

# Oceanside Seawater Desalination Feasibility Study

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# Mission Basin Groundwater Purification Facility

A Facility with Many Names:

- Mission Basin Desalting Facility
- Desalter
- RO Plant

Reverse Osmosis Treatment

Brackish Groundwater Extraction From Basin

6.37 MGD Rated Capacity

Approx. 75% Recovery

# Goals Moving Forward

- \* Increase Local Supply and Production
- \* Reduce Dependency on Imported Water
- \* Increase Sustainability and Reliability

# Constraints

- \* Limited Water Supply in Basin
- \* Extraction Capabilities
- \* Environmental Regulations

# Water Supply

- \* Locate a New Supply
- \* Quality
- \* Quantity
- \* Location

# The City of Oceanside Seawater Desalination Project

# Feasibility and Pilot Study

“The primary objective of the pilot study was to develop design parameters for a treatment process which supports implementation of a full-scale seawater desalination project at MBGPF.”

-Seawater Desalination Feasibility Report 2010

# Project Objectives

- \* Pilot Test Site Selection
- \* Monitoring/Test Well Siting, Design and Construction
- \* Pilot Testing
- \* Raw Water Pipeline Alignment Study
- \* Brine Line Analysis
- \* Preliminary Plant Design
- \* Cost of Facilities
- \* Recommend Additional Studies



# Site Selection





# Test Well

EXISTING  
SEWER LIFT  
STATION

DRAIN LINE

TANK(S)

ELECTRICAL LINE

FENCED  
AREA

50 FT

60 FT

RO

## LEGEND



Well Location



Temporary Pilot Facility Footprint  
(1 year)



0 40 80 FT





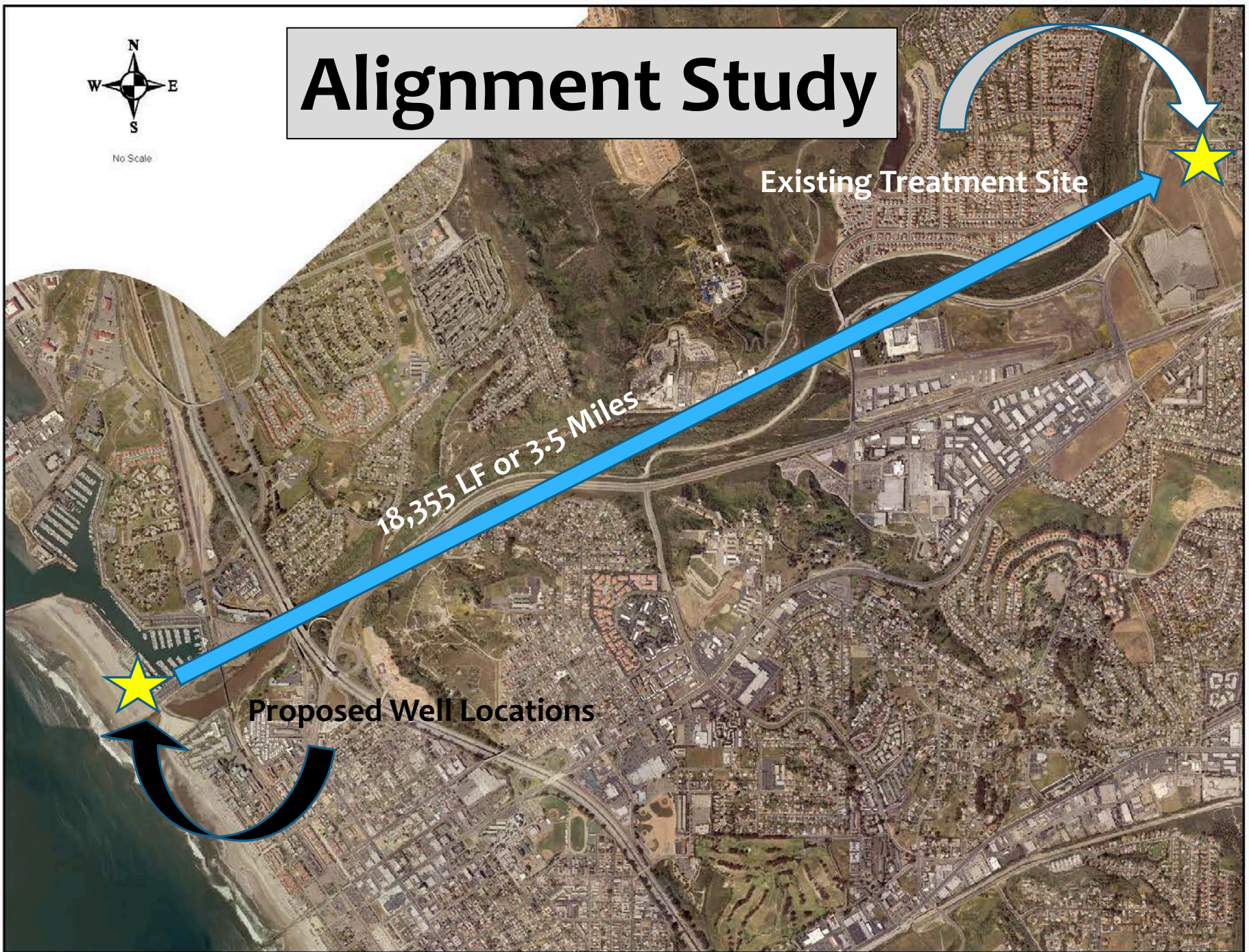
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# Alignment Study

