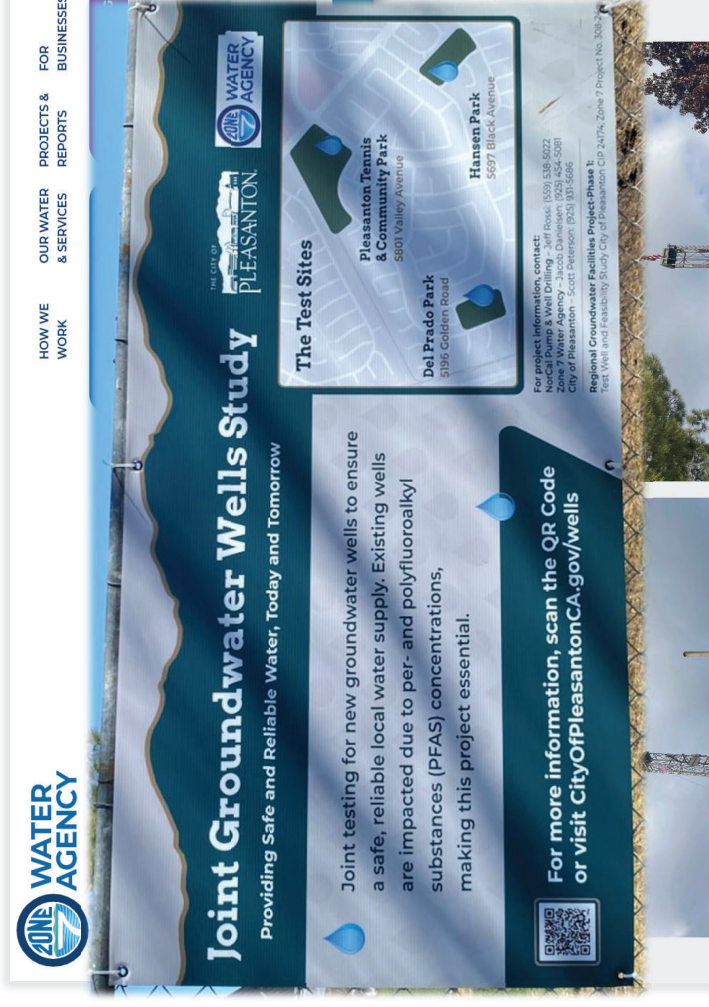
- Wells**
 - Approximate Test Well Location
 - Pleasanton - Inactive
 - SFPUC - Active
 - Zone 7 - Active
- Zone 7 Distribution Lines**
 - Distribution Main
 - Proposed Distribution Expansion
- Basin Regions**
 - Main Basin
 - Fringe Area
 - Upland Area
 - SubBasins



0 0.25 0.5 Miles **8**

Community Outreach

- City of Pleasanton leading the outreach effort – Zone 7 supporting
- Public meetings
- Stakeholder Workshops
 - Public Outreach Event at Tennis Park
 - City Water Open House (3/1/25)
- Website Collaboration
- Information Poster at Drilling Site

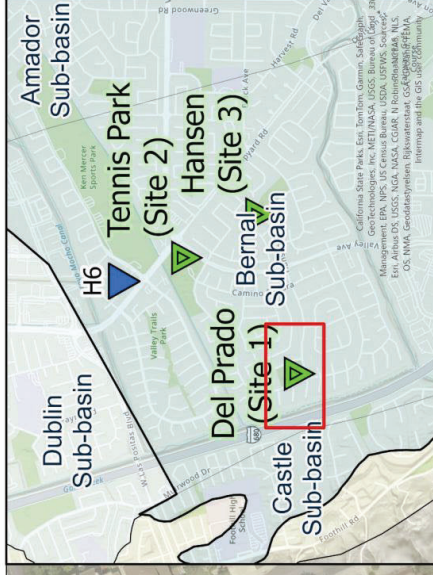


Legend

 Approximate Test Well Location

 Approximate Construction Footprint

Del Prado Park (Site 1)



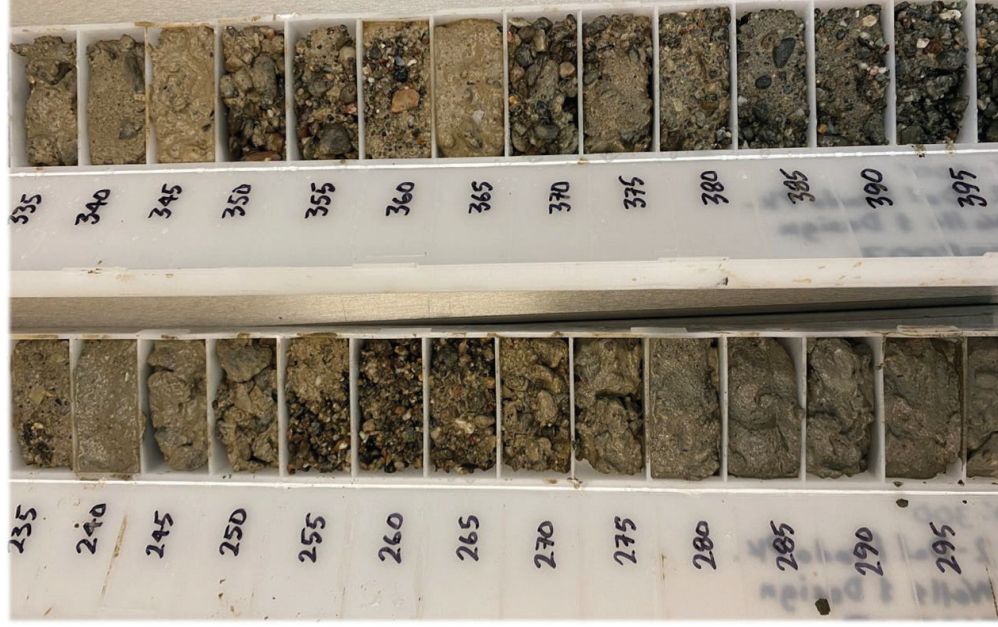
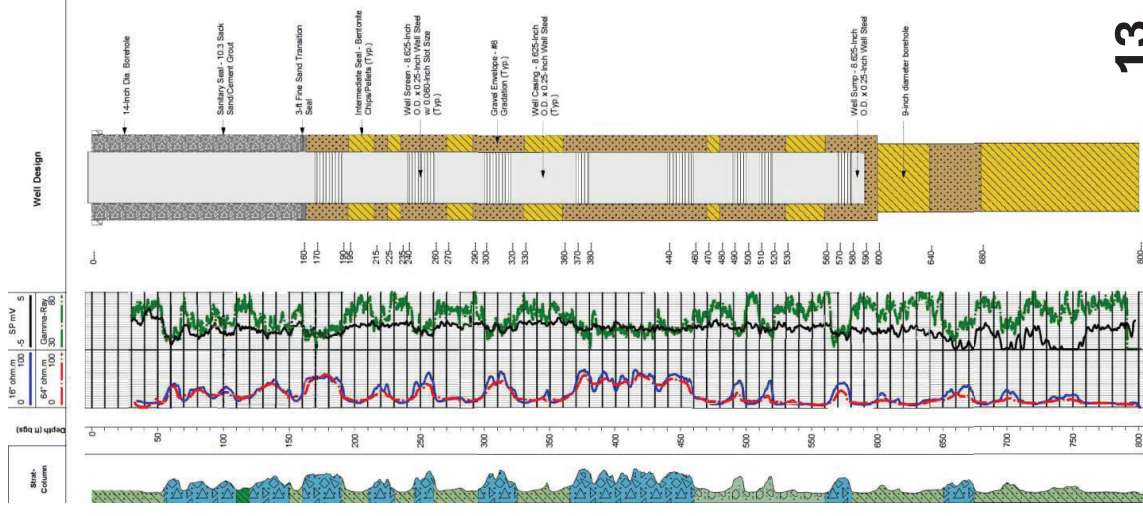
Mobilization