Existing Treatment Site

18,355 LF or 3.5 Miles

Proposed Well Locations





A north arrow pointing upwards with the letter 'N' in the center. Below it is a graphic scale bar with alternating black and white segments, marked with '0', '600', and '1200'.

Mission Basin  
Desalting Facility

WELL SITE

**HDD  
TUNNELING**



PACIFIC  
OCEAN



# Brine Line

City of Oceanside  
Brine Line

City Brine Line

OUTFALL

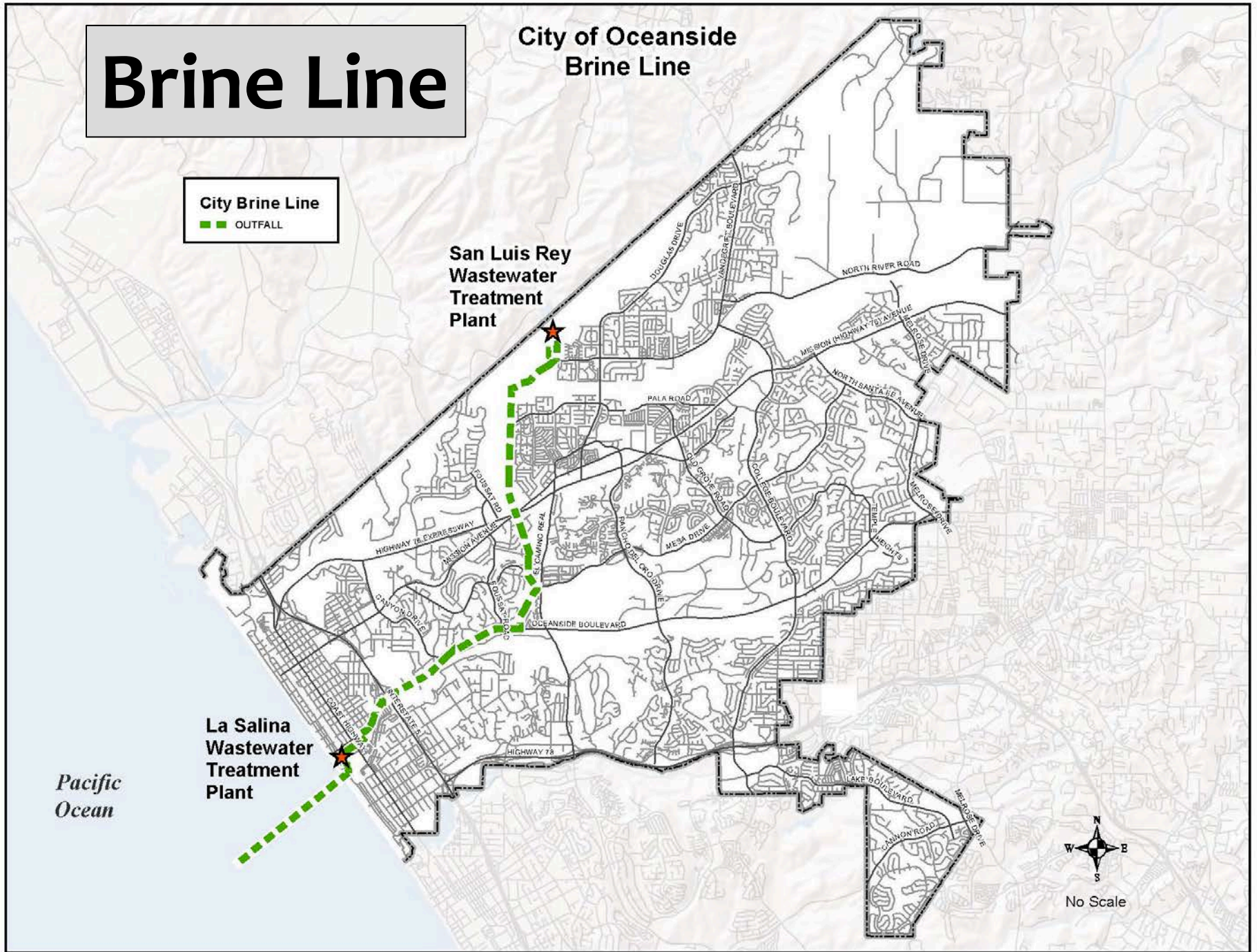
San Luis Rey  
Wastewater  
Treatment  
Plant

La Salina  
Wastewater  
Treatment  
Plant

*Pacific  
Ocean*

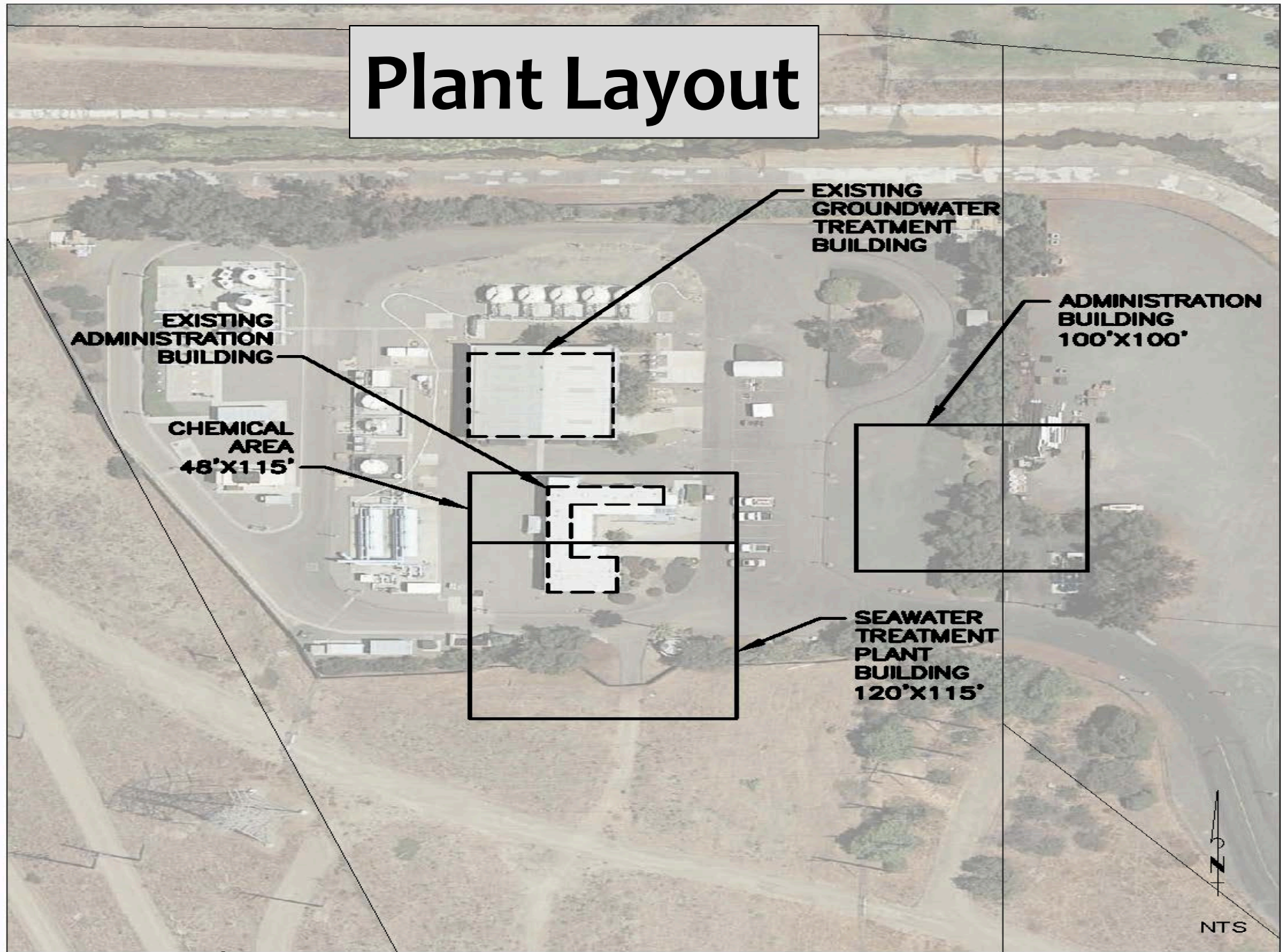


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# Plant Layout



# Estimated Costs

\*5 MGD Facility - \$90 Million

\*10 MGD Facility - \$150 Million