Exploratory Drilling



Well Design



Borehole Preparation



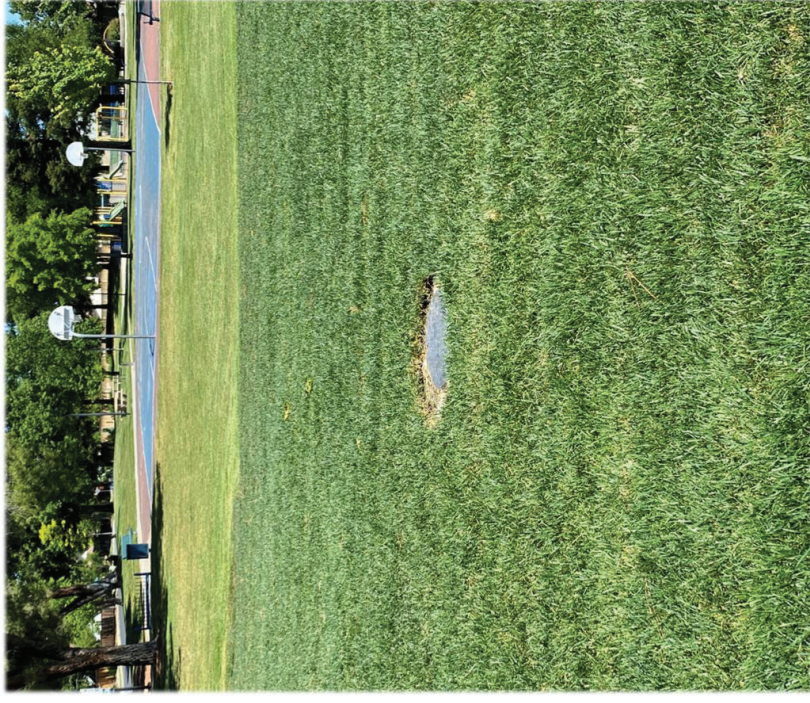
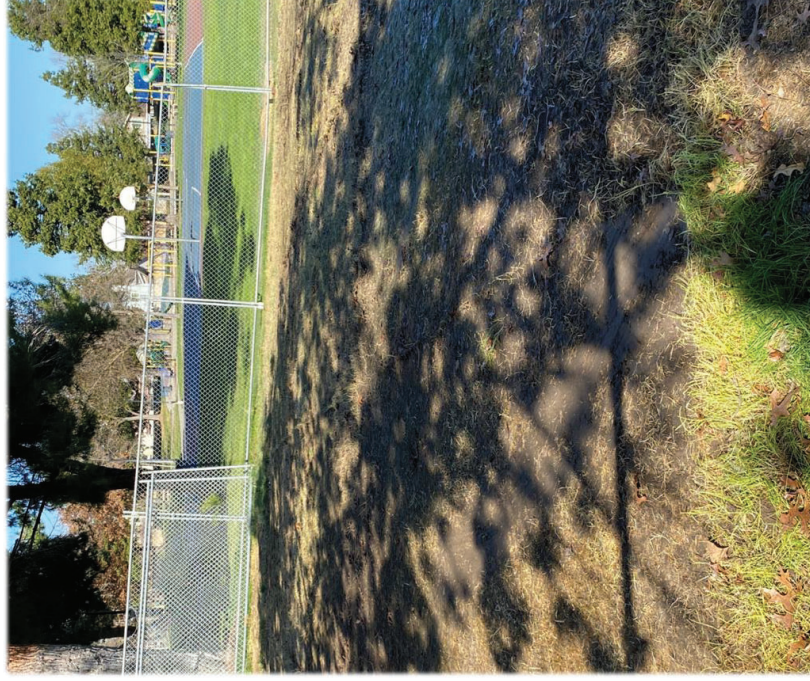
Well Construction