# Conclusions of Feasibility and Pilot Study

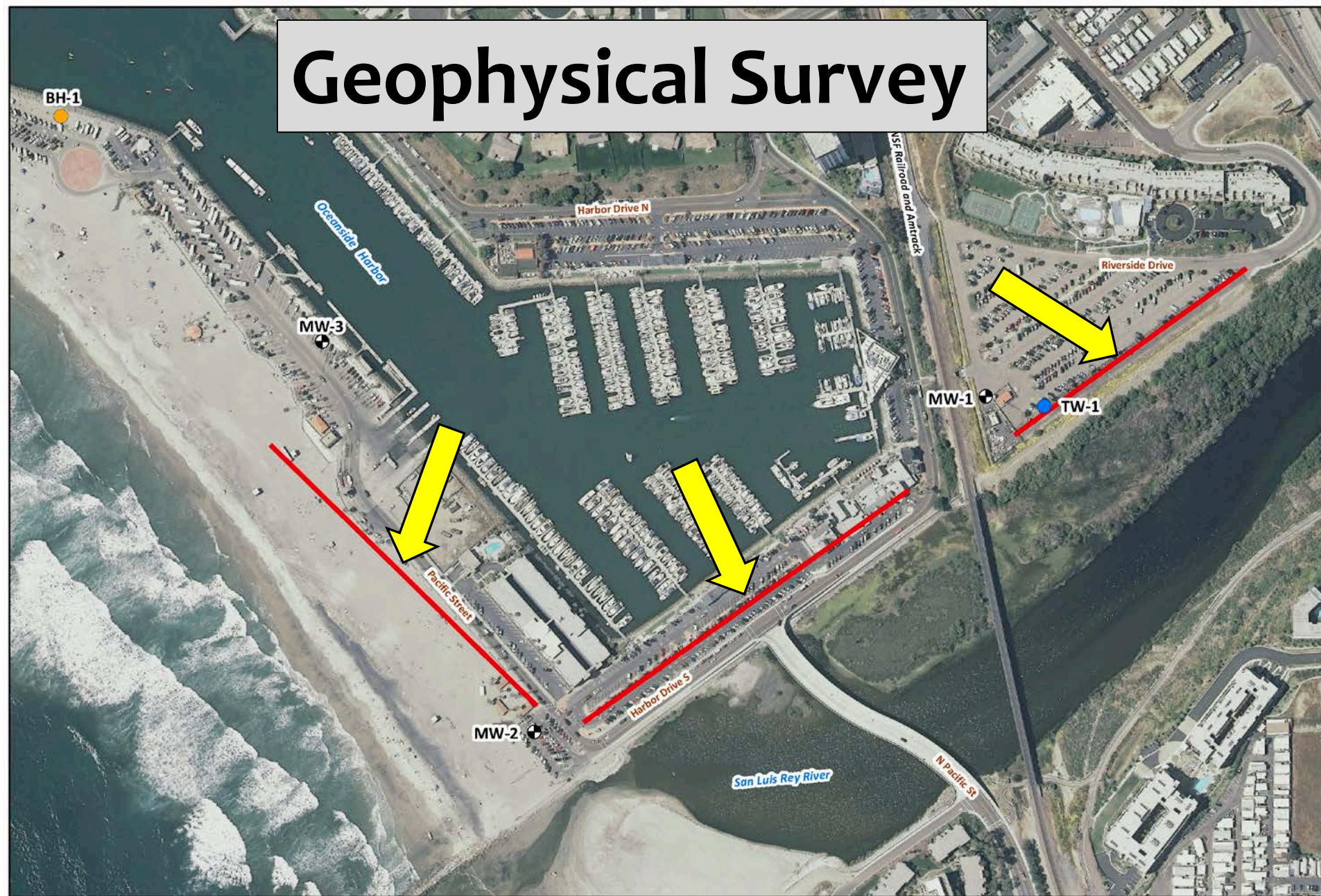
- \* Estimate Quality of Water
- \* Pumping Characteristics (Quantity)
- \* Estimated Project Costs
- \* Moving Forward with Well Siting Study