Well Development



Well Completion & Site Restoration



Yield Testing and Water Quality Analyses

June 18, 2025





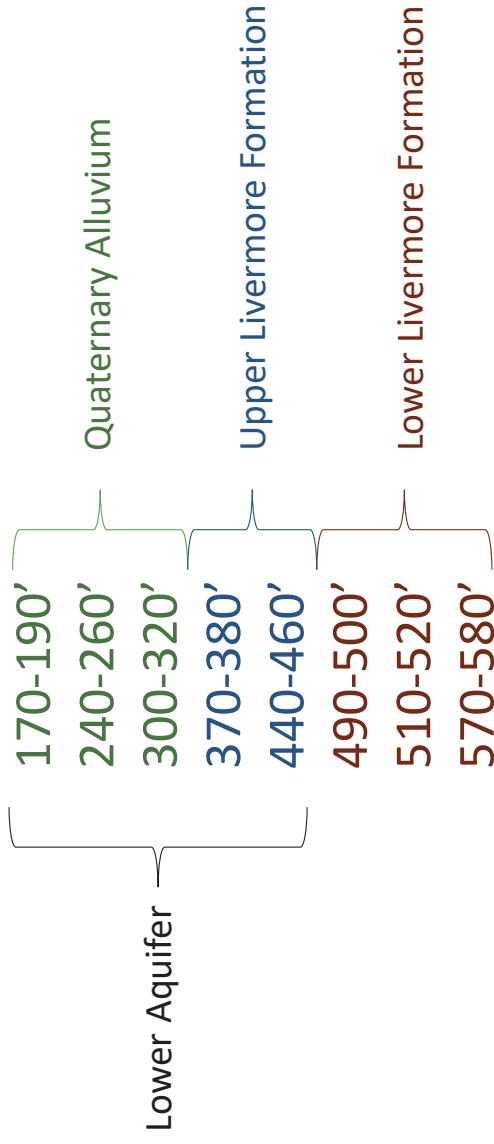
Site Investigation Update

- ▶ Purpose of Site Investigations
 - ▶ Characterize Site Specific Lithology
 - ▶ Characterize Zonal and Composite Water Quality
 - ▶ Estimate Yield of Future Production Wells
 - ▶ Collect Information Necessary to Design Production Wells
- ▶ Site Investigation Methods
 - ▶ Test Hole Drilling and Geophysical Surveys
 - ▶ Collection and Analysis of Zone-Specific and Composite Water Quality Samples
 - ▶ Pump Testing
 - ▶ Dynamic and Static Spinner Surveys

June 2025

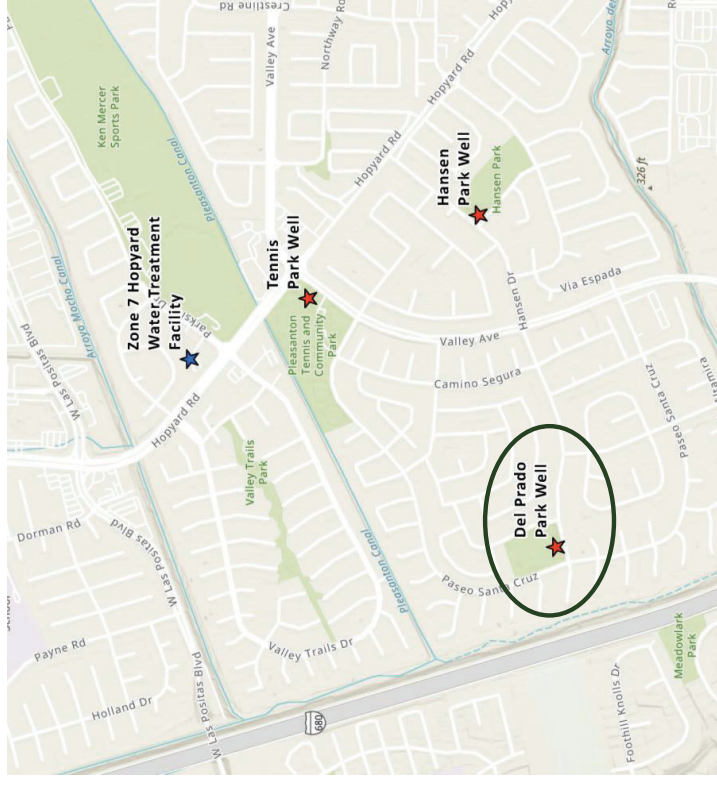
Del Prado Test Well

- Test Hole Drilling Depth: 800-feet
- Potential production zones selected based on review of drill cutting and geophysical surveys
- 8-inch Diameter Casing
- Screened Intervals:



- Seal Depth: 156-feet

June 2025



Del Prado Test Well Zonal Water Quality

- Water samples were collected from screened intervals to characterize zonal water quality.
- Identification of zones with poor water quality will aid in production well design (i.e., isolation of poor-quality zones)
- Water produced from the well meets all Title 22 Drinking Water Quality Standards with exception of Mn at 0.06 mg/l.

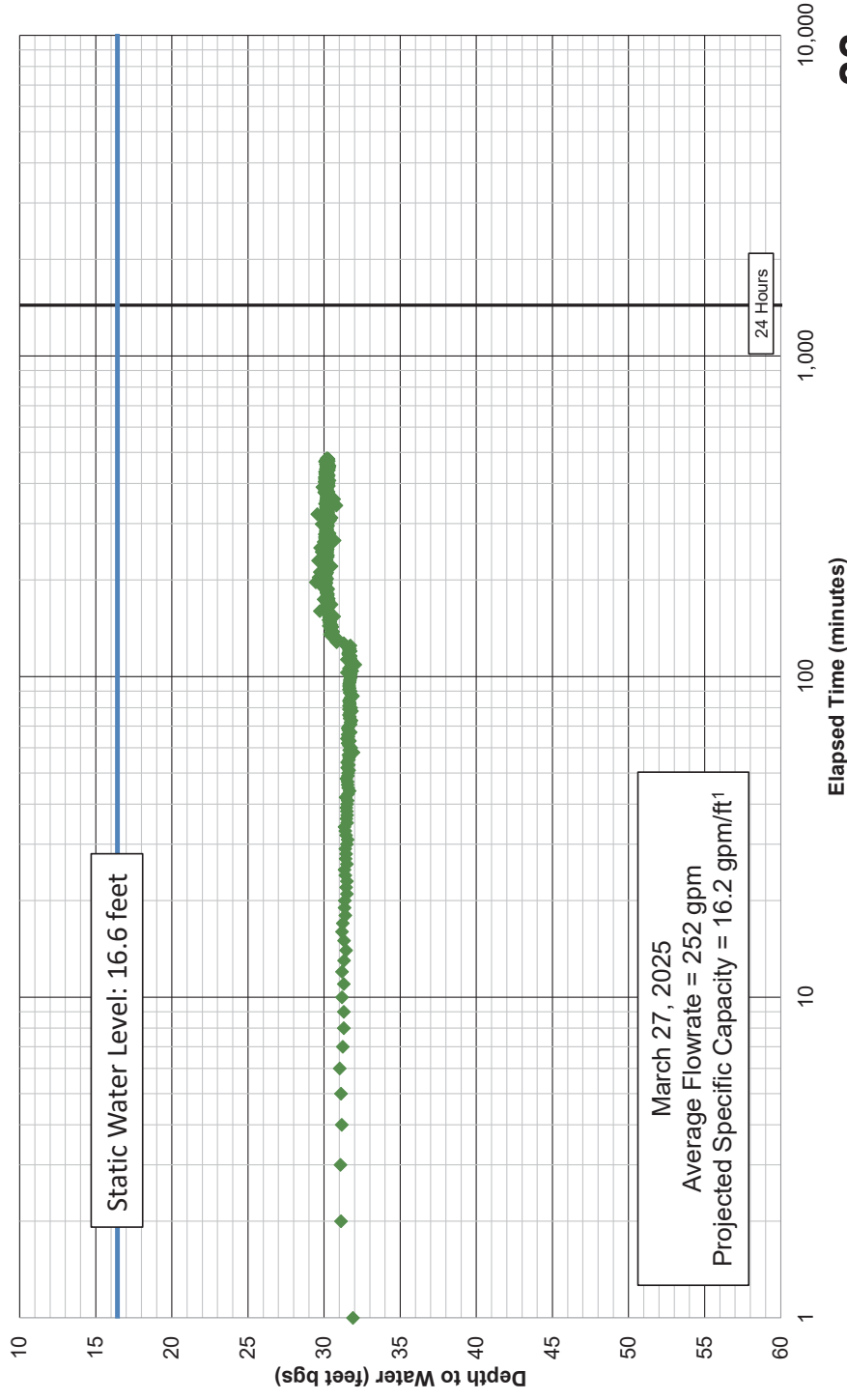
June 2025

Analyte	Specific Conductance	Arsenic	Hexavalent Chromium	Manganese	PFOS/PFOA
Units	µmhos/cm	mg/L	ug/L	mg/L	ng/L
MCL	900/1,600 ¹	0.010	10	0.050	4
170-190'	<Upper limit	<MCL	<MCL	0.06	ND
240-260'	<Upper limit	<MCL	<MCL	<MCL	ND
300-320'	<Upper limit	<MCL	<MCL	<MCL	ND
370-380'	<Upper limit	<MCL	<MCL	0.08	ND
440-460'	<Upper limit	<MCL	<MCL	0.07	ND
490-500'	<Upper limit	<MCL	<MCL	0.10	ND
510-520'	<Upper limit	<MCL	<MCL	<MCL	ND
570-580'	<Upper limit	<MCL	<MCL	0.11	ND
Composite	965	0.003	3.25	0.06	ND

¹ Recommended/Upper Limit
ND – Not detected

Del Prado Test Well – Pump Testing

- Pump test results, along with knowledge of local groundwater conditions used to estimate production of a future production well.
- Estimated yield of future production well is between 1,300 and 1,900 gallons per minute (1.87 - 2.73 million gallons per day)
- Variation in estimated yield is due to seasonal water level fluctuations and well/pump efficiency ranges



¹ Gallons pumped for every foot of drawdown.

June 2025

Del Prado Test Well – Flow Profile

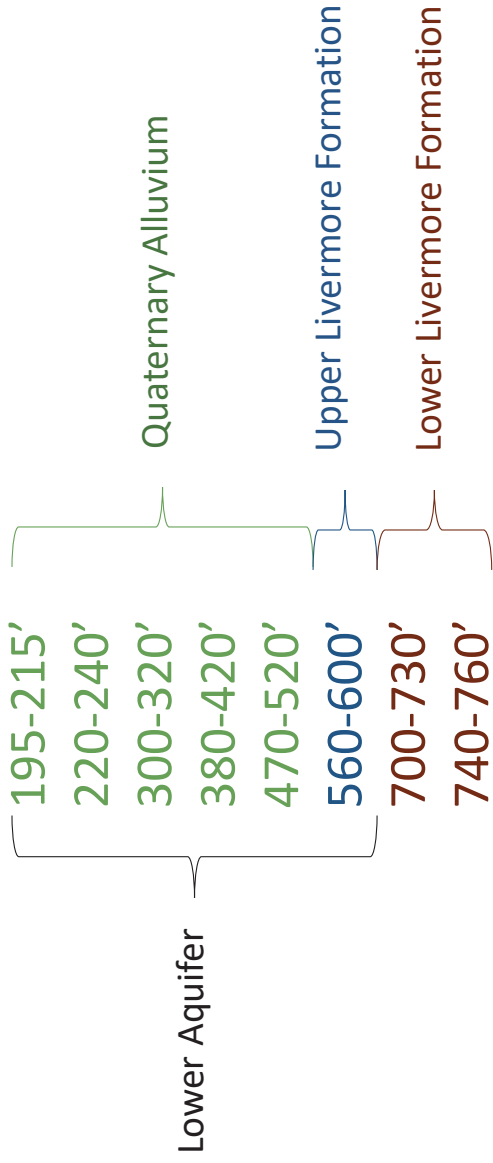
Flow profiling characterizes:

- Amount of flow contributed from each screen zone
- What percentage of the total flow from the well is being produced from a zone
- Flow contribution diminishes with depth