# Well Siting Study

- \* Perform Surface Geophysical Surveys
- \* Exploratory Borings
- \* Install Monitoring Wells
- \* Construct Test Well
- \* Well Pump Test
- \* Evaluation, Analysis, and Conclusions
- \* Recommendations

# Geophysical Survey





# Exploratory Borings

BH-1

Oceanside Harbor

Harbor Drive N

USF Railroad and Amtrak

Riverside Drive

MW-3

MW-1

TW-1

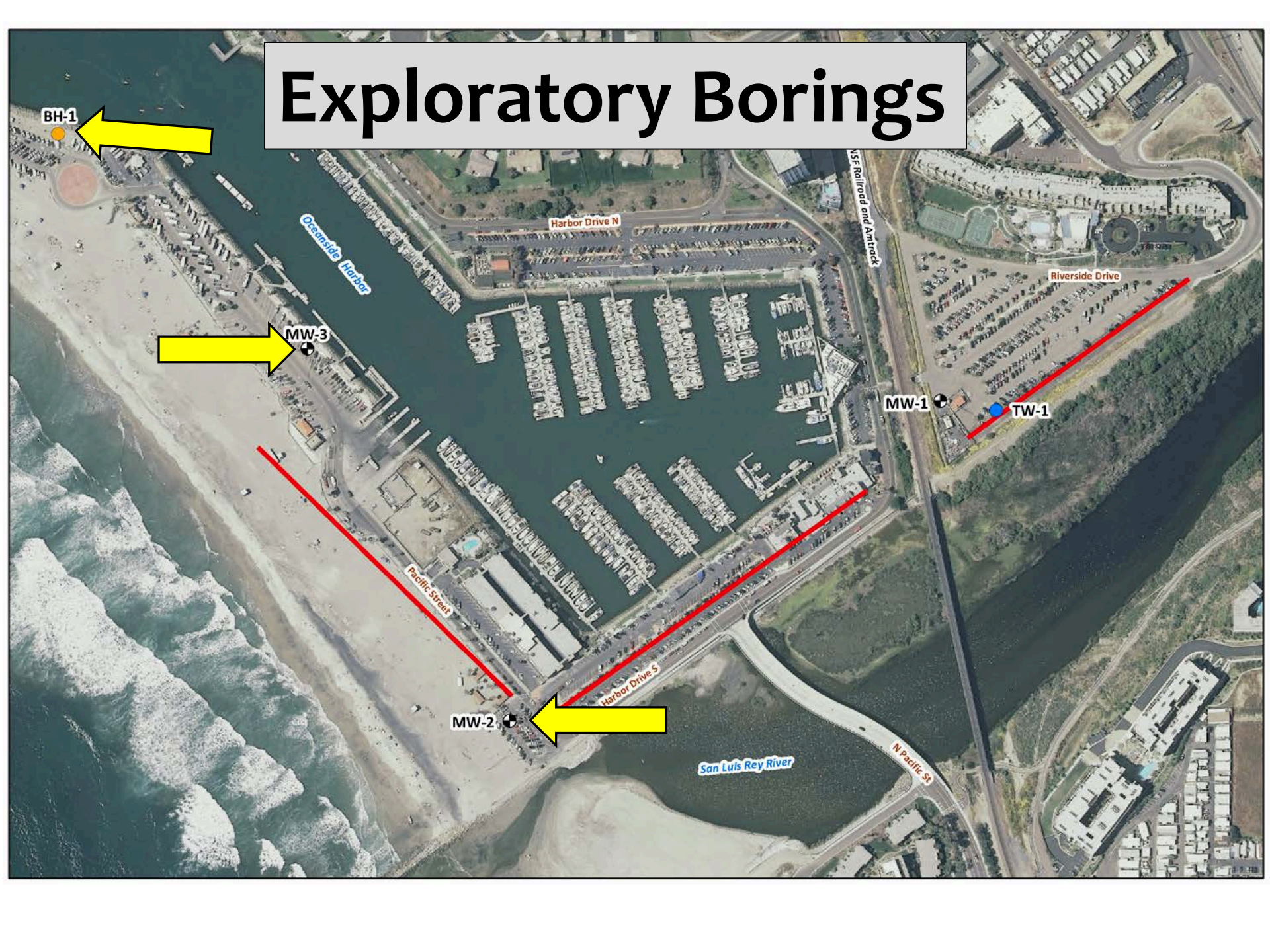
Pacific Street

Harbor Drive S

MW-2

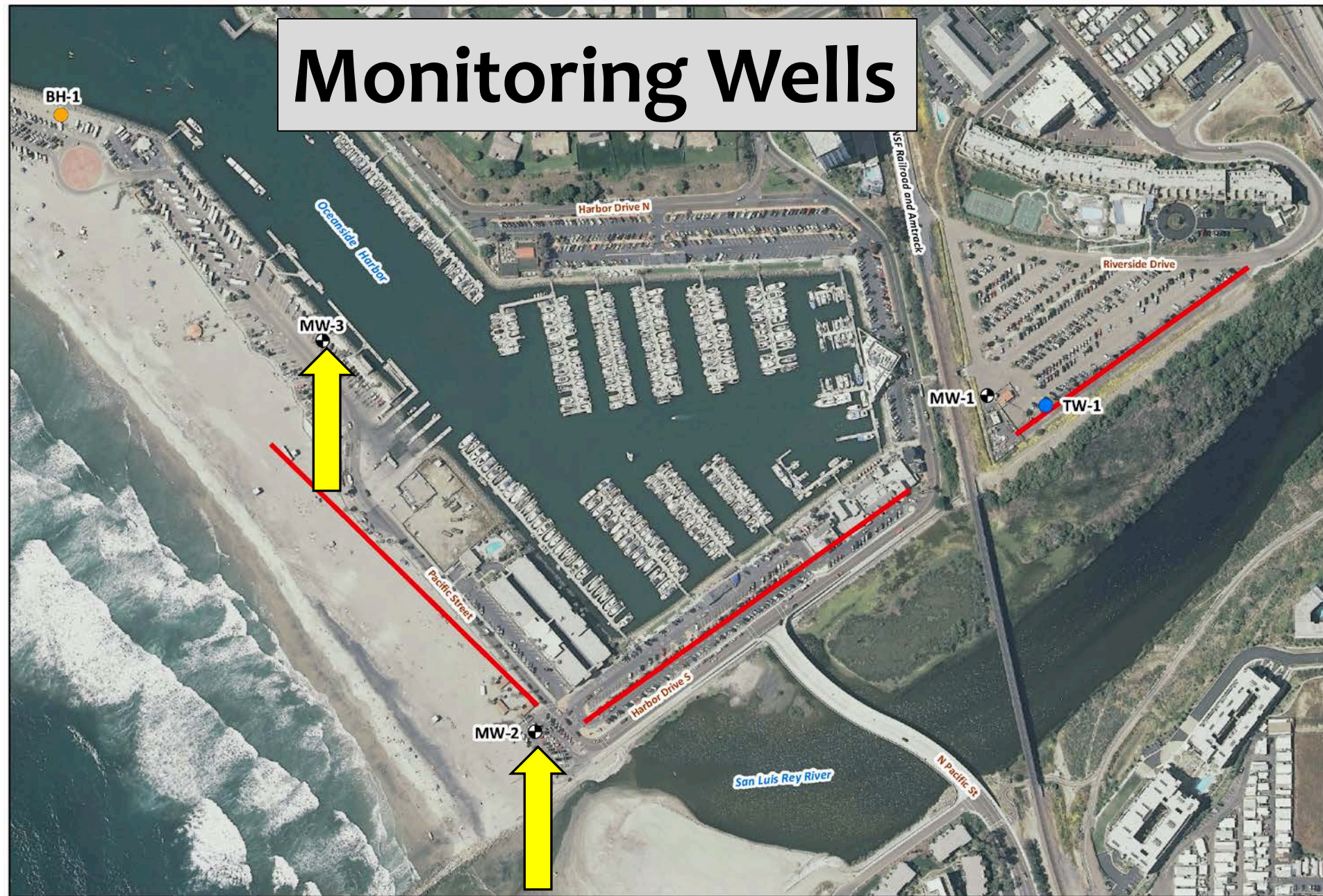