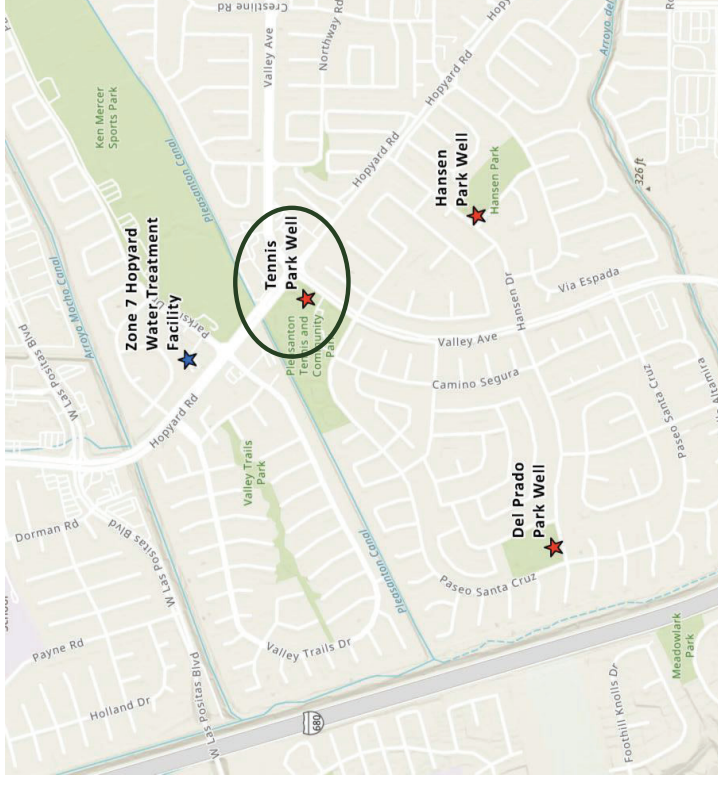
Screen Interval	Production (gpm)	% of Flow
170-190'	99	36.5%
240-260'	71	26.1%
300-320'	45	16.7%
370-380'	14	5.2%
440-460'	26	9.6%
490-500'	9	3.2%
510-520'	5	1.9%
570-580'	2	0.4%

Tennis Park Test Well

- Test Hole Drilling Depth: 820-feet
- 8-inch Diameter Casing
- Screened Intervals:



- Seal Depth: 185-feet



Tennis Park Test Well Zonal Water Quality

- Water samples were collected from screened intervals to characterize zonal water quality.
- Identification of zones with poor water quality will aid in production well design (i.e., isolation of poor-quality zones).
- Water produced from the well meets all Title 22 Drinking Water Quality Standards.

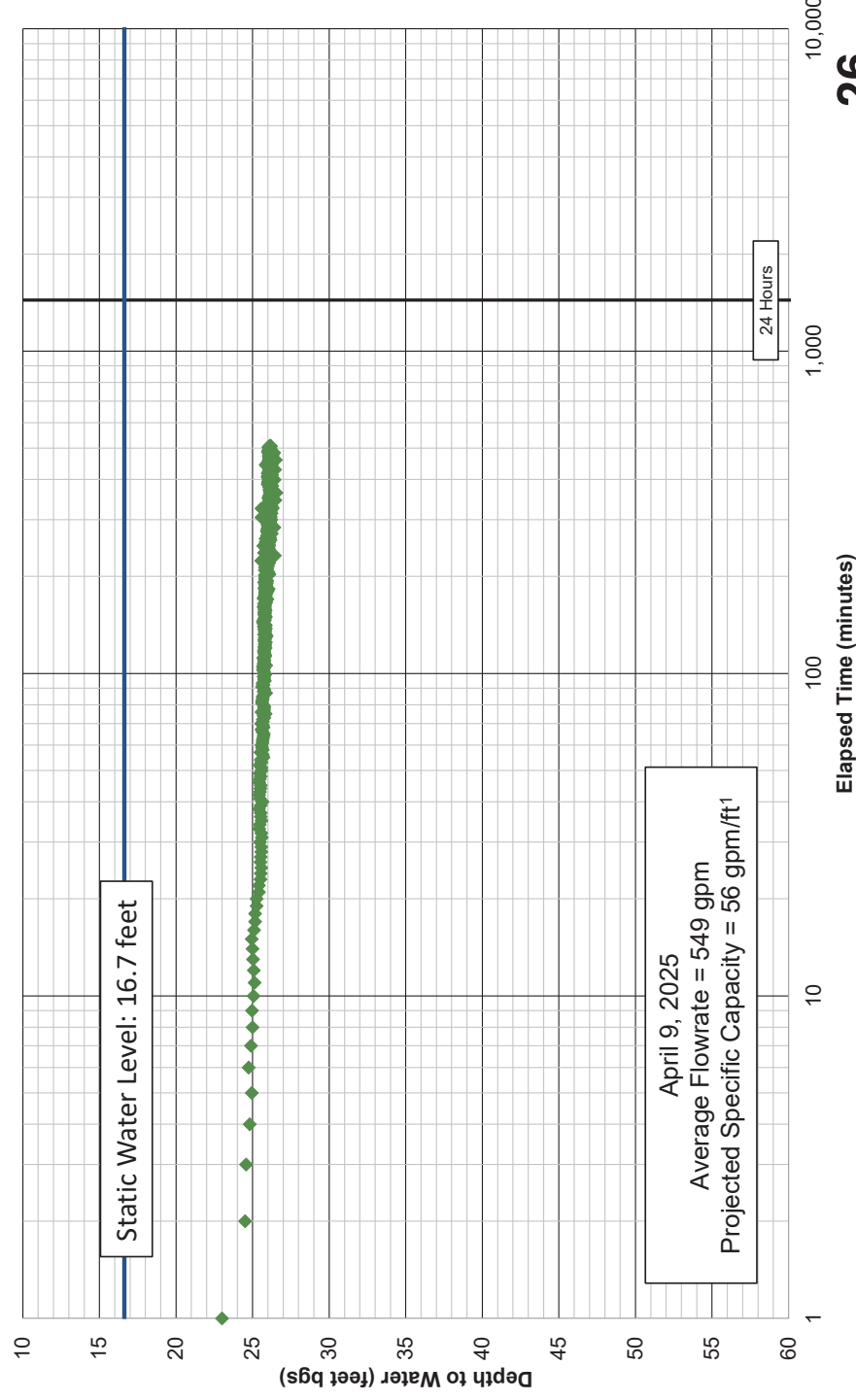
Analyte	Specific Conductance	Arsenic	Hexavalent Chromium	Manganese	PFOS/PFOA
Units	µmhos/cm	mg/L	ug/L	mg/L	ng/L
MCL	900/1,600 ¹	0.010	10	0.050	4
195-215'	<Upper limit	<MCL	<MCL	<MCL	ND
220-240'	<Upper limit	<MCL	<MCL	<MCL	ND
300-320'	<Upper limit	<MCL	<MCL	<MCL	ND
380-420'	<Upper limit	<MCL	<MCL	0.057	ND
470-520'	<Upper limit	<MCL	<MCL	0.065	ND
560-600'	<Upper limit	<MCL	<MCL	0.17	ND
700-730'	<Upper limit	<MCL	<MCL	0.082	ND
740-760'	<Upper limit	<MCL	<MCL	0.094	ND
Composite	864	0.0011	4.8	0.032	ND