San Luis Rey River

N Pacific St



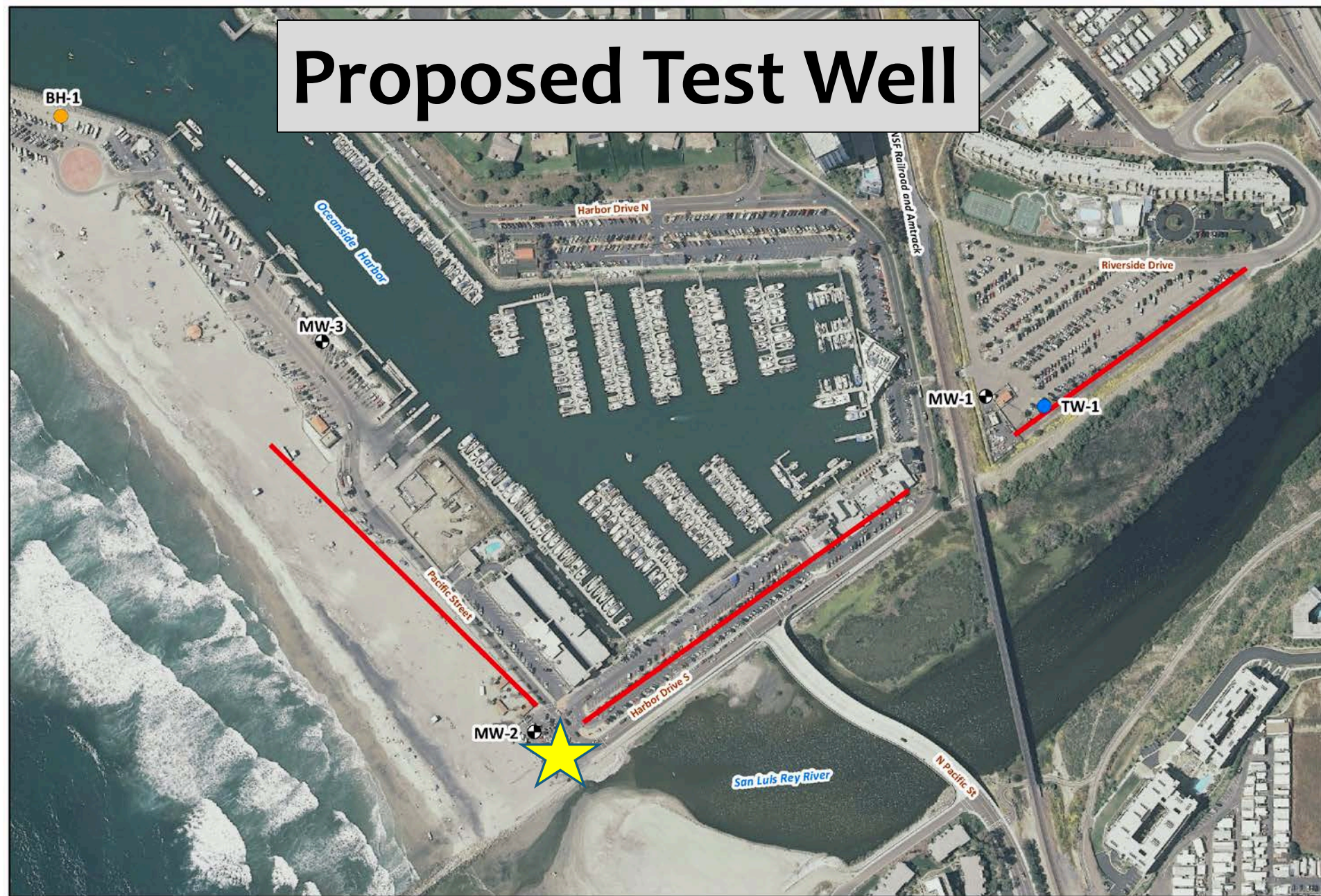


# Monitoring Wells





# Proposed Test Well



# Next Steps

- \*Construct Test Well
- \*Perform Pump Test
- \*Analyze Data
- \*Recommendations

# Questions?