¹ Recommended/Upper Limit
ND – Not detected

June 2025

Tennis Park Test Well – Pump Testing

- Estimated yield is between 3,400 and 5,100 gallons per minute (4.89 – 7.33 million gallons per day)
- Variation in calculated and estimated yield is due to seasonal water level fluctuations and well/pump efficiency



¹ Gallons pumped for every foot of drawdown.

June 2025

Tennis Park Test Well – Flow Profile

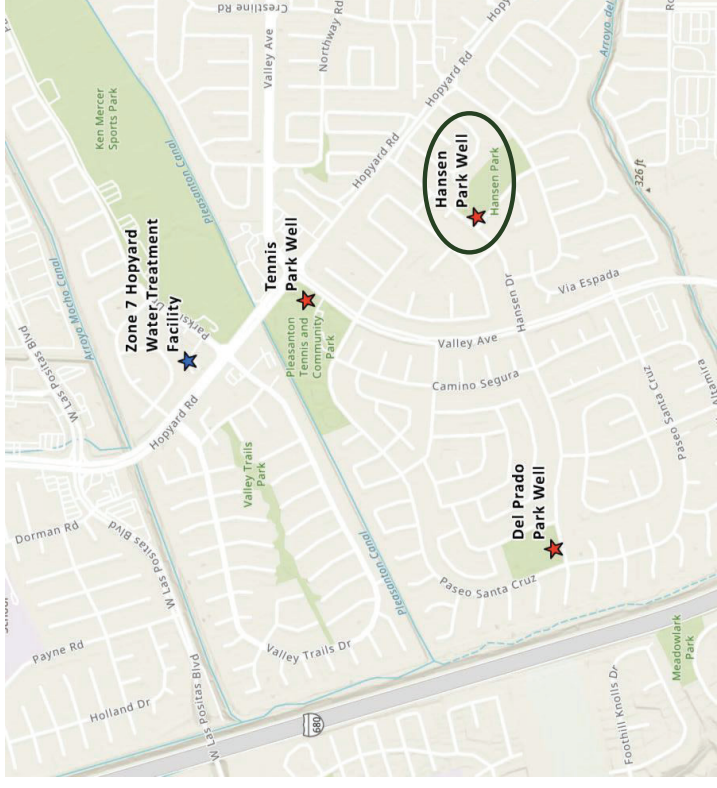
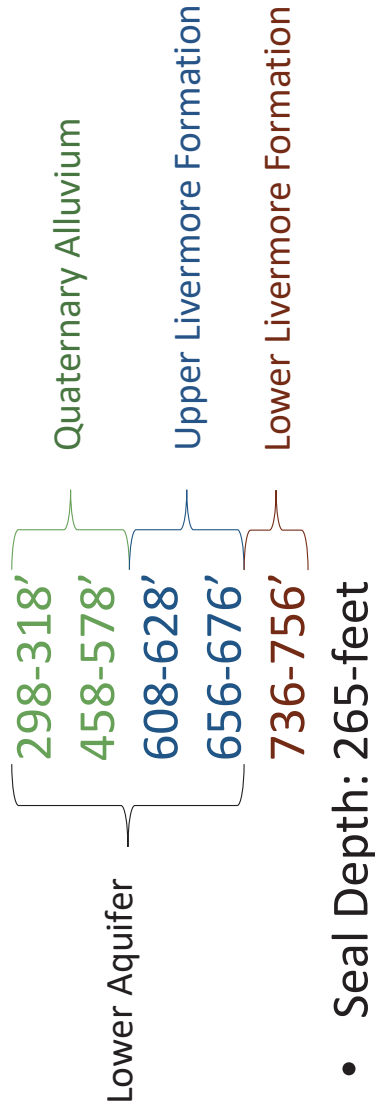
Flow profiling characterizes:

- Amount of flow contributed from each screen zone
- What percentage of the total flow from the well is being produced from each zone
- Diminished zonal yield with depth

Screen Interval	Production (gpm)	% of Flow
195-240'	164	27.6%
300-320'	161	27.2%
380-420'	97	16.4%
470-520'	106	17.9%
560-600'	19	3.2%
700-730'	31	5.2%
740-760'	15	2.6%

Hansen Park Test Well

- Test Hole Drilling Depth: 800-feet
- 100-foot Conductor installed due to unstable shallow formation
- 8-inch Diameter Casing
- Screened Intervals:



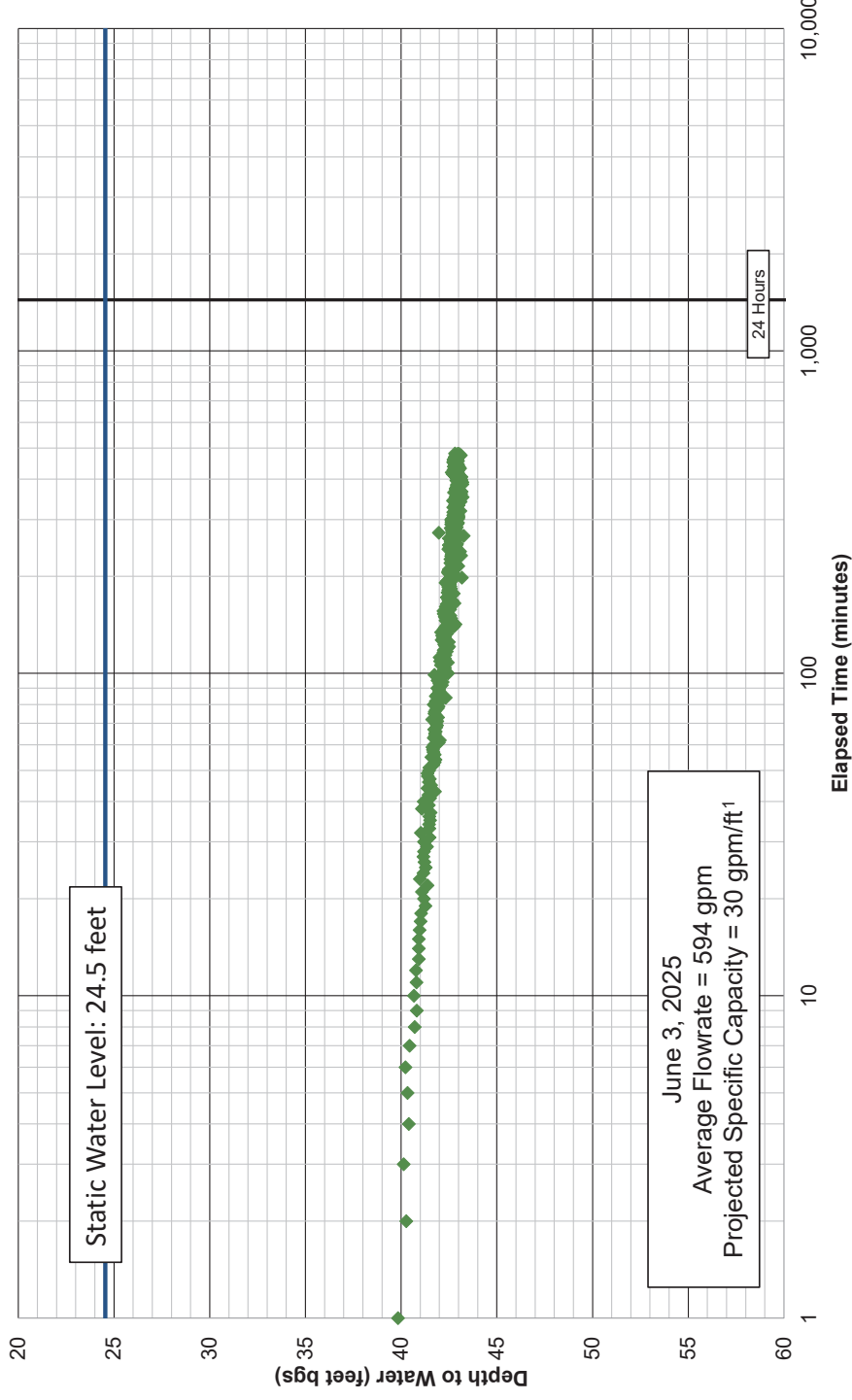
Hansen Park Test Well Quality

Analyte	Specific Conductance	Arsenic mg/L	Hexavalent Chromium ug/L	Manganese mg/L	PFOS/PFOA ng/L	PFHxS ng/L
Units	µmhos/cm	mg/L	ug/L	mg/L	ng/L	ng/L
MCL	900/1,600 ¹	0.010	10	0.050	4	10
298 - 318	<Upper limit	<MCL	<MCL	0.063	ND	ND
458 - 518	<Upper limit	<MCL	<MCL	<MCL	ND	2.7
518 - 578	<Upper limit	<MCL	<MCL	0.091	ND	ND
608 - 628	<Upper limit	<MCL	<MCL	0.15	ND	ND
656 - 676	<Upper limit	<MCL	<MCL	0.2	ND	ND
736 - 756	<Upper limit	<MCL	<MCL	0.24	ND	2.5
Composite	906	0.00092	4	0.035	ND	2.5

¹ Recommended/Upper Limit
ND – Not detected

Hansen Park Test Well – Pump Testing

- Estimated yield is between 3,400 and 4,200 gallons per minute (4.89 – 6.04 million gallons per day)
- Variation in estimated yield is due to seasonal water level fluctuations and well/pump efficiency



¹ Gallons pumped for every foot of drawdown.

June 2025



Project Status – Next Steps

- ▶ Site Investigations, Well Construction, and Testing
 - ▶ Temperature profiling to be conducted in each well
- ▶ Modeling
 - ▶ Zone 7 will utilize its groundwater model to evaluate sustainability of groundwater basin with various configurations of new wells/pumping capacities (including PFAS concentrations impacts)
- ▶ Exploratory Test Drilling Findings Report
- ▶ Basis of Design Report (BODR)
 - ▶ Team will prepare a BODR based on site investigation and testing findings that details out facility configurations, capacities, and costs
- ▶ Feasibility Study Report

Summary of Findings and Next Steps



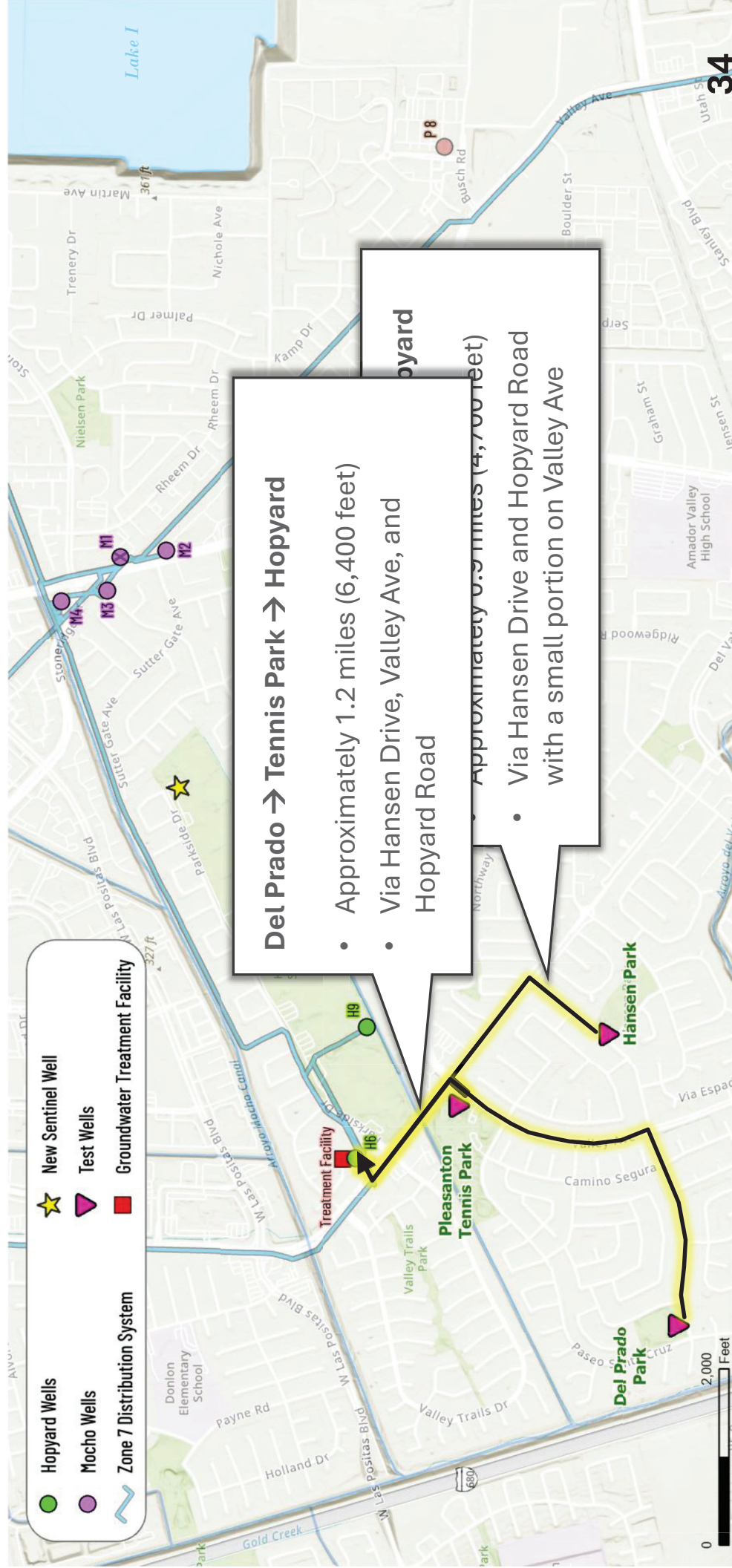
Summary of Findings

Well	Potential Pumping Rate (million gallons/day)	Potential Pumping Rate (Acre-feet/year)	Potential Average Pumping Rate** (Acre-feet/year)	PFOS/PFOA
Del Prado	1.87 - 2.73	2,100 – 3,100	2,600	ND
Tennis Park	4.84 - 7.33	5,400 – 8,200	6,800	ND
Hansen	4.89 - 6.04	5,500- 6,800	6,150	ND*

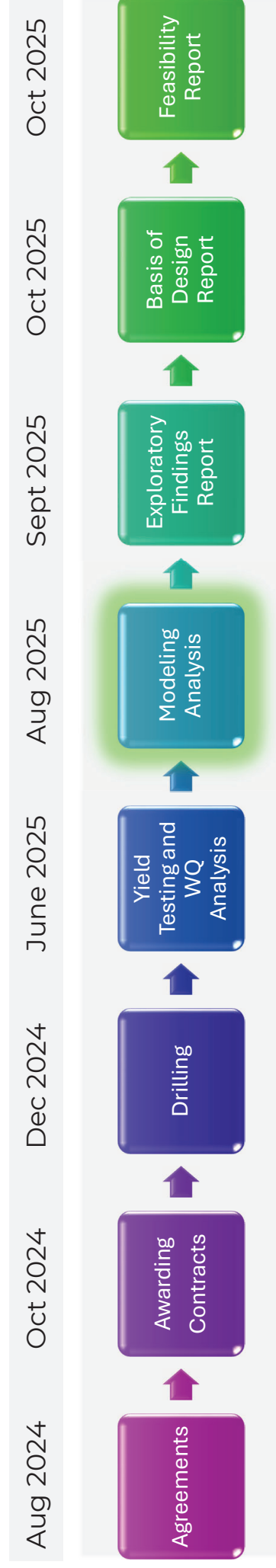
*PFHxS: Composite: 2.5 ppt; MCL (now rescinded) = 10 ppt (parts per trillion); Response Level = 20 ppt

** This rate would be the designed pumping rate; the actual rate and groundwater production will be less than the designed rate due to maintenance and outages

Potential Pipeline Routes



Next Steps



1. **Analyze** the feasibility of developing wells in terms of groundwater sustainability and PFAS mobilization
2. **Determine** the optimum selection of wells to achieve the project objectives for the City of Pleasanton and Zone 7
3. **Assess** infrastructure needs, schedule and total costs
4. **Formulate** each party's proportional cost share based on potential yields
5. **Evaluate** cost savings from economies of scale (by each party)
6. **Provide** necessary information and recommendations to the Zone 7 Board and the City Council to decide whether to jointly develop a regional project

Questions?

